ADDENDUM NUMBER 9:
Bid 12-14
SAGAMORE CREEK BRIDGE REPLACEMENT
September 16, 2013

This Addendum forms part of the original document marked: **SAGAMORE CREEK BRIDGE REPLACEMENT, Bid #12-14.**

The bid due date has been moved out until September 24th at 2:00 pm in order to allow the bidders to incorporate changes included in this addendum. Design changes are detailed in the attached plans and specifications. Design changes were made to the following elements:

Abutment foundations – The abutment foundations were redesigned to utilize micropiles. The drilled shafts at the abutments have been eliminated. The use of micropiles changes the abutment configuration and detailing slightly.

Piers – The piers will still be constructed utilizing drilled shafts. However, the shafts have been shifted inward, approximately 7', creating more of a cantilevered cap. This provides a minimum horizontal separation from the closest primary electrical line of 10.5' to the outside of the proposed shaft casing. The shaft diameters have not changed. There have been changes to the rock socket depths, as well as reinforcing and concrete details.

Retaining Wall #1 – The wall has been eliminated behind the existing utility pole to the north of the bridge. In the area of the pole, 1.5:1 +/- slopes will be utilized to tie into existing ground. The wall ends approximately 10' north of the pole. The previously shown cofferdam (Item 503.201) has been realigned to catch the slope work up from the wall excavation prior to impacting the existing utility pole. Behind the proposed wall, the originally proposed swale has been removed, and 2:1 slopes will be utilized from the back of guardrail to the top of the wall. The drainage layout has also been revised in this area. The result of these changes has led to the elimination of Item 670.1. The Contractor designed cofferdam system to protect the excavation for the proposed wall will need to account for the utility pole, but excavation right to the pole for the foundation construction is no longer necessary.

1. INVITATION TO BID:
    1. REVISE the INVITATION TO BID, first paragraph to read:
    Sealed bid proposals, **plainly marked, Sagamore Creek Bridge Replacement**, Bid Proposal #12-14 **on the outside of the mailing envelope as well as the sealed bid envelope,** addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801, will be accepted until ***September 24, 2013*** at 2:00 pm; at which time all bids will be publicly opened and read aloud.

2. PROPOSAL FORM
    1. REPLACE Proposal Form with attached Proposal Form (Bid Tab-Rev9_No Track.pdf). Note; two Proposal Forms are attached. One includes track changes (Bid Tab-Rev9_Track.pdf) to allow the bidders to see the changed quantities. The second Form is the same, however the track changes feature

has been turned off. The second Form is the one that should be submitted by the Contractor.

3. SPECIAL PROVISIONS:
    1. ADD Special Provision Item 510. – MICROPILE BEARING PILES (attached)
    2. REVISE Special Provision Item 509.:

REPLACE THE ENTIRE PARAGRAPH 1.2 WITH THE FOLLOWING:

"1.2 The two proposed piers will each require drilled shafts with rock sockets. The drilled shaft diameter and rock socket diameters are as shown on the plans. The drilled shafts are designed to support the axial and lateral loads through rock sockets that extend into bedrock. The minimum rock socket length for each drilled shaft is provided in the plans.

REPLACE THE ENTIRE PARAGRAPH 1.5.4 WITH THE FOLLOWING:

"1.5.4 Construction Phase Test Borings. Test borings provided by the Contractor through Special Provision Section 210 will be required in order to provide additional subsurface information for the drilled shaft construction at both piers. The test borings at an individual substructure shall be completed a minimum of 30 days prior to initiating drilled shaft work at that substructure.

    3. DELETE Special Provision Item 670.9 – Support of Utility Infrastructure

4. CONTRACT PLANS:
    1. REPLACE the following Contract Plan sheets with those attached (Hard copies of the revised plan sheets can be provided, please contact David McNamara at dmcnamara@fstinc.com to obtain a hard copy set of the revised plan sheets.):
        i. See attached list

5. CONTRACTOR QUESTIONS:

The following questions have been asked by Contractors, with *responses in italics*:

There seems to be uncertainty in the heavy wage rates. Upon investigation of other projects in Rockingham County with the heavy classification, the rates seem to be inconsistent. Here is a summary of the rates used (originally included and approved after the job was bid) on the Newington-Dover 11238L and Portsmouth-Kittery 13678F projects:

Carpenters	Rate	Fringes
11238L	$19.90	$3.90
13678F	$42.01	$0.00

Ironworker (structural)		
11238L	$20.00	$4.30
13678F	$26.75	$14.89

Ironworker (reinforcing)		
11238L	$20.00	$4.30
13678F	$26.75	$14.89
Crane operator		
11238L	$25.70	$21.32
13678F	$30.00	$0.00

To accurately bid this project, it would be best to have a better understanding of what the rates will be for this project.

Wage rates for individual classifications, other than those listed in the current Wage Decision will need to be requested by the Contractor.

All else remains unchanged from original bid document.

Please acknowledge receipt of this addendum within your proposal, failure to do so may subject a bidder to disqualification.

Attachment

- Two Bid Forms, one with track changes, one without
- Special Provision – Section 510. MICROPILE BEARING PILES
- List of revised drawings
- Revised Drawings

End of Addendum #9

CONTRACT DOCUMENTS AND SPECIFICATIONS

for

SAGAMORE CREEK BRIDGE REPLACEMENT

PORTSMOUTH; 14493

FEDERAL AID PROJECT NO. X-A000(417)

Bid #12-14

State of New Hampshire

John P. Bohenko, City Manager

Prepared by:

City of Portsmouth
Engineering Division
Public Works Department

July, 2013

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City of Portsmouth
Portsmouth, New Hampshire
Department of Public Works

SAGAMORE CREEK BRIDGE REPLACEMENT

INVITATION TO BID

Sealed bid proposals, **plainly marked, Sagamore Creek Bridge Replacement**, Bid Proposal #12-14 **on the outside of the mailing envelope as well as the sealed bid envelope,** addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801, will be accepted until August 26, 2013 at 2:00 pm; at which time all bids will be publicly opened and read aloud.

There will be a mandatory pre-bid meeting held at the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801 on August 5, 2013 at 2:00 pm. All bidders are required to attend. Bidders who do not attend the meeting will not be allowed to submit a bid. Bidders must be Pre-Qualified by the NHDOT before bid opening.

The project involves the replacement of the NH Route 1A Bridge (Br. No. 198/034) over Sagamore Creek in Portsmouth, New Hampshire, and minor improvements to the sections of NH Route 1A approaching the bridge from the north and south. The replacement bridge is a new variable-depth steel girder bridge approximately 418 feet long between abutments, and 42.5 feet wide. The bridge includes two 12-foot travel lanes, two 5-foot paved shoulders for bicycles, and one fully-accessible 5.5-foot sidewalk. Approach roadway improvements involve new curbing and sidewalks, drainage facilities, replacement of the water main that crosses the existing bridge, and retaining walls in three of the project quadrants.

Work may begin at any time on or after Notice to Proceed. The new Sagamore Creek Bridge shall be opened to traffic by December 1, 2014. All sections of the work shall be completed by June 1, 2015. Liquidated damages shall be assessed at $1,567 per calendar day.

Bidders shall have a minimum of 5 years experience in bridge and roadway construction. Contractor shall be responsible for all work specified in the contract documents including shoring, footings, wall construction, revetment construction, incidental work, and restoration of the existing work that was disturbed during construction. All work shall be in complete accordance with sound construction practices and in conformance with the attached contract documents.

Bidders must determine the quantities of work required and the conditions under which the work will be performed.

The City of Portsmouth reserves the right to reject any or all bids, to waive technical or legal deficiencies, to re-bid, and to accept any bid that it may deem to be in the best interest of the City.

Specifications may be obtained from the Finance/Purchasing Department on the third floor at the above address, or by calling the Purchasing Coordinator at 603-610-7227, or at the City's website: http://www.cityofportsmouth.com/finance/purchasing.htm Addenda to this project, if any, including written answers to questions, will not be provided directly to vendors, but will be posted on the City of Portsmouth website.

Hard copies of the plans and specifications may be obtained from the Purchasing Department, at Portsmouth City Hall, upon payment of a fee of $200.00 per set, which will not be refunded. Partial sets will not be distributed. All requests for mailed documents must be accompanied by an additional fee of $25.00 to cover the cost of postage and handling.

Each Bidder shall furnish a bid security in the amount of ten percent (10%) of the bid. The Bid Security may be in the form of a certified check or a bid bond executed by a surety company authorized to do business in the State of New Hampshire, made payable to the City of Portsmouth, N.H.

The General Contractor will be permitted to subcontract portions of the work not to exceed an aggregate dollar value of 50% of the total contract bid amount in complete accordance with Section 108 of the State of New Hampshire Standard Specifications for Road and Bridge Construction.

Bidders must be listed with the New Hampshire Department of Transportation as a pre-qualified contractor under the classifications of Road Construction and/or Site Work Construction. Any Bid submitted by a Bidder not pre-qualified will be rejected as non-conforming.

All questions regarding the project or the bid shall be submitted by the Bidder (General Contractor) to the ENGINEER (Owner's Representative) in writing no later than 5 business days prior to the Bid Opening. Any questions received after that time may not receive a response prior to the bid opening. Questions received from third parties other than the Bidders who have purchased plans (sub-contractors or product suppliers) will not receive response until a formal written submission from a Bidder is received. All timely-received bidder questions and subsequent responses will be distributed in writing as a Contract Documents Addendum issued to all bidders via fax or email as soon as available, but no later than 24 hours prior to the bid opening. The Bidder must acknowledge the receipt of all Contract Documents Addenda in the Proposal Documents.

All questions regarding the project bid shall be clearly identified with the project name and the Bidder's contact information for response and shall be submitted via U.S. Mail, fax, or email to the following:

Attn: Mr. David E. McNamara, P.E.
Fay, Spofford & Thorndike LLC
288 South River Road, Building #C
Bedford, NH 03110
Fax: (603)-668-2670
Email: dmcnamara@fstinc.com

INSTRUCTIONS TO BIDDERS

BIDDING REQUIREMENTS AND CONDITIONS

1. Special Notice to Bidders

Appended to these instructions is a complete set of bidding and general contract forms. These forms may be detached and executed for the submittal of bids. The plans, specifications, and other documents designated in the proposal form will be considered as part of the proposal, whether attached or not.

The bidders must submit a statement of bidder's qualifications.

Addenda to this bid document, if any, including written answers to questions, will be posted on the City of Portsmouth website at http://www.cityofportsmouth.com/finance/purchasing.htm under the project heading. Addenda and updates will NOT be sent directly to firms. Contractors submitting a bid should check the web site daily for addenda and updates after the release date. Firms should print out, sign and return addenda with the proposal. Failure to do so may result in disqualification.

2. Interpretation of Quantities in Bid Schedules

The quantities appearing in the bid schedule are approximate only and are prepared for the comparison of bids. Payment to the contractor will be made only for actual work performed and accepted in accordance with the contract. Any scheduled item of work to be done and materials to be furnished may be increased, decreased or omitted as hereinafter provided, and no claim for loss, anticipated profits or costs incurred in anticipation of work not ultimately performed will be allowed due to such increase or decrease.

3. Examination of Plans, Specifications and Site Work

The bidder is expected to examine carefully the site of the proposed work, the plans, standard specifications, supplemental specifications, special provisions and contract forms before submitting a proposal. The submission of a bid shall be considered conclusive evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the contract. It will be conclusive evidence that the bidder has also investigated and is satisfied with the sources of supply for all materials.

Plans, surveys, measurements, dimensions, calculations, estimates and statements as to the condition under which the work is to be performed are believed to be correct, but the contractors must examine for themselves, as no allowance will be made for any errors or inaccuracies that maybe found therein.

4. Familiarity with Laws

The bidder is assumed to have made himself or herself familiar with all federal and state laws and all local by-laws, ordinances and regulations which in any manner affect those engaged or employed on the work or affect the materials or equipment used in the work or affect the conduct of the work, and the bidder, if awarded the contract, shall be obligated to perform the work in conformity with said laws, by-laws, ordinances and regulations notwithstanding its ignorance thereof. If the bidder shall discover any provision in the plans or specifications which is in conflict with any such law, by-law, ordinance or regulation the bidder shall forthwith report it to the engineer in writing.

The Bidder is hereby notified that this project utilizes federal funding under the Municipal Off System Bridge Program and that the bidder is required to be familiar with and abide by all Federally funded project requirements, including federal labor compliance and Davis-Bacon wage rates.

5. Preparation of Proposal

a) The bidder shall submit its proposal upon the forms furnished by the Owner. The bidder shall specify a lump sum price in figures, for each pay item for which a quantity is given and shall also show the products of the respective prices and quantities written in figures in the column provided for that purpose and the total amount of the proposal obtained by adding the amount of the several items. All words and figures shall be in ink or typed. If a unit price or a lump sum bid already entered by the bidder on the proposal form is to be altered it should be crossed out with ink, the new unit price or lump sum bid entered above or below it and initialed by the bidder, also with ink.

b) The bidder's proposal must be signed with ink by the individual, by one or more general partners of a partnership, by one or more members or officers of each firm representing a joint venture; by one or more officers of a corporation, by one or more members (if member-managed) or managers (if manager-managed) of a limited liability company, or by an agent of the contractor legally qualified and acceptable to the owner. If the proposal is made by an individual, his or her name and post office address must be shown, by a partnership the name and post office address of each general and limited partner must be shown; as a joint venture, the name and post office address of each venturer must be shown; by a corporation, the name of the corporation and its business address must be shown, together with the name of the state in which it is incorporated, and the names, titles and business addresses of the president, secretary and treasurer.

6. Nonconforming Proposals

Proposals will be considered nonconforming and may be rejected in the Owner's sole discretion for any of the following reasons:

- If the proposal is on a form other than that furnished by the Owner, or if the form is altered or any portion thereof is detached;
- If there are unauthorized additions, conditional or altered bids, or irregularities of any kind which may tend to make the proposal or any portion thereof incomplete, indefinite or ambiguous as to its meaning;
- If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award; or
- If the proposal does not contain a unit price for each pay item listed except in the case of authorized alter pay items.

7. Proposal Guaranty

No proposal will be considered unless accompanied by a bid bond, surety, or similar guaranty of the types and in an amount not less than the amount indicated in the Invitation to Bid. All sureties shall be made payable to the "City of Portsmouth". If a bid bond is used by the bidder it shall be:

- In a form satisfactory to the Owner;
- With a surety company licensed, authorized to do business in, and subject to the jurisdiction of the courts of the State of New Hampshire; and
- Conditioned upon the faithful performance by the principal of the agreements contained in the sub-bid or the general bid.

In the event any irregularities are contained in the proposal guaranty, the bidder will have four business days (not counting the day of opening) to correct any irregularities. The corrected guaranty must be received by 4:00 p.m. If irregularities are not corrected to the satisfaction of the Owner, the Owner, in its sole discretion, may rejected the bid.

8. Delivery of Proposals

When sent by mail, the sealed proposal shall be addressed to the Owner at the address and in the care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and at the place specified in the invitation for bids. Proposals received after the time for opening of the bids will be returned to the bidder, unopened.

9. Withdrawal of Proposals

A bidder will be permitted to withdraw his or her proposal unopened after it has been submitted if the Owner receives a request for withdrawal in writing prior to the time specified for opening the proposals.

10. Public Opening of Proposals

Proposals will be opened and read publicly at the time and place indicated in the invitation for bids. Bidders, their authorized agents, and other interested parties are invited to be present.

11. Disqualification of Bidders

Any or all of the following reasons may be deemed by Owner in its sole discretion as being sufficient for the disqualification of a bidder and the rejection of his proposal:

- More than one proposal for the same work from an individual, firm, or corporation under the same or different name;
- Evidence of collusion among bidders;
- Failure to submit all required information requested in the bid specifications;
- If the Contractor is not listed with the New Hampshire Department of Transportation as a pre-qualified contractor under the classifications of either Road Construction or Site Construction;
- Lack of competency or of adequate machinery, plant or other equipment, as revealed by the statement of bidders qualification or otherwise;
- Uncompleted work which, in the judgment of the owner, might hinder or prevent the prompt completion of additional work if awarded;
- Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts;
- Default or unsatisfactory performance on previous contracts; or
- Such disqualification would be in the best interests of the Owner.

12. Material Guaranty and Samples

Before any contract is awarded, the bidder may be required to furnish a complete statement of the origin, composition and manufacture of any or all materials to be used in the construction of the work, and the Owner may, in its sole discretion, reject the bid based on the contents of the statement or as a result of the failure of the bidder to submit the statement.

AWARD AND EXECUTION OF CONTRACT

1. Consideration of Proposals

After the proposals are opened and read, they will be compared on the basis of the total price for all sections of work and any such additional considerations as may be identified in the bid documents. The results of such comparisons will be immediately available to the public. In case of a discrepancy between the prices written in words and those written figures, the prices written in words shall govern. In case of a discrepancy between the total shown in the proposal and that obtained by adding the products of the quantities of items and unit bid prices, the latter shall govern.

2. Award of Contract

Within 30 calendar days after the opening of proposals, if a contract is to be awarded, the award will be made to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified, in writing, mailed to the address on his or her proposal, that his or her bid has been accepted and that the bidder has been awarded the contract.

3. Reservation of Rights

The Owner reserves the right to reject any or all proposals, to waive technicalities or to advertise for new proposals, if, in the sole discretion of the Owner, the best interest of the City of Portsmouth will be promoted thereby. The Owner further reserves the right to modify the scope of work in the event that bids exceed budgeted amounts.

The Owner reserves the right to cancel the award of any contract at any time before the execution of such contract by all parties without any liability of the Owner.

The City reserves the right to make such inquires regarding the firm's qualifications and reputation as it deems necessary to evaluate the firm. The City reserves the right to negotiate directly with the firm selected for additional project work including construction administration services, and/or additional project engineering and design services.

The City reserves the right after bid opening and prior to award of the contact, to modify the amount of work in the event that bids exceed budgeted amount.

4. Return of Proposal Guaranty

All proposal guaranties, except those of the three lowest bidders, will be returned upon request following the opening and checking of the proposals. The proposal guaranties of the three lowest bidders will be returned within ten days following the award of the contract if requested.

5. Contract Bonds

At the time of the execution of the contract, the successful bidder shall furnish:

- A performance bond in the amount of 100 percent of the contract amount.
- Labor and materials payment bond in the sum equal to 100 percent of the contract amount.

At the time of project completion, the Contractor shall furnish a maintenance bond for the entire guaranty period. The bond shall meet the following criteria:

- The bond shall be in an amount equal to 20 percent of the contract amount. Such bond shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the contractor. The guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

Each bond shall be: (1) in a form satisfactory to the Owner; (2) with a surety company licensed and authorized to do business and with a resident agent designated for services of process in the State of New Hampshire; and (3) conditioned upon the faithful performance by the principal of the agreements contained in the original bid. All premiums for the contract bonds are to be paid by the contractor.

6. Execution and Approval of Contract

The successful bidder is required to present all contract bonds, to provide proof of insurance, and to execute the contract within 10 days following receipt of the City's notification of acceptance of the bid. No contract shall be considered as in effect until it has been fully executed by all parties.

7. Failure to Execute Contract

Failure to execute the contract and file acceptable bonds within 10 days after notification of acceptance of bid shall be just cause for the cancellation of the award and the forfeiture of the proposal guarantee which shall become the property of the Owner, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lowest responsible bidder, or the City may exercise its reserved rights including the rejection of all bids or re-advertisement.

PROPOSAL FORM

SAGAMORE CREEK BRIDGE REPLACEMENT

CITY OF PORTSMOUTH, N.H.

To the City of Portsmouth, New Hampshire, herein called the Owner.

The undersigned, as Bidder, herein referred to as singular and masculine declares as follows:

1. All interested in the Bid as Principals are named herein.

2. This bid is not made jointly, or in conjunction, cooperation or collusion with any other person, firm, corporation, or other legal entity;

3. No officer, agent or employee of the Owner is directly or indirectly interested in this Bid.

4. The bidder has carefully examined the sites of the proposed work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this Bid, and the bidder has carefully read and examined the Drawings, Agreement, Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;

5. The bidder understands that the quantities of work calculated in the Bid or indicated on the Drawings or in the Specifications or other Contract Documents are approximate and are subject to increase or decrease or deletion as deemed necessary by the Portsmouth City Engineer. Any such changes will not result in or be justification for any penalty or increase in contract prices; and agrees that, if the Bid is accepted the bidder will contract with the Owner, as provided in the Contract Documents, this Bid Form being part of said Contract Documents, and that the bidder will supply or perform all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other activities required by the Contract Documents in the manner and within the time therein set forth, and that the bidder will take in full payment therefor the following item prices, to wit:

PROPOSAL FORM (continued)

THIS PROJECT SHALL BE BID BY UNIT PRICES.

BASE BID SCOPE ITEMS, QUANTITIES, AND PRICING ARE AS FOLLOWS:

(*) In Quantity Column Designates Available Owner-supplied Materials as Described in the Prosecution of Work – Bidder to initial at bid summary to indicate source choice accordingly.

Base Bid

ITEM #	ESTIMATE QUANTITY & UNIT	ITEM DESCIPTION, UNIT, & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
201.1	0.21 AC	Clearing and Grubbing (F), Per Acre		
		_____	$_____	$_____
201.21	1 EA	Removing Small Trees, Per Each		
		_____	$_____	$_____
201.881	560 SY	Invasive Species Control Type I, Per Square Yard		
		_____	$_____	$_____
201.882	140 SY	Invasive Species Control Type II, Per Square Yard		
		_____	$_____	$_____
202.41	340 LF	Removal of Existing Pipe, 0-24” Diameter, Per Linear Foot		
		_____	$_____	$_____
202.5	2 EA	Removal of Catch Basins, Drop Inlets, and Manholes, Per Each		
		_____	$_____	$_____
202.6	125 LF	Curb Removal for Storage, Per Linear Foot		
		_____	$_____	$_____

202.7	620 LF	Removal of Guardrail, Per Linear Foot		
		_____	$_____	$_____
203.1	1,650 CY	Common Excavation, Per Cubic Yard		
		_____	$_____	$_____
203.2	165 CY	Rock Excavation, Per Cubic Yard		
		_____	$_____	$_____
203.5555	1 U	Guardrail 25 Ft. EAGRT Platform, Per Unit		
		_____	$_____	$_____
203.6	198 CY	Embankment-in-Place (F), Per Cubic Yard		
		_____	$_____	$_____
206.1	150 CY	Common Structure Excavation, Per Cubic Yard		
		_____	$_____	$_____
206.19	10 CY	Common Structure Excavation Exploratory, Per Cubic Yard		
		_____	$_____	$_____
209.1	70 CY	Granular Backfill, Per Cubic Yard		
		_____	$_____	$_____
209.201	1,517 CY	Granular Backfill (Bridge) (F), Per Cubic Yard		
		_____	$_____	$_____
210.6	1 U	Mobilization and Demobilization for Test Boring Drilling Equipment, Per Unit		
		_____	$_____	$_____
210.61	90 LF	Advancing Cased Boring Hole, Per Linear Foot		
		_____	$_____	$_____

210.62	60 LF	Advancing Boring Hole by Diamond Core Drilling, Per Linear Foot		
		_____	$_____	$_____
214.	1 U	Fine Grading, Per Unit		
		_____	$_____	$_____
304.1	523 CY	Sand (F), Per Cubic Yard		
		_____	$_____	$_____
304.4	675 CY	Crushed Stone (Fine Gradation) (F), Per Cubic Yard		
		_____	$_____	$_____
304.5	523 CY	Crushed Stone (Course Gradation) (F), Per Cubic Yard		
		_____	$_____	$_____
403.11	970 TON	Hot Bituminous Pavement, Machine Method, Per Ton		
		_____	$_____	$_____
403.12	180 TON	Hot Bituminous Pavement, Hand Method, Per Ton		
		_____	$_____	$_____
403.6	6,500 LF	Pavement Joint Adhesive, Per Linear Foot		
		_____	$_____	$_____
403.911	83 TON	Hot Bituminous Bridge Pavement, 1” Base Course (F), Per Ton		
		_____	$_____	$_____
411.1	110 TON	Hot Bituminous Concrete Leveling Course, Per Ton		
		_____	$_____	$_____

417.	1,850 SY	Cold Planing Bituminous Surfaces, Per Square Yard		
		_____	$_____	$_____
500.02	1 U	Access For Bridge Construction, Per Unit		
		_____	$_____	$_____
502.	1 U	Removal of Existing Bridge Structure, Per Unit		
		_____	$_____	$_____
503.201	1 U	Cofferdams		
		_____	$_____	$_____
504.1	3,000 CY	Common Bridge Excavation (F), Per Cubic Yard		
		_____	$_____	$_____
508.	200 CY	Structural Fill, Per Cubic Yard		
		_____	$_____	$_____
509.1	1 U	Mobilization and Demobilization of Drilled Shaft Drilling Equipment, Per Unit		
		_____	$_____	$_____
509.2	237 LF	Drilled Shaft, Per Linear Foot		
		_____	$_____	$_____
509.3	40 LF	Obstruction Removal, Per Linear Foot		
		_____	$_____	$_____
509.4	60 LF	Rock Socket Excavation, Per Linear Foot		
		_____	$_____	$_____
509.5	4 EA	Crosshole Sonic Logging (CSL) Tests, Per Each		
		_____	$_____	$_____

509.6	50,000 LB	Drilled Shaft Reinforcing Steel, Epoxy Coated (Contractor Detailed), Per Pound		
		_____	$_____	$_____
510.101	1 U	Mobilization & Demobilization of Micropile Equipment, Per Unit		
		_____	$_____	$_____
510.201	2 EA	Micropile Proof Load Testing		
		_____	$_____	$_____
510.202	1 EA	Micropile Verification Load Testing		
		_____	$_____	$_____
510.301	1,147 LF	Furnish Micropile Bearing Piles		
		_____	$_____	$_____
520.0102	618 CY	Concrete Class AA (QC/QA) (F), Per Cubic Yard		
		_____	$_____	$_____
520.0302	62 CY	Concrete Class AA, Approach Slabs (QC/QA) (F), Per Cubic Yard		
		_____	$_____	$_____
520.2	20 CY	Concrete Class B, Per Cubic Yard		
		_____	$_____	$_____
520.213	330 CY	Concrete Class B, Footings (On Soil) (F), Per Cubic Yard		
		_____	$_____	$_____
520.70026	680 CY	Concrete Bridge Deck (QC/QA) (Panel Option) (F), Per Cubic Yard		
		_____	$_____	$_____
520.99	2,700 SF	Form Liner for Concrete Surfaces, Per Square Yard		
		_____	$_____	$_____

534.3	110 GAL	Water Repellent (Silane-Siloxane), Per Gallon		
		_____	$_____	$_____
538.2	22 SY	Barrier Membrane, Vertical Surfaces (F), Per Square Yard		
		_____	$_____	$_____
538.5	22 SY	Barrier Membrane, Welded by Torch (F), Per Square Yard		
		_____	$_____	$_____
538.6	1,586 SY	Barrier Membrane, Welded by Torch Machine Method (F), Per Square Yard		
		_____	$_____	$_____
541.1	112 LF	PVC Waterstops, NH Type 1 (F), Per Linear Foot		
		_____	$_____	$_____
541.4	62 LF	PVC Waterstops, NH Type 4 (F), Per Linear Foot		
		_____	$_____	$_____
544.3	37,000 LB	Reinforcing Steel (Contractor Detailed), Per Pound		
		_____	$_____	$_____
544.31	354,100 LB	Reinforcing Steel, Epoxy Coated (Contractor Detailed), Per Pound		
		_____	$_____	$_____
544.7	434 LB	Synthetic Fiber Reinforcement, Per Pound		
		_____	$_____	$_____
547.1	5,055 EA	Shear Connectors (F), Per Each		
		_____	$_____	$_____

548.21	20 EA	Elastomeric Bearing Assemblies (F), Per Each		
		_____	$_____	$_____
550.1	686,200 LB	Structural Steel (F), Per Pound		
		_____	$_____	$_____
561.11	86 LF	Prefabricated Expansion Joint, Type A (F), Per Linear Foot		
		_____	$_____	$_____
562.1	62 LF	Silicone Joint Sealant (F), Per Linear Foot		
		_____	$_____	$_____
563.24	1,112 LF	Bridge Rail T4, Per Linear Foot		
		_____	$_____	$_____
565.242	3 U	Bridge Approach Rail T4 (Steel Posts) (F), Per Unit		
		_____	$_____	$_____
585.21	600 CY	Stone Fill, Class B (Bridge), Per Cubic Yard		
		_____	$_____	$_____
585.3	60 CY	Stone Fill, Class C, Per Cubic Yard		
		_____	$_____	$_____
593.411	900 SY	Geotextile; Perm. Erosion Control, Class 1, Non-Woven, Per Square Yard		
		_____	$_____	$_____
593.421	160 SY	Geotextile; Perm. Control Class 2; Non-Woven Filter Category 2, Per Square Yard		
		_____	$_____	$_____

603.0001	710 LF	Video Inspection, Per Linear Foot		
		_____	$_____	$_____
603.00215	500 LF	15" R.C. Pipe, 2000D, Per Linear Foot		
		_____	$_____	$_____
603.00315	130 LF	15" R.C. Pipe, 3000D, Per Linear Foot		
		_____	$_____	$_____
603.36115	3 EA	15” Aluminized Steel End Sections, Per Each		
		_____	$_____	$_____
603.82206	30 LF	6” PE Pipe (Type S), Per Linear Foot		
		_____	$_____	$_____
603.82212	10 LF	12” PE Pipe (Type S), Per Linear Foot		
		_____	$_____	$_____
603.82215	70 LF	15” PE Pipe (Type S), Per Linear Foot		
		_____	$_____	$_____
604.0007	12 EA	Polyethylene Liner, Per Each		
		_____	$_____	$_____
604.12	14U	Catch Basins, Type B, Per Unit		
		_____	$_____	$_____
604.125	2 U	Catch Basins, Type B, 5’ Diameter, Per Unit		
		_____	$_____	$_____
604.32	2U	Drainage Manholes, Per Unit		
		_____	$_____	$_____
604.325	1 U	Drainage Manholes, 5’ Diameter, Per Unit		
		_____	$_____	$_____

604.9109	1 U	Flow Control Structure, Per Unit		
		_____	$_____	$_____
605.906	32 LF	6” Pipe Underdrain (Contractor ‘s Option), Per Linear Foot		
		_____	$_____	$_____
606.120	200 LF	Beam Guardrail (Standard Section-Steel Posts), Per Linear Foot		
		_____	$_____	$_____
606.1255	1 U	Beam Guardrail (Term. Unit Type EAGRT 25 Feet), Per Unit		
		_____	$_____	$_____
606.1270	2 U	Beam Guardrail (Term. Unit Type G-2, Steel Post), Per Unit		
		_____	$_____	$_____
606.417	170 LF	Portable Concrete Barrier for Traffic Control, Per Linear Foot		
		_____	$_____	$_____
608.34	405 SY	4” Reinforced Concrete Sidewalk (F), Per Square Yard		
		_____	$_____	$_____
608.36	6 SY	6” Reinforced Concrete Sidewalk (F), Per Square Yard		
		_____	$_____	$_____
608.54	2 SY	Detectable Warning Devices, Cast Iron, Per Square Yard		
		_____	$_____	$_____
609.01	1,310 LF	Straight Granite Curb, Per Linear Foot		
		_____	$_____	$_____

609.02	130 LF	Curved Granite Curb, Per Linear Foot		
		_____	$_____	$_____
611.05206	40 LF	6” Cement Lined Ductile Iron Water Pipe, CL 52, Per Liner Foot		
		_____	$_____	$_____
611.05210	130 LF	10” Cement Lined Ductile Iron Water Pipe, CL 52, Per Liner Foot		
		_____	$_____	$_____
611.05212	110 LF	12” Cement Lined Ductile Iron Water Pipe, CL 52, Per Liner Foot		
		_____	$_____	$_____
611.06210	420 LF	10” Cement Lined Ductile Iron Bridge Crossing Pipe, CL 52, Per Liner Foot		
		_____	$_____	$_____
611.35220	60 LF	20” Casing Pipe 1/12” Cement Lined DI MJ, CL 52 Carrier Pipe, Per Linear Foot		
		_____	$_____	$_____
611.70006	1 EA	6” Fitting, Per Each		
		_____	$_____	$_____
611.70010	4 EA	10” Fitting, Per Each		
		_____	$_____	$_____
611.70012	9 EA	12” Fitting, Per Each		
		_____	$_____	$_____
611.71006	1 EA	6” Gate Valve, Per Each		
		_____	$_____	$_____
611.71012	2 EA	12” Gate Valve, Per Each		
		_____	$_____	$_____

611.74	1 EA	Chlorine Injection Tap, Per Each		
		_____	$_____	$_____
611.81	1 EA	Hydrants, Per Each		
		_____	$_____	$_____
611.90001	3 EA	Adjusting Water Gates and Shut Offs Set by Others, Per Each		
		_____	$_____	$_____
611.952	480 LF	Round Rigid Pipe Insulation, Per Linear Foot		
		_____	$_____	$_____
613.1	1 U	Underground Infiltration System, Per Unit		
		_____	$_____	$_____
615.03	23 SF	Traffic Sign Type C (F), Per Square Foot		
		_____	$_____	$_____
615.033	2 U	Removing Traffic Sign Type C, Per Unit		
		_____	$_____	$_____
615.034	5 U	Relocating Traffic Sign Type C, Per Unit		
		_____	$_____	$_____
618.6	$	Uniformed Officers		
			$1,650.00	$1,650.00
618.7	2,000 HR	Flaggers		
		_____	$_____	$_____
619.1	1 U	Maintenance of Traffic, Per Unit		
		_____	$_____	$_____

619.25	2 U	Portable Changeable Message Sign, Per Unit		
		_____	$_____	$_____
621.2	5 EA	Retroreflective Beam Guardrail Delineator (White), Per Each		
		_____	$_____	$_____
621.31	4 EA	Single Delineator with Post, Per Each		
		_____	$_____	$_____
622.1	3 EA	Steel Witness Markers, Per Each		
		_____	$_____	$_____
628.2	750 LF	Sawed Bituminous Pavement, Per Linear Foot		
		_____	$_____	$_____
632.0104	5,550 LF	Retroreflective Paint Pavement Marking, 4" Line, Per Liner Foot		
		_____	$_____	$_____
632.3106	230 LF	Retroreflective, Thermoplastic Pavement Marking, 6" Line, Per Liner Foot		
		_____	$_____	$_____
632.3118	30 LF	Retroreflective Thermoplastic Pavement Marking, 18" Line, Per Linear Foot		
		_____	$_____	$_____
641.	180 CY	Loam , Per Cubic Yard		
		_____	$_____	$_____
643.21	280 LB	Fertilizer For Refertilization, Per Pound		
		_____	$_____	$_____
644.15	40 LB	Park Seed, Type 15, Per Pound		
		_____	$_____	$_____

645.0001	1,000 LF	Turbidity Curtain, Per Linear Foot		
		_____	$_____	$_____
645.3	330 TON	Erosion Stone, Per Ton		
		_____	$_____	$_____
645.52	1,600 SY	Temporary Slope Stabilization, Type B (Wildlife Friendly), Per Square Yard		
		_____	$_____	$_____
645.512	600 LF	Compost Stock for Perimeter Berm, Per Linear Foot		
		_____	$_____	$_____
645.531	1,500 LF	Silt Fence, Per Linear Foot		
		_____	$_____	$_____
645.7	1 U	Storm Water Pollution Prevention Plan (SWPPP), Per Unit		
		_____	$_____	$_____
645.71	260 HR	Monitoring SWPPP And Erosion and Sediment Controls, Per Hour		
		_____	$_____	$_____
646.31	1,600 SY	Turf Establishment with Mulch and Tackifiers, Per Square Yard		
		_____	$_____	$_____
670.6051	2 CY	Pea Stone, Per Cubic Yard		
		_____	$_____	$_____
670.641	8 CY	Sand Filter Media Mix, Per Cubic Yard		
		_____	$_____	$_____
692.	1U	Mobilization		
		_____	$_____	$_____

693.	$	On the Job Training of Unskilled Workers, Per $		
			$600.00	$600.00
697.11	1 U	Invasive Species Control and Management Plan, Per Unit		
		_____	$_____	$_____
697.41	1 U	Critical Path Method (CPM) Electronic Schedule, Per Unit		
		_____	$_____	$_____
698.12	24 MO	Field Office, Type B, Per MO		
		_____	$_____	$_____
698.2	21 MO	Physical Testing Laboratory, Per MO		
		_____	$_____	$_____
699.	$	Miscellaneous Temporary Erosion and Sediment Control, Per $		
			$20,000.00	$20,000.00
1008.8	$	Winter Maintenance, Per $		
			$25,000.00	$25,000.00
1010.15	$	Fuel Adjustment, Per $		
			$70,000.00	$70,000.00
1010.2	$	Asphalt Cement Adjustment, Per $		
			$10,000.00	$10,000.00
1010.41	$	Quality Control/Quality Assurance (QC/QA) for Concrete, Per $		
			$10,000.00	$10,000.00

PROPOSAL FORM (continued)

To Bidder: It is the intention of this contract that the items listed above describe completely and thoroughly the entirety of the work as shown on the plans and as described in the specifications. All other items required to accomplish the above items are considered to be subsidiary work, unless shown as a pay item.

TOTAL FOR PROJECT (BASE BID) AND BASIS FOR AWARD

In Figures $_____

In Words $_____

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the Contract Documents, the bidder will accept compensation as stipulated therein.

_____
Date

_____
Company

By:_____
Signature

_____
Business Address

Title:_____

_____
City, State, Zip Code

Telephone:_____

We certify that the Company is currently pre-qualified with the State of New Hampshire for Site Work or Road Construction.

The Bidder has received and acknowledged Addenda No._____through _____.
All Bids are to be submitted on this form and in a sealed envelope, plainly marked on the outside with the Bidder's name and address and the Project name as it appears at the top of the Proposal Form.

In order to follow the City's sustainability practices, future bid invitations/specifications may be sent electronically. Please provide an email address as to where I could email future bid invitations/specifications of this type. Thank you in advance for your cooperation.

Email Address:_____

BID SECURITY BOND

(This format provided for convenience, actual Bid Bond is acceptable in lieu of, if compatible.)

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned

_____, as Principal, and

_____, as Surety, are hereby

held and firmly bound unto _____

IN THE SUM OF _____

as liquidated damages for payment of which, well and truly to be made we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of this obligation is such that whereas the Principal has submitted to the

_____ _____

A CERTAIN Bid attached hereto and hereby made a part hereof to enter into a contract in writing, hereinafter referred to as the "AGREEMENT" and or "CONTRACT", for

_____

_____

_____

NOW THEREFORE,

(a) If said Bid shall be rejected or withdrawn as provided in the INFORMATION FOR BIDDERS attached hereto or, in the alternative,

(b) If said Bid shall be accepted and the Principal shall duly execute and deliver the form of AGREEMENT attached hereto and shall furnish the specified bonds for the faithful performance of the AGREEMENT and/or CONTRACT and for the payment for labor and materials furnished for the performance of the AGREEMENT and or CONTRACT,

then this obligation shall be void , otherwise it shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder in no event shall exceed the amount of this obligation.

BID SECURITY BOND (continued)

The Surety, for value received, hereby agrees that the obligation of said surety and its bond shall be in no way impaired or affected by any extensions of the time within such BID may be accepted, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the parties hereto have duly executed

this bond on the _____ day of _____, 20__.

_____L.S.
(Name of Principal)

(SEAL)

BY _____

_____
(Name of Surety)

BY _____

STATEMENT OF BIDDER'S QUALIFICATIONS

Supply with Bid

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Add separate sheets if necessary

1. Name of Bidder

2. Permanent Main Office Address

3. Form of Entity

4. When Organized

5. Where Organized

6. How many years have you been engaged in the contracting business under your present name; also state names and dates of previous firm names, if any.

7. Contracts on hand; (schedule these, showing gross amount of each contract and the approximate anticipated dates of completion).

8. General character of work performed by your company.

9. Have you ever failed to complete any work awarded to you? _____(no)____(yes). If so, where and why?

10. Have you ever defaulted on a contract?
_____(no)_____(yes). If so, where and why?

11. Have you ever failed to complete a project in the time allotment according to the Contract Documents?
_____(no)_____(yes). If so, where and why?

12. List the most important contracts recently executed by your company, stating approximate cost for each, and the month and year completed.

13. List your major equipment available for this contract.

14. List your key personnel such as project superintendent and foremen available for this contract.

STATEMENT OF BIDDERS QUALIFICATIONS (continued)

15. List any subcontractors whom you would expect to use for the following (unless this work is to be done by your own organization).
a.

16. With what banks do you do business?

a. Do you grant the Owner permission to contact this/these institutions?
____(yes) ___(no).

b. Latest Financial Statements, certified audited if available, prepared by an independent certified public accountant, may be requested by Owner. If requested, such statements must be provided within five (5) business days or the bid proposal will be rejected. Certified Audited Statement are preferred. Internal statements may be attached only if independent statements were not prepared.

17. Please identify any adverse governmental/agency decisions or actions against the company within the last three years excluding: workers compensation claims, wage claims, and OSHA actions that did not involve a penalty, fine or sanction of over $1,000.

BY SUBMITTING THIS QUALIFICATIONS STATEMENT YOU AUTHORIZE THE CITY OF PORTSMOUTH, NH AND ITS CONSULTING ENGINEERS TO UNDERTAKE SUCH INVESTIGATION AS IS NECESSARY TO VERIFY THE STATEMENTS MADE AND TO CONFIRM THAT BIDDER HAS THE QUALIFICATIONS AND REPUTATION NECESSARY TO COMPLETE THE PROJECT. BIDDER MAY BE ASKED TO AUTHORIZE RELEASES TO OBTAIN INFORMATION FROM THIRD PARTIES. FAILURE TO EXECUTE AN AUTHORIZATION IF REQUESTED MAY RESULT IN DISQUALIFICATON.

Dated at _____ this _____ day of _____, 20___.

_____
Name of Bidder

BY_____

TITLE_____

State of_____, County of_____

_____being duly sworn, deposes and

says that the bidder is _____of_____
(Name of Organization)

and answers to the foregoing questions and all statements contained therein are true and correct.

Sworn to before me this ____day of _____, 20__.

_____
Notary of Public My Commission expires_____

CONTRACT AGREEMENT

SAGAMORE CREEK BRIDGE REPLACEMENT

THIS AGREEMENT made as of the _____day of _____ in the year **2013,** by and between the City of Portsmouth, New Hampshire (hereinafter call the Owner) and _____ _____(hereinafter called the Contractor),

WITNESSETH; that the Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE I- Work - The Contractor shall perform all work as specified or indicated in the Contract Documents for the completion of the Project. The Contractor shall provide, at his expense, all labor, materials, equipment and incidentals as may be necessary for the expeditious and proper execution of the Project.

ARTICLE II - ENGINEER - The Engineer as used in this Contract shall refer to the Director of Public Works, or his authorized representative will act as engineer in connection with completion of the Project in accordance with the Contract Documents.

ARTICLE III - CONTRACT TIME - The work will commence in accordance with the Notice to Proceed. **The new Sagamore Creek Bridge shall be open to traffic prior to December 1, 2014. All work shall be completed no later than June 1, 2015.**

ARTICLE IV - CONTRACT PRICE - Owner shall pay Contractor for performance of the work in accordance with the Contract Documents as shown under item prices in the Bid Proposal.

ARTICLE V - PAYMENT - Partial payments will be made in accordance with the Contract Documents. Upon final acceptance of the work and settlement of all claims, Owner shall pay the Contractor the unpaid balance of the Contract Price, subject to additions and deductions provided for in the Contract Documents.

ARTICLE VI - RETAINAGE – There shall be no retainage withheld as a part of this contract.

ARTICLE VII - LIQUIDATED DAMAGES - In event the Contractor fails to successfully execute the work within the specified contract time the Owner shall assess the Contractor liquidated damages in the amount of **One Thousand Five Hundred and Sixty Seven dollars ($1,567)** for each calendar day beyond the specified completion date for each section of work. Liquidated damages shall be deducted from the Contract Price prior to final payment of the Contractor.

CONTRACT AGREEMENT (continued)

ARTICLE VIII – CONTRACT DOCUMENTS – The Contract Documents which comprise the contract between Owner and Contractor are attached hereto and made a part hereof and consist of the following:

8.1 This Agreement
8.2 Contractor's Bid and Bonds
8.3 Notice of Award, Notice to Proceed
8.4 Instruction to Bidders
8.5 General Requirements, Control of Work, Temporary Facilities, Insurance Requirements, Measurement and Payment
8.6 Special Conditions and Critical Timelines, Prosecution of Work, Traffic Control Plan, Environmental Commitments
8.7 Standard and Technical Specifications
8.8 Drawings
8.9 Special Attentions and Special Provisions, Special Conditions and Critical Timelines
8.10 Any modifications, including change orders, duly delivered after execution of this Agreement.

ARTICLE IX – TERMINATION FOR DEFAULT – Should contractor at any time refuse, neglect, or otherwise fail to supply a sufficient number or amount of properly skilled workers, materials, or equipment, or fail in any respect to prosecute the work with promptness and diligence, or fail to perform any of its obligations set forth in the Contract, Owner may, at its election, terminate the employment of Contractor, giving notice to Contractor in writing of such election, and enter on the premises and take possession, for the purpose of completing the work included under this Agreement, of all the materials, tools and appliances belonging to Contractor, and to employ any other persons to finish the work and to provide the materials therefore at the expense of the Contractor.

ARTICLE X – INDEMNIFICATION OF OWNER – Contractor will indemnify Owner against all suits, claims, judgments, awards, loss, cost or expense (including without limitation attorneys' fees) arising in any way out of the Contractor's negligent performance of its obligations under this Contract. Contractor will defend all such actions with counsel satisfactory to Owner at its own expense, including attorney's fees, and will satisfy any judgment rendered against Owner in such action.

ARTICLE XI – PERMITS – The Contractor will secure at its own expense, all permits and consents required by law as necessary to perform the work and will give all notices and pay all fees and otherwise comply with all applicable City, State, and Federal laws, ordinances, rules and regulations.

ARTICLE XII – INSURANCE – The Contractor shall secure and maintain, until acceptance of the work, insurance with limits not less than those specified in the Contract.

ARTICLE XIII – MISCELLANEOUS –

A. Neither Owner nor Contractor shall, without the prior written consent of the other, assign, sublet or delegate, in whole or in part, any of its rights or obligations under any of the Contract Documents; and, specifically not assign any monies due, or to become due, without the prior written consent of Owner.

B. Owner and Contractor each binds himself, his partners, successors, assigns and legal representatives, to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents.

C. The Contract Documents constitute the entire Agreement between Owner and Contractor and may only be altered amended or repealed by a duly executed written instrument.

D. The laws of the State of New Hampshire shall govern this Contract without reference to the conflict of law principles thereof.

E. Venue for any dispute shall be the Rockingham County Superior Court unless the parties otherwise agree.

IN WITNESS WHEREOF, the parties hereunto executed this

AGREEMENT the day and year first above written.

CONTRACTOR

BY:_____

TITLE:_____

CITY OF PORTSMOUTH, N.H.

BY:_____
John P. Bohenko

TITLE: City Manager

NOTICE OF INTENT TO AWARD

Date:

TO:

IN AS MUCH as you were the low responsible bidder for work entitled:

SAGAMORE CREEK BRIDGE REPLACEMENT

You are hereby notified that the City intends to award the aforesaid project to you.

Immediately take the necessary steps to execute the Contract and to provide required bonds and proof of insurance within ten (10) calendar days from the date of this Notice.

The City reserves the right to revoke this Notice if you fail to take the necessary steps to execute this Contract.

City of Portsmouth
Portsmouth, New Hampshire

Judie Belanger,
Finance Director

NOTICE TO PROCEED

DATE: , 2013

SAGAMORE CREEK BRIDGE REPLACEMENT

TO:

YOU ARE HEREBY NOTIFIED TO COMMENCE WORK IN ACCORDANCE

WITH THE AGREEMENT DATED , 2013. ALL WORK SHALL BE COMPLETED NO LATER THAN JUNE 1, 2015.

CITY OF PORTSMOUTH, N.H.

_____

BY: Peter Rice, P.E.

TITLE: Public Works Director

ACCEPTANCE OF NOTICE

RECEIPT OF THE ABOVE NOTICE TO PROCEED IS HEREBY ACKNOWLEDGED BY

_____

This the _____day of_____ 20__

By:_____

Title:_____

CHANGE ORDER

Change Order Number Date of Issuance:

Owner: CITY OF PORTSMOUTH, N.H

Contractor:

You are directed to make the following changes in the Contract Documents:

Description:

Purpose of Change Order:

Attachments:

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIME
Original Contract Price: $	Original Completion Date:
Contract Price prior to this Change Order: $	Contract Time prior to this Change Order:
Net Increase of this Change Order: $	Net Increase of this Change Order:
Contract Price with all approved Change Orders: $	Contract Time with all approved Change Orders:

RECOMMENDED:		APPROVED:	APPROVED:
by_____	by_____	by_____	by_____
PW Director	City Finance	City Manager	Contractor

PERFORMANCE BOND

(This format provided for convenience, actual Performance
Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS

that _____as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of_____ and authorized to do business in the State of New Hampshire as surety, hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, in the amount of _____ Dollars ($_____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents. WHEREAS, Contractor has by written agreement dated _____ entered into a contract with Owner for _____in accordance with drawings and specifications prepared by the Public Works Department, 680 Peverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Contractor shall well and faithfully do and perform the things agreed by him to be done and performed, according to the terms of said Contract and such alterations as may be made in said Contract during progress work, and shall further indemnify and save harmless the said Owner in accordance with the Contract and shall remedy without cost to the Owner any defect which may develop within one year from the time of completion and acceptance of the work.

The Surety hereby waives notice of any alteration in work or extension of time made by the Owner or any of its agents or representatives.

Whenever Contractor shall be, and declared by Owner to be, in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

(1) Complete the Contract in accordance with its terms and conditions, or

PERFORMANCE BOND (continued)

(2) Obtain a bid or bids for submission to the Owner for completing the Contract in accordance with its terms and conditions, and upon determination by Owner and Surety of the lowest responsible bidder, arrange for a contract between such bidder and Owner and make available as work progresses (even though there should be a default or a succession of defaults under the contract of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price", as used in this paragraph, shall mean the total amount payable by the Owner to Contractor under the Contract and any amendments thereto, less the amount paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of (2) years from the date on which final payment under the contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of Owner.

Signed and sealed this _____ day of _____

A.D., 20___ .

In the presence of:

_____ BY: _____

(Witness) (Principal) (Seal)

_____

(Surety Company)

_____ BY: _____

(Witness) (Title) (Seal)

Note:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

LABOR AND MATERIAL PAYMENT BOND

(This format provided for convenience, actual Labor and Material Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS:

that _____

as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of

_____ and authorized to do business in the State of New Hampshire hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, for the use and benefit of claimants as herein below defined, in the

amount of _____ Dollars ($_____), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____ entered into a

contract with Owner for _____ in accordance with drawings and specifications prepared by the Public Works Department, 680 Peverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and for the hire of all equipment, tools, and all other things contracted for or used in connection therewith, then this obligation shall be void, otherwise it shall remain in full force and effect, subject however, to the following conditions:

(1) A claimant is defined as one having a direct contract with the Principal or, with a subcontractor of the Principal for labor, material, equipment, or other things used or reasonably required for use in the performance of the Contract. "Labor and material" shall include but not be limited to that part of water, gas, power, light, heat, oil and gasoline, telephone service or rental of equipment applicable to the Contract.

(2) The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such a claimant, may sue on this bond for the use of such claimant, prosecute the suit by final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any such suit or any costs or expenses of any such suit, and principal and surety shall jointly and severally indemnify, defend and hold the Owner harmless for any such suit, costs or expenses.

(3) No suit or action shall be commenced hereunder by any claimant:

(a) Unless Claimant, other than one having a direct contract with the Principal, shall have given notice to all the following:

LABOR AND MATERIAL PAYMENT BOND (continued)

The Principal, the Owner and the Surety above named, within six (6) calendar months after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State of New Hampshire save that such service need not be made by a public officer.

(b) After the expiration of one (1) year following the date on which Principal ceased all work on said contract, it being understood , however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

(c) Other than in a State court of competent jurisdiction in and for the county or other political subdivision of the State in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere. (4) The amount of this bond may be reduced by and to the extent of any payment of payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed on record against said improvement, whether or not claim for the amount of such lien by presented under and against this bond.

Signed and sealed this _____ day of _____, 20____. In the presence of:

_____ BY: _____
(Witness) (Principal) (Seal)

_____
(Surety Company)

_____ BY: _____
(Witness) (Title) (Seal)

Note:
If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

MAINTENANCE BOND

A maintenance bond in the amount of **Twenty Percent (20%)** of the contract price with a corporate surety approved by the Owner shall be provided at the time of Contract completion. Such bond shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the Contractor. This guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

CONTRACTOR'S AFFIDAVIT

STATE OF _____:

COUNTY OF _____:

Before me, the undersigned, a _____
(Notary Public, Justice of the Peace)

in and for said County and State personally appeared, _____
(Individual, Partner, or duly authorized representative of Corporate)

who, being duly sworn, according to law deposes and says that the cost of labor, material, and equipment and outstanding claims and indebtedness of whatever nature arising out of the performance of the Contract between

CITY OF PORTSMOUTH, NEW HAMPSHIRE

and
(Contractor)

of _____

Dated: _____

has been paid in full for Construction of:

SAGAMORE CREEK BRIDGE REPLACEMENT

_____

(Individual, Partner, or duly authorized representative of Corporate Contractor)

Sworn to and subscribed
before me this _____day
of _____ 20____

_____

CONTRACTOR'S RELEASE

KNOW ALL MEN BY THESE PRESENTS that _____does hereby acknowledge that _____ has on this day had, and received from the CITY OF PORTSMOUTH NEW HAMPSHIRE, final and completed payment for the Construction of:

SAGAMORE CREEK BRIDGE REPLACEMENT

NOW THEREFORE, the _____, for myself, my heirs, executors, and administrators) (for itself, its successors and assigns) do/does by these presents remise, release, quit-claim and forever discharge the City of Portsmouth, New Hampshire, its successors and assigns, of and from all claims and demands arising from or in connection with the said Contract dated _____, and of and from all, and all manners of action and actions, cause and causes of action and actions, suits, debts, dues, duties, sum and sums of money, accounts, reckonings, bonds, bills, specifications, covenants, contracts, agreements, promises, variances, damages, judgments, extents, executions, claims and demand, whatsoever in law of equity, or otherwise, against the City of Portsmouth, New Hampshire, its successors and assigns, which (I, my heirs, executors, or administrators) (it, its successors and assigns) ever had, now have or which (I, my heirs, executors, or administrators) (it, its successors and assigns) hereafter can shall or may have, for, upon or by reason of any matter, cause, or thing whatsoever; from the beginning of record time to the date of these presents.

IN WITNESS WHEREOF,

Contractor:

_____ By:_____

print name of witness:_____ Its Duly Authorized _____

Dated: _____

GENERAL REQUIREMENTS

SCOPE OF WORK

1. INTENT OF CONTRACT

The intent of the Contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the terms of the Contract. The Contractor shall be required to conform to the intent of the plans and specifications. No extra claims shall be allowed for portions of the work not specifically addressed in the plans and specifications but required to produce a whole and complete project, such work will be considered subsidiary to the bid items.

2. INCIDENTAL WORK

Incidental work items for which separate payment is not measured includes, but is not limited to, the following items:

a. Clearing, grubbing and stripping (unless otherwise paid for)
b. Clean up
c. Plugging existing sewers and manholes
d. Signs
e. Mobilization/Demobilization (unless otherwise paid for)
f. Restoration of property
g. Cooperation with other contractors, abutters and utilities.
h. Utility crossings, (unless otherwise paid for)
i. Minor items - such as replacement of fences, guardrails, rock wall, etc.
j. Steel and/or wood sheeting as required.
k. Accessories and fasteners or components required to make items paid for under unit prices or lump sum items complete and functional.

3. ALTERATION OF PLANS OR OF CHARACTER OF WORK

The Owner reserves the right, without notice to Surety, to make such alterations of the plans or of the character of the work as may be necessary or desirable to complete fully and acceptably the proposed construction; provided that such alterations do not increase or decrease the contract cost. Within these cost limits, the alterations authorized in writing by the Owner shall not impair or affect any provisions of the Contract or bond and such increases or decreases of the quantities as a result from these alterations or deletions of certain items, shall not be the basis of claim for loss or for anticipated profits by the contractor. The contractor shall perform the work as altered at the contract unit price or prices.

4. EXTRA WORK ITEMS

Extra work shall be performed by the Contractor in accordance with the specifications and as directed, and will be paid for at a price as provided in the Contract documents or if such pay items are not applicable than at a price negotiated between the contractor and the Owner or at the unit bid price. If the Owner determines that extra work is to be performed, a change order will be issued.

5. CHANGE ORDERS

The Owner reserves the right to issue a formal change order for any increase, decrease, deletion, or addition of work or any increase in contract time or price. The contractor shall be required to sign the change order and it shall be considered as part of the Contract documents.

6. FINAL CLEANING UP

Before acceptance of the work, the contractor shall remove from the site all machinery, equipment, surplus materials, rubbish, temporary buildings, barricades and signs. All parts of the work shall be left in a neat and presentable condition. On all areas used or occupied by the contractor, regardless of the contract limits, the bidder shall clean-up all sites and storage grounds.

The items prescribed herein will not be paid for separately, but shall be paid for as part of the total contract price.

7. ERRORS AND INCONSISTENCY IN CONTRACT DOCUMENTS

Any provisions in any of the Contract Documents that may be in conflict with the paragraphs in these General Requirements shall be subject to the following order of precedence for interpretation.

1. General Requirements will govern Standard Specifications for Road & Bridge Construction.

2. Technical Specifications, Special Provisions, and Special Attentions will govern General Requirements and Standard Specifications.

3. Plans will govern Technical Specifications, General Requirements and Standard Specifications.

8. QUALITY ASSURANCE

The Contractor shall be responsible at all times for maintaining quality assurance during performance of his work. Particular attention to compaction shall be paid during backfilling operation.

In-place density tests of the backfill material will be conducted by an independent testing laboratory. The amount and frequency of testing will be determined at the time of construction, by the engineer.

A minimum of one density test per 50 feet of road may be required.

Satisfactory compaction shall be a minimum of 95% of the maximum density for the embankment and a minimum of 95% of the maximum density for gravel base course and subbase gravel course.

The Contractor shall be responsible for procuring and paying for the testing services

9. DUST CONTROL FOR STREET

Calcium chloride shall be spread only on disturbed unpaved areas. Calcium chloride shall not be spread on paved areas that are covered by granular material. These areas shall be swept clean of all granular material.

Dust on paved areas shall be controlled with water before sweeping.

This work and materials shall be considered as subsidiary obligation of the contract for which no specific payment will be made

SUPPLEMENTAL GENERAL REQUIREMENTS

Add to the following General Requirements Section(s):

8. QUALITY ASSURANCE

The Contractor shall maintain quality control, equipment, services, site conditions, and workmanship, to produce work of specified quality.

The Contractor shall comply with industry standards except when specified tolerances or requirements are more restrictive or when more precise workmanship is necessary.

Perform work by persons qualified to produce workmanship of specified quality.

The Contractor shall coordinate and be responsible for all costs for sampling and testing as required by the project specifications.

CONTROL OF WORK

1. AUTHORITY OF ENGINEER

(a) All work shall be done under supervision of the City Engineer and to his satisfaction. The City Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work; all questions that may arise as to the interpretation of the plans and specifications; and all questions as to the acceptable fulfillment of the Contract by the Contractor.

(b) The City Engineer will have the authority to suspend the work wholly or in part for such periods as he may deem necessary due to the failure of the Contractor to correct conditions unsafe for workers or the general public; for failure to carry out provisions of the Contract; for failure to carry out orders; for conditions considered unsuitable for the prosecution of the work, including unfit weather; or for any other condition or reason deemed to be in the public interest. The Contractor shall not be entitled any additional payments arising out of any such suspensions.

(c) The Owner reserves the right to demand a certificate of compliance for a material or product used on the project. When the certificate of compliance is determined to be unacceptable to the City Engineer the Contractor may be required to provide engineering and testing services to guarantee that the material or product is suitable for use in the project, at its expense (see Sample of Certificate of Compliance).

2. PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPES

(a) The Contractor shall use every precaution to prevent injury or damage to wires, poles, or other property of public utilities; trees, shrubbery, crops, and fences along and adjacent to the right-of-way, all underground structures such as pipes and conduits, within or outside of the right-of-way; and the Contractor shall protect and carefully preserve all property marks until an authorized agent has witnessed or otherwise referenced their location.

(b) The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

(c) When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or as a result of the failure to perform work by the Contractor, the Contractor shall restore, at its own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing rebuilding, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

(d) The Contractor shall paint with tree paint all scars made on fruit or ornamental trees by equipment, construction operations, or the removal of limbs larger than one inch in diameter. Damaged trees must be replaced if so determined by the City Arborist, in his or her sole discretion.

(e) If the Contractor fails to repair, rebuild or otherwise restore such property as may be deemed necessary, the Owner, after 48 hours notice, may proceed to do so, and the cost thereof may be deducted from any money due or which may become due the Contractor under the contract.

(f) It is the intent of the Parties that the Contractor preserve, to as great an extent as possible, the natural features of the site.

CONTROL OF WORK (continued)

3. MAINTENANCE DURING CONSTRUCTION

The Contractor shall maintain the work during construction and until the project is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and workers to ensure that the structure is kept in satisfactory conditions at all times.

4. SAFETY PRECAUTIONS

Upon commencement of work, the Contractor shall be responsible for initiating, maintaining and supervising all safety precautions necessary to ensure the safety of employees on the site, other persons who may be affected thereby, including the public, and other property at the site or adjacent thereto.

5. PERMITS

It will be the responsibility of the Contractor to obtain all permits required for the operation of equipment in, or on, all city streets and public ways.

6. BARRICADES, WARNING SIGNS AND TRAFFIC OFFICERS

(a) The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs and other traffic control devices, and shall take all necessary precautions for the protection of the work and safety of the public. Roadway closed to traffic shall be protected by effective barricades. Obstructions shall be illuminated during hours of darkness. Suitable warning signs shall be provided to control and direct traffic in a proper manner, as approved by the engineer.

(b) The Contractor will be held responsible for all damage to the work from traffic, pedestrians, animals or any other cause due to lack of adequate controlling devices.

(c) The Contractor shall provide such police officers as the City Engineer deems necessary for the direction and control of traffic within the site of project.

The work prescribed herein will not be paid for separately but will be paid for as part of the Contract Price unless specifically appearing as a bid item.

SUPPLEMENTAL CONTROL OF WORK

Add to the following Control of Work Section(s):

1. AUTHORITY OF ENGINEER

All materials or equipment that are not suitable for use on this project and/or have been rejected by the Engineer shall be removed from the site immediately; the cost of the removal of these materials shall be the responsibility of the Contractor.

The Engineer shall be permitted at all times to inspect the work and check the lines, grades, elevations, reference marks, etc., set by the Contractor. Any errors or discrepancies in these items discovered by checks shall be corrected by the Contractor. Such checks shall not be construed to be an approval of the Contractor's work and shall not relieve or diminish in any way the responsibilities of the Contractor for the accurate and satisfactory completion of the entire work. The Contractor shall be available to assist the Engineer with these checks as needed.

TEMPORARY FACILITIES

1. STORAGE FACILITIES

(a) The Contractor shall not store materials or equipment in a public right-of-way beyond the needs of one working day. Equipment and materials shall be stored in an approved location.

(b) The Contractor shall protect all stored materials from damage by weather or accident and shall insure adequate drainage at and about the storage location.

(c) Prior to final acceptance of the work all temporary storage facilities and surplus stored materials shall be removed from the site.

2. SANITARY FACILITIES

(a) The Contractor shall provide for toilet facilities for the use of the workers employed on the work.

(b) Temporary toilet facilities may be installed provided that the installation and maintenance conform with all State and local laws, codes, regulations and ordinances governing such work. They shall be properly lit and ventilated, and shall be kept clean at all times.

(c) Prior to final acceptance of the work all temporary toilet facilities shall be removed from the site.

3. TEMPORARY WATER

The Contractor shall make all arrangements with the local water department for obtaining water connections to provide the water necessary for construction operations and shall pay all costs.

4. TEMPORARY ELECTRICITY

The Contractor shall make all arrangements with the Public Service Company for obtaining electrical connections to provide the electrical power necessary for construction operations and security lighting and shall pay all electrical connection and power costs.

The Contractor shall be responsible with obtaining an electrical permit from the City Electrical Inspector.

INSURANCE REQUIREMENTS

Insurance shall be in such form as will protect the Contractor from all claims and liabilities for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this contract whether such operation by himself or by anyone directly or indirectly employed by him.

AMOUNT OF INSURANCE

A) Comprehensive General Liability:
Bodily injury or Property Damage - $2,000,000
Per occurrence and general aggregate

B) Automobile and Truck Liability:
Bodily Injury or Property Damage - $2,000,000
Per occurrence and general aggregate

Insurance coverage requirements may be met by excess policies.

Additionally, the Contractor shall purchase and maintain the following types of insurance:

A) Full Workers Comprehensive Insurance coverage for all people employed by the Contractor to perform work on this project. This insurance shall at a minimum meet the requirements of the most current laws of the State of New Hampshire.

B) Contractual Liability Insurance coverage in the amounts specified above under Comprehensive General Liability.

C) Product and Completed Operations coverage to be included in the amounts specified above under Comprehensive General Liability.

D) Coverage for marine operations in the amount required for commercial general liability.

ADDITIONAL INSURED

All liability policies (including any excess policies used to meet coverage requirements) shall include the City of Portsmouth, New Hampshire as named Additional Insured's.

1) The contractor's insurance shall be primary in the event of a loss.
2) City of Portsmouth shall be listed as a Certificate Holder. The City shall be identified as follows:

City of Portsmouth
Attn: Legal Department
1 Junkins Avenue
Portsmouth, NH 03801

MEASUREMENT AND PAYMENT

1. MEASUREMENT OF QUANTITIES

(a) All work completed under the contract will be measured according to the United States standard measure.

(b) The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice. Unless otherwise stated all quantities measured for payment shall be computed or adjusted for "in place" conditions.

(c) Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the dimensions shown on the plans or ordered in writing.

(d) Structures will be measured according to lines shown on the plans or as ordered unless otherwise provided for elsewhere in the specifications.

(e) In computing volumes of excavation, embankment, and borrow, the average end area method will be used. Where it is impracticable to measure by the cross-section method, acceptable methods involving three-dimensional measurement may be used. When measurement of borrow in vehicles is permitted, the quantity will be determined as 80 percent of the loose volume.

(f) In computing volumes of concrete, stone and masonry, the prismoidal method will be used. The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois.

(g) Except as specified below, all materials that are measured or proportioned by weight shall be weighed on scales which the Contractor has had sealed by the State or by a repairman registered by the Commissioner of Agriculture. All weighing shall be performed in a manner prescribed under the Rules and Regulations of the Bureau of Weights and Measures of the New Hampshire Department of Agriculture.

(h) Weighing of materials on scales located outside New Hampshire will be permitted for materials produced or stored outside the state, when requested by the Contractor and approved. Out-of-state weighing in order to be approved, must be performed by a licensed public weigh master or a person of equal authority in the state concerned on scales accepted in the concerned state.

(i) Each truck used to haul material being paid for by weight shall bear a plainly legible identification mark, and if required, shall be weighed empty daily at such times as directed.

(j) When material is weighed, the individual weight slips, which shall be furnished by the Contractor, for trucks, trailers, or distributors, shall show the following information: the date; the project; the material or commodity; the dealer or vendor; the Contractor or Subcontractor; the location of the scales; the vehicle registration number or other approved legible identification mark; the tare and net weights, with gross weights when applicable; and the weigher's signature or his signed initials.

(k) The right is reserved to weight any truck, trailer, or distributor, at locations designated, before and after making deliveries to the project.

(l) Bituminous materials will be measured by the gallon or ton.

MEASUREMENT AND PAYMENT (continued)

(m) When material is specified to be measured by the cubic yard but measurement by weight is approved, such material may be weighed and the weight converted to cubic yards for payment purposes. Necessary conversion factors will be determined by the Owner.

(n) The term "lump sum" when used as an item of payment will mean complete payment for the work described in the item.

(o) When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories, so as to provide the item complete and functional. Except as may be otherwise provided, partial payments for lump sum items will be made approximately in proportion to the amount of the work completed on those items.

(p) Material wasted without authority will not be included in the final estimate.

2. SCOPE OF PAYMENT

(a) The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials and for performing all work under the contract in a complete and acceptable manner and for all risk, loss, damage or expense of whatever character arising out of the nature of the work or the prosecution thereof.

(b) The Contractor shall be liable to the Owner for failure to repair, correct, renew or replace, at his own expense, all damage due or attributable to defects or imperfections in the construction which defects or imperfections may be discovered before or at the time of the final inspection and acceptance of the work.

(c) No monies, payable under the contract or any part thereof, except the first estimate, shall become due or payable if the Owner so elects, until the Contractor shall satisfy the Owner that the Contractor has fully settled or paid all labor performed or furnished for all equipment hired, including trucks, for all materials used, and for fuels, lubricants, power tools, hardware and supplies purchased by the Contractor and used in carrying out said contract and for labor and parts furnished upon the order of said Contractor for the repair of equipment used in carrying out said contract; and the Owner, if he so elects, may pay any and all such bills, in whole or in part, and deduct the amount of amounts so paid from any partial or final estimate, excepting the first estimate.

3. COMPENSATION FOR ALTERED QUANTITIES

(a) Except as provided for under the particular contract item, when the accepted quantities of work vary from the quantities in the bid schedule the Contractor shall accept as payment in full, so far as contract items are concerned, at the original contract unit prices for the accepted quantities of work done. No allowance will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation among the contract items of overhead expense on the part of the Bidder and subsequent loss of expected reimbursements therefore or from any other cause.

(b) Extra work performed will be paid for at the contract bid prices or at the price negotiated between the Owner and the Contractor if the item was not bid upon. If no agreement can be negotiated, the Contractor will accept as payment for extra work, cost plus 15% (overhead and profit). Costs shall be substantiated by invoices and certified payroll.

MEASUREMENT AND PAYMENT (continued)

4. PARTIAL PAYMENTS

Partial payments will be made on a monthly basis during the contract period. From the total amount ascertained as payable, an amount equivalent to ten percent (10%) of the whole will be deducted and retained by the Owner until such time as the work receives final acceptance.

5. FINAL ACCEPTANCE

Upon due notice from the Contractor of presumptive completion of the entire project, the City Engineer will make an inspection. If all construction provided for and contemplated by the contract is found complete to his satisfaction, this inspection shall constitute the final inspection and the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of the final inspection.

If, however, the inspection discloses any work in whole or in part, as being unsatisfactory, the City Engineer will give the Contractor the necessary instructions for correction of such work, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection provided the work has been satisfactorily completed. In such event, the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

6. ACCEPTANCE AND FINAL PAYMENT

(a) When the project has been accepted and upon submission by the Contractor of all required reports, completed forms and certifications, the Owner will review the final estimate of the quantities of the various classes of work performed. The Contractor may be required to certify that all bills for labor and material used under this contract have been paid.

(b) The Contractor shall file with the Owner any claim that the Contractor may have regarding the final estimate at the same time the Contractor submits the final estimate. Failure to do so shall be a waiver of all such claims and shall be considered as acceptance of the final estimate. The Contractor shall provide the required Maintenance Bond prior to the approval of Final Payment by the Owner. After approval of the final estimate by the Owner, the Contractor will be paid the entire sum found to be due after deducting all previous payments and all amounts to be deducted under the provisions of the contract.

(c) All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

7. GENERAL GUARANTY AND WARRANTY OF TITLE

(a) Neither the final certification of payment nor any provision in the contract nor partial or entire use of the improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express or implied warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The Owner will give notice of defective materials and work with reasonable promptness.

MEASUREMENT AND PAYMENT (continued)

(b) No material, supplies or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease purchase or other agreement by which an interest therein or in any part thereof is retained by the Seller or supplier. The Contractor shall warrant good title to all materials, supplies and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have the right to a lien upon any improvements or appurtenances thereon.

Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontractors and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

8. NO WAIVER OF LEGAL RIGHTS

(a) Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or be stopped from recovering from the Contractor or his Surety, or both, such overpayment as it may sustain by failure on the part of the Contractor to fulfill his obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

(b) The Contractor, without prejudice to the Contract shall be liable to the terms of the Contract, shall be liable to the Owner for latent defects, fraud or such gross mistakes as may amount to fraud, and as regards the Owner's right under any warranty or guaranty.

9. TERMINATION OF CONTRACTOR'S RESPONSIBILITY

Whenever the improvement provided for by the Contract shall have been completely performed on the part of the Contractor and all parts of the work have been released from further obligations except as set forth in his bond and as provided in Section 8 above.

SHOP DRAWINGS

Shop Drawings for this project shall be submitted under the following conditions:

1. The Contractor shall submit working and detail drawings, well in advance of the work, to the City Engineer & Building Inspector for review.
2. The Contractor's drawings shall consist of shop detail, erection and other working plans showing dimensions, sizes and quality of material, details and other information necessary for the complete fabrication and erection of the pertinent work.
3. The Contractor shall submit three (3) sets of drawings to the City Engineer.
4. Prior to the approval of the drawings, any work done or materials ordered for the work involved shall be at the Contractor's risk.
5. One (1) set of the drawings will be returned to the Contractor approved or marked with corrections to be made. After approval has been given, the Contractor shall supply the City Engineer with two sets of the revised detail working drawings.
6. The City Engineer's approval of the Contractor's working drawings will not relieve the Contractor from responsibility for errors in dimensions or for incorrect fabrication processes, or from responsibility to complete the contract work.

SPECIAL CONDITIONS
&
CRITICAL TIMELINES

REQUIRED DEADLINES

The City has made certain representations to the residents, business owners and stakeholders of this project. A very important part of this project will be meeting certain goals by certain dates. The following criteria and dates are crucial to the success of this project.

Closure of the existing Sagamore Creek Bridge – No earlier than October 15, 2013

Opening of the new Sagamore Creek Bridge to traffic – December 1, 2014

Final Completion of all work – June 1, 2015

Failure to complete by this date will result in liquidated damages of $1,567 per calendar day.

Access must be available at all times to all properties located within the closed portion of NH Route 1A, and all cooperation given to customers, tourists, and residents alike. The contractor will be required to place appropriate signage on NH Route 1A directing customers and users to the businesses, boat club and health facility. These signs shall be specific to each business and be permanently mounted on NH Route 1A to direct customers around to each business. Also a detour package of signs will be required. These signs will be considered subsidiary to the project and no separate payment will be made.

Accommodations must be made for delivery trucks for the businesses on NH Route 1A.

Dust and mud must be controlled at all times to protect the residents, businesses, and traveling public.

The project site must be kept clean and passable on nights and weekends with gravel areas watered and kept dust free with calcium chloride. Pavements shall be swept clean each night, especially on Fridays and before holidays.

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CONTRACT DOCUMENTS AND SPECIFICATIONS

for

SAGAMORE CREEK BRIDGE REPLACEMENT

PORTSMOUTH; 14493

FEDERAL AID PROJECT NO. X-A000(417)

Bid #12-14

State of New Hampshire

John P. Bohenko, City Manager

Prepared by:

City of Portsmouth
Engineering Division
Public Works Department

July, 2013

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City of Portsmouth
Portsmouth, New Hampshire
Department of Public Works

SAGAMORE CREEK BRIDGE REPLACEMENT

INVITATION TO BID

Sealed bid proposals, **plainly marked, Sagamore Creek Bridge Replacement**, Bid Proposal #12-14 **on the outside of the mailing envelope as well as the sealed bid envelope,** addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801, will be accepted until August 26, 2013 at 2:00 pm; at which time all bids will be publicly opened and read aloud.

There will be a mandatory pre-bid meeting held at the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801 on August 5, 2013 at 2:00 pm. All bidders are required to attend. Bidders who do not attend the meeting will not be allowed to submit a bid. Bidders must be Pre-Qualified by the NHDOT before bid opening.

The project involves the replacement of the NH Route 1A Bridge (Br. No. 198/034) over Sagamore Creek in Portsmouth, New Hampshire, and minor improvements to the sections of NH Route 1A approaching the bridge from the north and south. The replacement bridge is a new variable-depth steel girder bridge approximately 418 feet long between abutments, and 42.5 feet wide. The bridge includes two 12-foot travel lanes, two 5-foot paved shoulders for bicycles, and one fully-accessible 5.5-foot sidewalk. Approach roadway improvements involve new curbing and sidewalks, drainage facilities, replacement of the water main that crosses the existing bridge, and retaining walls in three of the project quadrants.

Work may begin at any time on or after Notice to Proceed. The new Sagamore Creek Bridge shall be opened to traffic by December 1, 2014. All sections of the work shall be completed by June 1, 2015. Liquidated damages shall be assessed at $1,567 per calendar day.

Bidders shall have a minimum of 5 years experience in bridge and roadway construction. Contractor shall be responsible for all work specified in the contract documents including shoring, footings, wall construction, revetment construction, incidental work, and restoration of the existing work that was disturbed during construction. All work shall be in complete accordance with sound construction practices and in conformance with the attached contract documents.

Bidders must determine the quantities of work required and the conditions under which the work will be performed.

The City of Portsmouth reserves the right to reject any or all bids, to waive technical or legal deficiencies, to re-bid, and to accept any bid that it may deem to be in the best interest of the City.

Specifications may be obtained from the Finance/Purchasing Department on the third floor at the above address, or by calling the Purchasing Coordinator at 603-610-7227, or at the City's website: http://www.cityofportsmouth.com/finance/purchasing.htm Addenda to this project, if any, including written answers to questions, will not be provided directly to vendors, but will be posted on the City of Portsmouth website.

Hard copies of the plans and specifications may be obtained from the Purchasing Department, at Portsmouth City Hall, upon payment of a fee of $200.00 per set, which will not be refunded. Partial sets will not be distributed. All requests for mailed documents must be accompanied by an additional fee of $25.00 to cover the cost of postage and handling.

Each Bidder shall furnish a bid security in the amount of ten percent (10%) of the bid. The Bid Security may be in the form of a certified check or a bid bond executed by a surety company authorized to do business in the State of New Hampshire, made payable to the City of Portsmouth, N.H.

The General Contractor will be permitted to subcontract portions of the work not to exceed an aggregate dollar value of 50% of the total contract bid amount in complete accordance with Section 108 of the State of New Hampshire Standard Specifications for Road and Bridge Construction.

Bidders must be listed with the New Hampshire Department of Transportation as a pre-qualified contractor under the classifications of Road Construction and/or Site Work Construction. Any Bid submitted by a Bidder not pre-qualified will be rejected as non-conforming.

All questions regarding the project or the bid shall be submitted by the Bidder (General Contractor) to the ENGINEER (Owner's Representative) in writing no later than 5 business days prior to the Bid Opening. Any questions received after that time may not receive a response prior to the bid opening. Questions received from third parties other than the Bidders who have purchased plans (sub-contractors or product suppliers) will not receive response until a formal written submission from a Bidder is received. All timely-received bidder questions and subsequent responses will be distributed in writing as a Contract Documents Addendum issued to all bidders via fax or email as soon as available, but no later than 24 hours prior to the bid opening. The Bidder must acknowledge the receipt of all Contract Documents Addenda in the Proposal Documents.

All questions regarding the project bid shall be clearly identified with the project name and the Bidder's contact information for response and shall be submitted via U.S. Mail, fax, or email to the following:

Attn: Mr. David E. McNamara, P.E.
Fay, Spofford & Thorndike LLC
288 South River Road, Building #C
Bedford, NH 03110
Fax: (603)-668-2670
Email: dmcnamara@fstinc.com

INSTRUCTIONS TO BIDDERS

BIDDING REQUIREMENTS AND CONDITIONS

1. Special Notice to Bidders

Appended to these instructions is a complete set of bidding and general contract forms. These forms may be detached and executed for the submittal of bids. The plans, specifications, and other documents designated in the proposal form will be considered as part of the proposal, whether attached or not.

The bidders must submit a statement of bidder's qualifications.

Addenda to this bid document, if any, including written answers to questions, will be posted on the City of Portsmouth website at http://www.cityofportsmouth.com/finance/purchasing.htm under the project heading. Addenda and updates will NOT be sent directly to firms. Contractors submitting a bid should check the web site daily for addenda and updates after the release date. Firms should print out, sign and return addenda with the proposal. Failure to do so may result in disqualification.

2. Interpretation of Quantities in Bid Schedules

The quantities appearing in the bid schedule are approximate only and are prepared for the comparison of bids. Payment to the contractor will be made only for actual work performed and accepted in accordance with the contract. Any scheduled item of work to be done and materials to be furnished may be increased, decreased or omitted as hereinafter provided, and no claim for loss, anticipated profits or costs incurred in anticipation of work not ultimately performed will be allowed due to such increase or decrease.

3. Examination of Plans, Specifications and Site Work

The bidder is expected to examine carefully the site of the proposed work, the plans, standard specifications, supplemental specifications, special provisions and contract forms before submitting a proposal. The submission of a bid shall be considered conclusive evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the contract. It will be conclusive evidence that the bidder has also investigated and is satisfied with the sources of supply for all materials.

Plans, surveys, measurements, dimensions, calculations, estimates and statements as to the condition under which the work is to be performed are believed to be correct, but the contractors must examine for themselves, as no allowance will be made for any errors or inaccuracies that maybe found therein.

4. Familiarity with Laws

The bidder is assumed to have made himself or herself familiar with all federal and state laws and all local by-laws, ordinances and regulations which in any manner affect those engaged or employed on the work or affect the materials or equipment used in the work or affect the conduct of the work, and the bidder, if awarded the contract, shall be obligated to perform the work in conformity with said laws, by-laws, ordinances and regulations notwithstanding its ignorance thereof. If the bidder shall discover any provision in the plans or specifications which is in conflict with any such law, by-law, ordinance or regulation the bidder shall forthwith report it to the engineer in writing.

The Bidder is hereby notified that this project utilizes federal funding under the Municipal Off System Bridge Program and that the bidder is required to be familiar with and abide by all Federally funded project requirements, including federal labor compliance and Davis-Bacon wage rates.

5. Preparation of Proposal

a) The bidder shall submit its proposal upon the forms furnished by the Owner. The bidder shall specify a lump sum price in figures, for each pay item for which a quantity is given and shall also show the products of the respective prices and quantities written in figures in the column provided for that purpose and the total amount of the proposal obtained by adding the amount of the several items. All words and figures shall be in ink or typed. If a unit price or a lump sum bid already entered by the bidder on the proposal form is to be altered it should be crossed out with ink, the new unit price or lump sum bid entered above or below it and initialed by the bidder, also with ink.

b) The bidder's proposal must be signed with ink by the individual, by one or more general partners of a partnership, by one or more members or officers of each firm representing a joint venture; by one or more officers of a corporation, by one or more members (if member-managed) or managers (if manager-managed) of a limited liability company, or by an agent of the contractor legally qualified and acceptable to the owner. If the proposal is made by an individual, his or her name and post office address must be shown, by a partnership the name and post office address of each general and limited partner must be shown; as a joint venture, the name and post office address of each venturer must be shown; by a corporation, the name of the corporation and its business address must be shown, together with the name of the state in which it is incorporated, and the names, titles and business addresses of the president, secretary and treasurer.

6. Nonconforming Proposals

Proposals will be considered nonconforming and may be rejected in the Owner's sole discretion for any of the following reasons:

- If the proposal is on a form other than that furnished by the Owner, or if the form is altered or any portion thereof is detached;
- If there are unauthorized additions, conditional or altered bids, or irregularities of any kind which may tend to make the proposal or any portion thereof incomplete, indefinite or ambiguous as to its meaning;
- If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award; or
- If the proposal does not contain a unit price for each pay item listed except in the case of authorized alter pay items.

7. Proposal Guaranty

No proposal will be considered unless accompanied by a bid bond, surety, or similar guaranty of the types and in an amount not less than the amount indicated in the Invitation to Bid. All sureties shall be made payable to the "City of Portsmouth". If a bid bond is used by the bidder it shall be:

- In a form satisfactory to the Owner;
- With a surety company licensed, authorized to do business in, and subject to the jurisdiction of the courts of the State of New Hampshire; and
- Conditioned upon the faithful performance by the principal of the agreements contained in the sub-bid or the general bid.

In the event any irregularities are contained in the proposal guaranty, the bidder will have four business days (not counting the day of opening) to correct any irregularities. The corrected guaranty must be received by 4:00 p.m. If irregularities are not corrected to the satisfaction of the Owner, the Owner, in its sole discretion, may rejected the bid.

8. Delivery of Proposals

When sent by mail, the sealed proposal shall be addressed to the Owner at the address and in the care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and at the place specified in the invitation for bids. Proposals received after the time for opening of the bids will be returned to the bidder, unopened.

9. Withdrawal of Proposals

A bidder will be permitted to withdraw his or her proposal unopened after it has been submitted if the Owner receives a request for withdrawal in writing prior to the time specified for opening the proposals.

10. Public Opening of Proposals

Proposals will be opened and read publicly at the time and place indicated in the invitation for bids. Bidders, their authorized agents, and other interested parties are invited to be present.

11. Disqualification of Bidders

Any or all of the following reasons may be deemed by Owner in its sole discretion as being sufficient for the disqualification of a bidder and the rejection of his proposal:

- More than one proposal for the same work from an individual, firm, or corporation under the same or different name;
- Evidence of collusion among bidders;
- Failure to submit all required information requested in the bid specifications;
- If the Contractor is not listed with the New Hampshire Department of Transportation as a pre-qualified contractor under the classifications of either Road Construction or Site Construction;
- Lack of competency or of adequate machinery, plant or other equipment, as revealed by the statement of bidders qualification or otherwise;
- Uncompleted work which, in the judgment of the owner, might hinder or prevent the prompt completion of additional work if awarded;
- Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts;
- Default or unsatisfactory performance on previous contracts; or
- Such disqualification would be in the best interests of the Owner.

12. Material Guaranty and Samples

Before any contract is awarded, the bidder may be required to furnish a complete statement of the origin, composition and manufacture of any or all materials to be used in the construction of the work, and the Owner may, in its sole discretion, reject the bid based on the contents of the statement or as a result of the failure of the bidder to submit the statement.

AWARD AND EXECUTION OF CONTRACT

1. Consideration of Proposals

After the proposals are opened and read, they will be compared on the basis of the total price for all sections of work and any such additional considerations as may be identified in the bid documents. The results of such comparisons will be immediately available to the public. In case of a discrepancy between the prices written in words and those written figures, the prices written in words shall govern. In case of a discrepancy between the total shown in the proposal and that obtained by adding the products of the quantities of items and unit bid prices, the latter shall govern.

2. Award of Contract

Within 30 calendar days after the opening of proposals, if a contract is to be awarded, the award will be made to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified, in writing, mailed to the address on his or her proposal, that his or her bid has been accepted and that the bidder has been awarded the contract.

3. Reservation of Rights

The Owner reserves the right to reject any or all proposals, to waive technicalities or to advertise for new proposals, if, in the sole discretion of the Owner, the best interest of the City of Portsmouth will be promoted thereby. The Owner further reserves the right to modify the scope of work in the event that bids exceed budgeted amounts.

The Owner reserves the right to cancel the award of any contract at any time before the execution of such contract by all parties without any liability of the Owner.

The City reserves the right to make such inquires regarding the firm's qualifications and reputation as it deems necessary to evaluate the firm. The City reserves the right to negotiate directly with the firm selected for additional project work including construction administration services, and/or additional project engineering and design services.

The City reserves the right after bid opening and prior to award of the contact, to modify the amount of work in the event that bids exceed budgeted amount.

4. Return of Proposal Guaranty

All proposal guaranties, except those of the three lowest bidders, will be returned upon request following the opening and checking of the proposals. The proposal guaranties of the three lowest bidders will be returned within ten days following the award of the contract if requested.

5. Contract Bonds

At the time of the execution of the contract, the successful bidder shall furnish:

- A performance bond in the amount of 100 percent of the contract amount.
- Labor and materials payment bond in the sum equal to 100 percent of the contract amount.

At the time of project completion, the Contractor shall furnish a maintenance bond for the entire guaranty period. The bond shall meet the following criteria:

- The bond shall be in an amount equal to 20 percent of the contract amount. Such bond shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the contractor. The guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

Each bond shall be: (1) in a form satisfactory to the Owner; (2) with a surety company licensed and authorized to do business and with a resident agent designated for services of process in the State of New Hampshire; and (3) conditioned upon the faithful performance by the principal of the agreements contained in the original bid. All premiums for the contract bonds are to be paid by the contractor.

6. Execution and Approval of Contract

The successful bidder is required to present all contract bonds, to provide proof of insurance, and to execute the contract within 10 days following receipt of the City's notification of acceptance of the bid. No contract shall be considered as in effect until it has been fully executed by all parties.

7. Failure to Execute Contract

Failure to execute the contract and file acceptable bonds within 10 days after notification of acceptance of bid shall be just cause for the cancellation of the award and the forfeiture of the proposal guarantee which shall become the property of the Owner, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lowest responsible bidder, or the City may exercise its reserved rights including the rejection of all bids or re-advertisement.

PROPOSAL FORM

SAGAMORE CREEK BRIDGE REPLACEMENT

CITY OF PORTSMOUTH, N.H.

To the City of Portsmouth, New Hampshire, herein called the Owner.

The undersigned, as Bidder, herein referred to as singular and masculine declares as follows:

1. All interested in the Bid as Principals are named herein.

2. This bid is not made jointly, or in conjunction, cooperation or collusion with any other person, firm, corporation, or other legal entity;

3. No officer, agent or employee of the Owner is directly or indirectly interested in this Bid.

4. The bidder has carefully examined the sites of the proposed work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this Bid, and the bidder has carefully read and examined the Drawings, Agreement, Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;

5. The bidder understands that the quantities of work calculated in the Bid or indicated on the Drawings or in the Specifications or other Contract Documents are approximate and are subject to increase or decrease or deletion as deemed necessary by the Portsmouth City Engineer. Any such changes will not result in or be justification for any penalty or increase in contract prices; and agrees that, if the Bid is accepted the bidder will contract with the Owner, as provided in the Contract Documents, this Bid Form being part of said Contract Documents, and that the bidder will supply or perform all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other activities required by the Contract Documents in the manner and within the time therein set forth, and that the bidder will take in full payment therefor the following item prices, to wit:

PROPOSAL FORM (continued)

THIS PROJECT SHALL BE BID BY UNIT PRICES.

BASE BID SCOPE ITEMS, QUANTITIES, AND PRICING ARE AS FOLLOWS:

(*) In Quantity Column Designates Available Owner-supplied Materials as Described in the Prosecution of Work – Bidder to initial at bid summary to indicate source choice accordingly.

Base Bid

ITEM #	ESTIMATE QUANTITY & UNIT	ITEM DESCIPTION, UNIT, & UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	ITEM TOTAL IN FIGURES
201.1	0.21 AC	Clearing and Grubbing (F), Per Acre		
		_____	$_____	$_____
201.21	1 EA	Removing Small Trees, Per Each		
		_____	$_____	$_____
201.881	560 SY	Invasive Species Control Type I, Per Square Yard		
		_____	$_____	$_____
201.882	140 SY	Invasive Species Control Type II, Per Square Yard		
		_____	$_____	$_____
202.41	340 LF	Removal of Existing Pipe, 0-24” Diameter, Per Linear Foot		
		_____	$_____	$_____
202.5	2 EA	Removal of Catch Basins, Drop Inlets, and Manholes, Per Each		
		_____	$_____	$_____
202.6	125 LF	Curb Removal for Storage, Per Linear Foot		
		_____	$_____	$_____

202.7	620 LF	Removal of Guardrail, Per Linear Foot		
		_____	$_____	$_____
203.1	1,650 CY	Common Excavation, Per Cubic Yard		
		_____	$_____	$_____
203.2	165 CY	Rock Excavation, Per Cubic Yard		
		_____	$_____	$_____
203.5555	1 U	Guardrail 25 Ft. EAGRT Platform, Per Unit		
		_____	$_____	$_____
203.6	198 CY	Embankment-in-Place (F), Per Cubic Yard		
		_____	$_____	$_____
206.1	150 CY	Common Structure Excavation, Per Cubic Yard		
		_____	$_____	$_____
206.19	10 CY	Common Structure Excavation Exploratory, Per Cubic Yard		
		_____	$_____	$_____
209.1	70 CY	Granular Backfill, Per Cubic Yard		
		_____	$_____	$_____
209.201	1,517~~1,323~~ CY	Granular Backfill (Bridge) (F), Per Cubic Yard		
		_____	$_____	$_____
210.6	1 U	Mobilization and Demobilization for Test Boring Drilling Equipment, Per Unit		
		_____	$_____	$_____
210.61	~~200~~ 90 LF	Advancing Cased Boring Hole, Per Linear Foot		
		_____	$_____	$_____

210.62	~~108~~ 60 LF	Advancing Boring Hole by Diamond Core Drilling, Per Linear Foot		
		_____	$_____	$_____
214.	1 U	Fine Grading, Per Unit		
		_____	$_____	$_____
304.1	523 CY	Sand (F), Per Cubic Yard		
		_____	$_____	$_____
304.4	675 CY	Crushed Stone (Fine Gradation) (F), Per Cubic Yard		
		_____	$_____	$_____
304.5	523 CY	Crushed Stone (Course Gradation) (F), Per Cubic Yard		
		_____	$_____	$_____
403.11	970 TON	Hot Bituminous Pavement, Machine Method, Per Ton		
		_____	$_____	$_____
403.12	180 TON	Hot Bituminous Pavement, Hand Method, Per Ton		
		_____	$_____	$_____
403.6	6,500 LF	Pavement Joint Adhesive, Per Linear Foot		
		_____	$_____	$_____
403.911	83 TON	Hot Bituminous Bridge Pavement, 1” Base Course (F), Per Ton		
		_____	$_____	$_____
411.1	110 TON	Hot Bituminous Concrete Leveling Course, Per Ton		
		_____	$_____	$_____

417.	1,850 SY	Cold Planing Bituminous Surfaces, Per Square Yard		
		_____	$_____	$_____
500.02	1 U	Access For Bridge Construction, Per Unit		
		_____	$_____	$_____
502.	1 U	Removal of Existing Bridge Structure, Per Unit		
		_____	$_____	$_____
503.201	1 U	Cofferdams		
		_____	$_____	$_____
504.1	~~2,500~~3,000 CY	Common Bridge Excavation (F), Per Cubic Yard		
		_____	$_____	$_____
508.	200 CY	Structural Fill, Per Cubic Yard		
		_____	$_____	$_____
509.1	1 U	Mobilization and Demobilization of Drilled Shaft Drilling Equipment, Per Unit		
		_____	$_____	$_____
509.2	~~430~~ 237 LF	Drilled Shaft, Per Linear Foot		
		_____	$_____	$_____
509.3	~~100~~ 40 LF	Obstruction Removal, Per Linear Foot		
		_____	$_____	$_____
509.4	60~~120~~ LF	Rock Socket Excavation, Per Linear Foot		
		_____	$_____	$_____
509.5	~~10~~ 4 EA	Crosshole Sonic Logging (CSL) Tests, Per Each		
		_____	$_____	$_____

509.6	~~130,000~~50,000 LB	Drilled Shaft Reinforcing Steel, Epoxy Coated (Contractor Detailed), Per Pound		
		_____	$_____	$_____
510.101	1 U	Mobilization & Demobilization of Micropile Equipment, Per Unit		
		_____	$_____	$_____
510.201	2 EA	Micropile Proof Load Testing		
		_____	$_____	$_____
510.202	1 EA	Micropile Verification Load Testing		
		_____	$_____	$_____
510.301	1,147 LF	Furnish Micropile Bearing Piles		
		_____	$_____	$_____
520.0102	~~658~~ 618 CY	Concrete Class AA (QC/QA) (F), Per Cubic Yard		
		_____	$_____	$_____
520.0302	62 CY	Concrete Class AA, Approach Slabs (QC/QA) (F), Per Cubic Yard		
		_____	$_____	$_____
520.2	20 CY	Concrete Class B, Per Cubic Yard		
		_____	$_____	$_____
520.213	~~181~~ 330 CY	Concrete Class B, Footings (On Soil) (F), Per Cubic Yard		
		_____	$_____	$_____
520.70026	680 CY	Concrete Bridge Deck (QC/QA) (Panel Option) (F), Per Cubic Yard		
		_____	$_____	$_____
520.99	~~3,000~~2,700 SF	Form Liner for Concrete Surfaces, Per Square Yard		
		_____	$_____	$_____

534.3	~~120~~ 110 GAL	Water Repellent (Silane-Siloxane), Per Gallon		
		_____	$_____	$_____
538.2	~~27~~ 22 SY	Barrier Membrane, Vertical Surfaces (F), Per Square Yard		
		_____	$_____	$_____
538.5	22 SY	Barrier Membrane, Welded by Torch (F), Per Square Yard		
		_____	$_____	$_____
538.6	1,586 SY	Barrier Membrane, Welded by Torch Machine Method (F), Per Square Yard		
		_____	$_____	$_____
541.1	~~125~~ 112 LF	PVC Waterstops, NH Type 1 (F), Per Linear Foot		
		_____	$_____	$_____
541.4	62 LF	PVC Waterstops, NH Type 4 (F), Per Linear Foot		
		_____	$_____	$_____
544.3	~~58,000~~37,000 LB	Reinforcing Steel (Contractor Detailed), Per Pound		
		_____	$_____	$_____
544.31	~~326,100~~ 354,100 LB	Reinforcing Steel, Epoxy Coated (Contractor Detailed), Per Pound		
		_____	$_____	$_____
544.7	434 LB	Synthetic Fiber Reinforcement, Per Pound		
		_____	$_____	$_____
547.1	5,055 EA	Shear Connectors (F), Per Each		
		_____	$_____	$_____

548.21	20 EA	Elastomeric Bearing Assemblies (F), Per Each		
		_____	$_____	$_____
550.1	686,200 LB	Structural Steel (F), Per Pound		
		_____	$_____	$_____
~~556.201~~	~~1 U~~	~~Containment and Environmental Protection, Per Unit~~		
		~~_____~~	~~$_____~~	~~$_____~~
~~556.301~~	~~1 U~~	~~Worker Protection, Per Unit~~		
		~~_____~~	~~$_____~~	~~$_____~~
~~556.401~~	~~1 U~~	~~Waste Management, Per Unit~~		
		~~_____~~	~~$_____~~	~~$_____~~
561.11	86 LF	Prefabricated Expansion Joint, Type A (F), Per Linear Foot		
		_____	$_____	$_____
562.1	62 LF	Silicone Joint Sealant (F), Per Linear Foot		
		_____	$_____	$_____
563.24	1,112 LF	Bridge Rail T4, Per Linear Foot		
		_____	$_____	$_____
565.242	3 U	Bridge Approach Rail T4 (Steel Posts) (F), Per Unit		
		_____	$_____	$_____
585.21	600 CY	Stone Fill, Class B (Bridge), Per Cubic Yard		
		_____	$_____	$_____

585.3	~~15~~ 60 CY	Stone Fill, Class C, Per Cubic Yard		
		_____	$_____	$_____
593.411	900 SY	Geotextile; Perm. Erosion Control, Class 1, Non-Woven, Per Square Yard		
		_____	$_____	$_____
593.421	~~75~~ 160 SY	Geotextile; Perm. Control Class 2; Non-Woven Filter Category 2, Per Square Yard		
		_____	$_____	$_____
603.0001	~~700~~ 710 LF	Video Inspection, Per Linear Foot		
		_____	$_____	$_____
603.00215	~~470~~ 500 LF	15" R.C. Pipe, 2000D, Per Linear Foot		
		_____	$_____	$_____
603.00315	130 LF	15" R.C. Pipe, 3000D, Per Linear Foot		
		_____	$_____	$_____
603.36115	3 EA	15” Aluminized Steel End Sections, Per Each		
		_____	$_____	$_____
603.82206	30 LF	6” PE Pipe (Type S), Per Linear Foot		
		_____	$_____	$_____
603.82212	10 LF	12” PE Pipe (Type S), Per Linear Foot		
		_____	$_____	$_____
603.82215	~~80~~ 70 LF	15” PE Pipe (Type S), Per Linear Foot		
		_____	$_____	$_____
604.0007	12 EA	Polyethylene Liner, Per Each		
		_____	$_____	$_____

604.12	~~15~~ 14U	Catch Basins, Type B, Per Unit		
		_____	$_____	$_____
604.125	2 U	Catch Basins, Type B, 5' Diameter, Per Unit		
		_____	$_____	$_____
604.32	2U	Drainage Manholes, Per Unit		
		_____	$_____	$_____
604.325	1 U	Drainage Manholes, 5' Diameter, Per Unit		
		_____	$_____	$_____
604.9109	1 U	Flow Control Structure, Per Unit		
		_____	$_____	$_____
605.906	32 LF	6" Pipe Underdrain (Contractor 's Option), Per Linear Foot		
		_____	$_____	$_____
606.120	200 LF	Beam Guardrail (Standard Section-Steel Posts), Per Linear Foot		
		_____	$_____	$_____
606.1255	1 U	Beam Guardrail (Term. Unit Type EAGRT 25 Feet), Per Unit		
		_____	$_____	$_____
606.1270	2 U	Beam Guardrail (Term. Unit Type G-2, Steel Post), Per Unit		
		_____	$_____	$_____
606.417	170 LF	Portable Concrete Barrier for Traffic Control, Per Linear Foot		
		_____	$_____	$_____
608.34	405 SY	4" Reinforced Concrete Sidewalk (F), Per Square Yard		
		_____	$_____	$_____

608.36	6 SY	6” Reinforced Concrete Sidewalk (F), Per Square Yard		
		_____	$_____	$_____
608.54	2 SY	Detectable Warning Devices, Cast Iron, Per Square Yard		
		_____	$_____	$_____
609.01	1,310 LF	Straight Granite Curb, Per Linear Foot		
		_____	$_____	$_____
609.02	130 LF	Curved Granite Curb, Per Linear Foot		
		_____	$_____	$_____
611.05206	40 LF	6” Cement Lined Ductile Iron Water Pipe, CL 52, Per Liner Foot		
		_____	$_____	$_____
611.05210	130 LF	10” Cement Lined Ductile Iron Water Pipe, CL 52, Per Liner Foot		
		_____	$_____	$_____
611.05212	110 LF	12” Cement Lined Ductile Iron Water Pipe, CL 52, Per Liner Foot		
		_____	$_____	$_____
611.06210	420 LF	10” Cement Lined Ductile Iron Bridge Crossing Pipe, CL 52, Per Liner Foot		
		_____	$_____	$_____
611.35220	60 LF	20” Casing Pipe 1/12” Cement Lined DI MJ, CL 52 Carrier Pipe, Per Linear Foot		
		_____	$_____	$_____
611.70006	1 EA	6” Fitting, Per Each		
		_____	$_____	$_____

611.70010	4 EA	10” Fitting, Per Each		
		_____	$_____	$_____
611.70012	9 EA	12” Fitting, Per Each		
		_____	$_____	$_____
611.71006	1 EA	6” Gate Valve, Per Each		
		_____	$_____	$_____
611.71012	2 EA	12” Gate Valve, Per Each		
		_____	$_____	$_____
611.74	1 EA	Chlorine Injection Tap, Per Each		
		_____	$_____	$_____
611.81	1 EA	Hydrants, Per Each		
		_____	$_____	$_____
611.90001	3 EA	Adjusting Water Gates and Shut Offs Set by Others, Per Each		
		_____	$_____	$_____
611.952	480 LF	Round Rigid Pipe Insulation, Per Linear Foot		
		_____	$_____	$_____
613.1	1 U	Underground Infiltration System, Per Unit		
		_____	$_____	$_____
615.03	23 SF	Traffic Sign Type C (F), Per Square Foot		
		_____	$_____	$_____
615.033	2 U	Removing Traffic Sign Type C, Per Unit		
		_____	$_____	$_____
615.034	5 U	Relocating Traffic Sign Type C, Per Unit		
		_____	$_____	$_____

618.6	$	Uniformed Officers		
			$1,650.00	$1,650.00
618.7	2,000 HR	Flaggers		
		_____	$_____	$_____
619.1	1 U	Maintenance of Traffic, Per Unit		
		_____	$_____	$_____
619.25	2 U	Portable Changeable Message Sign, Per Unit		
		_____	$_____	$_____
621.2	5 EA	Retroreflective Beam Guardrail Delineator (White), Per Each		
		_____	$_____	$_____
621.31	4 EA	Single Delineator with Post, Per Each		
		_____	$_____	$_____
622.1	~~4~~ 3 EA	Steel Witness Markers, Per Each		
		_____	$_____	$_____
628.2	750 LF	Sawed Bituminous Pavement, Per Linear Foot		
		_____	$_____	$_____
632.0104	5,550 LF	Retroreflective Paint Pavement Marking, 4" Line, Per Liner Foot		
		_____	$_____	$_____
632.3106	230 LF	Retroreflective, Thermoplastic Pavement Marking, 6" Line, Per Liner Foot		
		_____	$_____	$_____
632.3118	30 LF	Retroreflective Thermoplastic Pavement		

		Marking, 18" Line, Per Linear Foot		
		_____	$_____	$_____
641.	180 CY	Loam , Per Cubic Yard		
		_____	$_____	$_____
643.21	280 LB	Fertilizer For Refertilization, Per Pound		
		_____	$_____	$_____
644.15	40 LB	Park Seed, Type 15, Per Pound		
		_____	$_____	$_____
645.0001	1,000 LF	Turbidity Curtain, Per Linear Foot		
		_____	$_____	$_____
645.3	330 TON	Erosion Stone, Per Ton		
		_____	$_____	$_____
645.52	1,600 SY	Temporary Slope Stabilization, Type B (Wildlife Friendly), Per Square Yard		
		_____	$_____	$_____
645.512	600 LF	Compost Stock for Perimeter Berm, Per Linear Foot		
		_____	$_____	$_____
645.531	1,500 LF	Silt Fence, Per Linear Foot		
		_____	$_____	$_____
645.7	1 U	Storm Water Pollution Prevention Plan (SWPPP), Per Unit		
		_____	$_____	$_____
645.71	260 HR	Monitoring SWPPP And Erosion and Sediment Controls, Per Hour		
		_____	$_____	$_____

646.31	1,600 SY	Turf Establishment with Mulch and Tackifiers, Per Square Yard		
		_____	$_____	$_____
670.6051	2 CY	Pea Stone, Per Cubic Yard		
		_____	$_____	$_____
670.641	8 CY	Sand Filter Media Mix, Per Cubic Yard		
		_____	$_____	$_____
~~670.9~~	~~1 U~~	~~Temporary Stabilization of Utility Infrastructure, Per Unit~~		
		~~_____~~	~~$_____~~	~~$_____~~
692.	1U	Mobilization		
		_____	$_____	$_____
693.	$	On the Job Training of Unskilled Workers, Per $		
			$600.00	$600.00
697.11	1 U	Invasive Species Control and Management Plan, Per Unit		
		_____	$_____	$_____
697.41	1 U	Critical Path Method (CPM) Electronic Schedule, Per Unit		
		_____	$_____	$_____
698.12	24 MO	Field Office, Type B, Per MO		
		_____	$_____	$_____
698.2	21 MO	Physical Testing Laboratory, Per MO		
		_____	$_____	$_____
699.	$	Miscellaneous Temporary Erosion and Sediment Control, Per $		
			$20,000.00	$20,000.00

1008.8	$	Winter Maintenance, Per $		
			$25,000.00	$25,000.00
1010.15	$	Fuel Adjustment, Per $		
			$70,000.00	$70,000.00
1010.2	$	Asphalt Cement Adjustment, Per $		
			$10,000.00	$10,000.00
1010.41	$	Quality Control/Quality Assurance (QC/QA) for Concrete, Per $		
			~~$~~ $10,000.00	$$10,000.00

PROPOSAL FORM (continued)

To Bidder: It is the intention of this contract that the items listed above describe completely and thoroughly the entirety of the work as shown on the plans and as described in the specifications. All other items required to accomplish the above items are considered to be subsidiary work, unless shown as a pay item.

TOTAL FOR PROJECT (BASE BID) AND BASIS FOR AWARD

In Figures $_____

In Words $_____

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the Contract Documents, the bidder will accept compensation as stipulated therein.

_____
Date

_____
Company

By:_____
Signature

_____
Business Address

Title:_____

City, State, Zip Code Telephone:_____

We certify that the Company is currently pre-qualified with the State of New Hampshire for Site Work or Road Construction.

The Bidder has received and acknowledged Addenda No._____through _____.
All Bids are to be submitted on this form and in a sealed envelope, plainly marked on the outside with the Bidder's name and address and the Project name as it appears at the top of the Proposal Form.

In order to follow the City's sustainability practices, future bid invitations/specifications may be sent electronically. Please provide an email address as to where I could email future bid invitations/specifications of this type. Thank you in advance for your cooperation.

Email Address:_____

BID SECURITY BOND

(This format provided for convenience, actual Bid Bond is acceptable in lieu of, if compatible.)

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned

_____, as Principal, and

_____, as Surety, are hereby

held and firmly bound unto _____

IN THE SUM OF _____

as liquidated damages for payment of which, well and truly to be made we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of this obligation is such that whereas the Principal has submitted to the

_____ _____

A CERTAIN Bid attached hereto and hereby made a part hereof to enter into a contract in writing, hereinafter referred to as the "AGREEMENT" and or "CONTRACT", for

_____

_____

_____

NOW THEREFORE,

(a) If said Bid shall be rejected or withdrawn as provided in the INFORMATION FOR BIDDERS attached hereto or, in the alternative,

(b) If said Bid shall be accepted and the Principal shall duly execute and deliver the form of AGREEMENT attached hereto and shall furnish the specified bonds for the faithful performance of the AGREEMENT and/or CONTRACT and for the payment for labor and materials furnished for the performance of the AGREEMENT and or CONTRACT,

then this obligation shall be void , otherwise it shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder in no event shall exceed the amount of this obligation.

BID SECURITY BOND (continued)

The Surety, for value received, hereby agrees that the obligation of said surety and its bond shall be in no way impaired or affected by any extensions of the time within such BID may be accepted, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the parties hereto have duly executed

this bond on the _____ day of _____, 20__.

_____L.S.
(Name of Principal)

(SEAL)

BY _____

_____
(Name of Surety)

BY _____

STATEMENT OF BIDDER'S QUALIFICATIONS

Supply with Bid

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Add separate sheets if necessary

1. Name of Bidder

2. Permanent Main Office Address

3. Form of Entity

4. When Organized

5. Where Organized

6. How many years have you been engaged in the contracting business under your present name; also state names and dates of previous firm names, if any.

7. Contracts on hand; (schedule these, showing gross amount of each contract and the approximate anticipated dates of completion).

8. General character of work performed by your company.

9. Have you ever failed to complete any work awarded to you? _____(no)____(yes). If so, where and why?

10. Have you ever defaulted on a contract?
_____(no)_____(yes). If so, where and why?

11. Have you ever failed to complete a project in the time allotment according to the Contract Documents?
_____(no)_____(yes). If so, where and why?

12. List the most important contracts recently executed by your company, stating approximate cost for each, and the month and year completed.

13. List your major equipment available for this contract.

14. List your key personnel such as project superintendent and foremen available for this contract.

STATEMENT OF BIDDERS QUALIFICATIONS (continued)

15. List any subcontractors whom you would expect to use for the following (unless this work is to be done by your own organization).
a.

16. With what banks do you do business?

a. Do you grant the Owner permission to contact this/these institutions?
____(yes) ___(no).

b. Latest Financial Statements, certified audited if available, prepared by an independent certified public accountant, may be requested by Owner. If requested, such statements must be provided within five (5) business days or the bid proposal will be rejected. Certified Audited Statement are preferred. Internal statements may be attached only if independent statements were not prepared.

17. Please identify any adverse governmental/agency decisions or actions against the company within the last three years excluding: workers compensation claims, wage claims, and OSHA actions that did not involve a penalty, fine or sanction of over $1,000.

BY SUBMITTING THIS QUALIFICATIONS STATEMENT YOU AUTHORIZE THE CITY OF PORTSMOUTH, NH AND ITS CONSULTING ENGINEERS TO UNDERTAKE SUCH INVESTIGATION AS IS NECESSARY TO VERIFY THE STATEMENTS MADE AND TO CONFIRM THAT BIDDER HAS THE QUALIFICATIONS AND REPUTATION NECESSARY TO COMPLETE THE PROJECT. BIDDER MAY BE ASKED TO AUTHORIZE RELEASES TO OBTAIN INFORMATION FROM THIRD PARTIES. FAILURE TO EXECUTE AN AUTHORIZATION IF REQUESTED MAY RESULT IN DISQUALIFICATON.

Dated at _____ this _____ day of _____, 20___.

_____
Name of Bidder

BY_____

TITLE_____

State of_____, County of_____

_____being duly sworn, deposes and

says that the bidder is _____of_____
(Name of Organization)

and answers to the foregoing questions and all statements contained therein are true and correct.

Sworn to before me this ____day of _____, 20__.

_____
Notary of Public My Commission expires_____

CONTRACT AGREEMENT

SAGAMORE CREEK BRIDGE REPLACEMENT

THIS AGREEMENT made as of the _____day of _____ in the year **2013,** by and between the City of Portsmouth, New Hampshire (hereinafter call the Owner) and _____ _____(hereinafter called the Contractor),

WITNESSETH; that the Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE I- Work - The Contractor shall perform all work as specified or indicated in the Contract Documents for the completion of the Project. The Contractor shall provide, at his expense, all labor, materials, equipment and incidentals as may be necessary for the expeditious and proper execution of the Project.

ARTICLE II - ENGINEER - The Engineer as used in this Contract shall refer to the Director of Public Works, or his authorized representative will act as engineer in connection with completion of the Project in accordance with the Contract Documents.

ARTICLE III - CONTRACT TIME - The work will commence in accordance with the Notice to Proceed. **The new Sagamore Creek Bridge shall be open to traffic prior to December 1, 2014. All work shall be completed no later than June 1, 2015.**

ARTICLE IV - CONTRACT PRICE - Owner shall pay Contractor for performance of the work in accordance with the Contract Documents as shown under item prices in the Bid Proposal.

ARTICLE V - PAYMENT - Partial payments will be made in accordance with the Contract Documents. Upon final acceptance of the work and settlement of all claims, Owner shall pay the Contractor the unpaid balance of the Contract Price, subject to additions and deductions provided for in the Contract Documents.

ARTICLE VI - RETAINAGE – There shall be no retainage withheld as a part of this contract.

ARTICLE VII - LIQUIDATED DAMAGES - In event the Contractor fails to successfully execute the work within the specified contract time the Owner shall assess the Contractor liquidated damages in the amount of **One Thousand Five Hundred and Sixty Seven dollars ($1,567)** for each calendar day beyond the specified completion date for each section of work. Liquidated damages shall be deducted from the Contract Price prior to final payment of the Contractor.

CONTRACT AGREEMENT (continued)

ARTICLE VIII – CONTRACT DOCUMENTS – The Contract Documents which comprise the contract between Owner and Contractor are attached hereto and made a part hereof and consist of the following:

8.1 This Agreement
8.2 Contractor's Bid and Bonds
8.3 Notice of Award, Notice to Proceed
8.4 Instruction to Bidders
8.5 General Requirements, Control of Work, Temporary Facilities, Insurance Requirements, Measurement and Payment
8.6 Special Conditions and Critical Timelines, Prosecution of Work, Traffic Control Plan, Environmental Commitments
8.7 Standard and Technical Specifications
8.8 Drawings
8.9 Special Attentions and Special Provisions, Special Conditions and Critical Timelines
8.10 Any modifications, including change orders, duly delivered after execution of this Agreement.

ARTICLE IX – TERMINATION FOR DEFAULT – Should contractor at any time refuse, neglect, or otherwise fail to supply a sufficient number or amount of properly skilled workers, materials, or equipment, or fail in any respect to prosecute the work with promptness and diligence, or fail to perform any of its obligations set forth in the Contract, Owner may, at its election, terminate the employment of Contractor, giving notice to Contractor in writing of such election, and enter on the premises and take possession, for the purpose of completing the work included under this Agreement, of all the materials, tools and appliances belonging to Contractor, and to employ any other persons to finish the work and to provide the materials therefore at the expense of the Contractor.

ARTICLE X – INDEMNIFICATION OF OWNER – Contractor will indemnify Owner against all suits, claims, judgments, awards, loss, cost or expense (including without limitation attorneys' fees) arising in any way out of the Contractor's negligent performance of its obligations under this Contract. Contractor will defend all such actions with counsel satisfactory to Owner at its own expense, including attorney's fees, and will satisfy any judgment rendered against Owner in such action.

ARTICLE XI – PERMITS – The Contractor will secure at its own expense, all permits and consents required by law as necessary to perform the work and will give all notices and pay all fees and otherwise comply with all applicable City, State, and Federal laws, ordinances, rules and regulations.

ARTICLE XII – INSURANCE – The Contractor shall secure and maintain, until acceptance of the work, insurance with limits not less than those specified in the Contract.

ARTICLE XIII – MISCELLANEOUS –

A. Neither Owner nor Contractor shall, without the prior written consent of the other, assign, sublet or delegate, in whole or in part, any of its rights or obligations under any of the Contract Documents; and, specifically not assign any monies due, or to become due, without the prior written consent of Owner.

B. Owner and Contractor each binds himself, his partners, successors, assigns and legal representatives, to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents.

C. The Contract Documents constitute the entire Agreement between Owner and Contractor and may only be altered amended or repealed by a duly executed written instrument.

D. The laws of the State of New Hampshire shall govern this Contract without reference to the conflict of law principles thereof.

E. Venue for any dispute shall be the Rockingham County Superior Court unless the parties otherwise agree.

IN WITNESS WHEREOF, the parties hereunto executed this

AGREEMENT the day and year first above written.

CONTRACTOR

BY:_____

TITLE:_____

CITY OF PORTSMOUTH, N.H.

BY:_____
John P. Bohenko

TITLE: City Manager

NOTICE OF INTENT TO AWARD

Date:

TO:

IN AS MUCH as you were the low responsible bidder for work entitled:

SAGAMORE CREEK BRIDGE REPLACEMENT

You are hereby notified that the City intends to award the aforesaid project to you.

Immediately take the necessary steps to execute the Contract and to provide required bonds and proof of insurance within ten (10) calendar days from the date of this Notice.

The City reserves the right to revoke this Notice if you fail to take the necessary steps to execute this Contract.

City of Portsmouth
Portsmouth, New Hampshire

Judie Belanger,
Finance Director

NOTICE TO PROCEED

DATE: , 2013

SAGAMORE CREEK BRIDGE REPLACEMENT

TO:

YOU ARE HEREBY NOTIFIED TO COMMENCE WORK IN ACCORDANCE

WITH THE AGREEMENT DATED , 2013. ALL WORK SHALL BE COMPLETED NO LATER THAN JUNE 1, 2015.

CITY OF PORTSMOUTH, N.H.

_____

BY: Peter Rice, P.E.

TITLE: Public Works Director

ACCEPTANCE OF NOTICE

RECEIPT OF THE ABOVE NOTICE TO PROCEED IS HEREBY ACKNOWLEDGED BY

_____

This the _____day of_____ 20__

By:_____

Title:_____

CHANGE ORDER

Change Order Number Date of Issuance:

Owner: CITY OF PORTSMOUTH, N.H

Contractor:

You are directed to make the following changes in the Contract Documents:

Description:

Purpose of Change Order:

Attachments:

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIME
Original Contract Price: $	Original Completion Date:
Contract Price prior to this Change Order: $	Contract Time prior to this Change Order:
Net Increase of this Change Order: $	Net Increase of this Change Order:
Contract Price with all approved Change Orders: $	Contract Time with all approved Change Orders:

RECOMMENDED:		APPROVED:	APPROVED:
by_____	by_____	by_____	by_____
PW Director	City Finance	City Manager	Contractor

PERFORMANCE BOND

(This format provided for convenience, actual Performance
Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS

that _____as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of_____ and authorized to do business in the State of New Hampshire as surety, hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, in the amount of _____ Dollars ($_____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents. WHEREAS, Contractor has by written agreement dated _____ entered into a contract with Owner for _____in accordance with drawings and specifications prepared by the Public Works Department, 680 Peverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Contractor shall well and faithfully do and perform the things agreed by him to be done and performed, according to the terms of said Contract and such alterations as may be made in said Contract during progress work, and shall further indemnify and save harmless the said Owner in accordance with the Contract and shall remedy without cost to the Owner any defect which may develop within one year from the time of completion and acceptance of the work.

The Surety hereby waives notice of any alteration in work or extension of time made by the Owner or any of its agents or representatives.

Whenever Contractor shall be, and declared by Owner to be, in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

(1) Complete the Contract in accordance with its terms and conditions, or

PERFORMANCE BOND (continued)

(2) Obtain a bid or bids for submission to the Owner for completing the Contract in accordance with its terms and conditions, and upon determination by Owner and Surety of the lowest responsible bidder, arrange for a contract between such bidder and Owner and make available as work progresses (even though there should be a default or a succession of defaults under the contract of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price", as used in this paragraph, shall mean the total amount payable by the Owner to Contractor under the Contract and any amendments thereto, less the amount paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of (2) years from the date on which final payment under the contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of Owner.

Signed and sealed this _____ day of _____

A.D., 20___ .

In the presence of:

_____ BY: _____

(Witness) (Principal) (Seal)

_____

(Surety Company)

_____ BY: _____

(Witness) (Title) (Seal)

Note:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

LABOR AND MATERIAL PAYMENT BOND

(This format provided for convenience, actual Labor and Material Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS:

that _____

as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of

_____ and authorized to do business in the State of New Hampshire hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, for the use and benefit of claimants as herein below defined, in the

amount of _____ Dollars ($_____), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____ entered into a

contract with Owner for _____ in accordance with drawings and specifications prepared by the Public Works Department, 680 Peverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and for the hire of all equipment, tools, and all other things contracted for or used in connection therewith, then this obligation shall be void, otherwise it shall remain in full force and effect, subject however, to the following conditions:

(1) A claimant is defined as one having a direct contract with the Principal or, with a subcontractor of the Principal for labor, material, equipment, or other things used or reasonably required for use in the performance of the Contract. "Labor and material" shall include but not be limited to that part of water, gas, power, light, heat, oil and gasoline, telephone service or rental of equipment applicable to the Contract.

(2) The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such a claimant, may sue on this bond for the use of such claimant, prosecute the suit by final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any such suit or any costs or expenses of any such suit, and principal and surety shall jointly and severally indemnify, defend and hold the Owner harmless for any such suit, costs or expenses.

(3) No suit or action shall be commenced hereunder by any claimant:

(a) Unless Claimant, other than one having a direct contract with the Principal, shall have given notice to all the following:

LABOR AND MATERIAL PAYMENT BOND (continued)

The Principal, the Owner and the Surety above named, within six (6) calendar months after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State of New Hampshire save that such service need not be made by a public officer.

(b) After the expiration of one (1) year following the date on which Principal ceased all work on said contract, it being understood , however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

(c) Other than in a State court of competent jurisdiction in and for the county or other political subdivision of the State in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere. (4) The amount of this bond may be reduced by and to the extent of any payment of payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed on record against said improvement, whether or not claim for the amount of such lien by presented under and against this bond.

Signed and sealed this _____ day of _____, 20____. In the presence of:

_____ BY: _____
(Witness) (Principal) (Seal)

_____
(Surety Company)

_____ BY: _____
(Witness) (Title) (Seal)

Note:
If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

MAINTENANCE BOND

A maintenance bond in the amount of **Twenty Percent (20%)** of the contract price with a corporate surety approved by the Owner shall be provided at the time of Contract completion. Such bond shall guarantee the repair of all damage due to faulty materials or workmanship provided or done by the Contractor. This guarantee shall remain in effect for a period of one year after the date of final acceptance of the job by the Owner.

CONTRACTOR'S AFFIDAVIT

STATE OF _____:

COUNTY OF _____:

Before me, the undersigned, a _____
(Notary Public, Justice of the Peace)

in and for said County and State personally appeared, _____
(Individual, Partner, or duly authorized representative of Corporate)

who, being duly sworn, according to law deposes and says that the cost of labor, material, and equipment and outstanding claims and indebtedness of whatever nature arising out of the performance of the Contract between

CITY OF PORTSMOUTH, NEW HAMPSHIRE

and
(Contractor)

of _____

Dated: _____

has been paid in full for Construction of:

SAGAMORE CREEK BRIDGE REPLACEMENT

_____

(Individual, Partner, or duly authorized representative of Corporate Contractor)

Sworn to and subscribed
before me this _____day
of _____ 20____

_____

CONTRACTOR'S RELEASE

KNOW ALL MEN BY THESE PRESENTS that _____does hereby acknowledge that _____ has on this day had, and received from the CITY OF PORTSMOUTH NEW HAMPSHIRE, final and completed payment for the Construction of:

SAGAMORE CREEK BRIDGE REPLACEMENT

NOW THEREFORE, the _____, for myself, my heirs, executors, and administrators) (for itself, its successors and assigns) do/does by these presents remise, release, quit-claim and forever discharge the City of Portsmouth, New Hampshire, its successors and assigns, of and from all claims and demands arising from or in connection with the said Contract dated _____, and of and from all, and all manners of action and actions, cause and causes of action and actions, suits, debts, dues, duties, sum and sums of money, accounts, reckonings, bonds, bills, specifications, covenants, contracts, agreements, promises, variances, damages, judgments, extents, executions, claims and demand, whatsoever in law of equity, or otherwise, against the City of Portsmouth, New Hampshire, its successors and assigns, which (I, my heirs, executors, or administrators) (it, its successors and assigns) ever had, now have or which (I, my heirs, executors, or administrators) (it, its successors and assigns) hereafter can shall or may have, for, upon or by reason of any matter, cause, or thing whatsoever; from the beginning of record time to the date of these presents.

IN WITNESS WHEREOF,

Contractor:

_____ By:_____

print name of witness:_____ Its Duly Authorized _____

Dated: _____

GENERAL REQUIREMENTS

SCOPE OF WORK

1. INTENT OF CONTRACT

The intent of the Contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the terms of the Contract. The Contractor shall be required to conform to the intent of the plans and specifications. No extra claims shall be allowed for portions of the work not specifically addressed in the plans and specifications but required to produce a whole and complete project, such work will be considered subsidiary to the bid items.

2. INCIDENTAL WORK

Incidental work items for which separate payment is not measured includes, but is not limited to, the following items:

a. Clearing, grubbing and stripping (unless otherwise paid for)
b. Clean up
c. Plugging existing sewers and manholes
d. Signs
e. Mobilization/Demobilization (unless otherwise paid for)
f. Restoration of property
g. Cooperation with other contractors, abutters and utilities.
h. Utility crossings, (unless otherwise paid for)
i. Minor items - such as replacement of fences, guardrails, rock wall, etc.
j. Steel and/or wood sheeting as required.
k. Accessories and fasteners or components required to make items paid for under unit prices or lump sum items complete and functional.

3. ALTERATION OF PLANS OR OF CHARACTER OF WORK

The Owner reserves the right, without notice to Surety, to make such alterations of the plans or of the character of the work as may be necessary or desirable to complete fully and acceptably the proposed construction; provided that such alterations do not increase or decrease the contract cost. Within these cost limits, the alterations authorized in writing by the Owner shall not impair or affect any provisions of the Contract or bond and such increases or decreases of the quantities as a result from these alterations or deletions of certain items, shall not be the basis of claim for loss or for anticipated profits by the contractor. The contractor shall perform the work as altered at the contract unit price or prices.

4. EXTRA WORK ITEMS

Extra work shall be performed by the Contractor in accordance with the specifications and as directed, and will be paid for at a price as provided in the Contract documents or if such pay items are not applicable than at a price negotiated between the contractor and the Owner or at the unit bid price. If the Owner determines that extra work is to be performed, a change order will be issued.

5. CHANGE ORDERS

The Owner reserves the right to issue a formal change order for any increase, decrease, deletion, or addition of work or any increase in contract time or price. The contractor shall be required to sign the change order and it shall be considered as part of the Contract documents.

6. FINAL CLEANING UP

Before acceptance of the work, the contractor shall remove from the site all machinery, equipment, surplus materials, rubbish, temporary buildings, barricades and signs. All parts of the work shall be left in a neat and presentable condition. On all areas used or occupied by the contractor, regardless of the contract limits, the bidder shall clean-up all sites and storage grounds.

The items prescribed herein will not be paid for separately, but shall be paid for as part of the total contract price.

7. ERRORS AND INCONSISTENCY IN CONTRACT DOCUMENTS

Any provisions in any of the Contract Documents that may be in conflict with the paragraphs in these General Requirements shall be subject to the following order of precedence for interpretation.

1. General Requirements will govern Standard Specifications for Road & Bridge Construction.

2. Technical Specifications, Special Provisions, and Special Attentions will govern General Requirements and Standard Specifications.

3. Plans will govern Technical Specifications, General Requirements and Standard Specifications.

8. QUALITY ASSURANCE

The Contractor shall be responsible at all times for maintaining quality assurance during performance of his work. Particular attention to compaction shall be paid during backfilling operation.

In-place density tests of the backfill material will be conducted by an independent testing laboratory. The amount and frequency of testing will be determined at the time of construction, by the engineer.

A minimum of one density test per 50 feet of road may be required.

Satisfactory compaction shall be a minimum of 95% of the maximum density for the embankment and a minimum of 95% of the maximum density for gravel base course and subbase gravel course.

The Contractor shall be responsible for procuring and paying for the testing services

9. DUST CONTROL FOR STREET

Calcium chloride shall be spread only on disturbed unpaved areas. Calcium chloride shall not be spread on paved areas that are covered by granular material. These areas shall be swept clean of all granular material.

Dust on paved areas shall be controlled with water before sweeping.

This work and materials shall be considered as subsidiary obligation of the contract for which no specific payment will be made

SUPPLEMENTAL GENERAL REQUIREMENTS

Add to the following General Requirements Section(s):

8. QUALITY ASSURANCE

The Contractor shall maintain quality control, equipment, services, site conditions, and workmanship, to produce work of specified quality.

The Contractor shall comply with industry standards except when specified tolerances or requirements are more restrictive or when more precise workmanship is necessary.

Perform work by persons qualified to produce workmanship of specified quality.

The Contractor shall coordinate and be responsible for all costs for sampling and testing as required by the project specifications.

CONTROL OF WORK

1. AUTHORITY OF ENGINEER

(a) All work shall be done under supervision of the City Engineer and to his satisfaction. The City Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work; all questions that may arise as to the interpretation of the plans and specifications; and all questions as to the acceptable fulfillment of the Contract by the Contractor.

(b) The City Engineer will have the authority to suspend the work wholly or in part for such periods as he may deem necessary due to the failure of the Contractor to correct conditions unsafe for workers or the general public; for failure to carry out provisions of the Contract; for failure to carry out orders; for conditions considered unsuitable for the prosecution of the work, including unfit weather; or for any other condition or reason deemed to be in the public interest. The Contractor shall not be entitled any additional payments arising out of any such suspensions.

(c) The Owner reserves the right to demand a certificate of compliance for a material or product used on the project. When the certificate of compliance is determined to be unacceptable to the City Engineer the Contractor may be required to provide engineering and testing services to guarantee that the material or product is suitable for use in the project, at its expense (see Sample of Certificate of Compliance).

2. PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPES

(a) The Contractor shall use every precaution to prevent injury or damage to wires, poles, or other property of public utilities; trees, shrubbery, crops, and fences along and adjacent to the right-of-way, all underground structures such as pipes and conduits, within or outside of the right-of-way; and the Contractor shall protect and carefully preserve all property marks until an authorized agent has witnessed or otherwise referenced their location.

(b) The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

(c) When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or as a result of the failure to perform work by the Contractor, the Contractor shall restore, at its own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing rebuilding, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

(d) The Contractor shall paint with tree paint all scars made on fruit or ornamental trees by equipment, construction operations, or the removal of limbs larger than one inch in diameter. Damaged trees must be replaced if so determined by the City Arborist, in his or her sole discretion.

(e) If the Contractor fails to repair, rebuild or otherwise restore such property as may be deemed necessary, the Owner, after 48 hours notice, may proceed to do so, and the cost thereof may be deducted from any money due or which may become due the Contractor under the contract.

(f) It is the intent of the Parties that the Contractor preserve, to as great an extent as possible, the natural features of the site.

CONTROL OF WORK (continued)

3. MAINTENANCE DURING CONSTRUCTION

The Contractor shall maintain the work during construction and until the project is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and workers to ensure that the structure is kept in satisfactory conditions at all times.

4. SAFETY PRECAUTIONS

Upon commencement of work, the Contractor shall be responsible for initiating, maintaining and supervising all safety precautions necessary to ensure the safety of employees on the site, other persons who may be affected thereby, including the public, and other property at the site or adjacent thereto.

5. PERMITS

It will be the responsibility of the Contractor to obtain all permits required for the operation of equipment in, or on, all city streets and public ways.

6. BARRICADES, WARNING SIGNS AND TRAFFIC OFFICERS

(a) The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs and other traffic control devices, and shall take all necessary precautions for the protection of the work and safety of the public. Roadway closed to traffic shall be protected by effective barricades. Obstructions shall be illuminated during hours of darkness. Suitable warning signs shall be provided to control and direct traffic in a proper manner, as approved by the engineer.

(b) The Contractor will be held responsible for all damage to the work from traffic, pedestrians, animals or any other cause due to lack of adequate controlling devices.

(c) The Contractor shall provide such police officers as the City Engineer deems necessary for the direction and control of traffic within the site of project.

The work prescribed herein will not be paid for separately but will be paid for as part of the Contract Price unless specifically appearing as a bid item.

SUPPLEMENTAL CONTROL OF WORK

Add to the following Control of Work Section(s):

1. AUTHORITY OF ENGINEER

All materials or equipment that are not suitable for use on this project and/or have been rejected by the Engineer shall be removed from the site immediately; the cost of the removal of these materials shall be the responsibility of the Contractor.

The Engineer shall be permitted at all times to inspect the work and check the lines, grades, elevations, reference marks, etc., set by the Contractor. Any errors or discrepancies in these items discovered by checks shall be corrected by the Contractor. Such checks shall not be construed to be an approval of the Contractor's work and shall not relieve or diminish in any way the responsibilities of the Contractor for the accurate and satisfactory completion of the entire work. The Contractor shall be available to assist the Engineer with these checks as needed.

TEMPORARY FACILITIES

1. STORAGE FACILITIES

(a) The Contractor shall not store materials or equipment in a public right-of-way beyond the needs of one working day. Equipment and materials shall be stored in an approved location.

(b) The Contractor shall protect all stored materials from damage by weather or accident and shall insure adequate drainage at and about the storage location.

(c) Prior to final acceptance of the work all temporary storage facilities and surplus stored materials shall be removed from the site.

2. SANITARY FACILITIES

(a) The Contractor shall provide for toilet facilities for the use of the workers employed on the work.

(b) Temporary toilet facilities may be installed provided that the installation and maintenance conform with all State and local laws, codes, regulations and ordinances governing such work. They shall be properly lit and ventilated, and shall be kept clean at all times.

(c) Prior to final acceptance of the work all temporary toilet facilities shall be removed from the site.

3. TEMPORARY WATER

The Contractor shall make all arrangements with the local water department for obtaining water connections to provide the water necessary for construction operations and shall pay all costs.

4. TEMPORARY ELECTRICITY

The Contractor shall make all arrangements with the Public Service Company for obtaining electrical connections to provide the electrical power necessary for construction operations and security lighting and shall pay all electrical connection and power costs.

The Contractor shall be responsible with obtaining an electrical permit from the City Electrical Inspector.

INSURANCE REQUIREMENTS

Insurance shall be in such form as will protect the Contractor from all claims and liabilities for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this contract whether such operation by himself or by anyone directly or indirectly employed by him.

AMOUNT OF INSURANCE

A) Comprehensive General Liability:
Bodily injury or Property Damage - $2,000,000
Per occurrence and general aggregate

B) Automobile and Truck Liability:
Bodily Injury or Property Damage - $2,000,000
Per occurrence and general aggregate

Insurance coverage requirements may be met by excess policies.

Additionally, the Contractor shall purchase and maintain the following types of insurance:

A) Full Workers Comprehensive Insurance coverage for all people employed by the Contractor to perform work on this project. This insurance shall at a minimum meet the requirements of the most current laws of the State of New Hampshire.

B) Contractual Liability Insurance coverage in the amounts specified above under Comprehensive General Liability.

C) Product and Completed Operations coverage to be included in the amounts specified above under Comprehensive General Liability.

D) Coverage for marine operations in the amount required for commercial general liability.

ADDITIONAL INSURED

All liability policies (including any excess policies used to meet coverage requirements) shall include the City of Portsmouth, New Hampshire as named Additional Insured's.

1) The contractor's insurance shall be primary in the event of a loss.
2) City of Portsmouth shall be listed as a Certificate Holder. The City shall be identified as follows:

City of Portsmouth
Attn: Legal Department
1 Junkins Avenue
Portsmouth, NH 03801

MEASUREMENT AND PAYMENT

1. MEASUREMENT OF QUANTITIES

(a) All work completed under the contract will be measured according to the United States standard measure.

(b) The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice. Unless otherwise stated all quantities measured for payment shall be computed or adjusted for "in place" conditions.

(c) Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the dimensions shown on the plans or ordered in writing.

(d) Structures will be measured according to lines shown on the plans or as ordered unless otherwise provided for elsewhere in the specifications.

(e) In computing volumes of excavation, embankment, and borrow, the average end area method will be used. Where it is impracticable to measure by the cross-section method, acceptable methods involving three-dimensional measurement may be used. When measurement of borrow in vehicles is permitted, the quantity will be determined as 80 percent of the loose volume.

(f) In computing volumes of concrete, stone and masonry, the prismoidal method will be used. The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois.

(g) Except as specified below, all materials that are measured or proportioned by weight shall be weighed on scales which the Contractor has had sealed by the State or by a repairman registered by the Commissioner of Agriculture. All weighing shall be performed in a manner prescribed under the Rules and Regulations of the Bureau of Weights and Measures of the New Hampshire Department of Agriculture.

(h) Weighing of materials on scales located outside New Hampshire will be permitted for materials produced or stored outside the state, when requested by the Contractor and approved. Out-of-state weighing in order to be approved, must be performed by a licensed public weigh master or a person of equal authority in the state concerned on scales accepted in the concerned state.

(i) Each truck used to haul material being paid for by weight shall bear a plainly legible identification mark, and if required, shall be weighed empty daily at such times as directed.

(j) When material is weighed, the individual weight slips, which shall be furnished by the Contractor, for trucks, trailers, or distributors, shall show the following information: the date; the project; the material or commodity; the dealer or vendor; the Contractor or Subcontractor; the location of the scales; the vehicle registration number or other approved legible identification mark; the tare and net weights, with gross weights when applicable; and the weigher's signature or his signed initials.

(k) The right is reserved to weight any truck, trailer, or distributor, at locations designated, before and after making deliveries to the project.

(l) Bituminous materials will be measured by the gallon or ton.

MEASUREMENT AND PAYMENT (continued)

(m) When material is specified to be measured by the cubic yard but measurement by weight is approved, such material may be weighed and the weight converted to cubic yards for payment purposes. Necessary conversion factors will be determined by the Owner.

(n) The term "lump sum" when used as an item of payment will mean complete payment for the work described in the item.

(o) When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories, so as to provide the item complete and functional. Except as may be otherwise provided, partial payments for lump sum items will be made approximately in proportion to the amount of the work completed on those items.

(p) Material wasted without authority will not be included in the final estimate.

2. SCOPE OF PAYMENT

(a) The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials and for performing all work under the contract in a complete and acceptable manner and for all risk, loss, damage or expense of whatever character arising out of the nature of the work or the prosecution thereof.

(b) The Contractor shall be liable to the Owner for failure to repair, correct, renew or replace, at his own expense, all damage due or attributable to defects or imperfections in the construction which defects or imperfections may be discovered before or at the time of the final inspection and acceptance of the work.

(c) No monies, payable under the contract or any part thereof, except the first estimate, shall become due or payable if the Owner so elects, until the Contractor shall satisfy the Owner that the Contractor has fully settled or paid all labor performed or furnished for all equipment hired, including trucks, for all materials used, and for fuels, lubricants, power tools, hardware and supplies purchased by the Contractor and used in carrying out said contract and for labor and parts furnished upon the order of said Contractor for the repair of equipment used in carrying out said contract; and the Owner, if he so elects, may pay any and all such bills, in whole or in part, and deduct the amount of amounts so paid from any partial or final estimate, excepting the first estimate.

3. COMPENSATION FOR ALTERED QUANTITIES

(a) Except as provided for under the particular contract item, when the accepted quantities of work vary from the quantities in the bid schedule the Contractor shall accept as payment in full, so far as contract items are concerned, at the original contract unit prices for the accepted quantities of work done. No allowance will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation among the contract items of overhead expense on the part of the Bidder and subsequent loss of expected reimbursements therefore or from any other cause.

(b) Extra work performed will be paid for at the contract bid prices or at the price negotiated between the Owner and the Contractor if the item was not bid upon. If no agreement can be negotiated, the Contractor will accept as payment for extra work, cost plus 15% (overhead and profit). Costs shall be substantiated by invoices and certified payroll.

MEASUREMENT AND PAYMENT (continued)

4. PARTIAL PAYMENTS

Partial payments will be made on a monthly basis during the contract period. From the total amount ascertained as payable, an amount equivalent to ten percent (10%) of the whole will be deducted and retained by the Owner until such time as the work receives final acceptance.

5. FINAL ACCEPTANCE

Upon due notice from the Contractor of presumptive completion of the entire project, the City Engineer will make an inspection. If all construction provided for and contemplated by the contract is found complete to his satisfaction, this inspection shall constitute the final inspection and the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of the final inspection.

If, however, the inspection discloses any work in whole or in part, as being unsatisfactory, the City Engineer will give the Contractor the necessary instructions for correction of such work, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection provided the work has been satisfactorily completed. In such event, the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

6. ACCEPTANCE AND FINAL PAYMENT

(a) When the project has been accepted and upon submission by the Contractor of all required reports, completed forms and certifications, the Owner will review the final estimate of the quantities of the various classes of work performed. The Contractor may be required to certify that all bills for labor and material used under this contract have been paid.

(b) The Contractor shall file with the Owner any claim that the Contractor may have regarding the final estimate at the same time the Contractor submits the final estimate. Failure to do so shall be a waiver of all such claims and shall be considered as acceptance of the final estimate. The Contractor shall provide the required Maintenance Bond prior to the approval of Final Payment by the Owner. After approval of the final estimate by the Owner, the Contractor will be paid the entire sum found to be due after deducting all previous payments and all amounts to be deducted under the provisions of the contract.

(c) All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

7. GENERAL GUARANTY AND WARRANTY OF TITLE

(a) Neither the final certification of payment nor any provision in the contract nor partial or entire use of the improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express or implied warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The Owner will give notice of defective materials and work with reasonable promptness.

MEASUREMENT AND PAYMENT (continued)

(b) No material, supplies or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease purchase or other agreement by which an interest therein or in any part thereof is retained by the Seller or supplier. The Contractor shall warrant good title to all materials, supplies and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have the right to a lien upon any improvements or appurtenances thereon.

Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontractors and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

8. NO WAIVER OF LEGAL RIGHTS

(a) Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or be stopped from recovering from the Contractor or his Surety, or both, such overpayment as it may sustain by failure on the part of the Contractor to fulfill his obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

(b) The Contractor, without prejudice to the Contract shall be liable to the terms of the Contract, shall be liable to the Owner for latent defects, fraud or such gross mistakes as may amount to fraud, and as regards the Owner's right under any warranty or guaranty.

9. TERMINATION OF CONTRACTOR'S RESPONSIBILITY

Whenever the improvement provided for by the Contract shall have been completely performed on the part of the Contractor and all parts of the work have been released from further obligations except as set forth in his bond and as provided in Section 8 above.

SHOP DRAWINGS

Shop Drawings for this project shall be submitted under the following conditions:

1. The Contractor shall submit working and detail drawings, well in advance of the work, to the City Engineer & Building Inspector for review.
2. The Contractor's drawings shall consist of shop detail, erection and other working plans showing dimensions, sizes and quality of material, details and other information necessary for the complete fabrication and erection of the pertinent work.
3. The Contractor shall submit three (3) sets of drawings to the City Engineer.
4. Prior to the approval of the drawings, any work done or materials ordered for the work involved shall be at the Contractor's risk.
5. One (1) set of the drawings will be returned to the Contractor approved or marked with corrections to be made. After approval has been given, the Contractor shall supply the City Engineer with two sets of the revised detail working drawings.
6. The City Engineer's approval of the Contractor's working drawings will not relieve the Contractor from responsibility for errors in dimensions or for incorrect fabrication processes, or from responsibility to complete the contract work.

SPECIAL CONDITIONS
&
CRITICAL TIMELINES

REQUIRED DEADLINES

The City has made certain representations to the residents, business owners and stakeholders of this project. A very important part of this project will be meeting certain goals by certain dates. The following criteria and dates are crucial to the success of this project.

Closure of the existing Sagamore Creek Bridge – No earlier than October 15, 2013

Opening of the new Sagamore Creek Bridge to traffic – December 1, 2014

Final Completion of all work – June 1, 2015

Failure to complete by this date will result in liquidated damages of $1,567 per calendar day.

Access must be available at all times to all properties located within the closed portion of NH Route 1A, and all cooperation given to customers, tourists, and residents alike. The contractor will be required to place appropriate signage on NH Route 1A directing customers and users to the businesses, boat club and health facility. These signs shall be specific to each business and be permanently mounted on NH Route 1A to direct customers around to each business. Also a detour package of signs will be required. These signs will be considered subsidiary to the project and no separate payment will be made.

Accommodations must be made for delivery trucks for the businesses on NH Route 1A.

Dust and mud must be controlled at all times to protect the residents, businesses, and traveling public.

The project site must be kept clean and passable on nights and weekends with gravel areas watered and kept dust free with calcium chloride. Pavements shall be swept clean each night, especially on Fridays and before holidays.

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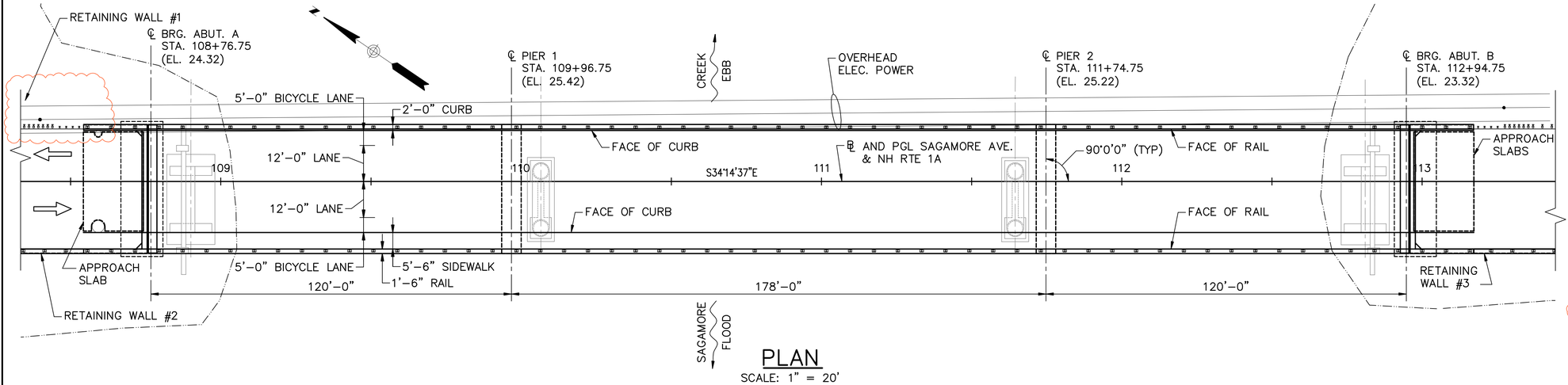


PLAN
SCALE: 1" = 20'

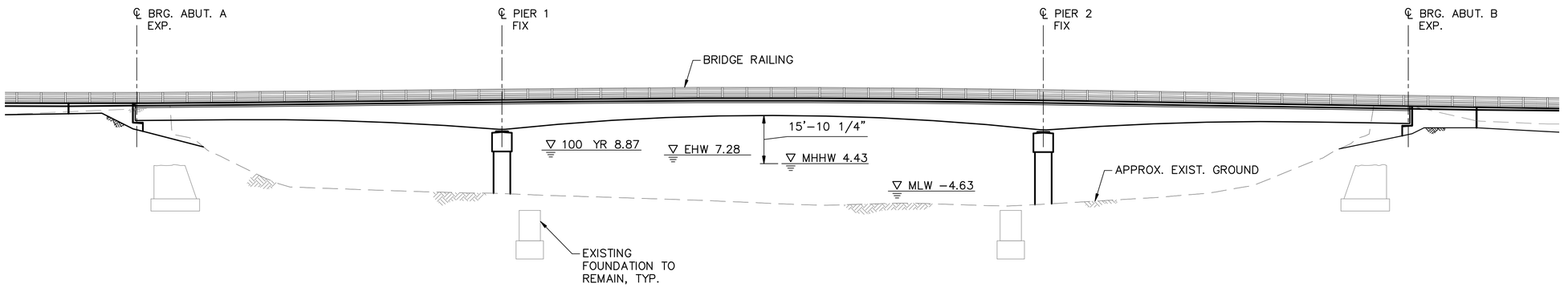
HORIZONTAL CURVE DATA

SAGAMORE AVE. CURVE #C1

PI STA = 106+70.82
N = 203860.42
E = 1229276.08
Δ = 08°38'01" RT
T = 150.97'
R = 2000.00'
L = 301.37'
E = 5.69'

SAGAMORE AVE. CURVE #C2

PI STA = 114+65.50
N = 203203.02
E = 122923.58
Δ = 21°00'11" RT
T = 77.85'
R = 420.00'
L = 153.96'
E = 7.15'



ELEVATION
SCALE: 1" = 20'

INDEX OF BRIDGE SHEETS:

FILE NAME: R:\VQ-064 Sagamore Creek\CAD Drawings\05 Structural\01 GENERAL PLAN AND ELEVATION.dwg PLOTTED: Monday, September 16, 2013 - 4:50pm USER: Densfo_T

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493
LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

GENERAL PLAN AND ELEVATION — BRIDGE SHEET 01 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13		
DRAWN	FLC	5/13	CHECKED	TD	5/13		
TRACED	---	---	CHECKED	---	---		
QUANTITIES	TD	6/13	CHECKED	MAB	6/13		

SHEET SCALE: AS NOTED
FILE NUMBER

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 15 | TOTAL SHEETS 91

GENERAL NOTES

1. DESIGN LOADING: HL–93.
2. DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN METHOD (LRFD) PS
3.
4. SPECIFICATIONS: AASHTO LRFD 2012 AS AMENDED.
   NHDOT 2010 STANDARD SPECIFICATIONS AS AMENDED.
5. FOUNDATION DATA: ABUTMENTS – CASED MICROPILES WITH ROCK SOCKETS
   PIERS – CASED DRILLED SHAFTS WITH ROCK SOCKETS
6. REINFORCING STEEL: AASHTO M 31 (ASTM A 615) GRADE 60.
   DECK, CURBS, SIDEWALKS, ABUTMENT STEMS AND BACKWALL, WINGWALLS, RETAINING WALL STEMS, DRILLED SHAFTS, APPROACH SLABS, AND PIER CAP REINFORCING STEEL SHALL BE EPOXY COATED. FOOTING BARS SHALL BE UNCOATED.
7. STRUCTURAL STEEL: AASHTO M 270, GRADE 50 (ASTM A709, GRADE 50), PAINTED, EXCEPT AS NOTED.
8. CONCRETE: –DECK SLAB, BRUSH CURB, AND SIDEWALK:
   4000 PSI, ITEM 520.70026, CONCRETE BRIDGE DECK (PANEL OPTION) (QC/QA) (F)

   –ABUTMENT STEMS AND BACKWALLS, WINGWALLS, RETAINING WALL STEMS, AND PIER CAPS: 4000 PSI, ITEM 520.0102, CONCRETE CLASS AA (QC/QA) (F)

   –ABUTMENT FOOTINGS AND RETAINING WALL FOOTINGS: 3000 PSI, ITEM 520.213, CONCRETE CLASS B, FOOTINGS (ON SOIL) (F)

   –APPROACH SLABS: 4000 PSI, ITEM 520.0302 CONCRETE CLASS AA, APPROACH SLABS (QC/QA) (F)

   –DRILLED SHAFTS AND ROCK SOCKETS: 5000 PSI, ITEM 509.2 DRILLED SHAFT, CLASS AAA (MODIFIED)
9. SEISMIC: ZONE 1 $A_S = F_{PGA} \times PGA = 1.6 \times 0.098 = 0.157g$ SITE CLASS "D"
10. ALL EXISTING BRONZE DISCS REPRESENTING STATE BENCHMARKS OR SURVEY TRIANGULATION POINTS MUST NOT BE DISTURBED. WHEN THE WORK CALLED FOR INVOLVES DISTURBING A BRONZE DISC, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SUFFICIENTLY IN ADVANCE OF THE WORK TO PERMIT THE STATE TO TEMPORARILY RELOCATE THE AFFECTED MARKER.
11. MAINTENANCE OF TRAFFIC: BRIDGE CLOSED DURING CONSTRUCTION. SEE ROADWAY PLANS FOR DETOUR OF SAGAMORE AVENUE.
12. FOR SURVEY LAYOUT SEE BRIDGE SHEET 06.
13. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF THE EXISTING STRUCTURES AND SHALL BE PREPARED TO MAKE ANY ADJUSTMENTS REQUIRED TO PROPERLY COMPLETE THE CONSTRUCTION OF PROPOSED STRUCTURES.
14. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO INSURE THAT DEBRIS DOES NOT FALL INTO THE WATERWAY BELOW THE EXISTING STRUCTURE. ALL COSTS SHALL BE PAID UNDER ITEM 502 AND SHALL INCLUDE ERECTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURES OR OTHER SUCH METHODS AS APPROVED.
15. NO SCAFFOLDS SHALL BE ERECTED OR OPERATIONS CONDUCTED IN THE WATERWAY, UNLESS APPROVED BY THE CONTRACT ADMINISTRATOR.
16. THE CONTRACTOR HAS THE OPTION TO USE PRECAST PRESTRESSED DECK PANEL STAY–IN–PLACE FORMS.
17. THE UTILITY POLES AND OVERHEAD WIRES, INCLUDING POWER LINES, HAVE BEEN RELOCATED AND PSNH HAS INDICATED THAT THEY WILL NOT BE MOVED AGAIN OR DE–ENERGIZED DURING CONSTRUCTION. THE CONTRACTOR SHALL ANTICIPATE THE NEED TO WORK AROUND AND UNDER THE POWER LINES WHILE MAINTAINING PROPER CLEARANCE TO THE POWER LINES.

HYDRAULIC DATA

1. DRAINAGE AREA: 3.0 SQ. MILES
2. DESIGN FLOOD: Q100 = 6,017 CFS
3. DESIGN VELOCITY: 1.7 FPS
4. DESIGN FLOOD (SURGE) HEIGHT: ELEVATION 08.87 (NAVD88)
5. BRIDGE WATERWAY OPENING: 5,330 SQ. FT. BELOW Q100 ELEVATION

CONSTRUCTION STAGING NOTES

1. THE CONTRACTOR SHALL SUBMIT A REMOVAL PLAN AND CONSTRUCTION PLAN SHOWING MEANS AND METHODS OF REMOVING THE EXISTING BRIDGE AND SUBSTRUCTUE, CONSTRUCTING THE NEW BRIDGE AND SUBSTRUCTURE, AND SHALL SHOW ANY TEMPORARY STRUCTURES AND ACCESS.
2. SEE PERMITS FOR FURTHER REQUIREMENTS INCLUDING PUBLIC ACCESS TO THE NAVIGATIONAL CHANNEL.

BRIDGE REMOVAL NOTES

1. THE CONTRACTOR'S METHOD FOR REMOVAL OF THE EXISTING BRIDGE SHALL BE SUBMITTED FOR DOCUMENTATION IN ACCORDANCE TO 105.02, PRIOR TO THE COMMENCEMENT OF ANY REMOVAL OPERATIONS.
2. ITEM 502, REMOVAL OF EXISTING BRIDGE STRUCTURE, SHALL INCLUDE THE FOLLOWING:
   THE EXISTING BRIDGE SUPERSTRUCTURE SHALL BE REMOVED IN ITS ENTIRETY. THE EXISTING ABUTMENTS AND WINGWALLS SHALL BE REMOVED TO EL. 3.3. THE EXISTING PIERS SHALL BE REMOVED TO EL. –11.5.
3. THE CONTRACTOR IS ADVISED THAT EXISTING AERIAL POWER, CABLE AND TELEPHONE LINES WILL REMAIN IN PLACE. SEE THE UTILITIES SECTION OF THE PROSECUTION OF WORK FOR ADDITIONAL INFORMATION.
4. PLANS OF THE EXISTING BRIDGE STRUCTURE MAY BE OBTAINED FROM THE CITY OF PORTSMOUTH.
5. THE CONTRACTOR SHALL MEET OSHA REQUIREMENTS FOR WORKER PROTECTION FOR WORKING WITH MEMBERS WITH LEAD BASED PAINT, AND FOR WORKING NEAR ELECTRIC POWER LINES.
6. THE EXISTING BRIDGE HAS BEEN POSTED FOR A LOAD LIMIT OF 6 TONS BASED ON THE CONDITION OF SOME OF THE EXISTING FLOOR BEAMS. THE CONTRACTOR SHALL VERIFY THE CONDITION OF FLOOR BEAMS THAT WILL BE LOADED BY THE CONSTRUCTION OPERATIONS AND DETERMINE THAT THE PROPOSED CONSTRUCTION LOADING DOES NOT EXCEED THE BEAM CAPACITIES.
7. THE CONTRACTOR SHALL NOT PLACE EQUIPMENT OR MATERIALS ON THE EXISTING BRIDGE IN A MANNER THAT COULD OVERLOAD THE EXISTING BRIDGE COMPONENTS (DECK, FLOOR BEAMS, GIRDERS ETC.) AND SHALL CONSIDER THE DETERIORATED CONDITION OF STRUCTURAL ELEMENTS AS NEEDED. IF THE CONTRACTOR'S WORK PLAN INVOLVES PLACEMENT OF EQUIPMENT ON THE BRIDGE, SUCH AS A SMALL CRANE, TO FACILITATE COMPLETION OF THE WORK, THE CONTRACTOR SHALL PLAN HIS WORK IN ADVANCE AND SHALL PROVIDE LAYOUT DRAWINGS OF PROPOSED EQUIPMENT AND LOAD DISTRIBUTION METHODS WITH STRUCTURAL CALCULATIONS PREPARED UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE. THE PLAN AND CALCULATIONS SHALL BE SUBMITTED FOR REVIEW AND SHALL BE STAMPED BY THE CONTRACTOR'S PROFESSIONAL ENGINEER.
8. EXCAVATION FOR REMOVAL OF EXISTING ABUTMENTS SHALL BE BACKFILLED WITH SUITABLE MATERIAL MEETING THE REQUIREMENTS OF SECTION 209, GRANULAR BACKFILL (BRIDGE), TO THE SUBGRADE LINES SHOWN ON THE PLANS. COST FOR EXCAVATION AND BACKFILL SHALL BE SUBSIDIARY TO ITEM 502. PLACE BACKFILL WHILE TIDE LEVELS ARE LOWER THAN BACKFILL LEVEL.

CONSTRUCTION ACCESS NOTES

1. ACCESS FOR BRIDGE CONSTRUCTION MAY BE OPEN STRUCTURES (TEMPORARY TRESTLES OR WORK PLATFORMS) OR BARGES. TEMPORARY STONE FILL CAUSEWAYS MAY NOT BE USED.
2. THE LOCATION OF THE TEMPORARY TRESTLES SHOWN ON THE PLANS IS APPROXIMATE. ACTUAL TRESTLE LOCATIONS, IF USED, SHALL BE DETERMINED BY THE CONTRACTOR.
3. ALL COSTS FOR THE DESIGN, CONSTRUCTION MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS SHALL BE INCLUDE IN ITEM 500.02, ACCESS FOR BRIDGE CONSTRUCTION. SEE SECTION 500 SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
4. THE CONTRACTOR SHALL COMPLY WITH ALL PERMIT AND ENVIRONMENTAL DOCUMENT REQUIREMENTS.

BORING NOTES

1. BORINGS INDICATED THUS ⊕ WERE MADE IN MAY OF 2010. FIGURES IN THE "BLOWS PER" COLUMN INDICATE THE NUMBER OF BLOWS REQUIRED TO DRIVE A 2" STANDARD SPLIT SPOON SAMPLER 6", USING A 140 LB. WEIGHT FALLING 30 INCHES.
2. BORINGS ARE FOR DESIGN PURPOSES SHOWING CONDITIONS AT BORING POINTS ONLY, AND DO NOT NECESSARILY INDICATE MATERIAL TO BE ENCOUNTERED DURING CONSTRUCTION.
3. THE SOILS REPORT IS AVAILABLE AT CITY OF PORTSMOUTH. SEE PROSECUTION OF WORK FOR MORE INFORMATION.
4. ROCK CORES WERE MADE USING AN NX 1 7/8" I.D. CORE BARREL.
5. THE WATER LEVELS INDICATED WERE MEASURED AT TIME OF EXPLORATION. WATER LEVELS ENCOUNTERED DURING CONSTRUCTION MAY VARY CONSIDERABLY DUE TO PREVAILING CLIMATE, RAINFALL OR OTHER FACTORS.
6. THE SURFACE ELEVATION ON EACH BORING LOG IS THE ELEVATION OF THE EXISTING GROUND AT THE TIME THE BORING WAS TAKEN.
7. BORINGS MARKED THUS ⊕ (ONE AT EACH PIER) SHALL BE OBTAINED BY THE CONTRACTOR. BORINGS DATA AND SAMPLES SHALL BE FURNISHED TO THE ENGINEER.

MICROPILE NOTES

1. SEE SPECIAL PROVISIONS SECTION 510 FOR CONSTRUCTION REQUIREMENTS RELATED TO THE INSTALLATION OF THE MICROPILES.
2. THE CONTRACTOR SHALL SUBMIT AN INSTALLATION PLAN AS NOTED IN THE SPECIAL PROVISIONS.
3. THE MINIMUM ROCK SOCKET LENGTH MEASURED FROM THE BOTTOM OF THE PERMANENT STEEL CASING/TOP OF ROCK SOCKET SHALL BE AS INDICATED ON THE SUMMARY TABLE ON BRIDGE SHEET 12. LONGER ROCK SOCKET LENGTHS SHALL BE AS DIRECTED. THE TOP OF ROCK SOCKET ELEVATIONS ARE ESTIMATES ONLY. THE TOP OF ROCK SOCKET AND ROCK SOCKET LENGTHS AT EACH MICROPILE LOCATION SHALL BE APPROVED BY THE ENGINEER.
4. DRILLING OF OBSTRUCTIONS AS DEFINED IN SECTION 510 AND ANY FOOTINGS OR BEDROCK ABOVE THE FINAL TIP ELEVATIONS OF THE PERMANENT CASING SHALL BE SUBSIDIARY TO ITEM 510.301.
5. THE MICROPILE CONTRACTOR SHALL MEET THE PREQUALIFICATION REQUIREMENTS AS COVERED IN SPECIAL PROVISION 510.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SUPPORT OF REINFORCING DURING ERECTION AND PLACEMENT OF GROUT.
7. REINFORCEMENT FOR MICROPILES SHALL BE SUBSIDIARY TO ITEM 510.301. REINFORCING BARS SHALL BE EPOXY COATED.
8. THE CONTRACTOR SHALL ANTICIPATE OBSTRUCTIONS IN THE FOUNDATION SOILS, AND SHALL PROPOSE ADEQUATE DRILLING EQUIPMENT.
9. EACH MICROPILE IS DESIGNED TO SUPPORT A MAXIMUM SERVICE LIMIT STATE AXIAL LOAD OF 220 KIPS PER PILE COMPRESSION AND 90 KIPS PER PILE TENSION AND A MAXIMUM STRENGTH LIMIT STATE AXIAL LOAD OF 310 KIPS PER PILE COMPRESSION AND 130 KIPS PER PILE TENSION.
10. CASING SHALL BE ASTM A252 GRADE 2, OR API 5L OR 5CT GRADE N80, OR APPROVED EQUAL AND MUST MEET ASTM A252 GRADE 2 DUCTILITY REQUIREMENTS.
11. ANCHOR PLATE SHALL MEET REQUIREMENTS OF ASTM A709 GRADE 50.
12. GROUT SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI IN ACCORDANCE WITH ASTM C109. BOND ZONE GROUT AND CONCRETE FOOTING SHALL REACH A MINIMUM STRENGTH OF 4000 PSI AT AGE OF 3 DAYS PRIOR TO TESTING.
13. VERIFICATION LOAD TESTING AND PROOF LOAD TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
14. BOND ZONE LENGTH SHALL BE CONFIRMED BY TEST PILES AS INDICATED IN THE SPECIAL PROVISIONS.
15. 2¼" DIAMETER THREADED BAR SHALL BE CONTINUOUSLY THREADED FOR THE ENTIRE BAR LENGTH CONFORMING TO ASTM A615, HAVING MINIMUM YIELD STRENGTH 75 KSI, EPOXY COATED. BARS MAY BE SPLICED USING A COUPLER WITH 125% OF BAR CAPACITY TO ACCOMMODATE VERTICAL HEADROOM RESTRICTIONS.
16. THREADED BAR NUT SHALL CONFORM TO THREADED BAR MANUFACTURER REQUIREMENTS.
17. THE QUALITY OF THE GROUT SHALL BE MONITORED BY COLLECTING GROUT CUBES FOR LATER COMPRESSION TESTING AND BY MEASURING THE GROUT SPECIFIC GRAVITY FROM ONE BATCH PER DAY.
18. CONSISTENCY OF PILE INSTALLATION SHALL BE MONITORED AND RECORDED AS DESCRIBED IN THE PILE INSTALLATION QUALITY CONTROL DOCUMENT. MONITORED AND RECORDED DATA SHALL INCLUDE TOTAL PILE DEPTH, GROUT PRESSURES AND QUANTITIES, SOILS/ROCK ENCOUNTERED DURING INSTALLATION AND ANY OBSTRUCTIONS OR IRREGULARITIES.
19. MICROPILES ARE EXPECTED TO BE DRILLED THRU THE EXISTING ABUTMENT FOOTING.
20. FOR MICROPILE DETAILS, SEE BRIDGE SHEET 13A.
21. FOR MICROPILE ROCK SOCKET LENGTH, SEE BRIDGE SHEET 12.
22. ONE VERIFICATION LOAD TEST SHALL BE PERFORMED ON A SACRIFICIAL MICROPILE PRIOR TO CONSTRUCTING PRODUCTION PILES. ONE PROOF LOAD TEST SHALL BE CONDUCTED AT ABUTMENT A, AND ONE PROOF LOAD TEST SHALL BE CONDUCTED AT ABUTMENT B, AS DIRECTED BY THE ENGINEER.

SHEET REVISED 9-16-13

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

BRIDGE NOTES – SHEET 1 OF 3

BRIDGE SHEET 02 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
SHEET SCALE	DESIGNED	TD	5/13	CHECKED	MAB	5/13	
AS NOTED	DRAWN	FLC	5/13	CHECKED	TD	5/13	
	TRACED	---	---	CHECKED	---	---	
	QUANTITIES	TD	6/13	CHECKED	MAB	6/13	

FILE NUMBER

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 16 | TOTAL SHEETS 91

FILE NAME: R:\V0-064 Sagamore Creek\CAD Drawings\05 Structure\02 BRIDGE NOTES – SHEET 1 OF 3.dwg PLOTTED: Monday, September 16, 2013 – 4:50pm USER: Densfo_T

ABUTMENT, RET. WALL, AND WINGWALL NOTES

1. ITEM 534.3, WATER REPELLENT (SILANE–SILOXANE) (F), SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES OF RETAINING WALLS ABUTMENTS, WINGWALLS, BACKWALLS, AND BRIDGE SEATS TO 1'–0" BELOW FILL LINES.
2. ITEM 538.2, BARRIER MEMBRANE, VERTICAL SURFACES (F), 2' WIDE, SHALL BE PLACED OVER THE BEARING SEAT CONSTRUCTION JOINT, 1'–0" ABOVE AND BELOW THE JOINT.
3. CONCRETE CLASS AA (QC/QA) (F), ITEM 520.0102, SHALL BE FORMED INTO 12"X24" BLOCKS ON APPROACH SLAB SEATS TO SUPPORT THE APPROACH CURBS. (QC/QA TESTING REQUIREMENT WAIVED)
4. ITEM 585.21, STONE FILL, CLASS B (BRIDGE), SHALL BE 2'–0" THICK, UNLESS OTHERWISE NOTED.
5. ADDITIONAL ABUTMENTS BACKWALL BLOCKOUTS SHALL BE PROVIDED BETWEEN GIRDER 1 AND 2 FOR FUTURE SEWER LINES (FILLED WITH BRICK AND MORTAR). BLOCKOUTS SHALL BE PROVIDED IN THE ABUTMENT BACKWALLS, BETWEEN GIRDERS 4 AND 5 TO ALLOW FOR THE INSTALLATION OF NEW WATER LINE. SEE BRIDGE SHEET 41 FOR DETAILS.
6. PROTRUDING BOULDERS OR COBBLES ENCOUNTERED AT THE FINAL EXCAVATION DEPTH SHALL BE REMOVED OR SPLIT TO PROVIDE A LEVEL BEARING SURFACE AND BACKFILLED.
7. FOOTINGS SHALL BE CONSTRUCTED ON A 1'–0" THICK LAYER OF STRUCTURAL FILL.
8. TEMPORARY FILL PLACED WITHIN THE CREEK WILL NOT BE ALLOWED.
9. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4".
10. SEE GENERAL NOTE 7 FOR CONCRETE TYPES.
11. ANCHOR BOLTS SHALL BE SET BY TEMPLATE PRIOR TO PLACING ABUTMENT CONCRETE. FOR ANCHOR BOLT DETAILS, SEE BRIDGE SHEET 24.
12. ALL REINFORCING IN THE ABUTMENTS SHALL BE EPOXY COATED AND SHALL BE PAID AS ITEM 544.31, REINFORCING STEEL, EPOXY COATED (CONTRACTOR DETAILED).
13. ALL REINFORCING SHALL BE A MINIMUM OF 2 1/2" FROM CONCRETE SURFACES, UNLESS NOTED OTHERWISE.
14. EXPOSED WINGWALL AND RETAINING WALL VERTICAL SURFACES SHALL HAVE A FORM LINER AS SHOWN ON THE PLANS. THE FORM LINER SHALL BE ASHLAR STONE P/C 30664, SYMONS DURA–TEX, AS MANUFACTURED BY SYMONS CORPORATION, 200 E. TOUHY AVENUE, DES PLAINES, IL. 60018 (TEL: 1–800–733–7654) OR ASHLAR STONE NO. 330 MULTI–CAST, AS MANUFACTURED BY GREEN STREAK, 3400 TREE COURT INDUSTRIAL BOULEVARD, ST. LOUIS, MO. 63122 (TEL: 1–800–325–9504) OR AN APPROVED EQUAL. THE COST OF THE FORM LINER SHALL BE INCLUDED IN ITEM 520.99.

PIER NOTES

1. SEE BRIDGE SHEET 25 FOR BEARING DETAILS, ANCHOR BOLT DETAILS, AND ANCHOR BOLT LAYOUT.
2. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4".
3. PIER CAP AND COLUMN TIE REINFORCEMENT SHALL BE 2 1/2" FROM CONCRETE SURFACES, UNLESS OTHERWISE NOTED. PIER CAP REINFORCEMENT SHALL BE ADJUSTED TO AVOID ANCHOR ~~BOLTS.~~ RODS.
4. COAT THE ENTIRE PIER SURFACES INCLUDING THE TOP OF SHAFTS, ENTIRE CAP, BEARING SEATS, AND PEDESTALS, WITH ITEM 534.3, WATER REPELLENT (SILANE–SILOXANE).

ELASTOMERIC BEARING ASSEMBLY NOTES

1. BEARING ASSEMBLIES, INCLUDING ELASTOMERIC BEARING PADS, SOLE PLATES, MASONRY PLATES, ANCHOR BOLTS, NUTS AND WASHERS, SHALL BE PAID AS ELASTOMERIC BEARING ASSEMBLIES (F), ITEM 548.21. DESIGN LOADS: (METHOD A AASHTO, LRFD 14.7.6)

	ABUTMENT	PIER
MAXIMUM DEAD LOAD	130 KIPS	340 KIPS
MAXIMUM LIVE LOAD	70 KIPS	130 KIPS

2. ELASTOMERIC BEARING PADS SHALL BE VIRGIN NATURAL RUBBER, HARDNESS (SHORE "A" DUROMETER) OF 50, GRADE 3. SHEAR MODULUS RANGE 95 PSI TO 130 PSI.
3. ANCHOR RODS SHALL BE FABRICATED IN ACCORDANCE WITH SECTION 550.2.5. ANCHOR BOLTS, NUTS 5. AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION AND CONFORM TO AASHTO M232 ASTM A153.
4. STEEL PLATES SHALL CONFORM TO AASHTO M 270 GRADE 50 (ASTM A709 GRADE 50). THE STEEL REINFORCING PLATES SHALL CONFORM TO AASHTO M 270 GRADE 50 (ASTM A709 GRADE 50).
5. SOLE PLATES & MASONRY PLATE SHALL BE VULCANIZED TO THE ELASTOMER. ALL SURFACES THAT ARE TO BE BONDED TO THE ELASTOMER SHALL BE BLAST CLEAN AS SPECIFIED IN SSPC–SP 10.
6. SOLE AND MASONRY PLATES SHALL BE BLAST CLEANED (SSPC–SP 10) AFTER THE VULCANIZING PROCEDURE PRIOR TO PAINTING BEARING ASSEMBLIES. AFTER WELDING TO THE GIRDER FLANGE, CLEAN AND APPLY FINISH COATS TO THE SOLE PLATES.
7. BEARINGS SHALL BE INSTALLED AT TEMPERATURES BETWEEN 20°F AND 70°F. INSTALLATION TEMPERATURES OUTSIDE THIS RANGE WILL REQUIRE ADJUSTMENT.
8. THE MANUFACTURER SHALL CLEARLY MARK THE FRONT OF THE BEARINGS TO ENSURE PROPER ORIENTATION IN THE FIELD.
9. STEEL REINFORCING FOR ELASTOMERIC BEARING PADS SHALL CONFORM TO SECTION 548.2.3
10. THE CONTINUOUS WELD CONNECTING THE BOTTOM FLANGE OF GIRDERS TO THE TOP OF THE SOLE PLATES SHALL BE ALLOWED TO COOL AFTER EACH PASS. THE TEMPERATURE OF THE STEEL ADJACENT TO THE ELASTOMER SHALL NOT EXCEED 200°F (TEMPERATURE SHALL BE CONTROLLED BY WELDING PROCEDURES AND TEMPERATURE INDICATING CRAYON, OR OTHER DEVICES APPROVED BY THE ENGINEER). ALL PLATES SHALL BE FLAT AND TRUE AFTER WELDING.
11. THE TOP OF ALL SOLE PLATES SHALL BE BEVELED TO MATCH THE APPROXIMATE ROADWAY GRADE IS AS SHOWN. BEVELED WASHERS SHALL BE REQUIRED BENEATH THE NUTS.

STRUCTURAL STEEL NOTES

1. STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270, GRADE 50 (ASTM A709, GRADE 50) PAINTED (EXCEPT AS NOTED). ALL STRUCTURAL STEEL SHALL BE PAID UNDER ITEM 550.1, STRUCTURAL STEEL (F).
2. ALL WELDING AND THE PREPARATION AND ASSEMBLY OF MATERIAL FOR WELDING SHALL CONFORM TO THE NHDOT STANDARD SPECIFICATIONS, THE BRIDGE WELDING CODE (AASHTO/AWS D1.5) AND ALL INTERIM REVISIONS.
3. THE LOCATION OF SHOP SPLICES SHALL BE APPROVED BY THE ENGINEER. WEB SPLICES SHALL BE LOCATED A MINIMUM OF 9" FROM WELDED FLANGE SPLICES AND A MINIMUM OF 6" FROM TRANSVERSE STIFFENERS OR CONNECTION PLATES.
4. ALL BOLTED FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIA. HIGH STRENGTH BOLTS AASHTO M164 (ASTM A325) TYPE 1 PLACED IN 15/16" DIA. HOLES. BOLTS IN PAINTED AREAS SHALL BE ASTM A325 TYPE 1 GALVANIZED.
5. DIRECT TENSION INDICATOR WASHERS SHALL BE INSTALLED WITH HIGH STRENGTH BOLTS.
6. HOLES FOR FIELD SPLICES SHALL BE SHOP DRILLED WHILE GIRDERS ARE ASSEMBLED TO FIT BEARING ELEVATIONS.
7. TOP FLANGE BOLTS OF THE FIELD SPLICE SHALL BE INSTALLED WITH THE BOLT HEAD ON THE TOP SPLICE PLATE TO AVOID CONFLICTS IF PRECAST CONCRETE DECK PANELS ARE USED.
8. GIRDERS SHALL BE CAMBERED FOR THE FULL DEAD LOAD DEFLECTION AND THE EFFECT OF VERTICAL CURVATURE. SEE BRIDGE SHEET 27 FOR CAMBER TABLE.
9. SHOP OR FIELD WELDING OF ATTACHMENTS TO, OR PLACEMENT OF HOLES IN ANY EXPOSED PORTION OF THE PLATE GIRDERS FOR CONSTRUCTION PURPOSES, IS NOT PERMITTED. SHOP OR FIELD ATTACHMENTS TO THE TOP FLANGE FOR CONSTRUCTION PURPOSES MUST BE APPROVED BY THE ENGINEER.
10. CROSS FRAMES SHALL BE SHOP WELDED WITH 5/16" FILLET WELDS, UNLESS NOTED OTHERWISE. THE GRAVITY AXES OF CROSS FRAME MEMBERS SHOULD INTERSECT AS NEARLY AS PRACTICAL AT THE CENTERLINE OF THE GIRDER.
11. BEARING STIFFENERS AND GIRDER ENDS SHALL BE VERTICAL UNDER FULL DEAD LOAD DEFLECTION.
12. GIRDERS AND CROSS FRAMES SHALL BE FABRICATED SO THAT GIRDER WEBS ARE PLUMB UNDER FULL DEAD LOAD DEFLECTION.
13. SCREED RAIL SUPPORTS REQUIRED FOR THE PLACEMENT OF THE DECK CONCRETE SHALL BE LOCATED AT THE CENTERLINE OF THE GIRDER.
14. ALL SHEAR CONNECTORS SHALL BE FIELD WELDED TO THE TOP FLANGE WITH AUTOMATICALLY TIMED STUD WELDING EQUIPMENT. SHEAR CONNECTORS AT FIELD SPLICE LOCATIONS SHALL BE ARRANGED TO CLEAR FASTENERS AND SHALL BE WELDED TO THE SPLICE PLATES. THE TOTAL NUMBER OF SHEAR CONNECTORS IN A GIVEN LENGTH SHALL NOT BE REDUCED.
15. STEEL ERECTION SHALL NOT BE PERMITTED UNTIL THE ABUTMENTS HAVE BEEN BACKFILLED TO THE LEVEL OF THE APPROACH SLAB.
16. PRIOR TO HANDLING THE STRUCTURAL STEEL, THE CONTRACTOR SHALL SUBMIT DETAILED HANDLING AND ERECTION PLANS IN ACCORDANCE WITH SECTION 550.
17. TEMPORARY SHORING TOWERS SHALL NOT BE REMOVED UNTIL ALL STRUCTURAL STEEL IS ERECTED, AND ALL SPLICES AND CROSS FRAME CONNECTIONS ARE FULLY TIGHTENED. ALL TEMPORARY SHORING TOWERS SHALL BE REMOVED PRIOR TO CONSTRUCTING THE DECK.
18. ALL STEEL ERECTION COSTS ARE INCLUDED IN ITEM 550.1.
19. THE ENGINEER WILL INSPECT THE SHOP FABRICATION OF THE STRUCTURAL STEEL.
20. NOTCH TOUGHNESS REQUIREMENTS OF NHDOT STANDARD SPECIFICATIONS SHALL APPLY TO THE WEB AND FLANGES OF GIRDERS AND SPLICE PLATES.
21. THE STRUCTURAL STEEL FABRICATOR SHALL ARRANGE FOR NON–DESTRUCTIVE TESTING OF THE WELDS. ALL COSTS TO BE INCLUDED IN ITEM 550.1.
22. THE PAINT FINISH COLOR WILL BE DETERMINED BY THE CITY AT A LATER TIME.
23. THE CONTRACTOR SHALL MAKE PROVISIONS TO ERECT GIRDERS G1 AND G2 WHILE ALLOWING FOR REDUCED HEADROOM UNDER THE ELECTRIC POWER LINES.

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493
LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

BRIDGE NOTES – SHEET 2 OF 3 — BRIDGE SHEET 03 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13		
DRAWN	FLC	5/13	CHECKED	TD	5/13		
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SHEET SCALE: AS NOTED — FILE NUMBER

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 17 | TOTAL SHEETS 91

COFFERDAM NOTES

1. COFFERDAM LIMITS SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE COFFERDAM LIMITS REQUIRED TO SUPPORT EXISTING EMBANKMENTS AND PROPOSED EXCAVATION.

2. ALL COSTS FOR DESIGN, INSTALLATION AND REMOVAL OF COFFERDAMS SHALL BE INCLUDED IN ITEMS 503.201.

3. THE CONTRACTOR SHALL SUBMIT THE COFFERDAM DESIGN AND PROPOSED METHOD OF CONSTRUCTION TO THE ENGINEER IN ACCORDANCE WITH SECTION 105.02 OF THE NHDOT STANDARD SPECIFICATIONS. COFFERDAM SUBMITTALS SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE.

DRILLED SHAFT NOTES

1. SEE SPECIAL PROVISIONS SECTION 509 FOR CONSTRUCTION REQUIREMENTS RELATED TO THE INSTALLATION OF THE DRILLED SHAFTS.

2. THE CONTRACTOR SHALL SUBMIT AN INSTALLATION PLAN AS NOTED IN THE SPECIAL PROVISIONS.

3. THE MINIMUM ROCK SOCKET LENGTH MEASURED FROM THE BOTTOM OF THE PERMANENT STEEL CASING/TOP OF ROCK SOCKET SHALL BE AS INDICATED ON THE SUMMARY TABLE ON BRIDGE SHEET 12. LONGER ROCK SOCKET LENGTHS SHALL BE AS DIRECTED. THE TOP OF ROCK SOCKET ELEVATIONS ARE ESTIMATES ONLY. THE TOP OF ROCK SOCKET AND ROCK SOCKET LENGTHS AT EACH DRILLED SHAFT LOCATION SHALL BE APPROVED BY THE ENGINEER.

4. CONCRETE FOR DRILLED SHAFTS SHALL BE CLASS AAA – MODIFIED. SEE THE SECTION 509 SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

5. CONSTRUCTION PHASE TEST BORINGS ARE REQUIRED AT ABUTMENTS A AND B AND PIERS 1 AND 2. SEE SPECIAL PROVISIONS FOR SECTION 210. THE TEST BORING WORK AT AN INDIVIDUAL PIER SHALL BE COMPLETED A MINIMUM OF 30 DAYS PRIOR TO INITIATING DRILLED SHAFT WORK AT THAT PIER. THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM 21 DAYS IN ADVANCE OF THE TEST BORING WORK, SO THAT ARRANGEMENTS FOR INSPECTION BY THE ENGINEER CAN BE MADE.

6. CROSSHOLE SONIC (CSL) TESTING WILL BE CONDUCTED BY THE CONTRACTOR PER ITEM 509.5.

7. DRILLING OF OBSTRUCTIONS AS DEFINED IN SECTION 509 AND ANY BEDROCK ABOVE THE FINAL TIP ELEVATIONS OF THE PERMANENT CASING SHALL BE PAID UNDER ITEM 509.3. DRILLING OF THE ROCK SOCKET BELOW THE TIP OF THE PERMANENT CASING SHALL BE PAID UNDER ITEM 509.4. REFER TO THE 509 SPECIAL PROVISIONS.

8. THE FOUNDATION CONTRACTOR SHALL MEET THE PREQUALIFICATION REQUIREMENTS AS COVERED IN SPECIAL PROVISION 509.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SUPPORT OF REINFORCING CAGES DURING FABRICATION, ERECTION AND PLACEMENT OF CONCRETE. PLANS SHOWING REINFORCING CAGE SUPPORT METHODS OF ERECTION AND CENTERING DEVICES SHALL BE SUBMITTED TO THE BRIDGE FOUNDATION ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

10. ANY CONSTRUCTION JOINT NOT SHOWN ON THE PLANS WILL REQUIRE THE APPROVAL OF THE BRIDGE FOUNDATION ENGINEER PRIOR TO CONSTRUCTION.

11. 2 INCH I.D. PVC SCHEDULE 40 ELECTRICAL CONDUIT SHALL BE PLACED AS SHOWN IN THE SHAFT SECTIONS FROM 6 INCH ABOVE THE SHAFT BOTTOM TO 12 INCH ABOVE THE TOP OF DRILLED SHAFT CONSTRUCTION JOINT OR 12 INCH ABOVE BOTTOM OF ABUTMENT BEAMS WITH GLUED CAP BOTTOM AND THREADED CAP TOP END. CONDUIT SHALL BE SECURELY FASTENED TO ALTERNATE TIES, TYPICAL. THE CONTRACTOR SHALL ENSURE THAT THE CONDUIT IS TIED IN A PLUMB AND STRAIGHT POSITION TO THE REINFORCING CAGE SO THAT THE ULTRASONIC PROBE MAY BE LOWERED FREELY TO THE BOTTOM OF THE SHAFTS. ALL SHAFTS SHALL HAVE THE CONDUIT INSTALLED AND SHALL BE INCLUDED IN ITEM 509.5. ALL PVC CONDUITS SHALL BE FILLED WITH WATER IMMEDIATELY AFTER CONCRETE PLACEMENT. ADDITIONAL INTEGRITY TESTING REQUIRED DUE TO THE CONTRACTOR NOT FILLING PVC CONDUITS AS SPECIFIED. RESULTING IN INCONCLUSIVE READINGS, OR DUE TO BROKEN OR BLOCKED PVC TUBES WILL BE AT THE CONTRACTOR'S COST.

12. PILE INTEGRITY TESTING OF THE DRILLED SHAFTS WILL BE PERFORMED WITHIN 24 HOURS AFTER THE PLACEMENT OF THE CONCRETE. THE CROSSHOLE SONIC TEST WILL BE CONDUCTED THROUGH ALL OF THE 2 INCH PVC CONDUITS. SHOULD THE PILE INTEGRITY TESTING INDICATE A LOSS OF STRUCTURAL INTEGRITY OF THE DRILLED SHAFT DUE TO SLOUGHING OF THE SOIL INTO THE SPECIFIED DIAMETER OF THE SHAFT OR LACK OF CONSOLIDATION OF THE CONCRETE, THE SHAFT SHALL BE CONSIDERED DEFECTIVE. THE CONTRACTOR SHALL PROPOSE REMEDIAL MEASURES TO CORRECT SUCH DEFECTIVE SHAFTS, INCLUDING IF NECESSARY, CONSTRUCTION OF ADDITIONAL SHAFTS ADJACENT TO THE DEFECTIVE SHAFT WITH A TRANSFER BEAM CAST OVER THE SHAFTS BELOW GRADE. ALL ADDITIONAL SHAFTS. STRUCTURAL CONCRETE, AND LABOR SHALL BE AT NO ADDITIONAL COST TO THE CITY AND NO EXTENSION OF THE CONTRACT TIME WILL BE ALLOWED.

13. REINFORCEMENT FOR DRILLED SHAFTS IS QUANTIFIED IN ITEM NO. 509.6 – DRILLED SHAFT REINFORCING BARS EPOXY COATED, (CONTRACTOR DETAILED) – AND PAID FOR SEPARATELY. THE CONTRACTOR SHALL ANTICIPATE THE LENGTHENING OR SHORTENING OF DRILLED SHAFT REINFORCEMENT TO ACCOMMODATE SHAFT AND SOCKET FIELD CONDITIONS. SEE SHEET 13 FOR DRILLED SHAFT REINFORCEMENT AND DETAILS.

14. THE CONTRACTOR SHALL ANTICIPATE OBSTRUCTIONS IN THE FOUNDATION SOILS, AND SHALL PROPOSE ADEQUATE DRILLING EQUIPMENT.

15. PERMANENT DRILLED SHAFT CASINGS AT THE PIERS SHALL BE COATED WITH COAL TAR EPOXY POLYAMIDE (BLACK) SUITABLE FOR WATERFRONT STRUCTURES AND SUBMITTED PER 105.02. COATING SHALL BE APPLIED TO THE CUTOFF TOP SURFACE OF THE CASING, AND THE OUTSIDE OF THE CASING TO A DEPTH OF 10 FEET BELOW MUDLINE. SURFACES TO RECIEVE COATING SHALL BE BLAST CLEANED TO SSPC–10, AND PRIMED WITH A ZINC–RICH PRIMER WITHIN FOUR HOURS OF BLAST CLEANING. APPLY TWO COATS OF COAL TAR EPOXY POLYAMIDE TO A MINIMUM DRY THICKNESS OF 8 MILS PER COAT. PRIOR TO INSTALLATION, TEST FOR HOLIDAYS IN TOTAL COATING SYSTEM, USING A HOLIDAY DETECTOR OF LESS THAN 90 VOLTS. REPAIR ANY HOLIDAY AREAS AND RETEST REPAIRED AREAS. MEASURE DRY FILM THICKNESS OF REPAIRED AREAS PER ASTM D7091 AND ASTM E376. COST OF COATING AND TESTING SHALL BE SUBSIDIARY TO ITEM 509.2.

DECK REINFORCEMENT NOTES

1. ALL REINFORCING IN THE BRIDGE DECK AND BRUSH CURBS SHALL BE EPOXY COATED AND SHALL BE PAID AS ITEM 544.31, REINFORCING STEEL, EPOXY COATED (CONTRACTOR DETAILED).

2. ALL REINFORCING SHALL BE 2 1/2" FROM CONCRETE SURFACES, UNLESS OTHERWISE NOTED.

DECK SLAB ELEVATION NOTES

1. AFTER THE STEEL GIRDERS ARE ERECTED, ELEVATIONS ON THE TOP FLANGE OF THE GIRDERS ARE TO BE OBTAINED AT THE POINTS INDICATED IN THE TABLE. THE DIFFERENCE BETWEEN THE ELEVATIONS OBTAINED AND THOSE SHOWN IN THE TABLE IS THE ACTUAL BLOCKING DISTANCE FROM THE TOP OF THE GIRDER TO THE BOTTOM OF THE DECK SLAB AT THE CENTERLINE OF THE GIRDER. SEE ELEVATION TABLE AND HAUNCH DETAIL ON BRIDGE SHEET 32.

2. ELEVATIONS SHOWN IN THE TABLE ARE BOTTOM OF SLAB ELEVATIONS ADJUSTED FOR TOTAL DEAD LOAD DEFLECTION, LESS THE DEFLECTION DUE TO GIRDER WEIGHT.

3. THE BRIDGE DECK CONCRETE SHALL REMAIN PLASTIC THROUGHOUT EACH POUR. THE DECK PLACEMENT SHALL PROCEED UP–GRADE. FOR DECK POUR SEQUENCE, SEE BRIDGE SHEET 32.

APPROACH SLAB NOTES

1. CONCRETE FOR THE APPROACH SLABS SHALL BE ITEM 520.0302, CONCRETE CLASS AA, APPROACH SLABS (QC/QA) (PRECAST OPTION) (F). CONCRETE COVER FOR REINFORCING STEEL SHALL NOT BE MEASURED.

2. SYNTHETIC FIBER REINFORCEMENT SHALL BE ADDED TO THE CONCRETE FOR THE APPROACH SLABS AND SHALL BE PAID UNDER ITEM 544.7, SYNTHETIC FIBER REINFORCEMENT (F).

3. REINFORCEMENT IN THE APPROACH SLABS SHALL BE EPOXY COATED, AND PAID UNDER ITEM 544.31, REINFORCING STEEL EPOXY COATED (CONTRACTOR DETAILED).

4. FILL SPACES BETWEEN THE APPROACH CURBS AND APPROACH SLABS WITH ITEM 520.0302 WITH ALL QC/QA REQUIREMENTS WAIVED.

5. APPROACH SLABS SHALL BE PLACED AFTER THE CONCRETE DECK HAS BEEN CONSTRUCTED.

EXPANSION JOINT NOTES

1. EXPANSION JOINT STEEL SHALL CONFORM TO AASHTO M 270, GRADE 50 (ASTM A 709, GR 50) GALVANIZED, EXCEPT AS OTHERWISE ALLOWED. THE ENTIRE ASSEMBLY, INCLUDING THE ELASTOMERIC SEAL, SHALL BE PAID FOR AS ITEM 561.110, PREFABRICATED EXPANSION JOINT, TYPE A (F).

2. SPLICES FOR EXPANSION JOINT STEEL SHALL DEVELOP FULL STRENGTH.

3. THE EXPANSION JOINT SHALL BE PRESET TO THE TEMPERATURE ANTICIPATED AT THE TIME OF INSTALLATION. FINAL SETTING IN THE FIELD SHALL BE DETERMINED BY THE ENGINEER (SEE TEMPERATURE ADJUSTMENT TABLE ON BRIDGE SHEET 37).

4. ELASTOMERIC STRIP SEALS SHALL BE FURNISHED IN ONE CONTINUOUS LENGTH. NO SPLICE WILL BE ALLOWED.

5. JOINT SUPPORT PLATES SHALL BE SHOP WELDED TO THE EXPANSION JOINT STEEL AND SHALL BE VERTICAL AFTER THE JOINT ASSEMBLY HAS BEEN ADJUSTED FOR ROADWAY CROSS–SLOPE AND PROFILE GRADE.

6. THE EXPANSION JOINT ASSEMBLY SHALL BE INSTALLED ONLY AFTER THE ABUTMENT HAS BEEN BACKFILLED TO WITHIN 3'–0" OF FINISHED GRADE.

7. IMMEDIATELY AFTER THE JOINT HAS BEEN SECURED TO THE STRUCTURAL STEEL AND BACKWALL, REMOVE SHIPPING DEVICES AND GRIND SMOOTH ANY WELDS ON EXPOSED SURFACES. REPAIR ANY DAMAGED GALVANIZED SURFACES.

8. PROTECT TOP OF EXPANSION JOINT DURING PLACEMENT OF CONCRETE AND BITUMINOUS PAVEMENT.

9. THE STRIP SEAL SYSTEM SHALL HAVE A MINIMUM RANGE OF MOVEMENT OF 4".

10. ELEVATIONS SHOWN ARE AT TOP OF ANGLES, WHICH ARE SET 1/8" LOWER THAN PROPOSED FINISHED ROADWAY GRADE.

MISCELLANEOUS NOTES

1. A NEW WATER LINE SHALL BE INSTALLED AT THE APPROXIMATE LOCATION SHOWN ON THE SITE PLAN.

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

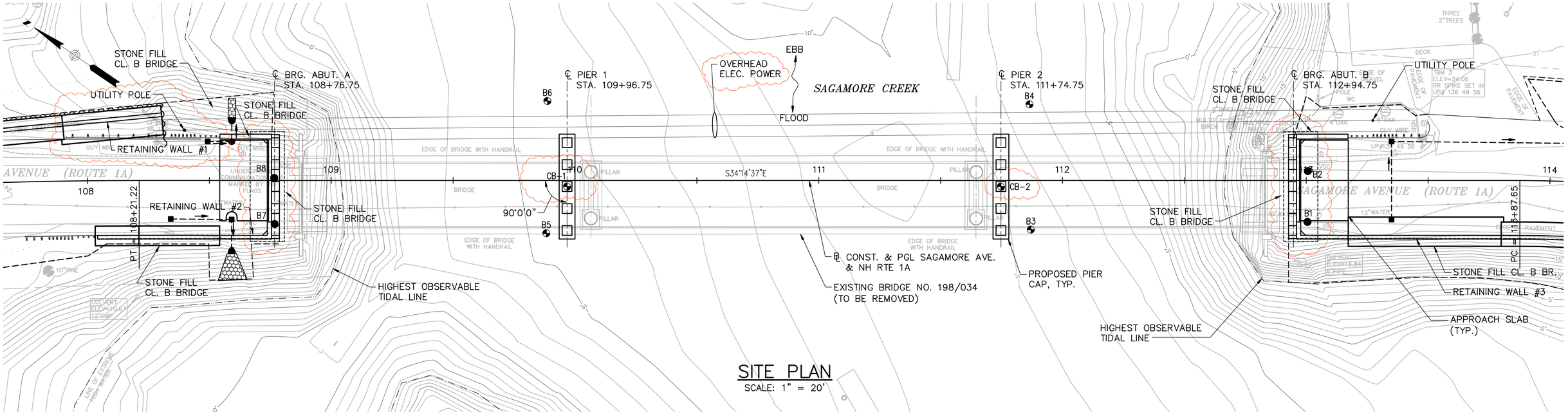
BRIDGE NOTES – SHEET 3 OF 3 — BRIDGE SHEET 04 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
SHEET SCALE	DESIGNED	TD	5/13	CHECKED	MAB	5/13		
AS NOTED	DRAWN	FLC	5/13	CHECKED	TD	5/13		
	TRACED	---	---	CHECKED	---	---		
	QUANTITIES	TD	6/13	CHECKED	MAB	6/13		

FILE NUMBER

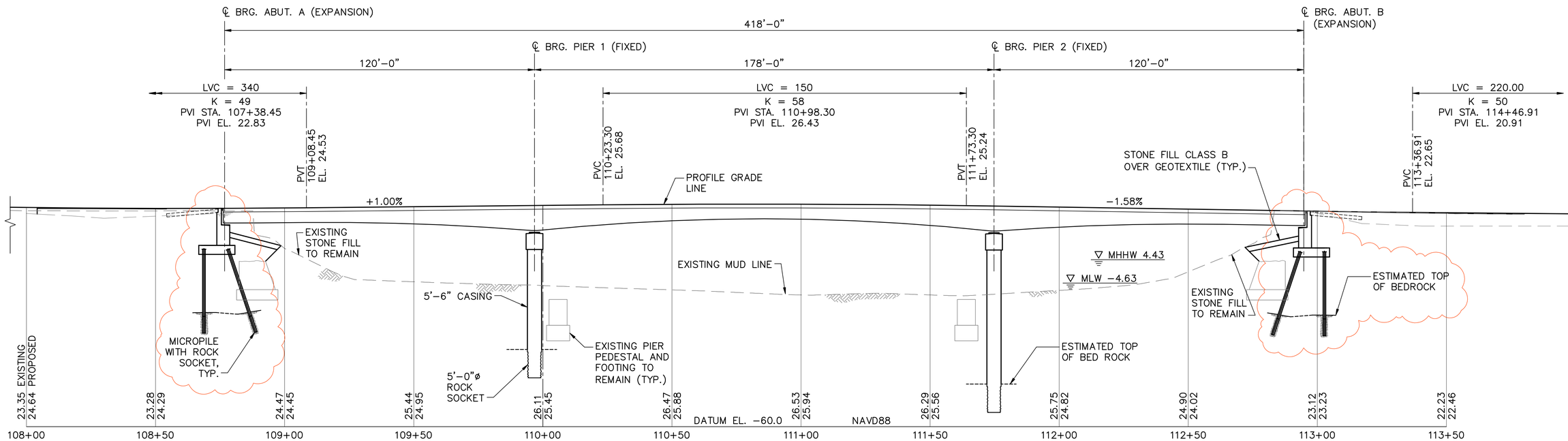
FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 18 | TOTAL SHEETS 91



SITE PLAN

SCALE: 1" = 20'



PROFILE

SCALE: 1" = 20'

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

SITE PLAN

BRIDGE SHEET 05 OF 41

	BY	DATE		BY	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13
DRAWN	FLC	5/13	CHECKED	TD	5/13
TRACED	---	---	CHECKED	---	---
QUANTITIES	TD	6/13	CHECKED	MAB	6/13

REVISIONS AFTER PROPOSAL | DATE

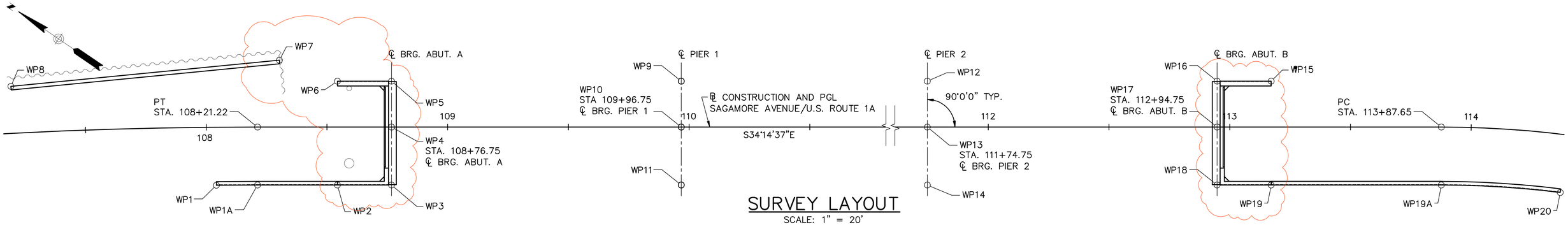
SHEET SCALE: AS NOTED

FILE NUMBER

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 19 | TOTAL SHEETS 91

FILE NAME: R:\V2-064 Sagamore Creek\CAD Drawings\05 Structural\05 SITE PLAN.dwg PLOTTED: Monday, September 16, 2013 - 4:48pm USER: Densfo_T



SURVEY LAYOUT

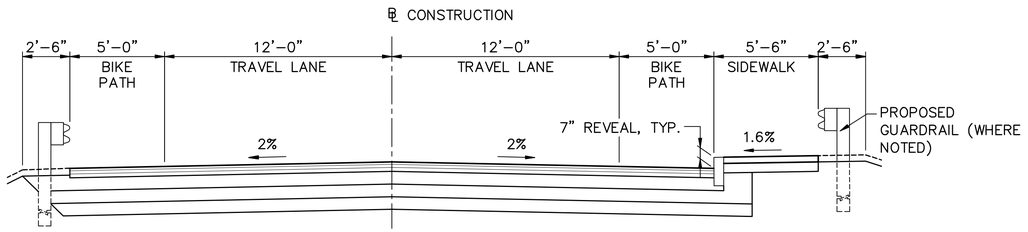
SCALE: 1" = 20'

SUMMARY OF BRIDGE QUANTITIES

ITEM NUMBER	DESCRIPTION	QUANTITY	UNIT
209.201	GRANULAR BACKFILL (BRIDGE) (F)	1,517	CY
210.6	MOBILIZATION AND DEMOBILIZATION FOR TEST BORING DRILLING EQUIPMENT	1	U
210.61	ADVANCING CASED BORING HOLE	90	LF
210.62	ADVANCING BORING HOLE BY DIAMOND CORE DRILLING	60	LF
403.911	HOT BITUMINOUS BRIDGE PAVEMENT, 1" BASE COURSE (F)	83	T
500.02	ACCESS FOR BRIDGE CONSTRUCTION	1	U
502	REMOVAL OF EXISTING BRIDGE STRUCTURE	1	U
503.201	COFFERDAMS	1	U
504.1	COMMON BRIDGE EXCAVATION (F)	3,000	CY
508	STRUCTURAL FILL	200	CY
509.1	MOBILIZATION & DEMOBILIZATION OF DRILLED SHAFT DRILLING EQUIPMENT	1	U
509.2	DRILLED SHAFT	237	LF
509.3	OBSTRUCTION REMOVAL	40	LF
509.4	ROCK SOCKET EXCAVATION	60	LF
509.5	CROSSHOLE SONIC LOGGING (CSL) TESTS	4	EA
509.6	DRILLED SHAFT REINFORCING STEEL, EPOXY COATED (CONTRACTOR DETAILED)	50,000	LB
510.101	MOBILIZATION AND DEMOBILIZATION OF MICROPILE EQUIPMENT	1	U
510.201	MICROPILE PROOF LOAD TESTING	2	EA
510.202	MICROPILE VERIFICATION LOAD TESTING	1	EA
510.301	FURNISHING MICROPILE BEARING PILES	1147	LF
520.0102	CONCRETE CLASS AA, (QC/QA) (F)	618	CY
520.0302	CONCRETE CLASS AA, APPROACH SLABS (QC/QA) (F)	62	CY
520.213	CONCRETE CLASS B, FOOTINGS (ON SOIL) (F)	330	CY
520.70026	CONCRETE BRIDGE DECK (QC/QA) (PANEL OPTION) (F)	680	CY
520.99	FORM LINER FOR CONCRETE SURFACES	2,700	SF
534.3	WATER REPELLENT (SILANE–SILOXANE)	110	GAL
538.2	BARRIER MEMBRANE, PEEL AND STICK – VERTICAL SURFACES (F)	22	SY
538.5	BARRIER MEMBRANE, WELDED BY TORCH (F)	22	SY
538.6	BARRIER MEMBRANE, WELDED BY TORCH MACHINE METHOD (F)	1,586	SY
541.1	PVC WATERSTOPS, NH TYPE 1 (F)	112	LF
541.4	PVC WATERSTOPS, NH TYPE 4 (F)	62	LF
544.3	REINFORCING STEEL (CONTRACTOR DETAILED)	37,000	LB
544.31	REINFORCING STEEL, EPOXY COATED (CONTRACTOR DETAILED)	354,100	LB
544.7	SYNTHETIC FIBER REINFORCEMENT	434	LB
547.1	SHEAR CONNECTORS (F)	5,055	EA
548.21	ELASTOMERIC BEARING ASSEMBLIES (F)	20	EA
550.1	STRUCTURAL STEEL (F)	686,200	LB
556.201	CONTAINMENT AND ENVIRONMENTAL PROTECTION	0	U
556.301	WORKER PROTECTION	0	U
556.401	WASTE MANAGEMENT	0	U
561.11	PREFABRICATED EXPANSION JOINT, TYPE A (F)	86	LF
562.1	SILICONE JOINT SEALANT (F)	62	LF
563.24	BRIDGE RAIL T4	1,112	LF
565.242	BRIDGE APPROACH RAIL, T4 (STEEL POSTS) (F)	3	U
585.21	STONE FILL, CLASS B (BRIDGE)	600	CY
593.411	GEOTEXTILE PERM. EROSION CONTROL, CLASS 1, NON–WOVEN	900	SY
1010.41	QUALITY CONTROL / QUALITY ASSURANCE (QC/QA) FOR CONCRETE	1	$

WORKING POINT COORDINATES

WORKING POINT NO.	NORTHING	EASTING
WP1	203736.1398	1229331.5543
WP1A	203722.1135	1229341.1908
WP2	203694.7451	1229359.8207
WP3	203676.2120	1229372.4364
WP4	203689.7171	1229392.2761
WP5	203700.4086	1229407.9825
WP6	203718.9418	1229395.3668
WP7	203743.6869	1229389.0209
WP8	203829.5504	1229317.4668
WP9	203601.2103	1229475.5080
WP10	203590.5187	1229459.8015
WP11	203577.0137	1229439.9619
WP12	203454.0661	1229575.6707
WP13	203443.3745	1229559.9643
WP14	203429.8694	1229540.1246
WP15	203336.3346	1229655.8119
WP16	203354.8677	1229643.1962
WP17	203344.1761	1229627.4897
WP18	203330.6711	1229607.6501
WP19	203312.1379	1229620.2658
WP19A	203253.8748	1229659.9262
WP20	203211.4487	1229685.0897



TYPICAL SAGAMORE AVENUE APPROACH SECTION

SCALE 1/4" = 1'–0"

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

BRIDGE QUANTITIES AND SURVEY LAYOUT

BRIDGE SHEET 06 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13		
DRAWN	FLC	5/13	CHECKED	TD	5/13		
TRACED	---	---	CHECKED	---	---		
QUANTITIES	TD	6/13	CHECKED	MAB	6/13		

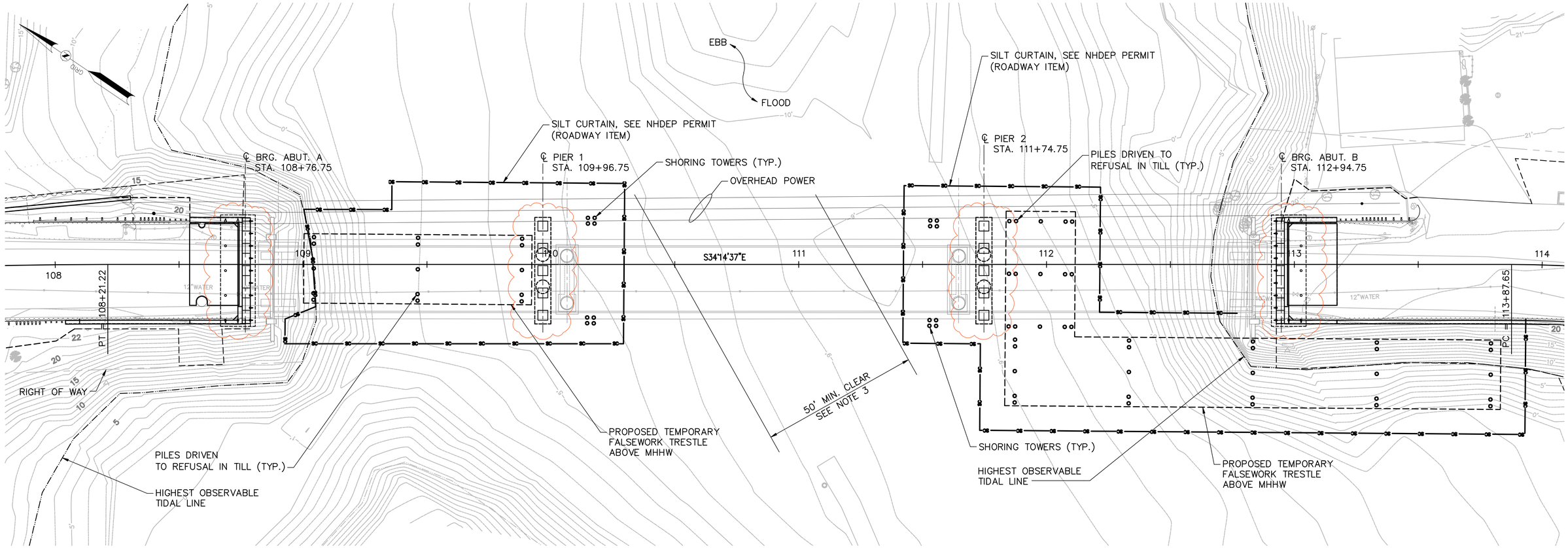
SHEET SCALE: AS NOTED

FILE NUMBER

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 20 | TOTAL SHEETS 91

FILE NAME: R:\V0-064 Sagamore Creek\CAD Drawings\05 Structure\06 BRIDGE QUANTITIES AND SURVEY LAYOUT.dwg PLOTTED: Monday, September 16, 2013 - 4:46pm USER: Densfo_T



BRIDGE CONSTRUCTION ACCESS PLAN

SCALE: 1" = 20'

NOTES

1. INFORMATION SHOWN FOR IN-WATER ACCESS WAS ASSUMED FOR PERMITTING PURPOSES.
2. CONTRACTOR MAY CHANGE THE ACCESS CONFIGURATION SHOWN, BUT MUST SUBMIT PROPOSED CHANGES TO THE PERMITTING AGENCIES FOR APPROVAL PRIOR TO DISTURBING ANY PROTECTED RESOURCE.
3. MAINTAIN MINIMUM 50 FEET HORIZONTAL CLEARANCE NORMAL TO CHANNEL DURING CONSTRUCTION. SEE COAST GUARD PERMIT FOR ADDITIONAL REQUIREMENTS.
4. PROVIDE 10 FEET MINIMUM VERTICAL CLEARANCE TO BOTTOM OF TRESTLE FRAMING TO MHHW.
5. PLANS FOR TEMPORARY WORKS WITHIN THE LIMITS OF MHHW MUST BE SUBMITTED BY THE CONTRACTOR TO THE U.S. COAST GUARD DISTRICT COMMANDER AND BE APPROVED PRIOR TO THE START OF CONSTRUCTION.
6. TRESTLE WORK SHOWN PAID UNDER ITEM 500.02, ACCESS FOR BRIDGE CONSTRUCTION.

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

BRIDGE CONSTRUCTION ACCESS PLAN

BRIDGE SHEET 07 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13		
DRAWN	FLC	5/13	CHECKED	TD	5/13		
TRACED	---	---	CHECKED	---	---		
QUANTITIES	TD	6/13	CHECKED	MAB	6/13		

SHEET SCALE: AS NOTED

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 21 | TOTAL SHEETS 91 | FILE NUMBER

FILE NAME: R:\V0-064 Sagamore Creek\CAD Drawings\05 Structural\07 BRIDGE CONSTRUCTION ACCESS PLAN.dwg PLOTTED: Monday, September 16, 2013 - 4:46pm USER: Densfo_T

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION

PROJECT NAME **SAGAMORE CREEK 09.0025631.00** BRIDGE NO. N/A
DESCRIPTION

BORING NO. **B-1**
SHEET NO. 1 OF 2
STA. 112+95 OFF. RT 16
BASELINE Sagamore Avenue
ELEVATION (ft) 23.0
START/END 5/10/10 / 5/11/10
DRILLER K. Smith (NHB)
INSPECTOR Eric Baron
CLASSIFIER Eric Baron
EAST/NORTH (ft) 1229614/203335

GROUNDWATER DATE	TIME	DEPTH (ft)	ELEV. (ft)	BOTTOM OF CASING	BOTTOM OF HOLE

EQUIPMENT	SAMPLER	CASING	CORE
TYPE:	S	HW	
SIZE I.D. (in):	1.375	4	
HAMMER WT. (lb):	140	DRILL RIG	
HAMMER FALL (in):	30	Mobile B-59	
HAMMER TYPE:	Automatic		

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOW/.5 PER 0.5 ft	SAMPLE NUMBER	SAMPLE RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
0	0.6	22.4					Asphalt.	
			12 11 8 7	S-1	1.0 [50]	1.0 - 3.0	Medium dense, brown, fine to coarse SAND, little Gravel, trace Silt. (Moist.)	
5			100/0				S-2, 5' - 5', No Recovery. Drilled through Boulder from 5' to 9.5'. -FILL-	
10			3 2 5 6	S-3	1.2 [60]	10.0 - 12.0	Loose, brown, fine to medium SAND, trace Gravel, trace Silt. (Dry.)	
							Drilling indicates Cobbles and Boulders.	
15			5 10 9 12	S-4	1.0 [50]	15.0 - 17.0	Medium dense, brown, fine to medium SAND, little Gravel, little Silt. (Dry.) (A-2)	
20	20.3	2.7	7 6 7 11	S-5	1.2 [60]	20.0 - 22.0	Top 0.3': Medium dense, brown, fine to medium SAND, little Gravel. (Moist.) Bottom 0.5': Medium dense, dark brown, fine to coarse SAND, some Gravel, little Silt. (Wet.) -OUTWASH-	
25			5 6 6 7	S-6	0.3 [15]	25.0 - 27.0	Medium dense, brown, fine to coarse SAND, little Gravel, little Silt. (Wet.)	
30	29.0	-6.0	100/0.3	S-7	0.0 [0]	30.0 - 30.3	Drill cutting indicated brown Sand and Gravel. Increased resistance at approximately 29' below ground surface. -GLACIAL TILL-	
35			20 21 26 55	S-8	1.2 [60]	35.0 - 37.0	Dense, brown, fine to coarse SAND, some Gravel, some Silt. (Wet.)	
40	41.6	-18.6	56 79 59 100/0.1	S-9	1.2 [75]	40.0 - 41.6	Very dense, brown, fine to coarse SAND, some Silt, some Gravel. (Wet.)	
							-BEDROCK-	
				C-1	4.5 [90]	43.0 - 48.0	Drill to 43' to set casing. Very hard, fresh, fine grained, gray, GNEISS. Joints are close to wide, low angle, undulating, rough, partially open, fresh. C-1 Core Times (mins): 43-44 (8) 44-45 (9) 45-46 (8) 46-47 (7) 47-48 (10) RQD= 4.4/5.0= 88%	
50							Bottom of Exploration at 48' below ground surface. (El. -25.0)	

BOTTOM OF ABUT. B FOOTING
EL. 5.5

ABUT. B
ESTM. TOP OF ROCK SOCKET ELEV. VARIES

Sampler	Identification
S	Standard Split Spoon
SL	Large Spoon (O.D.= 3 in)
T	Thin Wall Tube
U	Undisturbed Piston
O	Open End Rod
A	Auger Flight
C	Core Barrel
NR	Not Recorded

COHESIVE SOILS Blows/foot	Consistency
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Medium Stiff
9 - 15	Stiff
16 - 30	Very Stiff
31 - 60	Hard
> 60	Very Hard

NON-COHESIVE SOILS Blows/foot	Density
0 - 4	Very Loose
5 - 10	Loose
11 - 24	Medium Dense
25 - 50	Dense
> 50	Very Dense
WOR - Weight of Rod	
WOH - Weight of Hammer	

Soil Descriptions Capitalized Soil Name	Proportion Major Component
Lower Case Adjective	35% - 50%
Some	20% - 35%
Little	10% - 20%
Trace	1% - 10%

ENGLISH

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION

PROJECT NAME **SAGAMORE CREEK 09.0025631.00** BRIDGE NO. N/A
DESCRIPTION

BORING NO. **B-2**
SHEET NO. 1 OF 2
STA. 112+95 OFF. LT 05
BASELINE Sagamore Avenue
ELEVATION (ft) 23.0
START/END 5/10/10 / 5/10/10
DRILLER K. Smith (NHB)
INSPECTOR Eric Baron
CLASSIFIER Eric Baron
EAST/NORTH (ft) 1229632/203347

GROUNDWATER DATE	TIME	DEPTH (ft)	ELEV. (ft)	BOTTOM OF CASING	BOTTOM OF HOLE

EQUIPMENT	SAMPLER	CASING	CORE
TYPE:	S	HW	
SIZE I.D. (in):	1.375	4	
HAMMER WT. (lb):	140	DRILL RIG	
HAMMER FALL (in):	30	Mobile B-59	
HAMMER TYPE:	Automatic		

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOW/.5 PER 0.5 ft	SAMPLE NUMBER	SAMPLE RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
0	0.6	22.4					Asphalt.	
			22 26 20 14	S-1	0.8 [40]	1.0 - 3.0	Dense, brown, fine to coarse SAND, some Gravel, trace Silt. (Moist.) Drilling indicates brown Sand and Cobbles/Boulders.	
5			10 14 46 21	S-2	0.1 [5]	5.9 - 7.0	Gravel pieces, Bent spoon. (Dry.) Drilling indicates cobbles/boulders to approximately 9' below ground surface with brown sand below. -FILL-	
10			1 3 4 9	S-3	0.3 [15]	10.0 - 12.0	Loose, brown, gravelly fine to medium SAND, trace Silt. (Dry.)	
15			5 4 3 3	S-4	1.1 [55]	15.0 - 17.0	Loose, brown, fine to medium SAND, little Gravel, trace Silt. (Damp.)	
20	20.5	2.5	7 8 5 4	S-5	1.0 [50]	20.0 - 22.0	Top 0.5': Medium dense, brown, fine to medium SAND, trace Gravel. Piece Asphalt. (Moist.) Bottom 0.5': Dark brown, fine to coarse SAND, some Gravel, trace Silt. (Wet.) -OUTWASH-	
25			3 4 6 14	S-6	0.9 [45]	25.0 - 27.0	Loose, brown, fine to coarse SAND, some Gravel, little Silt. (Wet.)	
30	30.7	-7.7	9 27 35 21	S-7	1.4 [70]	30.0 - 32.0	Top 0.7': Dense, brown, fine to medium SAND, trace Silt, trace Gravel. (A-3) Bottom 0.7': Very dense, brown, fine to coarse, sandy GRAVEL, some Silt. (Wet.) -GLACIAL TILL-	
35	35.7	-12.7	75/100/0.2	S-8	0.0 [0]	35.0 - 35.7	No Recovery. -BEDROCK-	
40				C-1	4.7 [94]	35.9 - 43.0	Drill to 38' to seat casing for core. Very hard, fresh, fine grained, gray, GNEISS. Primary joints are close to moderate, moderately dipping to high angle, undulating, rough, fresh to slightly weathered, partially open, iron staining. C-1 Core Times (mins): 38-39 (8) 39-40 (12) 40-41 (9) 41-42 (10) 42-43 (12) RQD= 4.3/5.0= 86%	
45							Bottom of Exploration at 43' below ground surface. (El. -20.0)	
50								

Sampler	Identification
S	Standard Split Spoon
SL	Large Spoon (O.D.= 3 in)
T	Thin Wall Tube
U	Undisturbed Piston
O	Open End Rod
A	Auger Flight
C	Core Barrel
NR	Not Recorded

COHESIVE SOILS Blows/foot	Consistency
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Medium Stiff
9 - 15	Stiff
16 - 30	Very Stiff
31 - 60	Hard
> 60	Very Hard

NON-COHESIVE SOILS Blows/foot	Density
0 - 4	Very Loose
5 - 10	Loose
11 - 24	Medium Dense
25 - 50	Dense
> 50	Very Dense
WOR - Weight of Rod	
WOH - Weight of Hammer	

Soil Descriptions Capitalized Soil Name	Proportion Major Component
Lower Case Adjective	35% - 50%
Some	20% - 35%
Little	10% - 20%
Trace	1% - 10%

ENGLISH

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION

PROJECT NAME **SAGAMORE CREEK 09.0025631.00** BRIDGE NO. N/A
DESCRIPTION

BORING NO. **B-3**
SHEET NO. 1 OF 2
STA. 111+83 OFF. RT 19
BASELINE Sagamore Avenue
ELEVATION (ft) 9.7
START/END 5/25/10 / 5/26/10
DRILLER S. Cooley (NHB)
INSPECTOR Mirsad A./Mike D.
CLASSIFIER Mirsad A./Mike D.
EAST/NORTH (ft) 1229549/203426

GROUNDWATER DATE	TIME	DEPTH (ft)	ELEV. (ft)	BOTTOM OF CASING	BOTTOM OF HOLE

EQUIPMENT	SAMPLER	CASING	CORE
TYPE:	S	HW	
SIZE I.D. (in):	1.375	4	
HAMMER WT. (lb):	140	DRILL RIG	
HAMMER FALL (in):	30	CME-45	
HAMMER TYPE:	Automatic		

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	ELEVATION	BLOW/.5 PER 0.5 ft	SAMPLE NUMBER	SAMPLE RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
0	0.5	-10.2					-RIVER BOTTOM DEPOSITS-	
			1 2 2 2	S-1	0.5 [25]	0.0 - 2.0	Very loose, black to gray, fine to coarse SAND, some Silt. -CLAY-	
5			2 1 1/12"	S-2	2.0 [100]	5.0 - 7.0	Very soft, gray, CLAY, little coarse Sand. (Wet.)	
	7.0	-16.7					Field Vane refusal at 7'. Drilling indicated that gravel was encountered.	
10			6 17 14 9	S-3	0.8 [40]	10.0 - 12.0	Dense, gray, GRAVEL, some Silt, little Sand. (Wet.) -GLACIAL TILL-	
15			14 25 19 39	S-4	0.0 [0]	15.0 - 17.0	No Recovery: Wash spoils only. Probable Cobble.	
20			21 26 37 40	S-5	0.4 [20]	19.0 - 21.0	Very dense, gray/brown, GRAVEL, little Silt, trace fine to coarse Sand. (Wet.)	
25			43 31 36 42	S-6	0.8 [40]	24.9 - 26.0	Very dense, gray, SILT, some fine to coarse Sand, little Gravel. (Wet.)	
30			33 57 51 140/0.4	S-7	1.4 [74]	30.7 - 31.6	Very dense, gray, SILT, little fine to coarse Sand, trace Gravel. (Wet.) -GLACIAL TILL-	
35	34.0	-43.7		C-1	0.0 [0]	34.9 - 35.7	Very hard, fresh, fine grained, gray, GNEISS. Joints are very close to close, moderate angle, planar, rough, partially open to open. C-1 Core Times (min): 34.9-35.7 (140.8")	
				C-2	0.9 [90]	35.7 - 36.7	Very hard, fresh, fine grained, gray, GNEISS. Joints are very close to close, moderate angle, planar, rough, partially open to open. C-2 Core Times (min): 35.7-36.7 (18) RQD= 0.4/1.0= 40%	
				C-3	2.1 [111]	37.3 - 38.9	Set casing harder. Clean out hole to 37.0' with roller bit. Very hard, fresh, fine grained, gray, GNEISS. Joints are very close to close, moderate angle, planar, rough, partially open to open. C-3 Core Time (min): 37.0-38.0 (18) 38.0-38.9 (22/0.9') RQD= 1.5/1.9= 79%	
50							Bottom of Exploration at 38.9' below ground surface. (El. -48.6)	

PIER 2
ESTM. TOP OF ROCK SOCKETS ELEV. VARIES
EL. -41.1
EL. -43.4

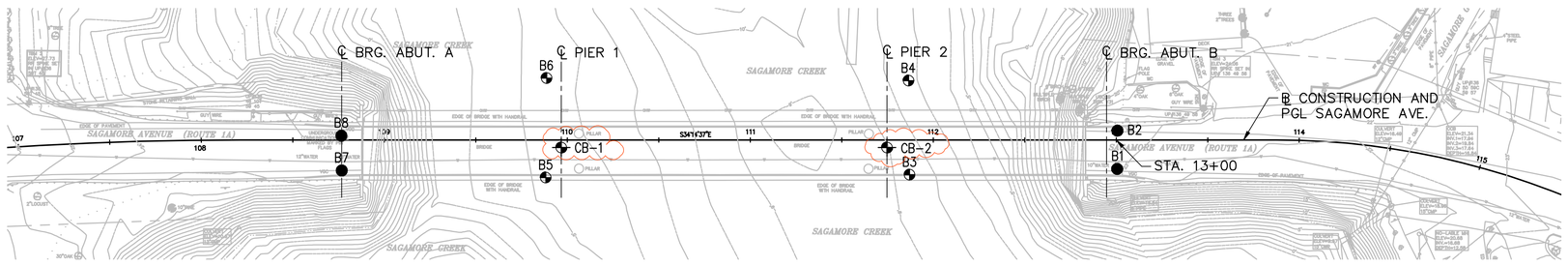
Sampler	Identification
S	Standard Split Spoon
SL	Large Spoon (O.D.= 3 in)
T	Thin Wall Tube
U	Undisturbed Piston
O	Open End Rod
A	Auger Flight
C	Core Barrel
NR	Not Recorded

COHESIVE SOILS Blows/foot	Consistency
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Medium Stiff
9 - 15	Stiff
16 - 30	Very Stiff
31 - 60	Hard
> 60	Very Hard

NON-COHESIVE SOILS Blows/foot	Density
0 - 4	Very Loose
5 - 10	Loose
11 - 24	Medium Dense
25 - 50	Dense
> 50	Very Dense
WOR - Weight of Rod	
WOH - Weight of Hammer	

Soil Descriptions Capitalized Soil Name	Proportion Major Component
Lower Case Adjective	35% - 50%
Some	20% - 35%
Little	10% - 20%
Trace	1% - 10%

ENGLISH



BORING LOCATION PLAN

NOT TO SCALE

- INDICATES WATER BORING
- INDICATES LAND BORING
- CB– INDICATES BORING TO BE OBTAINED BY CONTRACTOR THUS PROJECT (2 BORINGS) ITEMS 210.6, 210.61, 210.62.

SHEET SCALE
AS NOTED

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493
LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

BORING LOGS – SHEET 1 OF 3

BRIDGE SHEET 08 OF 41

	BY	DATE		BY	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13
DRAWN	FLC	5/13	CHECKED	TD	5/13
TRACED	---	---	CHECKED	---	---
QUANTITIES	TD	6/13	CHECKED	MAB	6/13

REVISIONS AFTER PROPOSAL | DATE

FILE NUMBER

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 22 | TOTAL SHEETS 91

FILE NAME: R:\VQ-064 Sagamore Creek\CAD Drawings\05 Structure\08 BORING LOGS – SHEET 1 OF 3.dwg PLOTTED: Monday, September 16, 2013 - 4:44pm USER: DensfoJ_T

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION

PROJECT NAME **SAGAMORE CREEK 09.0025631.00** BRIDGE NO. N/A
DESCRIPTION

BORING NO. B-4
SHEET NO. 1 OF 2
STA. 111+83 OFF. LT 32
BASELINE Sagamore Avenue
ELEVATION (ft) - 9.4
START/END 5/24/10 / 5/24/10
DRILLER S. Cooley (NHB)
INSPECTOR Mirsad A./Mike D.
CLASSIFIER Mirsad A./Mike D.
EAST/NORTH (ft) 1229591/203455

GROUNDWATER						EQUIPMENT	SAMPLER	CASING	CORE
DATE	TIME	DEPTH (ft)	ELEV. (ft)	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE:	S	HW	
						SIZE I.D. (in):	1.375	4	
						HAMMER WT. (lb):	140	DRILL RIG	
						HAMMER FALL (in):	30	CME-45	
						HAMMER TYPE:	Automatic		

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	STRATUM CHANGE (ft) ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
0			WOR/12"			0.0		
			2	S-1	1.5 [75]		Very loose, black, fine to medium SAND, some Silt, trace shells and organics. (Wet.)	
			2			2.0	-RIVER BOTTOM DEPOSITS-	
	2.0	-11.4					-CLAY-	
5			2			5.0		
			1	S-2	0.6 [28]		Very soft, gray, CLAY. (Wet.) (A-6)	
			2			7.0		
			1			7.0		
			2	S-3	2.0 [100]		Top 15": Very soft, gray to brown, CLAY. (Wet.)	
	8.3	-17.7	1				Bottom 9": Very loose, gray, fine SAND, some Silt, little Gravel. (Wet.)	
10			11			9.0		
							Boulder encountered from 13.9 to 15.0' below ground surface.	
15			15			15.0		
			21	S-4	0.6 [28]		Dense, gray, fine to coarse SAND, some Gravel, little Silt. (Wet.) (A-1-b)	
			23			17.0	-GLACIAL TILL-	
			26					
20			34			20.9		
			39	S-5	0.8 [42]		Very dense, gray, fine to coarse SAND and GRAVEL, little Silt. (Wet.)	
			41			22.0		
			71				Boulder encountered from 23' to 24' below ground surface.	
			57			24.9		
25	25.1	-34.5	59	S-6	0.5 [45]		Very dense, gray, fine to coarse SAND and GRAVEL, little Silt. (Wet.)	
			50/0.1			25.1		
						25.5	-BEDROCK-	
				C-1	5.0 [100]		Very hard, fresh, fine grained, gray, GNEISS. Primary joints are close to moderately spaced, moderately dipping to low angle, undulating, rough, fresh to slightly weathered, partially open with iron staining.	
							C-1 Core Times (min):	
							25.5-26.5 (10)	
							26.5-27.5 (11)	
							27.5-28.5 (31)	
							28.5-29.5 (10)	
							29.5-30.5 (26)	
30						30.5	RQD= 4.3/5.0= 86%	
							Bottom of Exploration at 30.5' below ground surface. (El. -39.9)	
35								
40								
45								
50								

PIER 2
ESTM. TOP OF ROCK SOCKETS ELEV. VARIES
EL. −41.1
EL. −43.4

Sampler	Identification
S	Standard Split Spoon
SL	Large Spoon (O.D.= 3 in)
T	Thin Wall Tube
U	Undisturbed Piston
O	Open End Rod
A	Auger Flight
C	Core Barrel
NR	Not Recorded

COHESIVE SOILS Blows/foot	Consistency
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Medium Stiff
9 - 15	Stiff
16 - 30	Very Stiff
31 - 60	Hard
> 60	Very Hard

NON-COHESIVE SOILS Blows/foot	Density
0 - 4	Very Loose
5 - 10	Loose
11 - 24	Medium Dense
25 - 50	Dense
> 50	Very Dense
WOR - Weight of Rod	
WOH - Weight of Hammer	

Soil Descriptions	Proportion
Capitalized Soil Name	Major Component
Lower Case Adjective	35% - 50%
Some	20% - 35%
Little	10% - 20%
Trace	1% - 10%

ENGLISH

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION

PROJECT NAME **SAGAMORE CREEK 09.0025631.00** BRIDGE NO. N/A
DESCRIPTION

BORING NO. B-5
SHEET NO. 1 OF 1
STA. 109+87 OFF. RT 33
BASELINE Sagamore Avenue
ELEVATION (ft) - 6.3
START/END 5/24/10 / 5/24/10
DRILLER S. Cooley (NHB)
INSPECTOR Mirsad A./Mike D.
CLASSIFIER Mirsad A./Mike D.
EAST/NORTH (ft) 1229437/203588

GROUNDWATER						EQUIPMENT	SAMPLER	CASING	CORE
DATE	TIME	DEPTH (ft)	ELEV. (ft)	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE:	S	HW	
						SIZE I.D. (in):	1.375	4	
						HAMMER WT. (lb):	140	DRILL RIG	
						HAMMER FALL (in):	30	CME-45	
						HAMMER TYPE:	Automatic		

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	STRATUM CHANGE (ft) ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
0			WOH/18"			0.0		
			3	S-1	0.0 [0]		No Recovery.	
						2.0	-CLAY-	
5			4			5.0		
			4	S-2	1.5 [75]		Very soft, gray to brown, Clayey SILT. (Wet.)	
			2			7.0		
			3					
			2	S-3	1.7 [85]	10.0	Top 0.9': Gray to brown, Silty CLAY, trace fine Sand. (Wet.)	
	10.9	-17.2	10				Bottom 1.1': Medium dense, brown, fine to coarse SAND, some Gravel, little Silt. (Wet.)	
10			12			12.0	Field Vane from 10.5 to 11.0'. T_{res}=620/200 in-lbs. (Su=1470/470 psf)	
			20				Field Vane refusal at 11.5'.	
15			28			15.0		
			19	S-4	0.8 [40]		Dense, brown, fine to coarse Gravelly SAND, little Silt. (Wet.)	
			17			17.0	-GLACIAL TILL-	
			21					
20	20.0	-26.3					-BEDROCK-	
				C-1	4.1 [103]	21.0	Very hard, fresh, fine grained, gray, GNEISS. Primary joints are close to moderately spaced, moderately dipping to low angle, undulating, rough, fresh to slightly weathered, partially open, iron staining.	
							C-1 Core Times (min):	
							21.0-22.0 (19)	
							22.0-23.0 (10)	
							23.0-24.0 (8)	
							24.0-25.0 (10)	
							RQD= 3.1/4.0= 78%	
				C-2	0.7 [70]	25.0	Very hard, fresh, fine grained, gray, GNEISS. Primary joints are close to moderately spaced, moderately dipping to low angle, undulating, rough, fresh to slightly weathered, partially open.	
							C-2 Core Times (min):	
							25.0-26.0 (11)	
							RQD= 0.7/1.0= 70%	
						26.0	Bottom of Exploration at 26.0' below ground surface. (El. -32.3)	

PIER 1
ESTM. TOP OF ROCK SOCKETS ELEV. VARIES
EL. −28.9
EL. −29.7

Sampler	Identification
S	Standard Split Spoon
SL	Large Spoon (O.D.= 3 in)
T	Thin Wall Tube
U	Undisturbed Piston
O	Open End Rod
A	Auger Flight
C	Core Barrel
NR	Not Recorded

COHESIVE SOILS Blows/foot	Consistency
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Medium Stiff
9 - 15	Stiff
16 - 30	Very Stiff
31 - 60	Hard
> 60	Very Hard

NON-COHESIVE SOILS Blows/foot	Density
0 - 4	Very Loose
5 - 10	Loose
11 - 24	Medium Dense
25 - 50	Dense
> 50	Very Dense
WOR - Weight of Rod	
WOH - Weight of Hammer	

Soil Descriptions	Proportion
Capitalized Soil Name	Major Component
Lower Case Adjective	35% - 50%
Some	20% - 35%
Little	10% - 20%
Trace	1% - 10%

ENGLISH

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION

PROJECT NAME **SAGAMORE CREEK 09.0025631.00** BRIDGE NO. N/A
DESCRIPTION

BORING NO. B-6
SHEET NO. 1 OF 2
STA. 109+87 OFF. LT 34
BASELINE Sagamore Avenue
ELEVATION (ft) - 5.3
START/END 5/20/10 / 5/21/10
DRILLER S. Cooley (NHB)
INSPECTOR Mirsad A./Mike D.
CLASSIFIER Mirsad A./Mike D.
EAST/NORTH (ft) 1229482/203616

GROUNDWATER						EQUIPMENT	SAMPLER	CASING	CORE
DATE	TIME	DEPTH (ft)	ELEV. (ft)	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE:	S	HW	
						SIZE I.D. (in):	1.375	4	
						HAMMER WT. (lb):	140	DRILL RIG	
						HAMMER FALL (in):	30	CME-45	
						HAMMER TYPE:	Automatic		

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	STRATUM CHANGE (ft) ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
0			WOH			0.0		
			2	S-1	1.4 [70]		Top 1.5': Very loose, black to gray, fine to medium SAND, some Silt.	
			2			2.0	-RIVER BOTTOM DEPOSITS-	
	1.5	-6.8	4				Bottom 0.5': Soft, gray, Silty CLAY. little Silt.	
5			WOH			5.0		
			WOH	S-2	2.0 [100]		Very soft, gray, CLAY. (Wet.)	
			WOH			7.0		
			WOH				-CLAY-	
10			WOH			10.0		
			WOH	S-3	2.0 [100]		Very soft, gray, CLAY. (Wet.) (A-6)	
			WOH			12.0	Field Vane from 10.5 to 11.0'. T_{res}= 200/4 in-lbs. (Su= 470/10 psf)	
							Field Vane from 11.5 to 12.0'. T_{res}= 210/4 in-lbs. (Su= 590/10 psf)	
15	14.9	-20.2					Drilling indicates boulder at 14.9 to 15.5' with brown sand above.	
			11			15.9		
			14	S-4	1.6 [80]		Dense, brown, fine to coarse SAND, some Silt, trace Gravel.	
			14			18.0	Drilling indicates boulder at 18.9 to 22'.	
			36				-GLACIAL TILL-	
20								
			30			22.9		
			50	S-5	1.6 [145]		Very dense, brown, fine to coarse SAND, little Gravel, little Silt.	
			50/0.1			23.1		
25	25.0	-30.3					Drill to 26' to seat casing.	
						26.0	-BEDROCK-	
				C-1	4.8 [90]		Very hard, fresh, fine grained, gray, GNEISS. Primary joints are close to moderately spaced, moderately dipping to low angle, undulating, rough, fresh to slightly weathered, partially open, iron staining.	
							C-1 Core Times (min):	
							26.0-27.0 (8)	
							27.0-28.0 (9)	
							28.0-29.0 (10)	
							29.0-30.0 (9)	
							30.0-31.0 (12)	
							RQD= 4.2/5.0= 84%	
30						31.0	Bottom of Exploration at 31.0' below ground surface. (El. -36.3)	
35								
40								
45								
50								

Sampler	Identification
S	Standard Split Spoon
SL	Large Spoon (O.D.= 3 in)
T	Thin Wall Tube
U	Undisturbed Piston
O	Open End Rod
A	Auger Flight
C	Core Barrel
NR	Not Recorded

COHESIVE SOILS Blows/foot	Consistency
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Medium Stiff
9 - 15	Stiff
16 - 30	Very Stiff
31 - 60	Hard
> 60	Very Hard

NON-COHESIVE SOILS Blows/foot	Density
0 - 4	Very Loose
5 - 10	Loose
11 - 24	Medium Dense
25 - 50	Dense
> 50	Very Dense
WOR - Weight of Rod	
WOH - Weight of Hammer	

Soil Descriptions	Proportion
Capitalized Soil Name	Major Component
Lower Case Adjective	35% - 50%
Some	20% - 35%
Little	10% - 20%
Trace	1% - 10%

ENGLISH

NOTE: SEE SHEET 8 FOR BORING LOCATION PLAN.

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

SHEET SCALE
AS NOTED

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493
LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

BORING LOGS – SHEET 2 OF 3

BRIDGE SHEET 09 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13		
DRAWN	FLC	5/13	CHECKED	TD	5/13		
TRACED	---	---	CHECKED	---	---		
QUANTITIES	TD	6/13	CHECKED	MAB	6/13		

FILE NUMBER

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 23 | TOTAL SHEETS 91

FILE NAME: R:\V0-064 Sagamore Creek\CAD Drawings\05 Structural\09 BORING LOGS - SHEET 2 OF 3.dwg PLOTTED: Monday, September 16, 2013 - 4:44pm USER: Densfo_T

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION

PROJECT NAME **SAGAMORE CREEK 09.0025631.00** BRIDGE NO. N/A
DESCRIPTION

BORING NO. **B-7**
SHEET NO. 1 OF 2
STA. 108+76 OFF. RT 17
BASELINE Sagamore Avenue
ELEVATION (ft) 23.0
START/END 5/6/10 / 5/6/10
DRILLER K. Smith (NHB)
INSPECTOR Eric Baron
CLASSIFIER Eric Baron
EAST/NORTH (ft) 1229378/203681

GROUNDWATER					EQUIPMENT	SAMPLER	CASING	CORE
DATE	TIME	DEPTH (ft)	ELEV. (ft)	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE:	S	HW	
						SIZE I.D. (in):	1.375	4	
						HAMMER WT. (lb):	140	DRILL RIG	
						HAMMER FALL (in):	30	Mobile B-59	
						HAMMER TYPE:	Automatic		

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	STRATUM CHANGE (ft) ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
0							Asphalt	
	0.9	22.1	15 8 12 10	S-1	1.2 [60]	1.0 3.0	Medium dense, brown, fine to coarse SAND, some Gravel, trace Silt. (Dry.) -FILL-	
	3.0	20.0	9 8 100/0.3	S-2	0.2 [15]	5.0 8.3	Gray/brown, GRAVEL, little Sand, trace Silt, angular. (Dry.) Drill cuttings indicate presence of brown sand. -ROCK FILL-	
10			12 7 18 31	S-3	0.3 [15]	10.0 12.0	Gray/brown, GRAVEL, trace Sand, angular. Tip plugged with piece of gravel. (Moist.) Drill cutting indicate presence of brown sand.	
	15.7	7.3	7 7 7 6	S-4	1.2 [60]	15.9 18.0	Drilled to 16' to penetrate boulder/cobble. Medium dense, brown, fine to coarse SAND, some Gravel, little Silt. (Moist.) (A-1-b)	
20			8 14 20 18	S-5	0.4 [20]	20.0 22.0	Dense, brown, fine to coarse SAND, some Gravel, little Silt, mottled. (Wet.) -FILL-	
25			7 10 11 11	S-6	0.8 [40]	25.0 27.0	Medium dense, brown/gray, Sandy SILT, little Gravel. Sulfur odor. (Wet.)	
	28.0	-5.0					Change in drilling resistance and wash color.	
30			24 22 28 51	S-7	0.2 [10]	30.0 32.0	Very dense, brown, fine to coarse SAND, some Silt, some Gravel, mottled. -GLACIAL TILL-	
35			43 53 50 78	S-8	1.2 [60]	35.0 38.0	Drill to 36' to penetrate cobble/boulder. Very dense, brown/gray, fine to coarse SAND and GRAVEL, little Silt. (A-1-b)	
	39.5	-16.5		C-1	2.5 [50]	40.0 45.0	Very hard, slightly weathered, fine grained, gray, GNEISS. Joints are close to very close, moderately dipping to high angle, undulating, rough, slightly weathered, partially open, iron staining. Core Times (mins): 40-41 (7) 41-42 (6.5) 42-43 (8) 43-44 (5) 44-45 (6) RQD= 0/5.0= 0% -BEDROCK-	
45				C-2	5.0 [100]	45.0 50.0	Very hard, fresh. fine grained, gray, GNEISS. Primary joints are very close to moderate, low angle, undulating to stepped, rough, fresh to slightly weathered, partially open, iron staining. Secondary joints are similar but high angle. RQD= 1.4/5.0 =28%	
50							Bottom of Exploration at 50' below ground surface. (El. -27.0)	

BOTTOM OF ABUT. A FOOTING EL. 6.5

ABUT. A ESTM. TOP OF ROCK SOCKET ELEV. VARIES

Sampler	Identification
S	Standard Split Spoon
SL	Large Spoon (O.D.= 3 in)
T	Thin Wall Tube
U	Undisturbed Piston
O	Open End Rod
A	Auger Flight
C	Core Barrel
NR	Not Recorded

COHESIVE SOILS Blows/foot	Consistency
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Medium Stiff
9 - 15	Stiff
16 - 30	Very Stiff
31 - 60	Hard
> 60	Very Hard

NON-COHESIVE SOILS Blows/foot	Density
0 - 4	Very Loose
5 - 10	Loose
11 - 24	Medium Dense
25 - 50	Dense
> 50	Very Dense

WOR - Weight of Rod
WOH - Weight of Hammer

Soil Descriptions	Proportion
Capitalized Soil Name	Major Component
Lower Case Adjective	35% - 50%
Some	20% - 35%
Little	10% - 20%
Trace	1% - 10%

ENGLISH

TEST BORING REPORT

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION
MATERIALS & RESEARCH BUREAU - GEOTECHNICAL SECTION

PROJECT NAME **SAGAMORE CREEK 09.0025631.00** BRIDGE NO. N/A
DESCRIPTION

BORING NO. **B-8**
SHEET NO. 1 OF 2
STA. 108+76 OFF. LT 02
BASELINE Sagamore Avenue
ELEVATION (ft) 23.0
START/END /
DRILLER K. Smith (NHB)
INSPECTOR Eric Baron
CLASSIFIER Eric Baron
EAST/NORTH (ft) 1229393/203692

GROUNDWATER					EQUIPMENT	SAMPLER	CASING	CORE
DATE	TIME	DEPTH (ft)	ELEV. (ft)	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE:	S	HW	
						SIZE I.D. (in):	1.375	4	
						HAMMER WT. (lb):	140	DRILL RIG	
						HAMMER FALL (in):	30	Mobile B-59	
						HAMMER TYPE:	Automatic		

DEPTH (ft)	STRATUM CHANGE (ft) DEPTH	STRATUM CHANGE (ft) ELEVATION	BLOWS PER 0.5 ft	SAMPLE NUMBER	SAMPLER RECOVERY (ft) [%]	DEPTH RANGE (ft)	FIELD CLASSIFICATION AND REMARKS	STRATUM SYMBOL
0							Asphalt	
	0.8	22.2	17 18 11 16	S-1	1.6 [80]	1.0 3.0	Top 0.8': Dense, brown, GRAVEL, some Sand, trace Silt. Bottom 0.8': Dense, brown, fine to medium SAND, little Silt, little Gravel. (Moist.) (A-2) -FILL-	
	5.0	18.0	12 8 36 67	S-2	0.1 [5]	5.0 7.0	Gray, GRAVEL pieces, angular. Drilling indicates cobbles/boulders.	
10			49 23 17 17	S-3	0.1 [5]	10.0 12.0	Gray, GRAVEL pieces, angular. -ROCK FILL-	
15			7 8 14 20	S-4	0.2 [10]	15.0 17.0	Medium dense, brown, fine to medium SAND, some Gravel, trace Silt. Gravel in tip. (Moist.) Drilling indicates brown sand at approximately 18' below ground surface.	
20			5 6 8 4	S-5	0.3 [15]	20.0 22.0	Medium dense, brown/gray, Gravelly SAND, little Silt. (Wet.) Drill cuttings show consistent dark brown, fine Sand at approximately 23' below ground surface.	
25	25.3	-2.3	10 8 17 13	S-6	1.3 [65]	25.0 27.0	Top 0.3': Gray, fine, Silty SAND, some Gravel. (Wet.) Bottom 1.0': Dense, brown/gray, fine to coarse SAND, some Gravel, trace Silt. (Wet.) -GLACIAL TILL-	
30			8 12 100/0.3	S-7	1.2 [92]	30.0 31.3	Brown, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL-	
35	33.5	-10.5		C-1	1.0 [100]	34.0 36.0	Very hard, fresh, fine grained, gray, GNEISS. Joint is low angle, undulating, fresh, partially open,rough, iron staining. Core Time (mins) 34-35 (9) RQD= 1.0/1.0= 100%	
				C-2	4.0 [100]	35.0 39.0	-BEDROCK- Very hard, fresh, fine grained, gray, GNEISS. Primary joints are close to moderate, low angle to moderately dipping, undulating, rough, fresh to slightly weathered, tight to partially open, iron staining. Secondary joints are similar, moderate, high angle to vertical. RQD= 2.6/4.0= 65%	
40							Bottom of Exploration at 39' below ground surface. (El. -16.0)	
45								
50								

Sampler	Identification
S	Standard Split Spoon
SL	Large Spoon (O.D.= 3 in)
T	Thin Wall Tube
U	Undisturbed Piston
O	Open End Rod
A	Auger Flight
C	Core Barrel
NR	Not Recorded

COHESIVE SOILS Blows/foot	Consistency
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Medium Stiff
9 - 15	Stiff
16 - 30	Very Stiff
31 - 60	Hard
> 60	Very Hard

NON-COHESIVE SOILS Blows/foot	Density
0 - 4	Very Loose
5 - 10	Loose
11 - 24	Medium Dense
25 - 50	Dense
> 50	Very Dense

WOR - Weight of Rod
WOH - Weight of Hammer

Soil Descriptions	Proportion
Capitalized Soil Name	Major Component
Lower Case Adjective	35% - 50%
Some	20% - 35%
Little	10% - 20%
Trace	1% - 10%

ENGLISH

NOTE: SEE SHEET 8 FOR BORING LOCATION PLAN.

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

SHEET SCALE
AS NOTED

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493
LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK
BORING LOGS – SHEET 3 OF 3

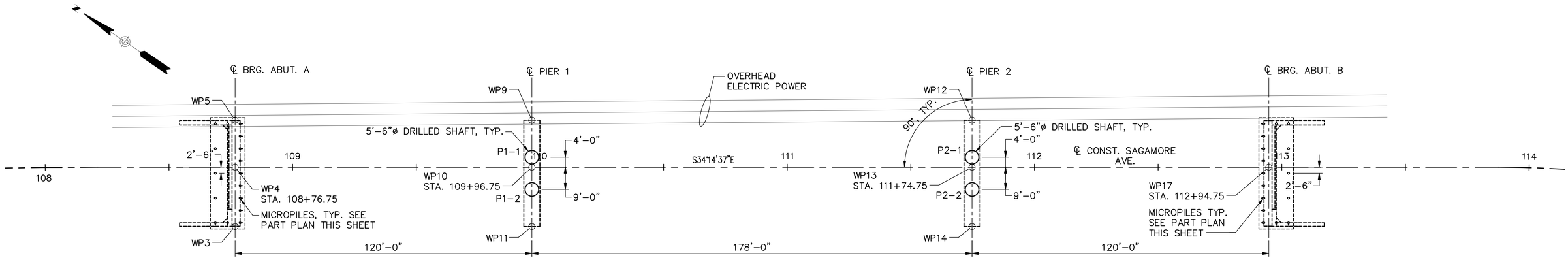
	BY	DATE		BY	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13
DRAWN	FLC	5/13	CHECKED	TD	5/13
TRACED	---	---	CHECKED	---	---
QUANTITIES	TD	6/13	CHECKED	MAB	6/13

REVISIONS AFTER PROPOSAL | DATE

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 24 | TOTAL SHEETS 91

BRIDGE SHEET 10 OF 41
FILE NUMBER

FILE NAME: R:\V0-064 Sagamore Creek\CAD Drawings\05 Structural\10 BORING LOGS - SHEET 3 OF 3.dwg PLOTTED: Monday, September 16, 2013 - 4:43pm USER: DensfoJ



DRILLED SHAFT AND PILE LAYOUT PLAN

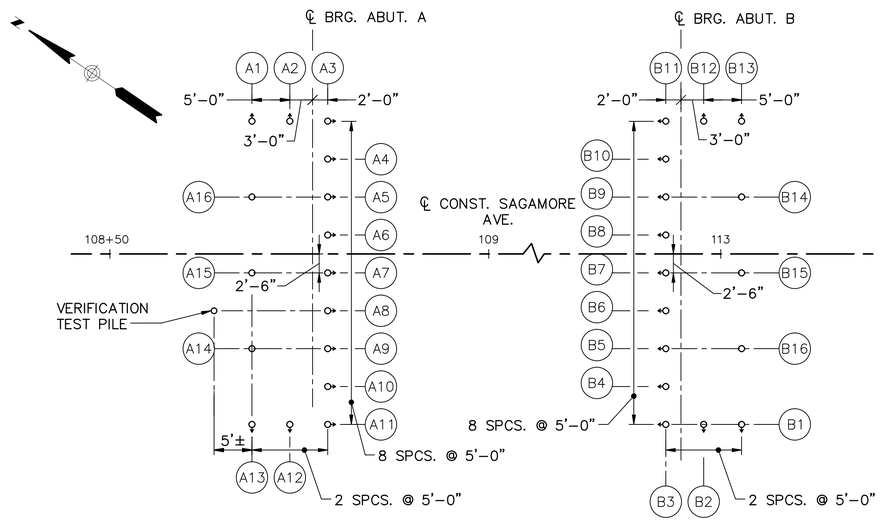
SCALE: 1" = 20'

DRILLED SHAFT SUMMARY TABLE

SHAFT	SHAFT DIA. (IN)	ROCK SOCKET DIA. (IN)	TOP OF SHAFT ELEV. (FT)	EST. TOP OF ROCK SOCKET ELEV. (FT)	EST. BOTTOM OF ROCK SOCKET ELEV. (FT)	EST. ROCK SOCKET LENGTH (FT)	EST. UPPER SHAFT LENGTH (FT)	DRILLED SHAFT LENGTH (FT)	VERTICAL BARS, NO. AND SIZE	SERVICE I AXIAL LOAD (K)	STRENGTH I AXIAL LOAD (K)
P1–1	66	60	8.41	–29.7	–44.7	15.0	38.1	53.1	24–#10	1,970	2,680
P1–2	66	60	8.41	–28.9	–43.9	15.0	37.3	52.3	24–#10	1,970	2,680
P2–1	66	60	8.21	–41.1	–56.1	15.0	49.3	64.3	36–#10	1,990	2,760
P2–2	66	60	8.21	–43.4	–58.4	15.0	51.6	66.6	36–#10	1,990	2,760

ABUTMENT A MICROPILES

PILE	PILE TOP EL. (FT)	ESTIMATED TOP OF SOCKET EL. (FT)	SOCKET LENGTH (FT)	ESTIMATED UPPER LENGTH (FT)	ESTIMATED TOTAL LENGTH (FT)	BATTER
A–1	8.5	–5.0	12.0	14.3	26.3	4 ON 12
A–2	8.5	–5.0	12.0	14.3	26.3	4 ON 12
A–3	8.5	–5.8	12.0	15.1	27.1	4 ON 12
A–4	8.5	–7.4	12.0	16.9	28.9	4 ON 12
A–5	8.5	–8.9	12.0	18.5	30.5	4 ON 12
A–6	8.5	–10.5	12.0	20.2	32.2	4 ON 12
A–7	8.5	–12.1	12.0	21.8	33.8	4 ON 12
A–8	8.5	–13.7	12.0	23.5	35.5	4 ON 12
A–9	8.5	–15.2	12.0	25.2	37.2	4 ON 12
A–10	8.5	–16.8	12.0	26.9	38.9	4 ON 12
A–11	8.5	–18.4	12.0	28.5	40.5	4 ON 12
A–12	8.5	–20.9	12.0	31.2	43.2	4 ON 12
A–13	8.5	–20.9	12.0	31.2	43.2	4 ON 12
A–14	8.5	–15.2	12.0	23.7	35.7	NONE
A–15	8.5	–12.1	12.0	20.6	32.6	NONE
A–16	8.5	–8.9	12.0	17.4	29.4	NONE
TEST PILE	8.5	–13.7	12.0	22.2	34.2	NONE



ABUTMENT B MICROPILES

PILE	PILE TOP EL. (FT)	ESTIMATED TOP OF SOCKET EL. (FT)	SOCKET LENGTH (FT)	ESTIMATED UPPER LENGTH (FT)	ESTIMATED TOTAL LENGTH (FT)	BATTER
B–1	7.5	–23.2	12.0	32.6	44.6	4 ON 12
B–2	7.5	–23.2	12.0	32.6	44.6	4 ON 12
B–3	7.5	–20.6	12.0	29.8	41.8	4 ON 12
B–4	7.5	–19.2	12.0	28.3	40.3	4 ON 12
B–5	7.5	–17.8	12.0	26.8	28.8	4 ON 12
B–6	7.5	–16.4	12.0	25.3	37.3	4 ON 12
B–7	7.5	–14.9	12.0	23.8	35.8	4 ON 12
B–8	7.5	–13.5	12.0	22.3	34.3	4 ON 12
B–9	7.5	–12.1	12.0	20.8	32.8	4 ON 12
B–10	7.5	–10.7	12.0	19.3	31.3	4 ON 12
B–11	7.5	–9.3	12.0	17.8	29.8	4 ON 12
B–12	7.5	–8.0	12.0	16.5	28.5	4 ON 12
B–13	7.5	–8.0	12.0	16.5	28.5	4 ON 12
B–14	7.5	–12.1	12.0	19.6	31.6	NONE
B–15	7.5	–14.9	12.0	22.4	34.4	NONE
B–16	7.5	–17.8	12.0	25.3	37.3	NONE

SHEET REVISED 9-16-13

LEGEND

- ○ PLUMB PILE
- ♀ BATTER PILE (4 ON 12)

ABUTMENT MICROPILE PART PLAN

SCALE: 1" = 5'

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493
LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

DRILLED SHAFT AND PILE LAYOUT

BRIDGE SHEET 12 OF 41

	BY	DATE		BY	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13
DRAWN	FLC	5/13	CHECKED	TD	5/13
TRACED	---	---	CHECKED	---	---
QUANTITIES	TD	6/13	CHECKED	MAB	6/13

REVISIONS AFTER PROPOSAL | DATE

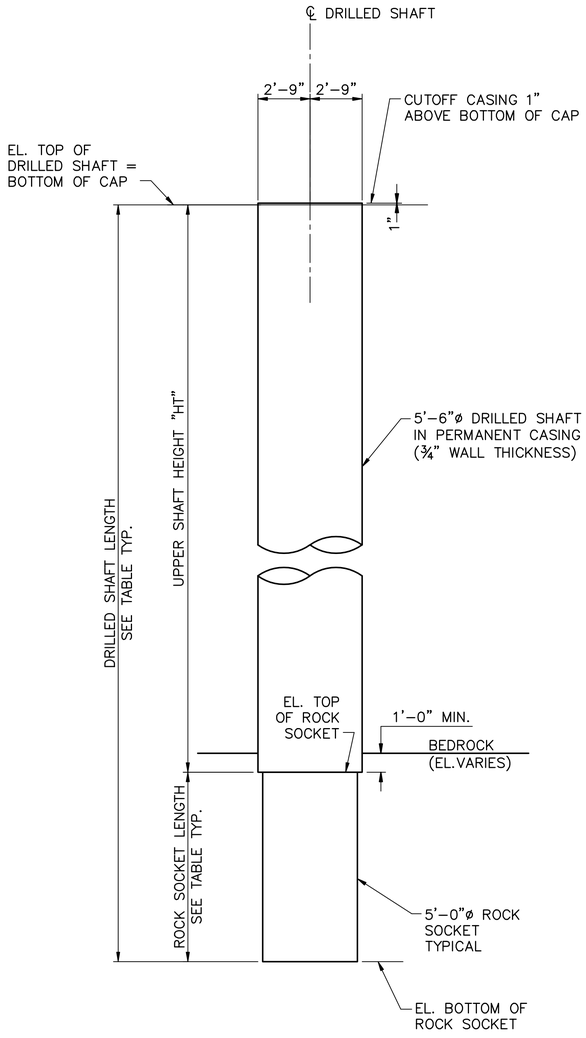
SHEET SCALE: AS NOTED

FILE NUMBER

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

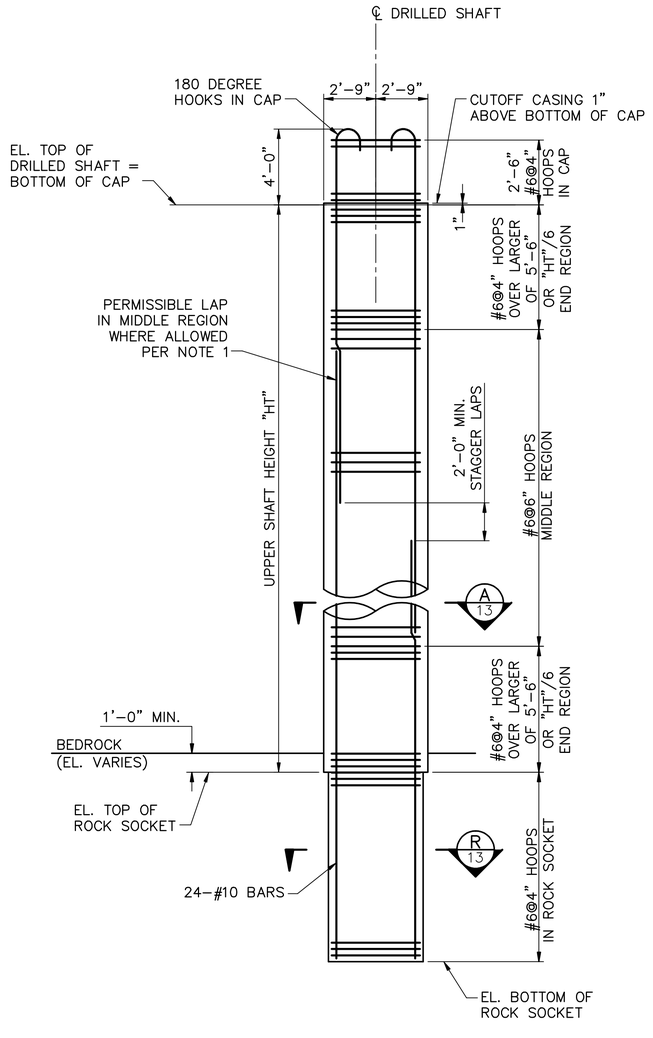
FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 26 | TOTAL SHEETS 91

FILE NAME: R:\V0-064 Sagamore Creek\CAD Drawings\05 Structural\12 DRILLED SHAFT AND PILE LAYOUT.dwg PLOTTED: Monday, September 16, 2013 - 4:43pm USER: Densfo_T



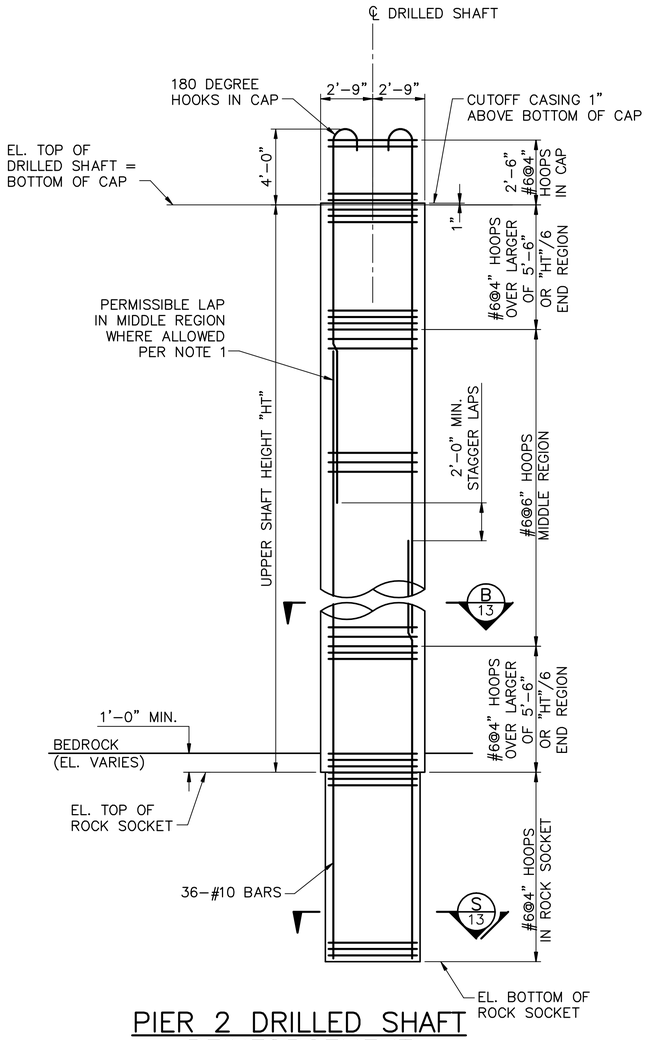
DRILLED SHAFT DETAILS

SCALE: 1/4" = 1'–0"



PIER 1 DRILLED SHAFT REINFORCEMENT

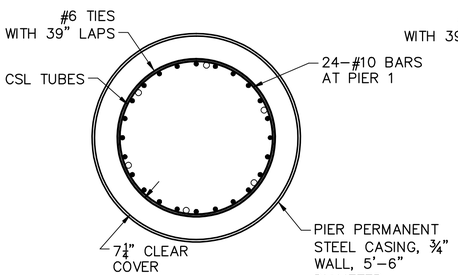
SCALE: 1/4" = 1'–0"



PIER 2 DRILLED SHAFT REINFORCEMENT

SCALE: 1/4" = 1'–0"

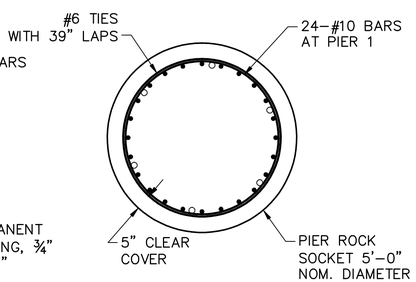
SHEET REVISED 9-16-13



SECTION A

A 13

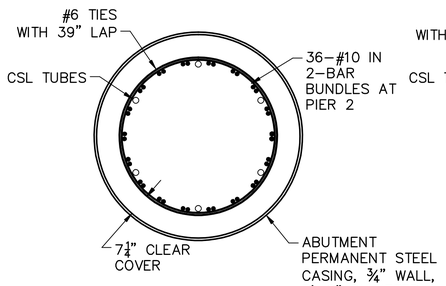
SCALE: 1/2" = 1'–0"



SECTION R

R 13

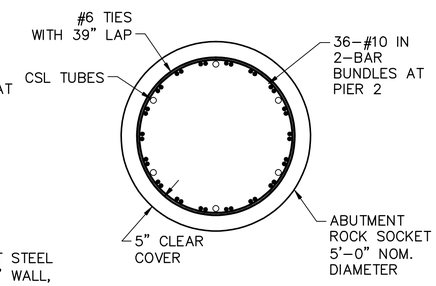
SCALE: 1/2" = 1'–0"



SECTION B

B 13

SCALE: 1/2" = 1'–0"



SECTION S

S 13

SCALE: 1/2" = 1'–0"

NOTES:

1. SPLICES IN SHAFT LONGITUDINAL BARS ARE PERMISSIBLE IN THE MIDDLE REGION, PROVIDED THAT 8'–0" LAP LENGTHS FOR #10 BARS SHALL BE CONTAINED WITHIN THE MIDDLE REGION, SPLICES SHALL BE STAGGERED, AND OFFSET 2'–0" VERTICALLY.
2. WHERE COLUMN LENGTH IS TOO SHORT TO MEET THE ABOVE SPLICE CRITERIA, BARS SHALL BE CONTINUOUS FULL HEIGHT, OR SPLICED WITH MECHANICAL COUPLERS IN THE MIDDLE REGION, WITH ADJACENT SPLICES STAGGERED AND OFFSET 2'–0" VERTICALLY.
3. SPLICES ARE NOT ALLOWED IN THE SHAFT END REGIONS.
4. ALL BARS AND MECHANICAL SPLICES IN DRILLED SHAFTS AND ROCK SOCKETS SHALL BE EPOXY COATED. MECHANICAL SPLICES SHALL BE SUBSIDIARY.
5. DO NOT FABRICATE REINFORCING STEEL UNTIL AFTER THE BOTTOM OF ROCK SOCKET ELEVATION HAS BEEN DETERMINED FROM FEILD CONDITIONS.

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

DRILLED SHAFT DETAILS — BRIDGE SHEET 13 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13		
DRAWN	FLC	5/13	CHECKED	TD	5/13		
TRACED	---	---	CHECKED	---	---		
QUANTITIES	TD	6/13	CHECKED	MAB	6/13		

SHEET SCALE: AS NOTED

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 27 | TOTAL SHEETS 91

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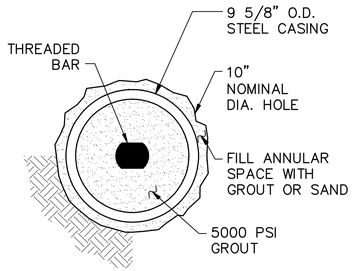
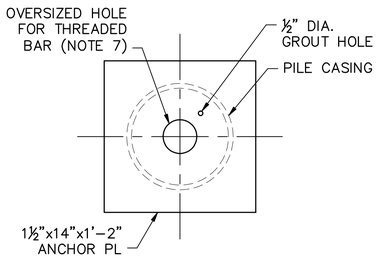
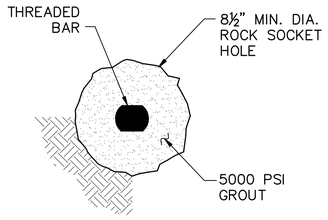


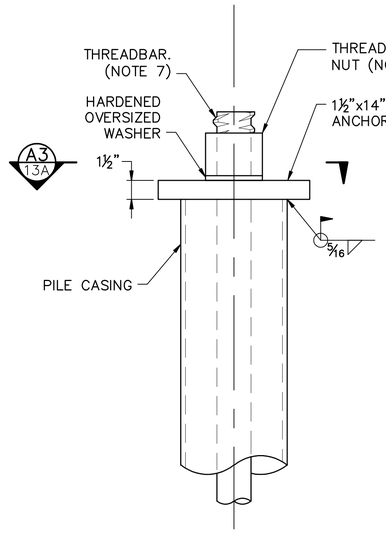
SECTION
SCALE: 3/8" = 1'–0" A1 / 13A



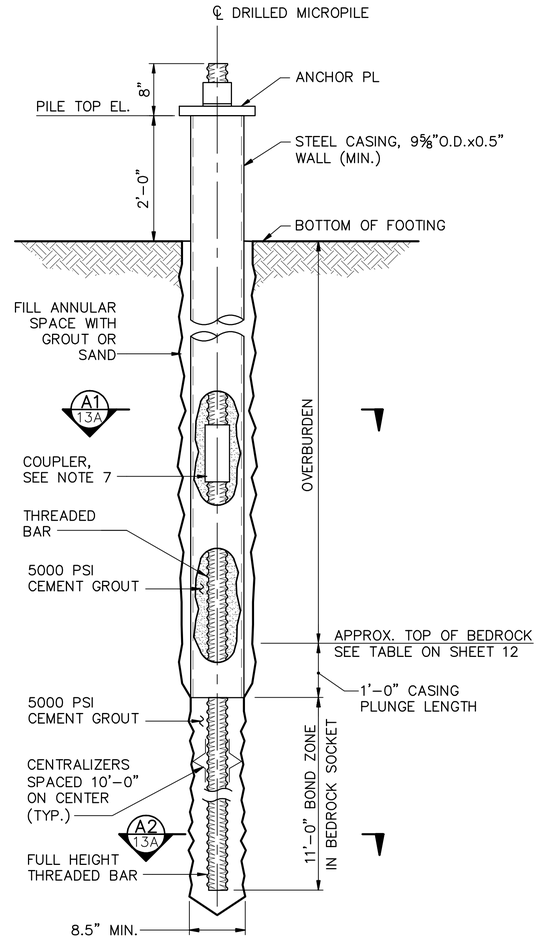
SECTION
SCALE: 3/4" = 1'–0" A3 / 13A



SECTION
SCALE: 3/8" = 1'–0" A2 / 13A



ELEVATION
NOT TO SCALE



MICROPILE DETAIL
NOT TO SCALE

NOTES:

1. FOR NOTES SEE BRIDGE SHEET 02.
2. VERTICAL MICROPILE SHOWN, BATTERED MICROPILE SIMILAR.

SHEET ADDED 9-16-13

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493
LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

MICROPILE DETAILS

BRIDGE SHEET 13A OF 41

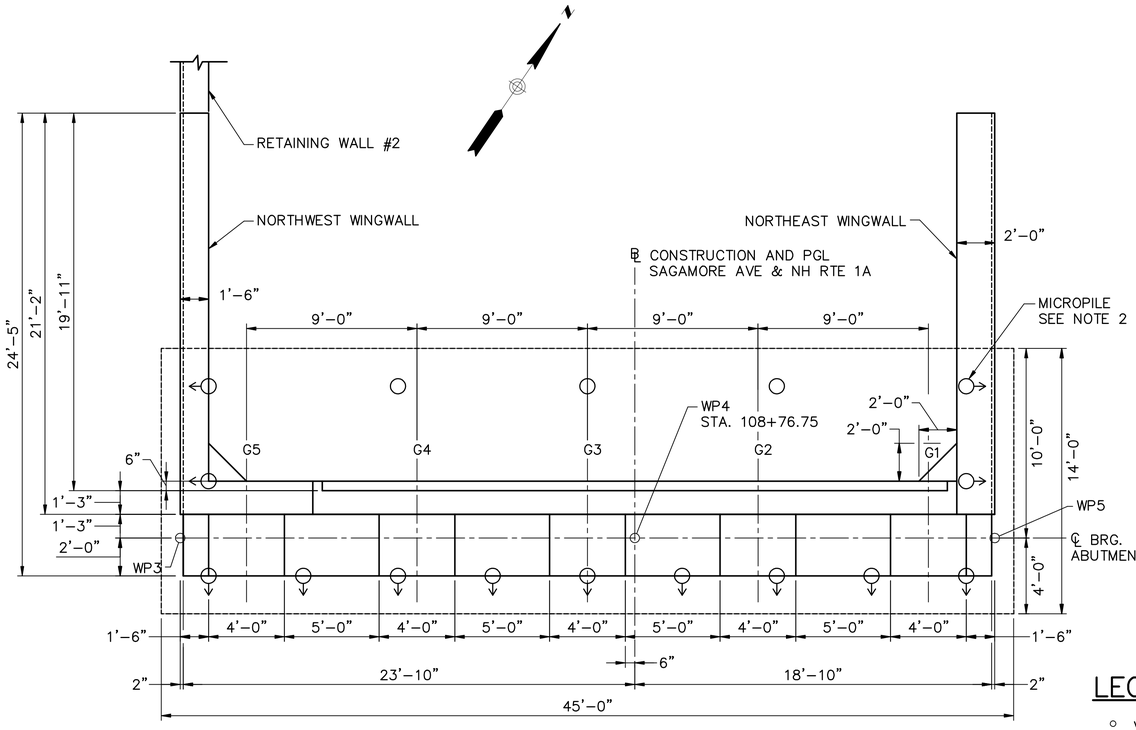
	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	---	---	CHECKED	---	---		
DRAWN	---	---	CHECKED	---	---		
TRACED	---	---	CHECKED	---	---		
QUANTITIES	---	---	CHECKED	---	---		

SHEET SCALE: AS NOTED

FILE NUMBER

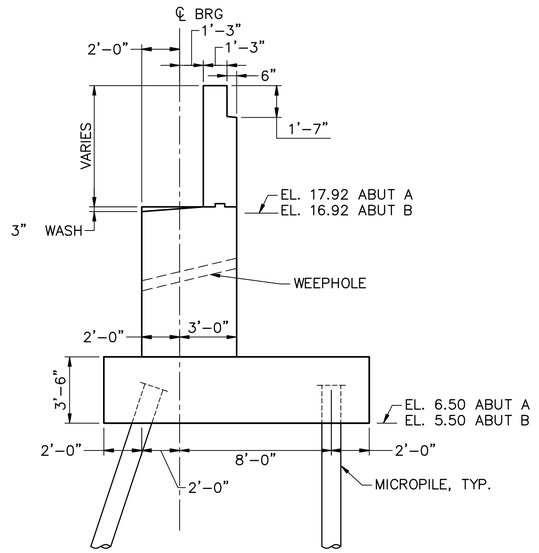
FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) SHEET NO. 27A TOTAL SHEETS 91

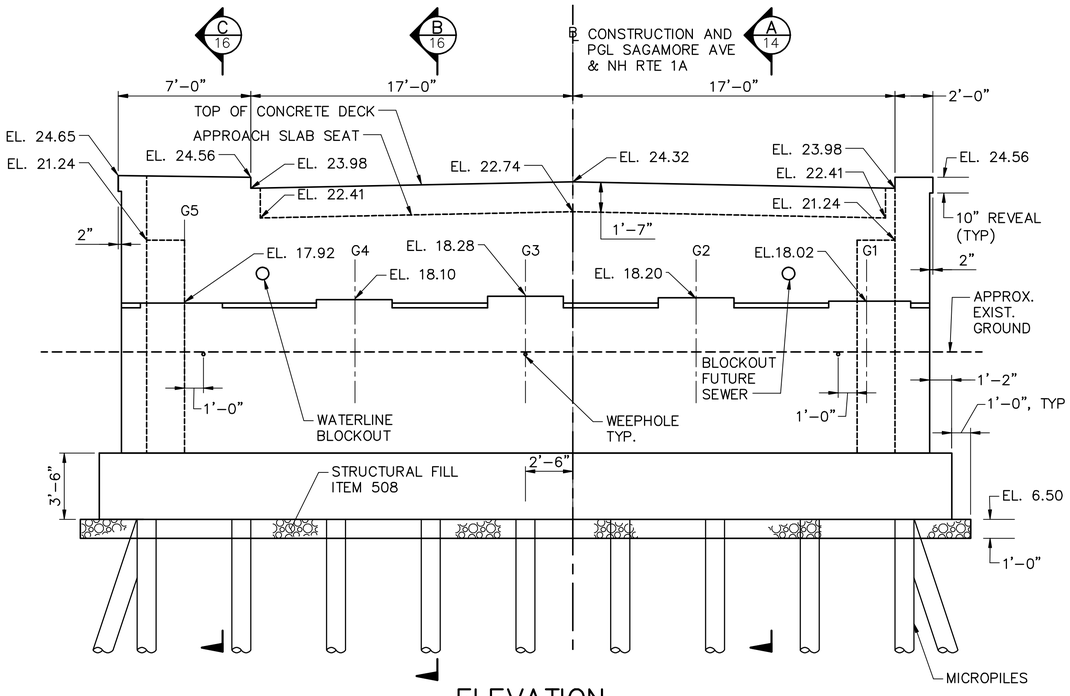


PLAN
SCALE: 1/4" = 1'–0"

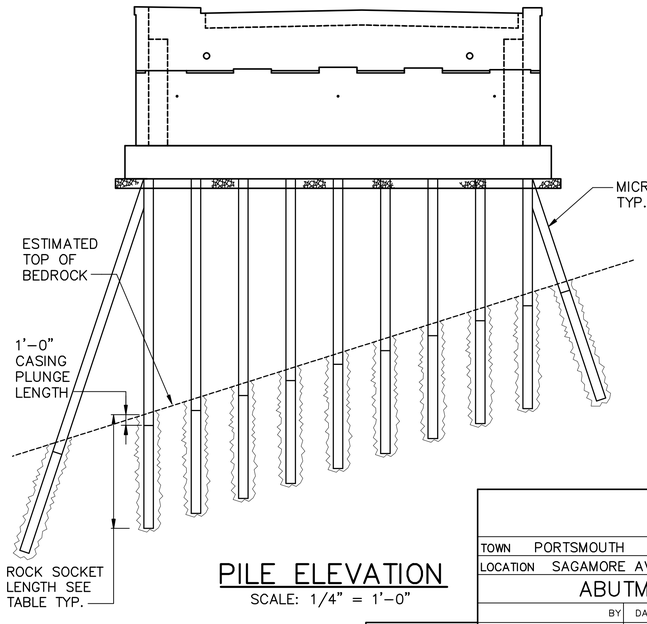
LEGEND
- ○ VERTICAL MICROPILE
- ♀ BATTERED MICROPILE



SECTION
SCALE: 1/4" = 1'–0"
A 15 / A —



ELEVATION
SCALE: 1/4" = 1'–0"



PILE ELEVATION
SCALE: 1/4" = 1'–0"

NOTES

1. BEDROCK ELEVATIONS INTERPOLATED FROM BORINGS, ACTUAL ELEVATIONS MAY DIFFER. LENGTH OF MICROPILE AND REINFORCEMENT SHALL BE ADJUSTED FOR ACTUAL FIELD CONDITIONS.
2. FOR MICROPILE LAYOUT SEE BRIDGE SHEET 12.
3. FOR ESTIMATED TOP OF ROCK SOCKET AND BEDROCK ELEV. SEE BRIDGE SHEET 12.

SHEET REVISED 9-16-13

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

ABUTMENT A PLAN AND ELEVATION

BRIDGE SHEET 14 OF 41

	BY	DATE		BY	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13
DRAWN	FLC	5/13	CHECKED	TD	5/13
TRACED	---	---	CHECKED	---	---
QUANTITIES	TD	6/13	CHECKED	MAB	6/13

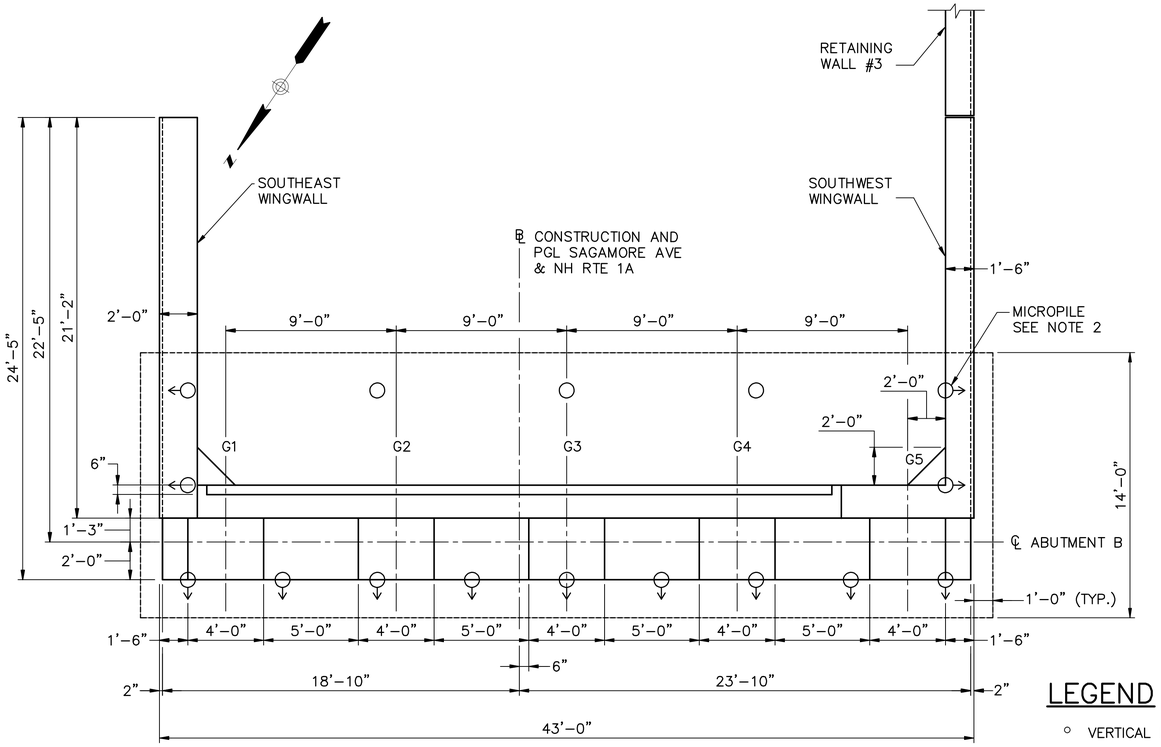
REVISIONS AFTER PROPOSAL | DATE

SHEET SCALE: AS NOTED

FILE NUMBER

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

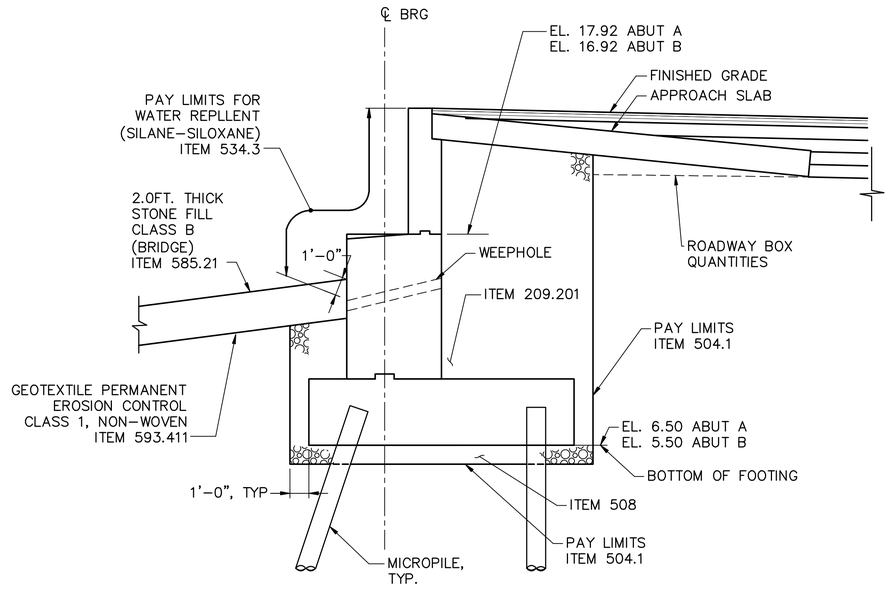
FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 28 | TOTAL SHEETS 91



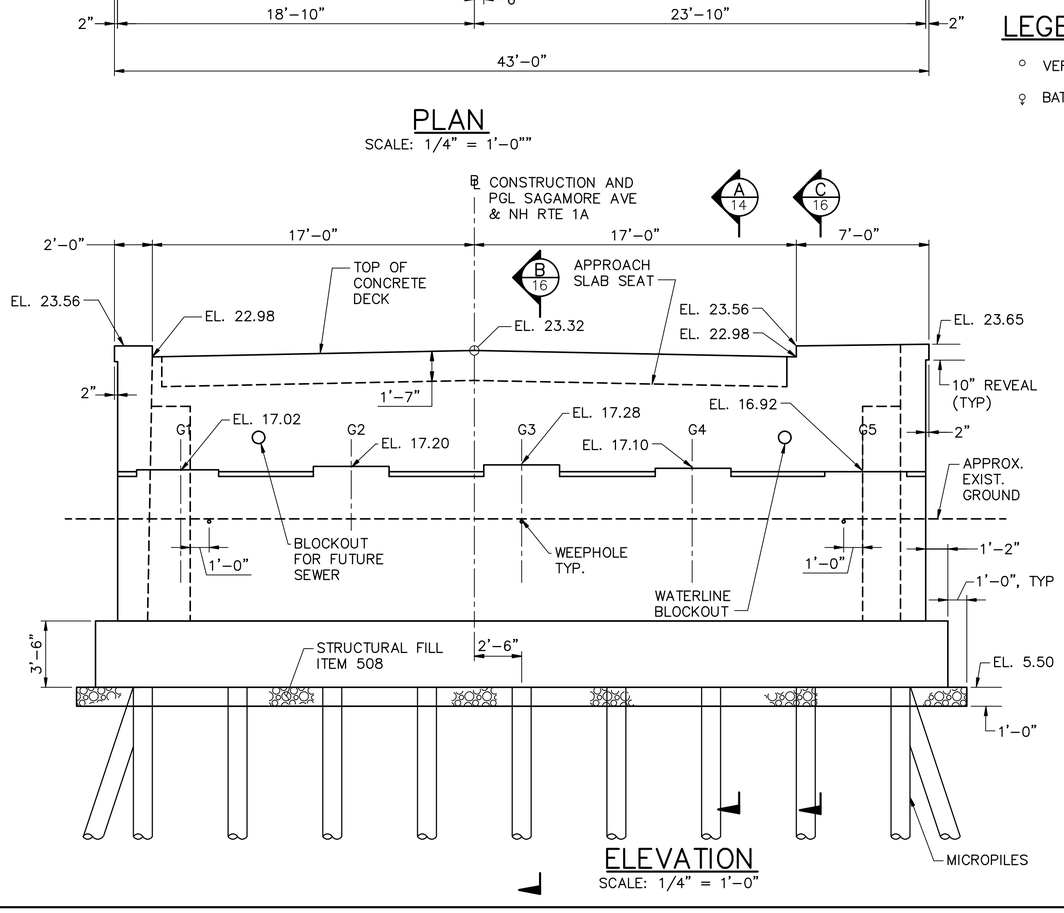
PLAN
SCALE: 1/4" = 1'-0""

LEGEND

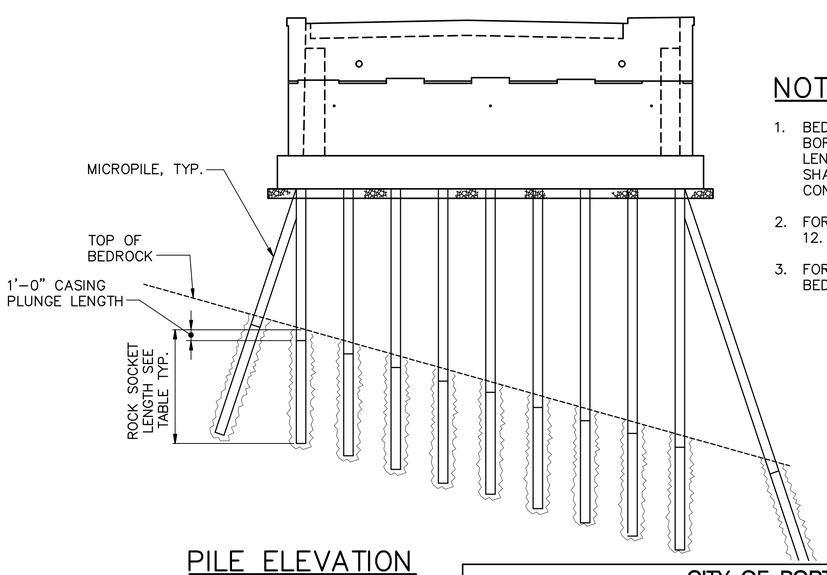
- ○ VERTICAL MICROPILE
- ♀ BATTERED MICROPILE



SECTION
SCALE: 1/4" = 1'-0"



ELEVATION
SCALE: 1/4" = 1'-0"



PILE ELEVATION
SCALE: 1/8" = 1'-0"

NOTES

1. BEDROCK ELEVATIONS INTERPOLATED FROM BORINGS, ACTUAL ELEVATIONS MAY DIFFER. LENGTH OF MICROPILE AND REINFORCEMENT SHALL BE ADJUSTED FOR ACTUAL FIELD CONDITIONS.
2. FOR MICROPILE LAYOUT SEE BRIDGE SHEET 12.
3. FOR ESTIMATED TOP OF ROCK SOCKET AND BEDROCK ELEV. SEE BRIDGE SHEET 12.

SHEET REVISED 9-16-13

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

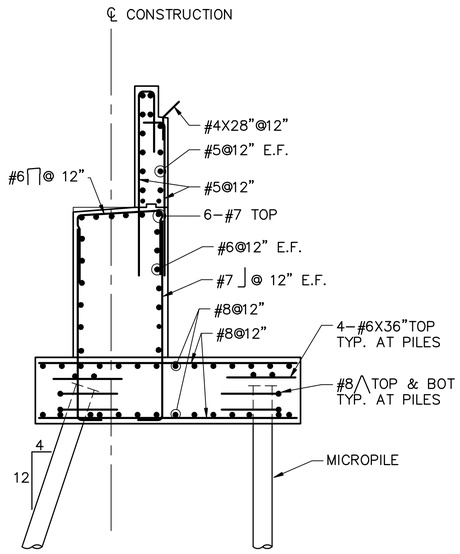
ABUTMENT B PLAN AND ELEVATION — BRIDGE SHEET 15 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13		
DRAWN	FLC	5/13	CHECKED	TD	5/13		
TRACED	---	---	CHECKED	---	---	FEDERAL PROJECT NO. X-A000(417)	SHEET NO. 29
QUANTITIES	TD	6/13	CHECKED	MAB	6/13		TOTAL SHEETS 91

SHEET SCALE: AS NOTED

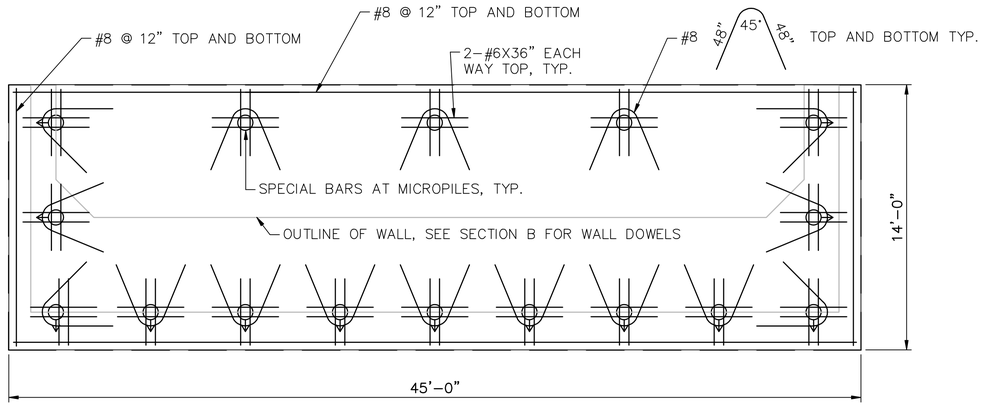
FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FILE NAME: R:\VQ-064 Sagamore Creek\CAD Drawings\05 Structural\15 ABUTMENT B PLAN AND ELEVATION.dwg PLOTTED: Monday, September 16, 2013 - 4:42pm USER: Densfo_T

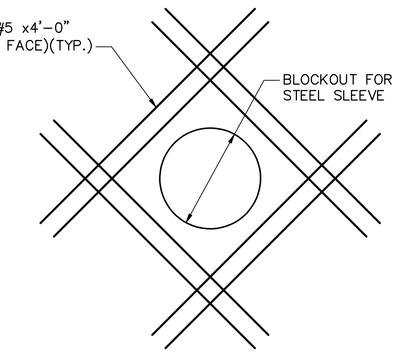


SECTION
SCALE: 1/4" = 1'–0"

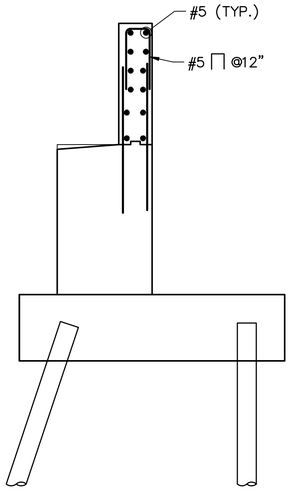
B 14 / B 15



ABUTMENT FOOTING REINFORCEMENT PLAN
SCALE: 1/4" = 1'–0"

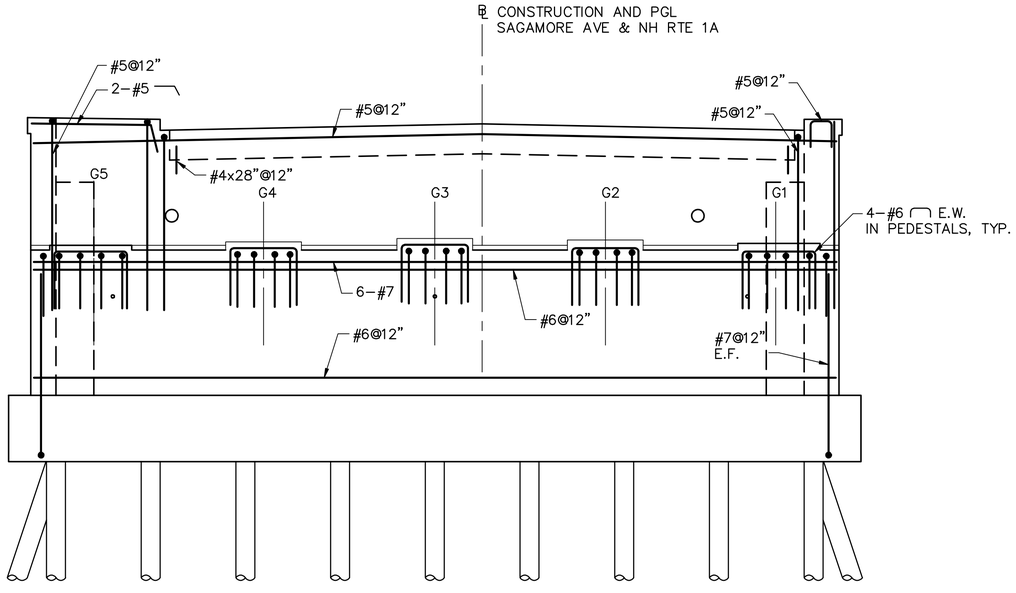


UTILITY BLOCK OUT DETAIL
SCALE: 1" = 1'–0"



PART SECTION
SCALE: 1/4" = 1'–0"

C 14 / C 15



ABUTMENT ELEVATION
SCALE: 1/4" = 1'–0"

SHEET REVISED 9-16-13

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493
LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

ABUTMENT SECTIONS AND DETAILS

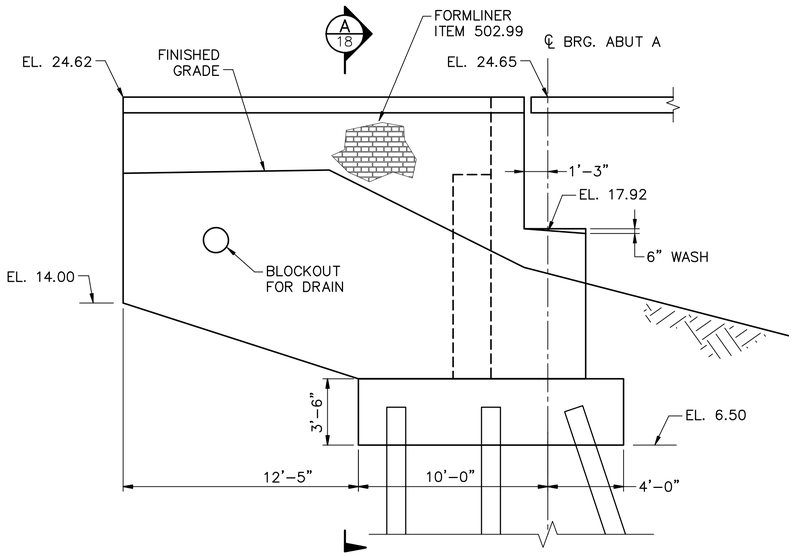
BRIDGE SHEET 16 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
SHEET SCALE	DESIGNED	TD	5/13	CHECKED	MAB	5/13	
AS NOTED	DRAWN	FLC	5/13	CHECKED	TD	5/13	
	TRACED	---	---	CHECKED	---	---	
	QUANTITIES	TD	6/13	CHECKED	MAB	6/13	

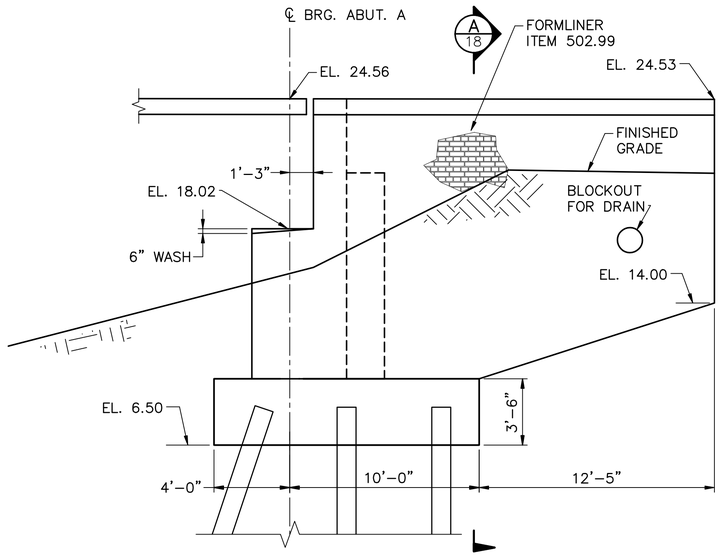
FILE NUMBER

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 30 | TOTAL SHEETS 91



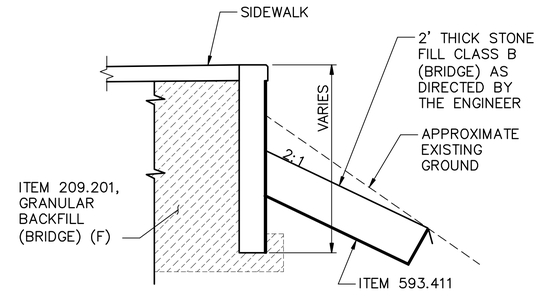
NORTHWEST WINGWALL ELEVATION



NORTHEAST WINGWALL ELEVATION

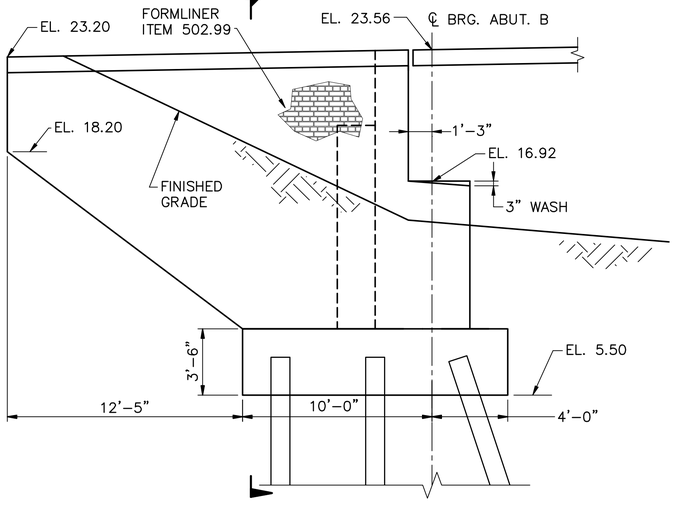
ABUTMENT A WINGWALLS

SCALE: 1/4" = 1'-0"

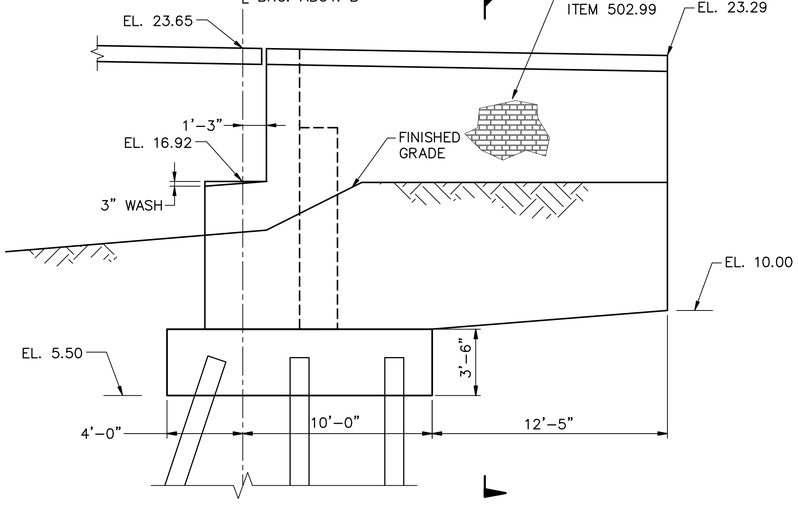


SECTION – WINGWALL (A 18)

SCALE: 1/4" = 1'-0"



SOUTHEAST WINGWALL ELEVATION



SOUTHWEST WINGWALL ELEVATION

ABUTMENT B WINGWALLS

SCALE: 1/4" = 1'-0"

SHEET REVISED 9-16-13

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

WINGWALL ELEVATIONS

BRIDGE SHEET 17 OF 41

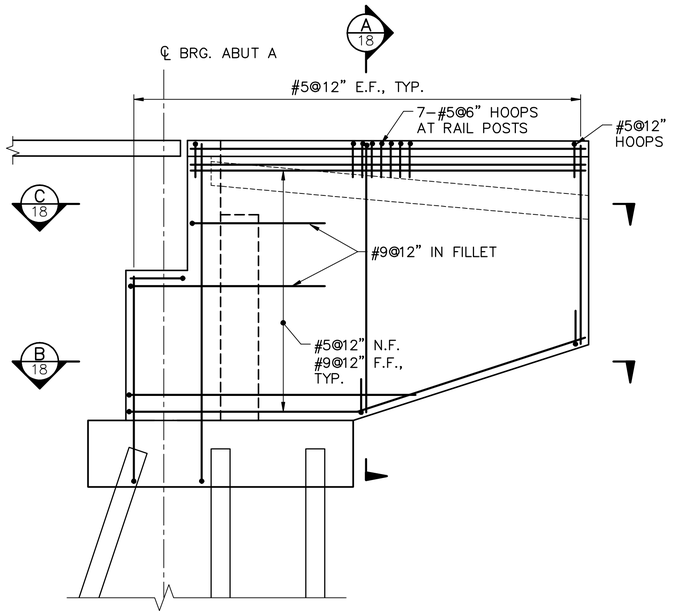
FILE NUMBER

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13		
DRAWN	FLC	5/13	CHECKED	TD	5/13		
TRACED	---	---	CHECKED	---	---		
QUANTITIES	TD	6/13	CHECKED	MAB	6/13		

SHEET SCALE: AS NOTED

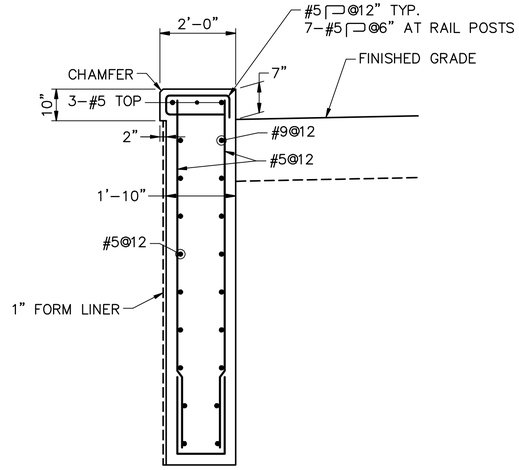
FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 31 | TOTAL SHEETS 91



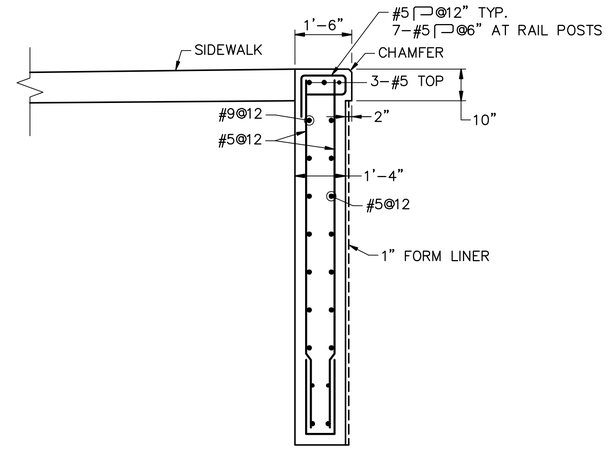
WINGWALL REINFORCEMENT

SCALE: 1/4" = 1'–0"



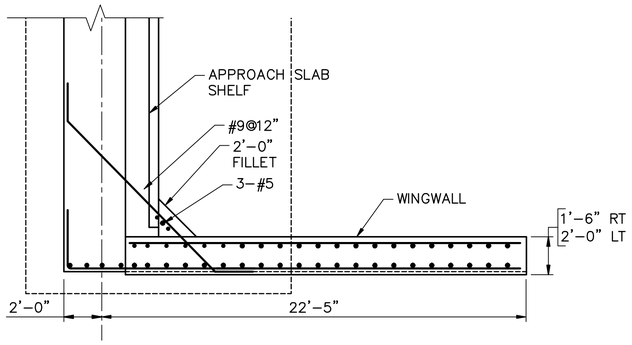
TYPICAL SECTION A (AT LEFT WINGWALLS)

SCALE: ½" = 1'–0"



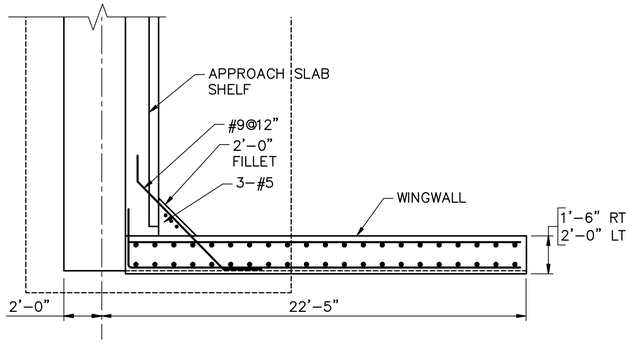
TYPICAL SECTION A (AT RIGHT WINGWALLS)

SCALE: ½" = 1'–0"



SECTION B 18

SCALE: 1/4" = 1'–0"



SECTION C 18

SCALE: 1/4" = 1'–0"

SHEET REVISED 9-16-13

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

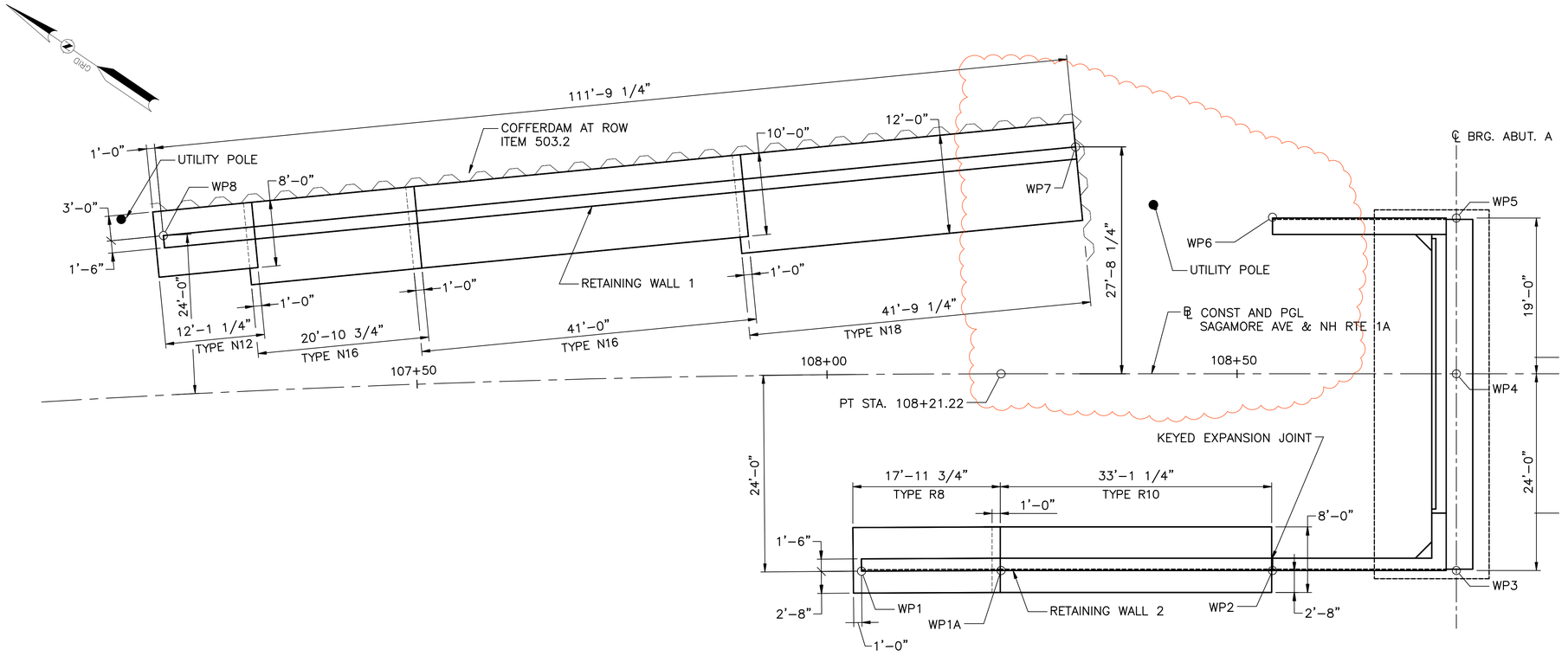
WINGWALL DETAILS

BRIDGE SHEET 18 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
SHEET SCALE							
AS NOTED	DESIGNED	TD	5/13	CHECKED	MAB	5/13	
	DRAWN	FLC	5/13	CHECKED	TD	5/13	
	TRACED	---	---	CHECKED	---	---	
	QUANTITIES	TD	6/13	CHECKED	MAB	6/13	

FILE NUMBER

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 32 | TOTAL SHEETS 91

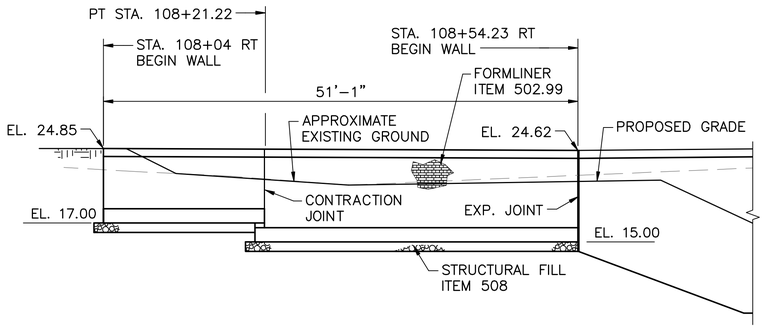


RETAINING WALL 1 & 2 PLAN

SCALE: 1/8" = 1'-0"

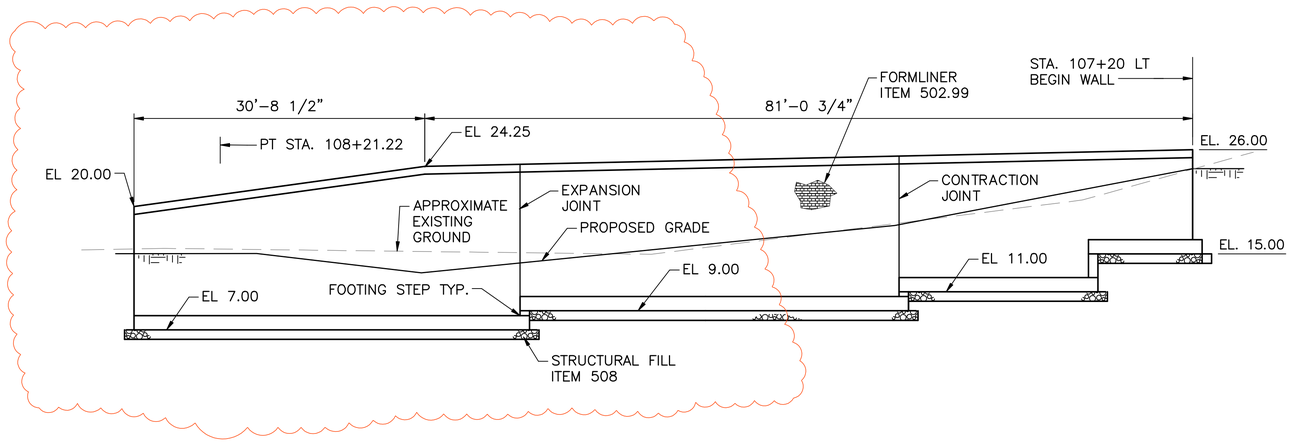
NOTES

1. SEE SHEET 21 FOR WALL SECTIONS AND DETAILS.



RETAINING WALL 2 ELEVATION

SCALE: 1/8" = 1'-0"



RETAINING WALL 1 DEVELOPED ELEVATION

SCALE: 1/8" = 1'-0"

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

RETAINING WALL 1 AND 2 PLAN AND ELEVATION — BRIDGE SHEET 19 OF 41

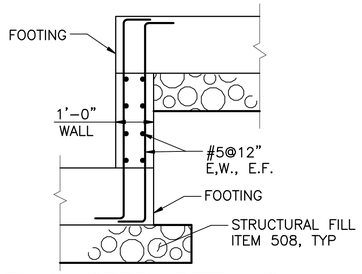
	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13		
DRAWN	FLC	5/13	CHECKED	TD	5/13		
TRACED	---	---	CHECKED	---	---		
QUANTITIES	TD	6/13	CHECKED	MAB	6/13		

SHEET SCALE: AS NOTED

FILE NUMBER

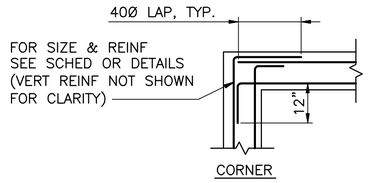
FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 33 | TOTAL SHEETS 91



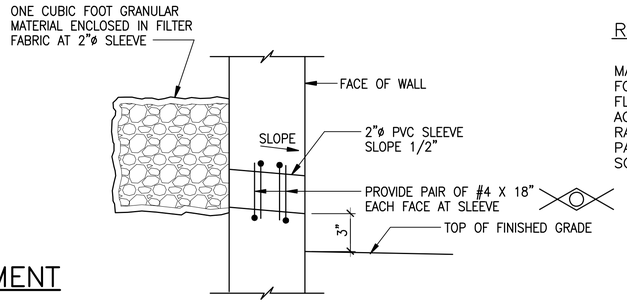
FOOTING STEP DETAILS

VERTICAL SECTION ~ SCALE: NONE



WALL CORNER REINFORCEMENT

PLAN ~ SCALE: NONE

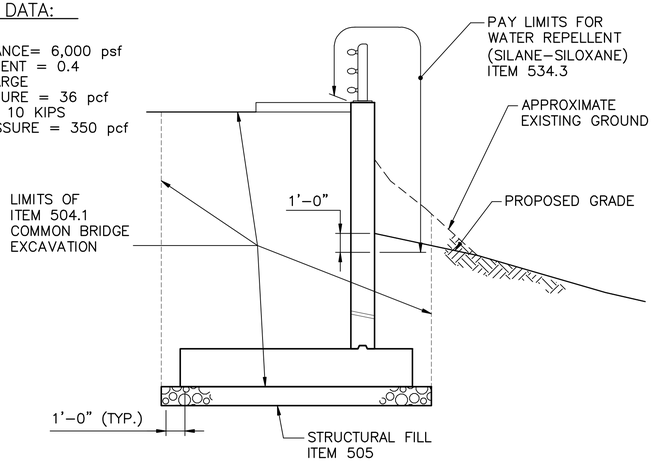


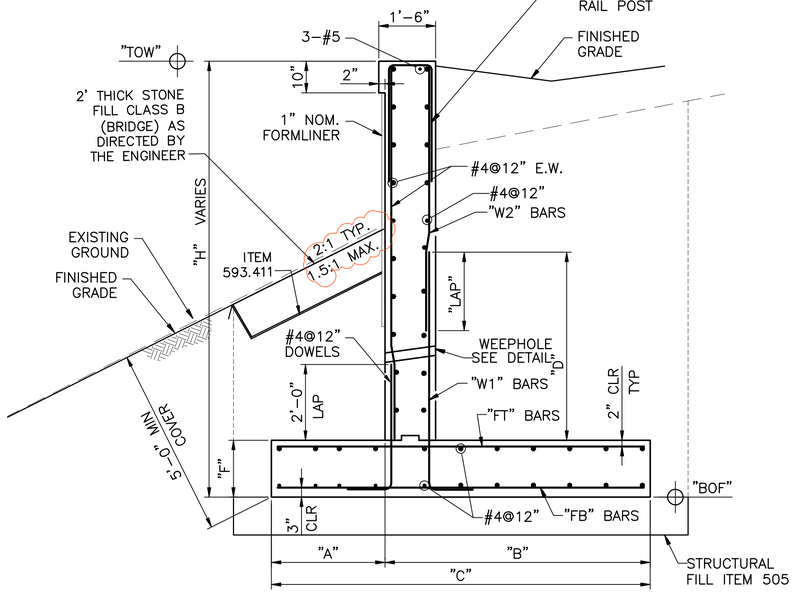
WEEPHOLE DETAILS

SCALE: NONE

RETAINING WALL DESIGN DATA:

MAX FACTORED BEARING RESISTANCE= 6,000 psf
FOOTING/SOIL FRICTION COEFFICIENT = 0.4
FLAT BACKSLOPE, 2 FT. SURCHARGE
ACTIVE EQUIVALENT FLUID PRESSURE = 36 pcf
RAIL LOAD (WHERE PRESENT) = 10 KIPS
PASSIVE EQUIVALENT FLUID PRESSURE = 350 pcf
SOIL UNIT WEIGHT = 125pcf



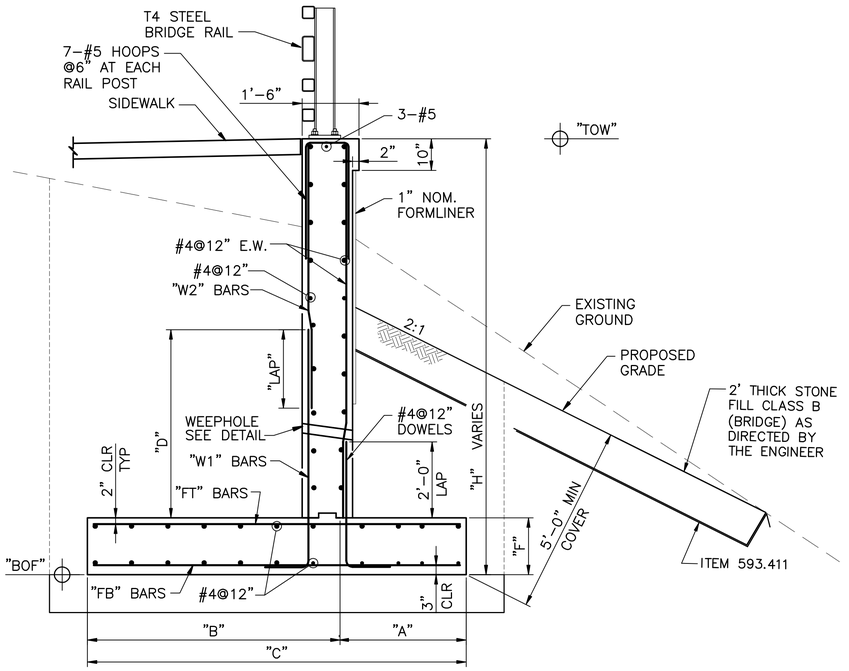


RETAINING WALL DATA (WALL #1, WITHOUT RAIL)

WALL TYPE	"H"MAX (FT.)	"A" (FT.)	"B" (FT.)	"C" (FT.)	"F" (FT.)	"W1" BARS SIZE	"W1" BARS SPA.	"W1" BARS "D"	"W2" BARS SIZE	"W2" BARS SPA.	"W2" BARS "LAP"	"FT" BARS SIZE	"FT" BARS SPA	"FB" BARS SIZE	"FB" BARS SPA
N12	12	3.00	5.00	8.00	1.50	#6	12"	6'-0"	#6	12"	2'-6"	#6	12"	#6	12"
N14	14	3.00	6.00	9.00	1.50	#7	12"	6'-0"	#6	12"	2'-6"	#6	12"	#6	12"
N16	16	3.00	7.00	10.00	1.50	#8	12"	6'-0"	#7	12"	3'-0"	#8	12"	#6	12"
N18	18	3.00	9.00	12.00	1.50	#8	9"	9'-0"	#8	12"	3'-6"	#9	12"	#6	12"

RETAINING WALL #1 DATA

SCALE: 1/2" = 1'-0"



RETAINING WALL DATA (WALLS #2 AND #3, WITH RAIL)

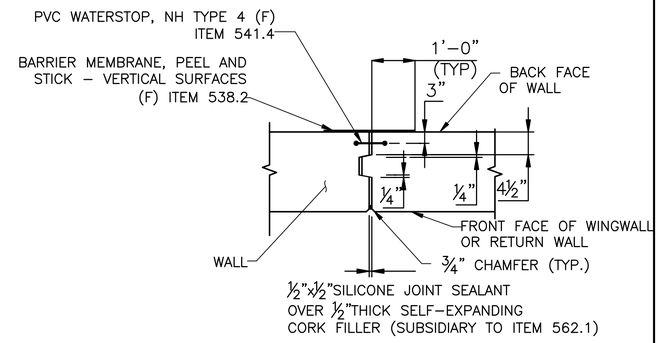
WALL TYPE	"H"MAX (FT.)	"A" (FT.)	"B" (FT.)	"C" (FT.)	"F" (FT.)	"W1" BARS SIZE	"W1" BARS SPA.	"W1" BARS "D"	"W2" BARS SIZE	"W2" BARS SPA.	"W2" BARS "LAP"	"FT" BARS SIZE	"FT" BARS SPA	"FB" BARS SIZE	"FB" BARS SPA
R8	8	2.67	5.33	8.00	1.50	#8	12"	6'-0"	#8	12"	3'-6"	#6	12"	#6	12"
R10	10	2.67	5.33	8.00	1.50	#8	12"	6'-0"	#8	12"	3'-6"	#6	12"	#6	12"
R12	12	3.00	6.00	9.00	1.50	#8	9"	6'-0"	#8	9"	3'-6"	#6	12"	#6	12"
R14	14	3.33	6.67	10.00	1.50	#8	9"	6'-0"	#8	9"	3'-6"	#7	12"	#7	12"
R16	16	4.00	8.00	12.00	1.50	#8	6"	6'-0"	#8	6"	3'-6"	#8	12"	#7	12"
R18	18	4.00	8.00	12.00	1.50	#9	6"	9'-0"	#8	6"	3'-6"	#9	12"	#7	12"

RETAINING WALLS #2 & #3 DATA

SCALE: 1/2" = 1'-0"

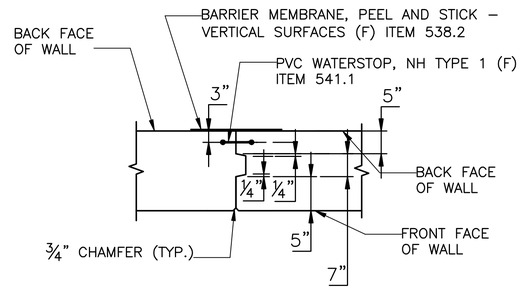
RETAINING WALL DATA

SCALE: 1/2" = 1'-0"



EXPANSION JOINT DETAILS

SCALE: NONE



CONTRACTION JOINT DETAILS

SCALE: NONE

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493
LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

RETAINING WALL DETAILS AND REINFORCING

BRIDGE SHEET 21 OF 41

	BY	DATE		BY	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13
DRAWN	FLC	5/13	CHECKED	TD	5/13
TRACED	---	---	CHECKED	---	---
QUANTITIES	TD	6/13	CHECKED	MAB	6/13

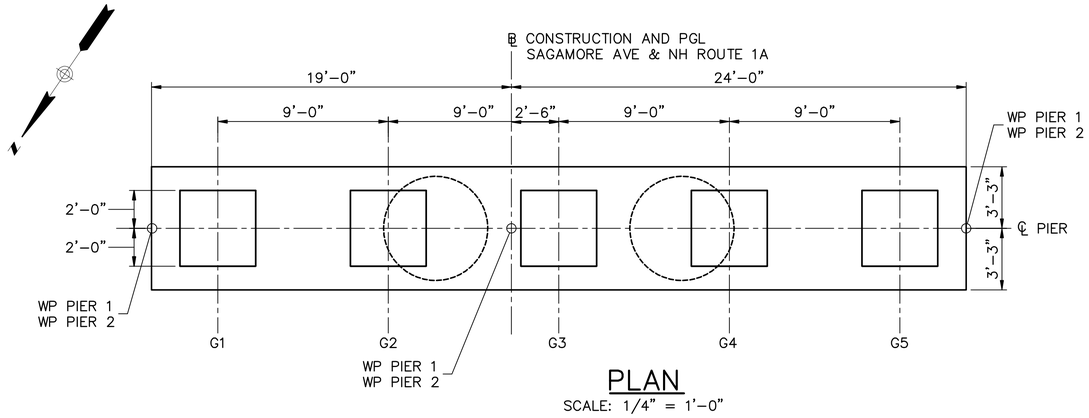
REVISIONS AFTER PROPOSAL | DATE

SHEET SCALE: AS NOTED

FAY, SPOFFORD & THORNDIKE, INC
- BEDFORD, NH -

FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 35 | TOTAL SHEETS 91 | FILE NUMBER

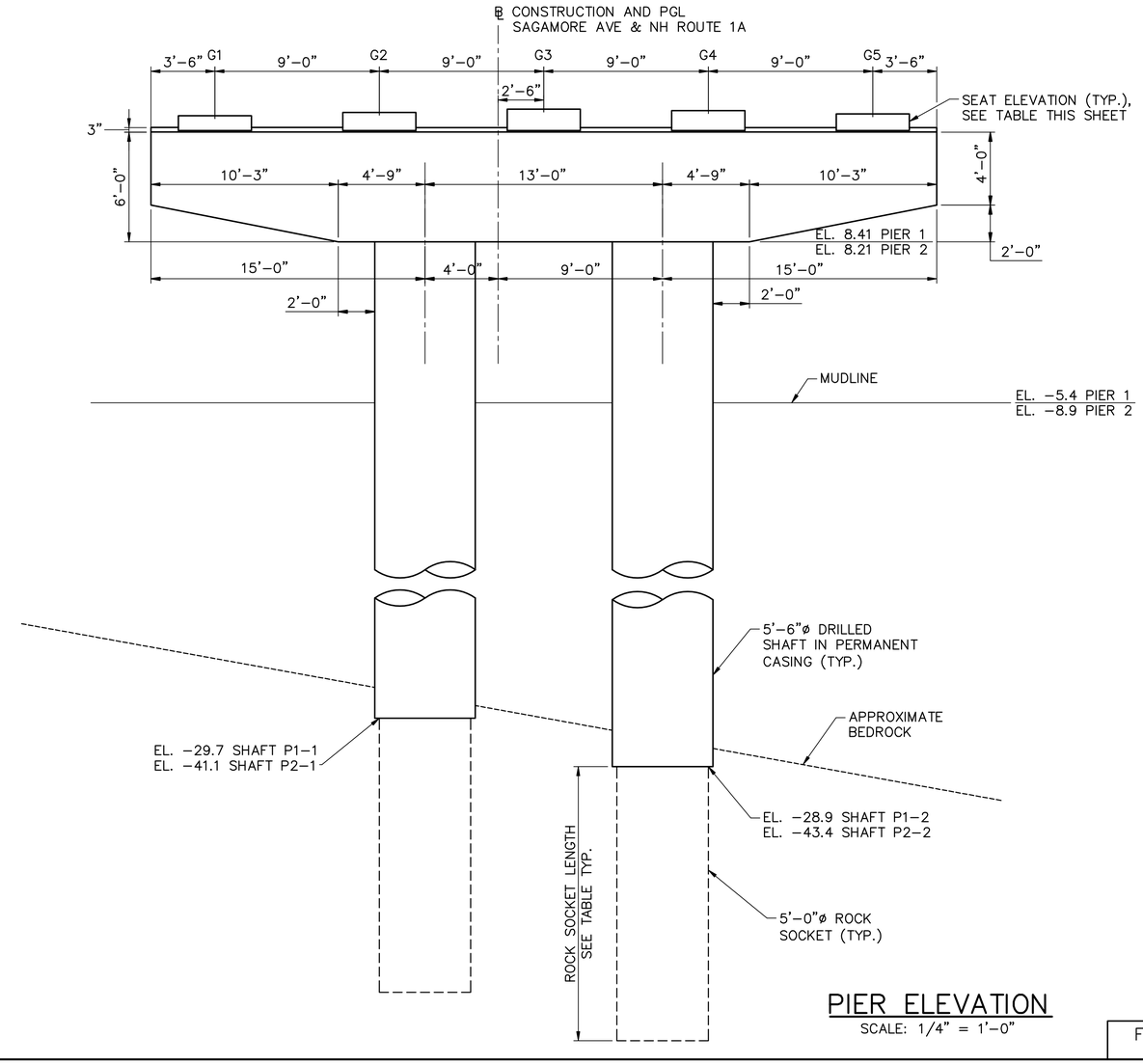
FILE NAME: R:\V0-064 Sagamore Creek\CAD Drawings\05 Structure\21 RETAINING WALL DETAILS AND REINFORCING.dwg PLOTTED: Monday, September 16, 2013 - 4:37pm USER: DeneFo_T



PLAN

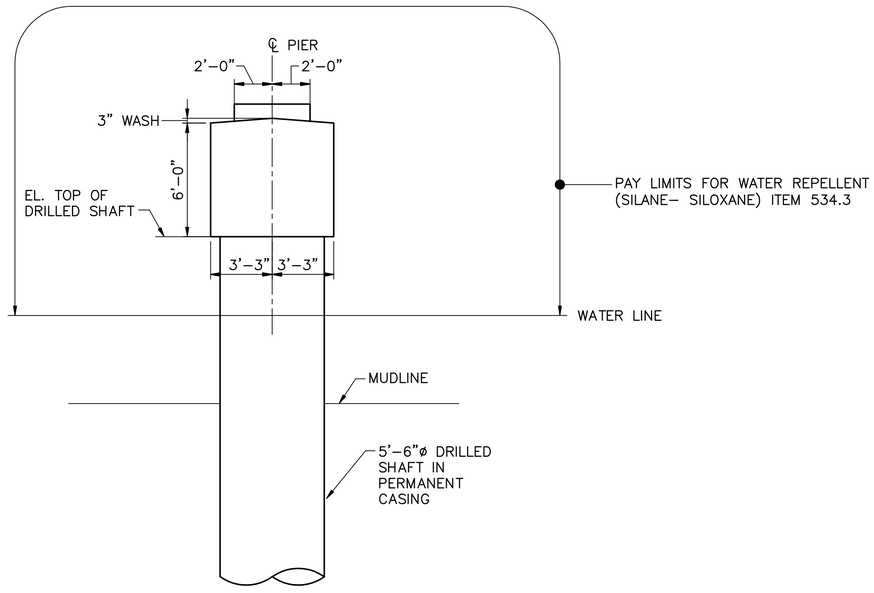
SCALE: 1/4" = 1'–0"

SEAT ELEVATIONS					
GIRDER	G1	G2	G3	G4	G5
PIER 1 EL.	15.40	15.58	15.66	15.48	15.30
PIER 2 EL.	15.20	15.38	15.46	15.28	15.10



PIER ELEVATION

SCALE: 1/4" = 1'–0"



END ELEVATION

SCALE: 1/4" = 1'–0"

NOTES

1. BEDROCK ELEVATIONS INTERPOLATED FROM BORINGS, ACTUAL ELEVATIONS MAY DIFFER. LENGTH OF DRIFT SHAFT AND REINFORCEMENT SHALL BE ADJUSTED FOR ACTUAL FIELD CONDITIONS.

SHEET REVISED 9-16-13

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

PIER PLAN AND ELEVATION

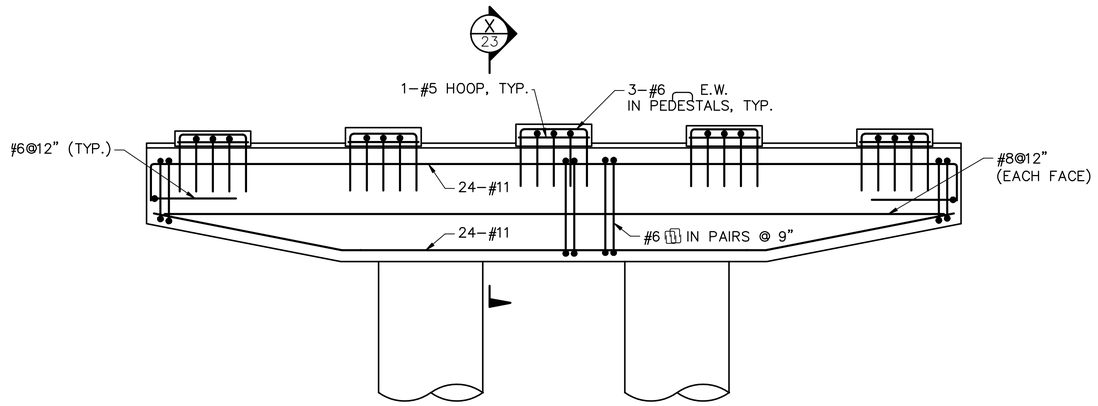
BRIDGE SHEET 22 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
SHEET SCALE	DESIGNED	TD	5/13	CHECKED	MAB	5/13		
AS NOTED	DRAWN	FLC	5/13	CHECKED	TD	5/13		
	TRACED	---	---	CHECKED	---	---		
	QUANTITIES	TD	6/13	CHECKED	MAB	6/13		

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

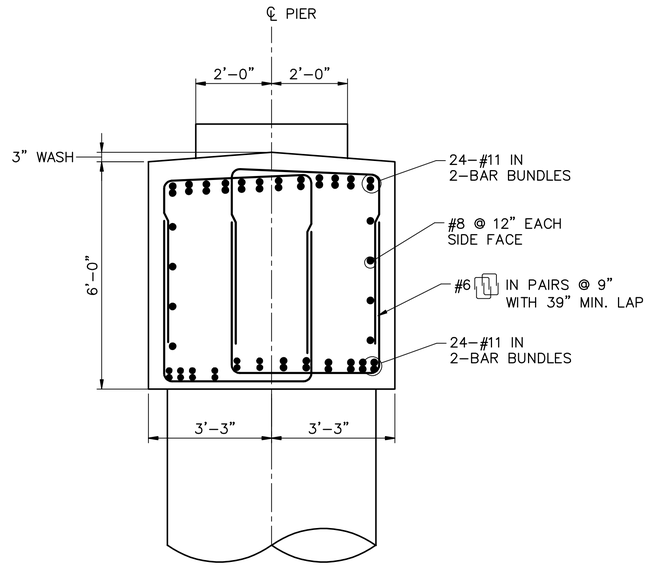
FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 36 | TOTAL SHEETS 91

FILE NAME



PIER CAP REINFORCEMENT

SCALE: 1/4" = 1'–0"



SECTION X/23

SCALE: 1/2" = 1'–0"

SHEET REVISED 9-16-13

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

PIER DETAILS AND REINFORCING

BRIDGE SHEET 23 OF 41

	BY	DATE		BY	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13
DRAWN	FLC	5/13	CHECKED	TD	5/13
TRACED	---	---	CHECKED	---	---
QUANTITIES	TD	6/13	CHECKED	MAB	6/13

REVISIONS AFTER PROPOSAL | DATE

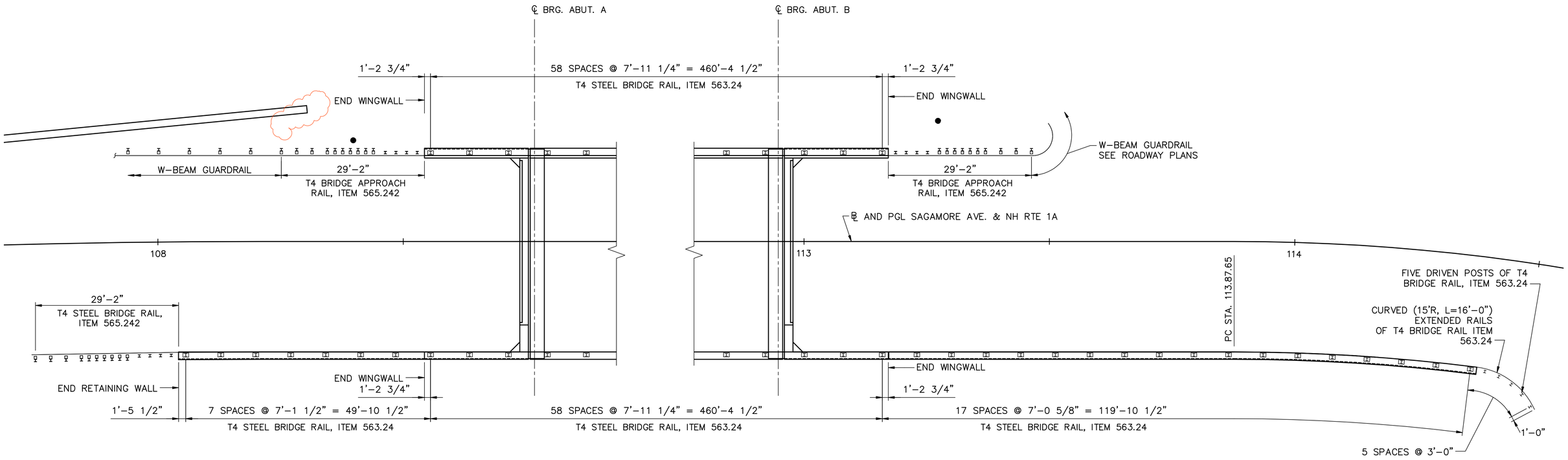
SHEET SCALE: AS NOTED

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

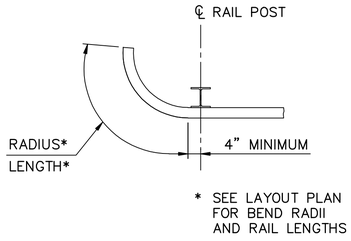
FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 37 | TOTAL SHEETS 91

FILE NUMBER

FILE NAME: R:\V0-064 Sagamore Creek\CAD Drawings\05 Structural\23 PIER DETAILS AND REINFORCING.dwg PLOTTED: Monday, September 16, 2013 - 4:37pm USER: Densfo_T



PLAN
SCALE: 1" = 10'



* SEE LAYOUT PLAN
FOR BEND RADII
AND RAIL LENGTHS

RAIL BEND DETAIL
NOT TO SCALE

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493

LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

BRIDGE AND APPROACH RAIL LAYOUT

BRIDGE SHEET 38 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13		
DRAWN	FLC	5/13	CHECKED	TD	5/13		
TRACED	---	---	CHECKED	---	---		
QUANTITIES	TD	6/13	CHECKED	MAB	6/13		

SHEET SCALE: AS NOTED

FILE NUMBER

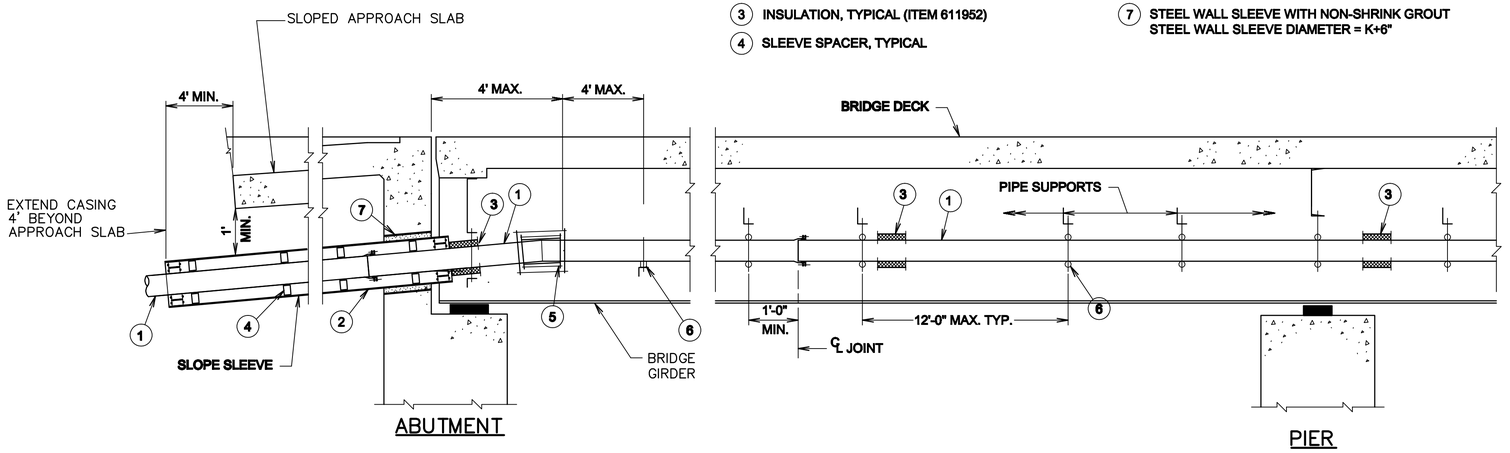
FEDERAL PROJECT NO. X-A000(417) | SHEET NO. 52 | TOTAL SHEETS 91

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FILE NAME: R:\VQ-064 Sagamore Creek\CAD Drawings\05 Structural\38 BRIDGE AND APPROACH RAIL LAYOUT.dwg PLOTTED: Monday, September 16, 2013 – 4:36pm USER: Densfo_T

KEYED NOTES:

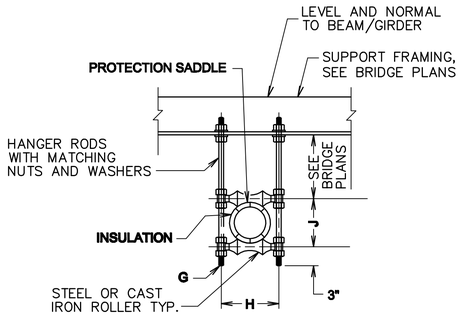
1. CARRIER PIPE
2. ABUTMENT SLEEVE, SEE DETAIL (ITEM 61135220)
3. INSULATION, TYPICAL (ITEM 611952)
4. SLEEVE SPACER, TYPICAL
5. FLEXIBLE COUPLING, SEE WATERLINE PLANS
6. SUPPORT, TYPICAL, SEE DETAILS
7. STEEL WALL SLEEVE WITH NON-SHRINK GROUT
   STEEL WALL SLEEVE DIAMETER = K+6"



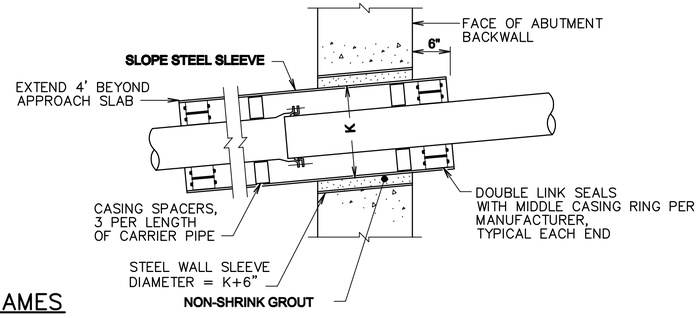
WATERLINE ELEVATION
NOT TO SCALE

NOTES:

1. MATERIALS - HANGER RODS - GALVANIZED ASTM A307 WITH MATCHING NUTS.
2. FOR SUPPORT FRAMING DETAILS SEE BRIDGE PLANS. STRUCTURAL STEEL FOR SUPPORTS SHALL BE THE SAME AS THAT FOR THE GIRDERS AND PAID UNDER ITEM 550.1. IF THE GIRDERS ARE PAINTED, THE ANGLES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
3. ABUTMENT–CASING SLEEVE AS DETAILED TO BE USED AT EACH ABUTMENT. PROVIDE DOUBLE LINK–SEAL AT EACH END OF EACH CASING SLEEVE.
4. EXPANSION JOINT - DRESSER STYLE 63, TYPE 3, PAID AS ITEM 61106210
5. GALVANIZATION – MISCELLANEOUS HARDWARE: RODS, NUTS, ETC. SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153. WHEN THE SUPPORTING ANGLES TO WHICH THE RODS ARE ATTACHED ARE WEATHERING STEEL, A NEOPRENE OR VINYL WASHER SHALL BE PLACED BETWEEN THE ANGLE SURFACE (ON BOTH SIDES) AND THE NUT/WASHER TO ISOLATE THE CONTACT BETWEEN THE TWO SURFACES.
6. PROVIDE 2" URETHANE WATERLINE INSULATION WITH 0.016" THICK ALUMINUM JACKET THROUGHOUT.
7. PAYMENT – WATER LINE (ITEM 61106210) SHALL INCLUDE FURNISHING AND INSTALLING DUCTILE IRON WATER MAIN, EXPANSION JOINT, TESTING, DISINFECTING (WHEN REQUIRED), INSULATION AND COVER, HANGERS, ROLLERS, RODS, PROTECTION SADDLES, ABUTMENT SLEEVES, LINK SEALS, CASING UNDER APPROACH SLAB AND MISCELLANEOUS HARDWARE AS DETAILED ON THIS DRAWING.



TYPICAL SUPPORT DETAIL AT CROSSFRAMES
SCALE: 1" = 1'-0"



ABUTMENT SLEEVE DETAIL
SCALE: 1" = 1'-0"

DIMENSIONS				
PIPE ϕ	G	H	J	K
6"	7/8"	1'-6"	1'-1"	1'-2"
8"	7/8"	1'-7"	1'-3"	1'-4"
10"	1"	1'-9"	1'-6"	1'-6"
12"	1"	1'-11"	1'-8"	1'-8"
14"	1"	2'-1"	1'-9"	1'-10"
16"	1"	2'-3"	1'-11"	2'-0"
18"	1-1/8"	2'-5"	2'-2"	2'-2"
20"	1-1/4"	2'-8"	2'-4"	2'-4"
24"	1-1/2"	2'-11"	2'-9"	2'-10"

G = DIAMETER OF ROD

WATERLINE SUPPORT DETAILS

CITY OF PORTSMOUTH
DEPARTMENT OF PUBLIC WORKS

TOWN PORTSMOUTH BRIDGE NO. 198/034 STATE PROJECT 14493
LOCATION SAGAMORE AVE. & N.H. ROUTE 1A OVER SAGAMORE CREEK

WATERLINE SUPPORT DETAILS

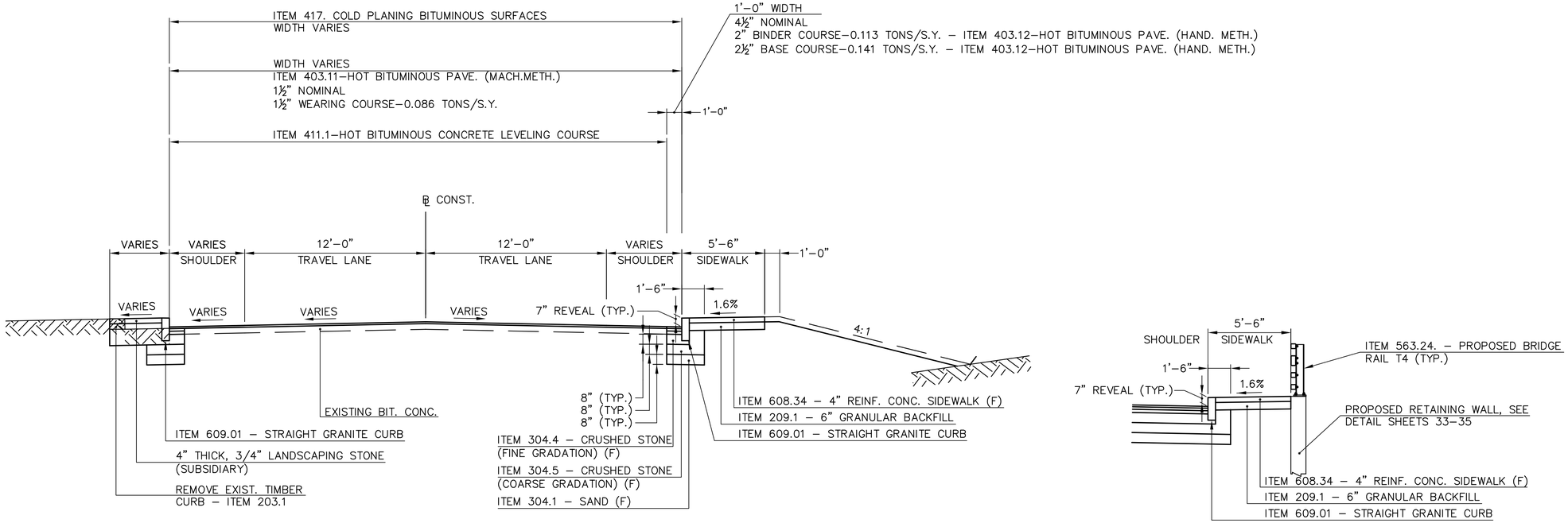
BRIDGE SHEET 41 OF 41

	BY	DATE		BY	DATE	REVISIONS AFTER PROPOSAL	DATE
DESIGNED	TD	5/13	CHECKED	MAB	5/13		
DRAWN	FLC	5/13	CHECKED	TD	5/13		
TRACED	---	---	CHECKED	---	---		
QUANTITIES	TD	6/13	CHECKED	MAB	6/13		

SHEET SCALE: AS NOTED
FILE NUMBER
FEDERAL PROJECT NO. X-A000(417)
SHEET NO. 55
TOTAL SHEETS 91

FAY, SPOFFORD & THORNDIKE, INC
– BEDFORD, NH –

FILE NAME: R:\VO-064 Sagamore Creek\CAD Drawings\05 Structural\41 WATERLINE SUPPORT DETAILS.dwg PLOTTED: Monday, September 16, 2013 - 4:36pm USER: Densfo_T

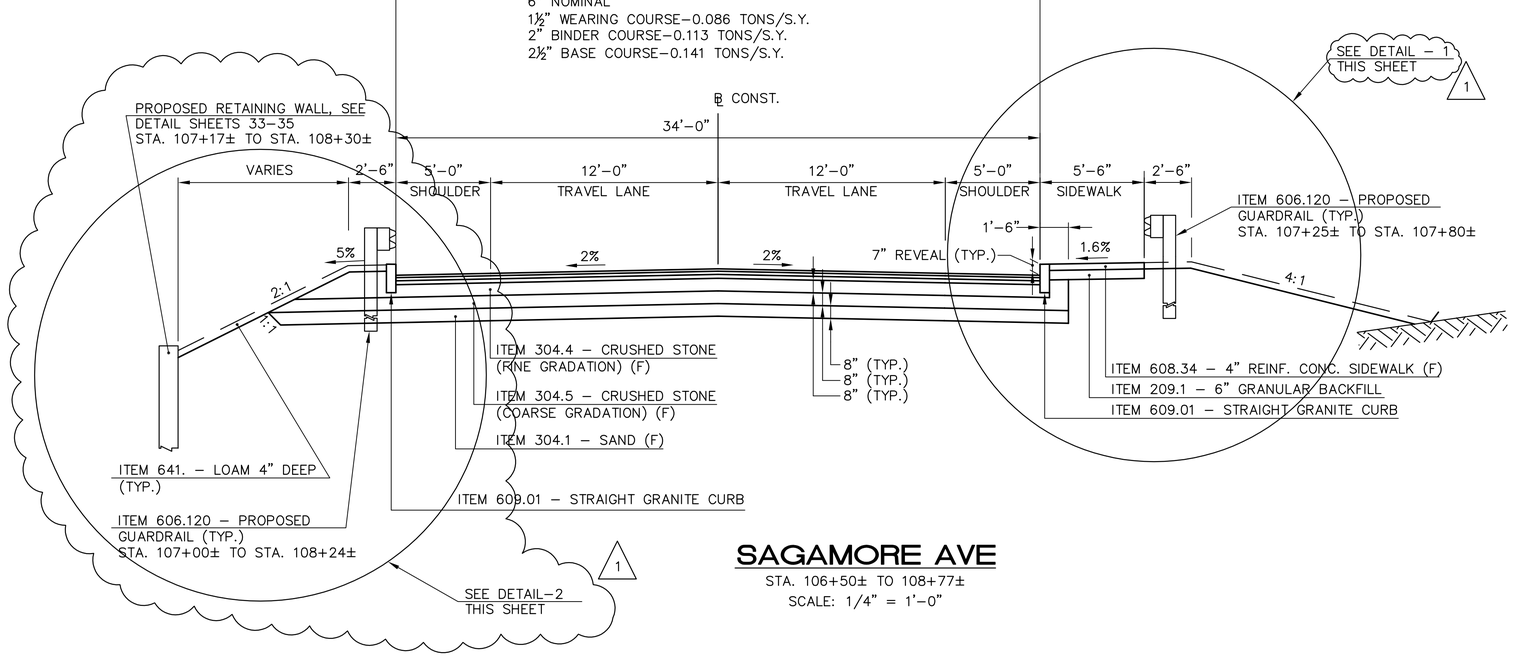


SAGAMORE AVE

STA. 105+36± TO 106+50±
SCALE: 1/4" = 1'–0"

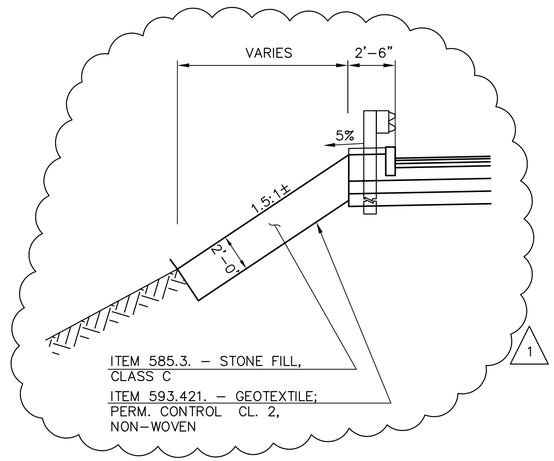
SAGAMORE AVE DETAIL – 1

STA. 108+10± TO 108+77±
SCALE: 1/4" = 1'–0"



SAGAMORE AVE

STA. 106+50± TO 108+77±
SCALE: 1/4" = 1'–0"



SAGAMORE AVE DETAIL–2

STA. 108+30± TO 108+60±
SCALE: 1/4" = 1'–0"

SCALE: HORIZ. 1/4"=1 FT.

FAY, SPOFFORD & THORNDIKE, LLC

CITY OF PORTSMOUTH

DEPARTMENT OF PUBLIC WORKS

TYPICAL SECTION
SAGAMORE AVENUE

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X–A000(417)	14493	5	91

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION
1	09/13/13	107+20	REVISED SIDE SLOPE TYPICAL SECTION
		108+60	

NOTEBOOKS

BOOK	PAGE	
BOOK	PAGE	
BOOK	PAGE	

EXISTING DETAIL	ARM	DATE 11/10
PROPOSED DESIGN	DEM	DATE 4/13
SHEET CHECKED	TAT	DATE 4/13
AS BUILT DETAILS		DATE

DRAINAGE SUMMARY

	202.41	202.5	206.1	585.3	593.421	603.0001	603.00215	603.00315	603.36115	603.82206	603.82212	603.82215	604.0007	604.12		604.125		604.32		604.325		604.9109	605.906	613.1	622.1	
REF. NO.	REMOVAL OF EXISTING PIPE 0-24" DIAMETER	REMOVAL OF CATCH BASINS, DROP INLETS, AND MANHOLES	COMMON STRUCTURE EXCAVATION	STONE FILL, CLASS C	GEOTEXTILE; PERM. CONTROL CL.2, NON-WOVEN	VIDEO INSPECTION	15" R.C. PIPE, 2000D	15" R.C. PIPE, 3000D	15" ALUMINIZED STEEL END SECTION	6" PE PIPE (TYPE S)	12" PE PIPE (TYPE S)	15" PE PIPE (TYPE S)	POLY ETHYLENE LINER	CATCH BASINS, TYPE B		CATCH BASINS TYPE B, 5-FOOT DIAMETER		DRAINAGE MANHOLES		DRAINAGE MANHOLES, 5' DIAMETER		FLOW CONTROL STRUCTURE	6" PIPE UNDERDRAIN (CONTRACTOR'S OPTION)	UNDERGROUND SAND FILTRATION SYSTEM	STEEL WITNESS MARKERS	REMARKS
	LF	EA	CY	CY	SY	LF	LF	LF	EA	LF	LF	LF	EA	ACT. (U)	EST. (U)	ACT. (U)	EST. (U)	ACT. (U)	EST. (U)	ACT. (U)	EST. (U)	EA	LF	EA	EA	
S1			8.4			21	21						1	1	1.3											
S2			13.0	3.1	20.2	10			1			10	1	1	1.5										1	
S3			16.3	2.7	18.1	7	7		1				1	1	1.2										1	
S4																										NOT USED
S5			6.0			61		61					1	1	1.2											
S6			5.5			4						4								1	1.0					
S7			4.9			34		34					1	1	1.1											
S8			20.1	6.3	34.1	21			1			21	1	1	1.4										1	
S9			13.5			31	31											1	1.4							
S10			19.4			55	55						1			1	2.0									
S11			7.2			98	98						1	1	1.3											
S12			6.9			81	81						1	1	1.2											
S13			9.5			29						29										1				
S14			5.1			28		28					1	1	1.1											
S15			7.7			21	21						1	1	1.3											
S16																								1		
S17						7				7																
S18						4					4															
S19						177	177						1	1	1.0											
S20						16				16																CONNECT TO EXIST PVC PIPE (SUBSIDIARY)
E1	18																									REMOVE 7" x 15" CMP (SUBSIDIARY TO S8)
E2	58																									REMOVE CB & 11' x 12" CMP (SUBSIDIARY TO S10)
Water main	254																									
Sand Filter																							32			
Telephone MH		2																								
Side Slopes				47.9	79.3																					
SUB-TOTAL	**330**	**2**	**143.3**	**60.0**	**151.7**	**705**	**491**	**123**	**3**	**23**	**4**	**64**	**12**	*	**13.6**	*	**2.0**	*	**1.4**	*	**1.0**	**1**	**32**	**1**	**3**	
ROUNDING	**10**	**0**	**6.7**	**0.0**	**8.3**	**5**	**9**	**7**	**0**	**7**	**6**	**6**	**0**	*	**0.2**	*	**0.0**	*	**0.6**	*	**0**	**0**	**0**	**0**	**0**	
ITEM TOTAL	**340**	**2**	**150**	**60.0**	**160.0**	**710**	**500**	**130**	**3**	**30**	**10**	**70**	**12**	*	**14**	*	**2**	*	**2**	*	**1**	**1**	**32**	**1**	**3**	
*** - Not an Item Total**																										

1

GUARDRAIL AND CONCRETE BARRIER

	ITEM NO.	202.7	203.5555	606.120	606.1255	606.1270	606.417	621.2	621.31	
NOTE NO.	ITEM	REMOVAL OF GUARDRAIL	GUARDRAIL 25 FT. EAGRT PLATFORM	BEAM GUARDRAIL (STANDARD SECTION - STEEL POSTS)	BEAM GUARDRAIL (TERM. UNIT TYPE EAGRT 25 FT.)	BEAM GUARDRAIL (TERM. UNIT TYPE G-2, STEEL POST)	PORTABLE CONCRETE BARRIER FOR TRAFFIC CONTROL	RETROREFLECTIVE BEAM GUARDRAIL DELINEATOR (WHITE)	SINGLE DELINEATOR WITH POST	REMARKS
	UNIT	LF	UNIT	LF	UNIT	UNIT	LF	EA	EA	
	LOCATION									
1	STA 107+00, LT 34.3' - STA 108+25, LT 17.5'			139		1		2	1	
	STA 107+23, LT 21.0' - STA 108+85, LT 9.4'	165								
2	STA 107+25, RT 23.7' - STA 107+74, RT 22.5'			48				1	1	
	STA 107+00, RT 24.8' - STA 107+25, RT 23.7'		1		1					
	STA 106+90, RT 21.4' - STA 108+86, RT 21.4'	202								
3	STA 113+47, LT 17.5' - STA 113+50, LT 23.8'			9		1		1	1	
	STA 112+85, LT 9.4' - STA 113+53, LT 20.0'	74								
4	STA 112+85, RT 21.6' - STA 114+55, RT 30.8'	170								
	Southwest Approach								1	
	Roadway Closure						165			
	SUBTOTAL	**611**	**1**	**196**	**1**	**2**	**165**	**4**	**4**	
	ROUNDING	**9**	**0**	**4**	**0**	**0**	**5**	**1**	**0**	
	TOTAL	**620**	**1**	**200**	**1**	**2**	**170**	**5**	**4**	

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION
1	09/13/13		DRAIN REVISION S3, S4 AND S15

NOTEBOOKS

	BOOK	PAGE
	BOOK	PAGE
	BOOK	PAGE

EXISTING DETAIL	ARM	DATE 11/10
PROPOSED DESIGN	DEM	DATE 4/13
SHEET CHECKED	TAT	DATE 4/13
AS BUILT DETAILS		DATE

FAY, SPOFFORD & THORNDIKE, LLC

CITY OF PORTSMOUTH

DEPARTMENT OF PUBLIC WORKS

SUMMARY OF QUANTITIES

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A000(417)	14493	7	91

CURBING

ITEM NO.				202.6	609.01	609.02
DESCRIPTION		MARK NUMBER	RADIUS	CURB REMOVAL FOR STORAGE	STRAIGHT GRANITE CURB	CURVED GRANITE CURB
UNIT			LF	LF	LF	LF
LOCATION						
START	END					
STA. 105+38.42, 22.50' RT.	STA. 105+47.49, 17.00' RT.	G1	10.1			11.1
STA. 105+47.49, 17.00' RT.	STA. 105+72.55, 17.00' RT.	G2	1983.0		24.9	
STA. 105+72.55, 17.00' RT.	STA. 105+81.59, 22.50' RT.	G3	10.0			11.1
STA. 106+86.01, 22.50' RT.	STA. 106+91.76, 18.70' RT.	G4			6.8	
STA. 106+91.76, 18.70' RT.	STA. 106+97.40, 17.00' RT.	G5	10.0			5.9
STA. 106+97.40, 17.00' RT.	STA. 108+21.22, 17.00' RT.	G6	1983.0		122.8	
STA. 108+21.22, 17.00' RT.	STA. 108+76.75, 17.00' RT.	G7			55.5	
STA. 108+21.22, 17.00' LT.	STA. 108+76.75, 17.00' LT.	G8			55.5	
STA. 112+94.75, 17.00' RT.	STA. 113+87.65, 17.00' RT.	G9			92.9	
STA. 113+87.65, 17.00' RT.	STA. 114+42.55, 17.00' RT.	G10	403.0		52.7	
STA. 114+42.55, 17.00' RT.	STA. 114+52.04, 22.50' RT.	G11	10.0			11.2
STA. 114+70.68, 34.58' LT.	STA. 114+71.28, 38.02' LT.	G12			3.5	
STA. 115+11.41, 27.43' RT.	STA. 115+14.77, 38.80' RT.	G13			11.8	
STA. 115+11.41, 27.43' RT.	STA. 115+18.54, 24.28' RT.	G14	3.8			10.5
STA. 115+18.54, 24.28' RT.	STA. 115+25.98, 33.79' RT.	G15			11.8	
STA. 115+49.34, 22.50' RT.	STA. 115+58.27, 17.00' RT.	G16	10.0			11.0
STA. 115+58.27, 17.00' RT.	STA. 117+58.92, 17.00' RT.	G17			200.7	
STA. 117+58.92, 17.00' RT.	STA. 117+64.94, 19.01' RT.	G18	10.0			6.5
STA. 117+64.94, 19.01' RT.	STA. 117+69.57, 22.50' RT.	G19			5.8	
STA. 118+03.85, 22.50' RT.	STA. 118+06.55, 18.97' RT.	G20			4.5	
STA. 118+10.52, 17.00' RT.	STA. 118+72.07, 17.00' RT.	G21			61.6	
STA. 118+72.07, 17.00' RT.	STA. 118+85.84, 22.50' RT.	G22	20.0		15.2	
STA. 112+94.75, 17.00' LT.	STA. 113+48.63, 17.00' LT.	G23	.		53.9	
STA. 118+06.55, 18.97' RT.	STA. 118+10.52, 17.00' RT.	G24	5.0			4.6
STA. 113+95.44, 24.56' LT.	STA. 113+97.35, 21.50' LT.	G25			3.8	
STA. 113+95.44, 21.40' LT.	STA. 114+05.25, 17.00' LT.	G26	10.0			9.7
STA. 114+05.25, 17.00' LT.	STA. 114+25.66, 17.00' LT.	G27	437.0		21.2	
STA. 114+25.66, 17.00' LT.	STA. 114+42.59, 28.84' LT.	G28	20.0		22.6	
STA. 114+42.59, 28.84' LT.	STA. 114+48.08, 43.19' LT.	G29			15.5	
STA. 114+70.68, 34.58' LT.	STA. 114+84.37, 17.00' LT.	G30	15.0			25.9
STA. 114+84.37, 17.00' LT.	STA. 114+87.79, 17.00' LT.	G31	437.0		3.6	
STA. 114+87.79, 17.00' LT.	STA. 114+92.53, 22.30' LT.	G32	5.0			8.1
STA. 114+92.53, 22.30' LT.	STA. 114+91.77, 34.68' LT.	G33			12.4	
STA. 116+21.61, 30.75' LT.	STA. 116+40.61, 17.00' LT.	G34	20.0		25.1	
STA. 116+40.61, 17.00' LT.	STA. 117+08.06, 17.00' LT	G35			67.5	
STA. 113+48.63, 17.00' LT.	STA. 113+51.10, 26.35' LT	G36	5.0			13.1
STA. 113+51.10, 26.35' LT	STA. 113+49.68, 27.16' LT	G37			1.64	
STA. 105+38.42, 22.50' RT	STA. 105+81.59, 22.50' RT	G38	1977.5		42.68	
STA 105+36.39, 20.50' LT	STA 106+53.72, 20.50' LT	G39	2020.5		118.53	
STA 106+53.72, 20.50 ' LT	STA 106+73.31, 39.68' LT	G40	20.0		30.5	
STA 106+73.31, 39.68' LT	STA 106+73.76, 52.57' LT	G41			12.89	
STA 106+93.06, 42.30' LT	STA 107+17.58, 17.00' LT	G42	25.0		39.41	
STA 107+17.58, 17.00' LT	STA. 108+76.75, 17.00' LT.	G43	2017.0		104.53	
CURB REMOVAL FOR STORAGE				121.0		
		SUBTOTAL		121.0	1301.5	128.6
		ROUNDING		4	8.5	1.4
		TOTAL		125.0	1310.0	130.0

SURFACING MATERIALS

ITEM NO.	304.1	304.4	304.5	403.11	403.12	403.6	411.1	417	628.2
ITEM	SAND (F)	CRUSHED STONE (FINE GRADATION) (F)	CRUSHED STONE (COURSE GRADATION) (F)	HOT BITUMINOUS PAVEMENT, MACH. METH.	HOT BIT. PAVEMENT, HAND METHOD	PAVEMENT JOINT ADHESIVE	HOT BITUMINOUS CONCRETE LEVELING COURSE	COLD PLANING BITUMINOUS SURFACES	SAWED BITUMINOUS PAVEMENT
UNIT	CY	CY	CY	TON	TON	LF	TON	SY	LF
LOCATION									
SAGAMORE AVE.	523	675	523	964	177	6459	103	1826	727
SUBTOTAL	523	675	523	964	177	6459	103	1826	727
ROUNDING	0	0	0	6	3	41	7	24	23
TOTAL	523	675	523	970	180	6500	110	1850	750

INCIDENTAL ITEMS - PARTICIPATING

ITEM NO.	ITEM	UNIT	TOTAL
201.881	INVASIVE SPECIES CONTROL, TYPE I	SY	560
201.882	INVASIVE SPECIES CONTROL, TYPE II	SY	140
206.19	COMMON STRUCTURE EXCAVATION, EXPLORATORY	CY	10
214.	FINE GRADING	U	1
611.90001	ADJUSTING WATER GATES AND SHUTOFFS SET BY OTHERS	EA	3
618.6	UNIFORMED OFFICERS	$	*
618.7	FLAGGERS	HR	2000
619.1	MAINTENANCE OF TRAFFIC	U	1
619.25	PORTABLE CHANGEABLE MESSAGE SIGN	U	2
645.7	STORMWATER POLLUTION PREVENTION PLAN	U	1
645.71	MONITORING SWPPP & EROSION AND SEDIMENT CONTROLS	HR	260
670.6051	PEA STONE	CY	2
670.641	~~SAND FILTER MEDIA MIX~~	~~CY~~	~~8~~
670.9	NOT USED	-	-
692.	~~MOBILIZATION~~	~~U~~	~~1~~
693.	ON THE JOB TRAINING OF UNSKILLED WORKERS	$	*
697.11	INVASIVE SPECIES CONTROL AND MANAGEMENT PLAN	U	1
697.41	CRITICAL PATH METHOD (CPM) ELECTRONIC SCHEDULE	U	1
698.12	FIELD OFFICE TYPE B	MO	24
698.2	PHYSICAL TESTING LABORATORY	MO	21
699.	MISCELLANEOUS TEMPORARY EROSION AND SEDIMENT CONTROL	$	*
1008.8	WINTER MAINTENANCE	$	*
1010.15	FUEL ADJUSTMENT	$	*
1010.2	ASPHALT CEMENT ADJUSTMENT	$	*

1

* - NOT A BID ITEM

TEMPORARY EROSION CONTROL

ITEM NO.	645.0001	645.3	645.42	645.512	645.531
ITEM	TURBIDITY CURTAIN	EROSION STONE	TEMPORARY SLOPE STABILIZATION, TYPE B (WILDLIFE FRIENDLY)	COMPOST SOCK FOR PERIMETER BERM	SILT FENCE
UNIT	LF	TON	SY	LF	LF
LOCATION					
SAGAMORE AVE.		326	1591		
ALONG TOE OF SLOPE	950			600	1500
SUBTOTAL	950	326	1,591	600	1,500
ROUNDING	50	4	9	0	0
TOTAL	1,000	330	1,600	600	1,500

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	STATION	DATE
1	ELIMINATE ITEM 670.9			09/13/13

NOTEBOOKS

BOOK	PAGE	
BOOK	PAGE	
BOOK	PAGE	

EXISTING DETAIL	ARM	DATE 11/10
PROPOSED DESIGN	DEM	DATE 4/13
SHEET CHECKED	TAT	DATE 4/13
AS BUILT DETAILS		DATE

FAY, SPOFFORD & THORNDIKE, LLC

CITY OF PORTSMOUTH

DEPARTMENT OF PUBLIC WORKS

SUMMARY OF QUANTITIES

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A000(417)	14493	8	91

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION
	09/13/13	107+20	REVISED SIDE SLOPE DETAILS AND DRAWING
		108+60	

NOTEBOOKS

BOOK		PAGE
BOOK		PAGE
BOOK		PAGE

EXISTING DETAIL	ARM	DATE 11/10
PROPOSED DESIGN	DEM	DATE 4/13
SHEET CHECKED	TAT	DATE 4/13
AS BUILT DETAILS		DATE

GRID

SHAW ROAD

SAGAMORE AVENUE (ROUTE 1A)

SAGAMORE CREEK

PRESERVE EXISTING SHRUBS AND LANDSCAPING

REMOVE EXIST. TIMBER CURB, MATCH LANDSCAPING STONE (SUBSIDIARY) BEHIND GRANITE CURB TO EXIST.

TIP DOWN CURB AND MEET EXISTING WALKWAY

LIMIT OF WORK

R = 5'
INSTALL G-2 TERMINAL END UNIT (ITEM 606.127)

REMOVE EXISTING STONE RETAINING WALL

PROPOSED RETAINING WALL SEE SHEET 33-35

ITEM 202.7
REMOVAL OF GUARDRAIL

ITEM 606.120
BEAM GUARDRAIL (TYP.)

INSTALL COFFERDAMS
ITEM 503.201, NO WORK BEYOND R.O.W.

REMOVE TELEPHONE MANHOLE ITEM 202.5 (CABLES TO BE REMOVED IN ADVANCE BY OTHERS)

P +39.8
19.8' LT.

P +15.2
21.2' LT.

LIMITS OF PROPOSED BRIDGE 42'-6"

APPROX. EXIST. AERIAL UTILITY LINE LOCATIONS

MATCH TO SHEET NO. 57

S42°52'38"E

S34°14'37"E

PC = 105+19.85

STA. 105+36.39
LIMIT OF WORK

STA. 106+50
LIMIT OF FULL DEPTH CONSTRUCTION

MEET EXISTING PAVEMENT

PRESERVE EXISTING FENCE

P +08.8
61.2' RT.

P +98.7
141.6' RT.

PROPOSED RETAINING WALL SEE SHEET 33-35

ITEM 606.120
BEAM GUARDRAIL (TYP.)

CLEARING LINE (TYP.)

ITEM 202.7
REMOVAL OF GUARDRAIL

ITEM 606.1255
BEAM GUARDRAIL
(TERM. UNIT TYPE EAGRT 25 FT.)

STA. 108+77
APPROXIMATE LIMITS OF PROPOSED BRIDGE

ITEM 563.24
BRIDGE RAIL T4 (TYP.)

LIMITS OF EXISTING BRIDGE

INSTALL 10" WATERMAIN (ITEM 611.06210) PROVIDE SUPPORT FOR WATER SEE STRUCTURAL DRAWINGS FOR PIPE SUPPORT DETAILS

MAP 223 LOT 34
NOW OR FORMERLY
JONATHON F. PANEK
INVESTMENT TRUST
895 SAGAMORE AVE
BK 4291 PAGE 0233

MAP 223 LOT 31
NOW OR FORMERLY
NISSLEY LLC
915 SAGAMORE AVE
BK 4061 PAGE 2312

MAP 223 LOT 32
NOW OR FORMERLY
ROBERT W. SIMPSON
BK 1853 PAGE 0465

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

FAY, SPOFFORD & THORNDIKE, LLC

CITY OF PORTSMOUTH

DEPARTMENT OF PUBLIC WORKS

GENERAL PLANS

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A000(417)	14493	56	91

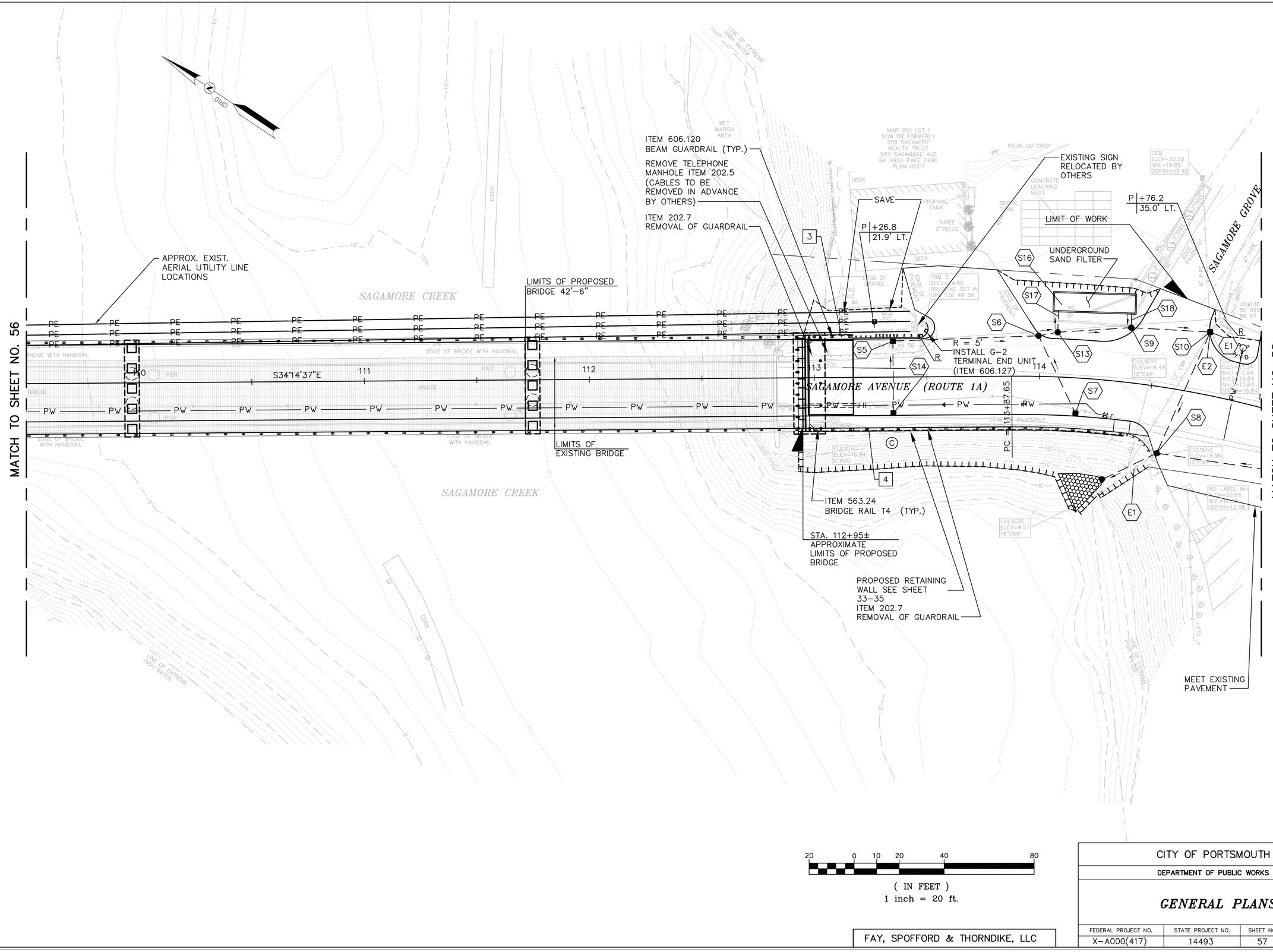
REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION
1	09/13/13	108+60	REVISED SIDE SLOPE DETAILS AND DRAWING

NOTEBOOKS

BOOK		PAGE
BOOK		PAGE
BOOK		PAGE

EXISTING DETAIL	ARM	DATE 11/10
PROPOSED DESIGN	DEM	DATE 4/13
SHEET CHECKED	TAT	DATE 4/13
AS BUILT DETAILS		DATE



20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

FAY, SPOFFORD & THORNDIKE, LLC

CITY OF PORTSMOUTH

DEPARTMENT OF PUBLIC WORKS

GENERAL PLANS

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A000(417)	14493	57	91

SAGAMORE AVE ℄

(S1) STA 108+59.2, RT 16.0' TO STA 108+34.2, RT 16.0'
CONSTRUCT 21' x 15" RCP
CONSTRUCT CB–B @ +34.2, RT 16.0'
15" INV. OUT = 17.50
GRATE ELEV. = 23.9

(S2) STA 108+59.2, RT 28.0' TO STA 108+59.2, RT 16.0'
CONSTRUCT 10' x 15" PE PIPE (TYPE S)
CONSTRUCT 15" ALUMINIZED STEEL END SECTION @ +59.2, RT 28.0'
INV. @ PIPE = 16.47
CONSTRUCT CLASS C STONE STONE FILL AT PIPE OUTLET
(SEE DETAIL SHEET 11)
CONSTRUCT CB–B @ +59.2, RT 16.0'
15" INV. OUT = 16.65
15" INV. IN = 16.90
GRATE ELEV. = 23.9

(S3) STA 108+59.2, LT 24.8' TO STA 108+59.2, LT 16.0' (1)
CONSTRUCT 7' x 15" RCP
CONSTRUCT 15" ALUMINIZED STEEL END SECTION @ +59.2, LT 24.8'
INV. @ PIPE = 17.50
CONSTRUCT CLASS C STONE STONE FILL AT PIPE OUTLET
(SEE DETAIL SHEET 11)
CONSTRUCT CB–B @ +59.2, LT 16.0'
15" INV. OUT = 17.76
15" INV. IN = 18.01
GRATE ELEV. = 23.9

(S5) STA 114+07.5 LT 15.3' TO STA 113+35.0, LT 16.0'
CONSTRUCT 61' x 15" RCP (3000D)
CONSTRUCT CB–B @ +35.0, LT 16.0'
15" INV. OUT = 17.50
15" INV. IN = 17.75
GRATE ELEV. = 22.4

(S6) STA 114+07.4, LT 19.8' TO STA 113+99.2, LT 18.0'
CONSTRUCT 4' x 15" PE PIPE (TYPE S)
CONSTRUCT 5' DIA. DMH @ +99.2, LT 18.0'
15" INV. OUT = 16.86
15" INV. IN (N) = 17.11
15" INV. IN (W) = 17.11
GRATE ELEV. = 22.3

(S7) STA 113+99.2, LT 18.0' TO STA 114+17.0 RT 16.0'
CONSTRUCT 34' x 15" RCP (3000D)
CONSTRUCT CB–B @ +17.0 RT 16.0'
15" INV. OUT = 17.28
GRATE ELEV. = 21.6

(S8) STA 114+33.0, RT 43.0' TO STA 114+57.0, RT 29.4'
CONSTRUCT 21' X 15" PE PIPE (TYPE S)
CONSTRUCT 15" ALUMINIZED STEEL END SECTION @ +33.0, RT 43.0'
INV. @ PIPE = 10.00
CONSTRUCT CLASS C STONE FILL @ PIPE OUTLET
(SEE DETAIL SHEET 11)
CONSTRUCT CB–B @ +57.0, RT 29.4'
15" INV. OUT = 10.27
15" INV. IN (S) = 13.52
15" INV. IN (E) = 10.52
GRATE ELEV. = 19.9

(S9) STA 114+71.1, LT 27.7' TO STA 114+38.2, LT 24.4'
CONSTRUCT 31' X 15" RCP
CONSTRUCT DMH @ +38.2, LT 24.4'
15" INV. OUT = 11.21
15" INV. IN (W) = 15.05
15" INV. IN (E) = 11.46
GRATE ELEV. = 22.7

(S10) STA 114+57.0, RT 29.4' TO STA 114+71.1, LT 27.7'
CONSTRUCT 55' X 15" RCP
CONSTRUCT 5' DIAMETER CB–B @ +71.1, LT 27.7'
15" INV. OUT = 10.80
15" INV. IN = 11.05
EXIST 8" INV. IN = 17.94
EXIST 4" INV. IN = 19.84
GRATE ELEV. = 22.3

(S11) STA 114+57.0, RT 29.4' TO STA 115+64.0, RT 16.0'
CONSTRUCT 98' X 15" RCP
CONSTRUCT CB–B @ +64, RT 16.0'
15" INV. OUT = 18.14
15" INV. IN = 18.39
12" INV. IN = 18.39
GRATE ELEV. = 23.8

SAGAMORE AVE ℄

(S12) STA 115+64.0, RT 16.0' TO STA 116+42.0, LT 16.0'
CONSTRUCT 81' X 15" RCP
CONSTRUCT CB–B @+42.0, LT 16.0'
15" INV. OUT = 20.40
15" INV. IN = 20.65
GRATE ELEV. = 25.9

(S13) STA 114+38.2, LT 24.4' TO STA 114+07.4, LT 19.8'
CONSTRUCT 29' X 15" PE PIPE (TYPE S)
CONSTRUCT 5' DIA. FLOW CONTROL STRUCTURE @ +07.4, LT 19.8'
(SEE DETAIL SHEET NO. 11)
15" INV. OUT (S) = 15.25
6" INV. OUT (E) = 16.65
15" INV. IN (N) = 16.84
GRATE ELEV. = 22.7

(S14) STA 113+35.0, LT 16.0' TO STA 113+35.0, RT 16.0'
CONSTRUCT 28' X 15" RCP (3000D)
CONSTRUCT CB–B @ +35.0, RT 16.0'
15" INV. OUT = 17.92
GRATE ELEV. = 22.3

(S15) STA 108+34.2, LT 16.0' TO STA 108+59.2, LT 16.0' (1)
CONSTRUCT 21' x 15" RCP
CONSTRUCT CB–B @ +59.2, LT 16.0'
15" INV OUT = 18.51
GRATE ELEV. =23.9

(S16) CONSTRUCT UNDERGROUND SAND FILTER
(SEE DETAIL SHEET 11)

(S17) STA 114+07.3, LT 29.4' TO STA 114+07.4, LT 19.8'
CONSTRUCT 7' X 6" PE PIPE (TYPE S)

(S18) STA 114+37.7, LT 30.8' TO STA 114+38.2, LT 24.4'
CONSTRUCT 4' X 12" PE PIPE (TYPE S)

(S19) STA 116+42.0, LT 16.0' TO STA 118+18.5, RT 16.0'
CONSTRUCT 177' X 15" RCP
CONSTRUCT CB–B @ +18.5, RT 16.0'
15" INV. OUT = 21.54
6" INV. IN = 24.00
GRATE ELEV. = 29.6

(S20) STA 118+18.5, RT 16.0' TO STA 118+6.6, RT 26.3'
CONSTRUCT 16' X 6" PE PIPE (TYPE S)
CONNECT TO EXISTING PLASTIC PIPE (SUBSIDIARY)

(E1) STA 114+33.8, RT 49.2' TO STA 114+48.4, RT 36.7'
REMOVE 18' x 15" CMP
STA 114+48.4, RT 36.7' TO STA 114+53.8, RT 31.8'
REMOVE 7' x 15" CMP (SUBSIDIARY TO NOTE S8)

(E2) STA 114+44.2, RT 36.9' TO STA 114+67.0, LT 16.4'
REMOVE 58' x 12" CMP
STA 114+67.0, LT 16.4' TO STA 114+70.9, LT 27.6'
REMOVE 11' x 12" CMP (SUBSIDIARY TO NOTE S10)
REMOVE CB @ +70.9, LT 27.6' (SUBSIDIARY TO NOTE S10)

NOTES:

1. ALL CATCH BASIN SUMP DEPTHS TO BE FOUR TIMES THE DIAMETER OF THE CATCH BASIN OUTLET PIPE.

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION
1	09/13/13			ELIMINATE S4, REVISED S3 AND S15

NOTEBOOKS

	BOOK		PAGE
	BOOK		PAGE
	BOOK		PAGE

EXISTING DETAIL	ARM	DATE 11/10
PROPOSED DESIGN	DEM	DATE 4/13
SHEET CHECKED	TAT	DATE 4/13
AS BUILT DETAILS		DATE

FAY, SPOFFORD & THORNDIKE, LLC

CITY OF PORTSMOUTH

DEPARTMENT OF PUBLIC WORKS

DRAINAGE NOTES

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X–A000(417)	14493	59	91

REVISIONS AFTER PROPOSAL

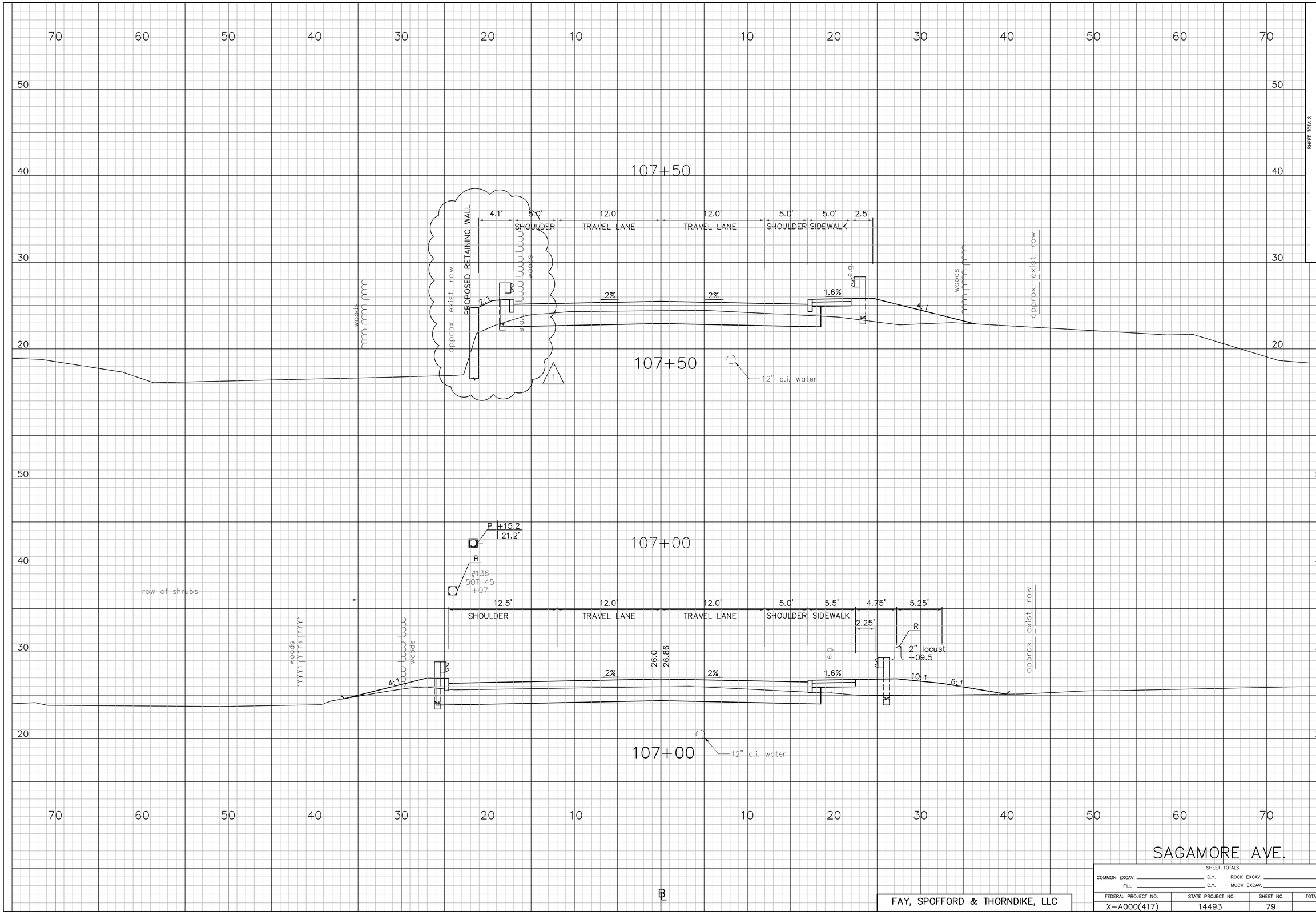
NUMBER	DATE	STATION	DESCRIPTION
1	09/13/13	107+20	
		108+60	REWSED SIDE SLOPE BEHND GUARDRAIL

NOTEBOOKS

BOOK		PAGE
BOOK		PAGE
BOOK		PAGE

SECTIONS PLOTTED	ARM
TEMPLATE PLOTTED	DEM
EARTHWORK COMPILED	
SHEET CHECKED	TAT
FINALS PLOTTED	

DATE 4/13
DATE 4/13
DATE
DATE 4/13
DATE



SHEET TOTALS

COMMON EXCAV.	C.Y.	ROCK EXCAV.	C.Y.
FILL	C.Y.	MUCK EXCAV.	C.Y.

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A000(417)	14493	79	91

SAGAMORE AVE.

FAY, SPOFFORD & THORNDIKE, LLC

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION
1	09/13/13	107+20	
		108+60	REVSED SIDE SLOPE BEHND GUARDRAIL

NOTEBOOKS

BOOK		PAGE
BOOK		PAGE
BOOK		PAGE

SECTIONS PLOTTED	ARM
TEMPLATE PLOTTED	DEM
EARTHWORK COMPILED	
SHEET CHECKED	TAT
FINALS PLOTTED	

DATE 4/13
DATE 4/13
DATE
DATE 4/13
DATE

108+50

S3
guy +71
guy +67
S2
+74
2.5' SHOULDER
5.0'
12.0' TRAVEL LANE
12.0' TRAVEL LANE
5.0' SHOULDER
5.0' SIDEWALK
2.0'
PROPOSED RETAINING WALL
CB-B @ +59.2
exist. trh @+64 e.g. (REMOVE BY OTHERS)
2%
2%
1.6%
approx. exist. row
1.5:1 +/-
underground communication conduit
12" d.i. water
+40
CONSTRUCT 2' OF CLASS C STONE (ITEM 585.3) OVER GEOTEXTILE (ITEM 593.421)
(TYPICAL STA. 108+20 =/- TO STA. 108+55)
+30
#36
46 10T
59 45
1

108+00

S15
S1
woods
5.2'
2.5'
5.1' SHOULDER
12.0' TRAVEL LANE
12.0' TRAVEL LANE
5.0' SHOULDER
5.0' SIDEWALK
CB-B @ +34.2
2%
2%
1.6%
2:1
2:1
approx. exist. row
guy +87
1
12" d.i. water
PROPOSED RETAINING WALL
EXIST STONE RETAINING WALL
12" cmp

SHEET TOTALS

COMMON EXCAV.	C.Y.	ROCK EXCAV.	C.Y.
FILL	C.Y.	MUCK EXCAV.	C.Y.

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A000(417)	14493	80	91

SAGAMORE AVE.

FAY, SPOFFORD & THORNDIKE, LLC

ADDENDUM NUMBER 9:

Bid 12-14

SAGAMORE CREEK BRIDGE REPLACEMENT

16-Sep-13

ATTACHMENT - LIST OF REVISED DRAWINGS

Overall Sheet No. (of 91)	Bridge Sheet No.	Drawing Title	Comment
5		TYPICAL SECTION SAGAMORE AVE	Revised
7		SUMMARY OF QUANTITIES	Revised
8		SUMMARY OF QUANTITIES	Revised
15	1	GENERAL PLAN AND ELEVATION	Revised
16	2	BRIDGE NOTES - SHEET 1 OF 3	Revised Entire Sheet
17	3	BRIDGE NOTES - SHEET 2 OF 3	Revised
18	4	BRIDGE NOTES - SHEET 3 OF 3	Revised
19	5	SITE PLAN	Revised
20	6	BRIDGE QUANTITIES AND SURVEY LAYOUT	Revised
21	7	BRIDGE CONSTRUCTION ACCESS PLAN	Revised
22	8	BORING LOGS - SHEET 1 OF 3	Revised
23	9	BORING LOGS - SHEET 2 OF 3	Revised
24	10	BORING LOGS - SHEET 3 OF 3	Revised
26	12	DRILLED SHAFT AND PILE LAYOUT	Revised Entire Sheet
27	13	DRILLED SHAFT DETAILS	Revised Entire Sheet
27A	13A	MICROPILE DETAILS	New Sheet
28	14	ABUTMENT A PLAN AND ELEVATION	Revised Entire Sheet
29	15	ABUTMENT B PLAN AND ELEVATION	Revised Entire Sheet
30	16	ABUTMENT SECTIONS AND DETAILS	Revised Entire Sheet
31	17	WINGWALL ELEVATIONS	Revised Entire Sheet
32	18	WINGWALL DETAILS	Revised Entire Sheet
33	19	RETAINING WALL 1 AND 2 PLAN AND ELEVATION	Revised
35	21	RETAINING WALL DETAILS AND REINFORCING	Revised
36	22	PIER PLAN AND ELEVATION	Revised Entire Sheet
37	23	PIER DETAILS AND REINFORCING	Revised Entire Sheet
50	38	BRIDGE AND APPROACH RAIL LAYOUT	Revised
53	41	WATERLINE SUPPORT DETAILS	Revised
56		GENERAL PLAN	Revised
57		GENERAL PLAN	Revised
59		DRAINAGE NOTES	Revised
79		CROSS SECTION	Revised
80		CROSS SECTION	Revised

SPECIAL PROVISION

SECTION 510 – MICROPILE BEARING PILES

Item 510.101- Mobilization and Demobilization of Micropile Equipment
Item 510.201 –Micropile Proof Load Testing
Item 510.202- Micropile Verification Load Testing
Item 510.301- Furnishing Micropile Bearing Piles

1.0 Description

1.1 This work shall consist of furnishing all materials, equipment, labor, and services necessary to construct micropiles for the proposed Route 1A Bridge over Sagamore Creek in accordance with this special provision and with details shown on the project plans.

1.2 The two proposed abutments will each require micropiles with rock sockets. The minimum micropile diameter and rock socket diameter are as shown on the plans. The micropiles are designed to support the axial and lateral loads through rock sockets that extend into bedrock. The minimum rock socket length for each micropile is provided on the plans.

1.3 A permanent casing with a minimum diameter and wall thickness as shown on the plans is required and shall extend from the design cut-off elevation down to a minimum embedment into the bedrock, as detailed on the plans.

1.4 Micropile installation will require advancement through tidal water, existing rip-rap, existing abutment reinforced concrete footings, natural soil deposits with boulders, weathered and solid bedrock. The bedrock is expected to have a sloping surface at some locations based on the test boring data.

1.5 Subsurface Information. The available test boring data for the site is summarized below and provided in the project plans. The Contractor is advised to refer to the subsurface information to evaluate the subsurface conditions at the site.

1.5.1 Test Boring Data from 1940. Test boring summary from the 1940 NH highway bridge plans (Boring No. 1 through 13) and location plan are attached to this special provision. The elevation indicated on the 1940 logs can be converted to the NAVD88 datum by subtracting approximately 70 feet from the 1940 elevation.

1.5.2 Design Phase Test Boring Data. Test boring logs from 2008 (B-1, B-2, B-3, B-4, B-5, B-6, B-7, B-8) completed for the proposed bridge and location-plan are included in the contract plans. The bedrock cores from these test borings are on file at the City of Portsmouth Public Works offices, and may be reviewed as described in 3.3.

1.5.3 Retaining Wall Test Boring Data. Test boring logs from 2013 (B-101, B-102, B-103, B-104) completed for the proposed retaining walls and location-plan are included in the contract plans. The bedrock cores from these test borings are on file at the City of Portsmouth Public Works offices, and may be reviewed as described in 3.3.

1.6 Rock Testing. Unconfined compression tests were conducted on 2 rock core samples from the 2008 design phase test borings. The results of the tests are summarized in Table 1.

Table 1
Summary of Unconfined Compression Test Results

Boring Number	Core Run No.	Sample Depth Range (ft.)	Unconfined Compression Strength (psi)
B-4	C1	27.0 to 27.4	23,080
B-7	C2	49.2 to 49.7	16,420

1.7 Design Loads. The micropile structural section has been analyzed for seismic and non-seismic load cases using Load and Resistance Factor Design (LRFD) methods, as contained in the 2012 AASHTO LRFD Bridge Design Specifications, and FHWA Publication No. FHWA NHI-05-039 (Micropile Design and Construction, 2005). The structural capacity of the micropile meets the code requirements for axial, bending moment and shear capacity. The maximum LRFD factored axial load for the Micropile is 310 kips (compression) and 130 kips (tension), as calculated for the highest, non-seismic loading condition. (Note: The 310 kip factored load is comparable to an unfactored, design service load of approximately 220 kips).

1.8 Micropile Verification Load Testing. A minimum of one static verification load test on a sacrificial micropile will be required prior to constructing any production micropiles. The verification load test requirements are provided in Section 3.9. The results of the verification load test will be used to verify the required rock socket length for the production micropiles.

1.9 Micropile Proof Load Testing. Proof load tests on two production micropiles will be required. One test shall be conducted at each abutment. The proof load test requirements are provided in Section 3.10.

1.10 Environmental Issues. This work shall be conducted in conformance with all applicable environmental regulations and permits. The Contractor is advised to review all the environmental documents within the contract, including the Draft Sediment Management Plan. The Contractor's method of construction and unit prices for the micropiles shall account for all work necessary to meet the project environmental commitments for, a) maintaining turbidity levels within acceptable limits, and b) disposing of the micropile and rock socket excavation material on land.

2.0 Materials

The Contractor shall furnish materials new and without defects. Any defective materials shall be removed from the jobsite at no additional cost. Materials for micropiles shall consist of the following:

2.1 Admixtures for Grout. Admixtures shall conform to the requirements of ASTM C 494/ AASHTO M 194. Admixtures that control bleed, improve flowability, reduce water content, and retard set may be used in the grout, subject to the review and acceptance of the Engineer. Admixtures shall be compatible with the grout and mixed in accordance with the manufacturer's recommendations. Expansive admixtures shall only be added to the grout used for filling sealed encapsulations and anchorage covers. Accelerators are not permitted. Admixtures containing chlorides are not permitted.

2.2 Cement. All cement shall be Portland cement conforming to ASTM C l50/AASHTO M 85, Type II or Type V and shall be the product of one manufacturer.

2.3 Water. Water used in the grout mix shall conform to AASHTO T 26 and shall be potable, clean, and free from substances that may be injurious to cement and steel.

2.4 Grout. Neat cement mixture with a minimum 3-day compressive strength of 2,500 psi and a 28-day compressive strength of 5,000 psi per AASHTO T 106/ASTM C 109. The Contractor is responsible for providing the 3-day and 28-day compressive strengths results. The grout shall have a minimum compressive strength of 4,000 psi at least 3 days prior to testing of the micropile.

2.5 Centralizers and Spacers. Centralizers and spacers shall be fabricated from schedule 40 PVC pipe or tube, steel, or material non-detrimental to the reinforcing steel. Wood shall not be used. They shall be securely attached to the reinforcement; sized to position the reinforcement within ½ inch of plan location from center of pile; sized to allow grout tremie pipe insertion to the bottom of the drillhole; and sized to allow grout to freely flow up the

drillhole and casing and between adjacent reinforcing bars.

2.6 Permanent Casing Pipe. Permanent steel casing/pipe shall have the diameter and minimum wall thickness as shown on the Plans. The permanent steel casing/pipe shall meet the following requirements:

1. The Requirements of ASTM A252, Grade 2.

2. May be new "Structural Grade" (a.k.a. "Mill Secondary') steel pipe meeting above but without Mill Certification, free from defects (dents, cracks, tears) and with two coupon tests per truckload delivered from the supplier.

For permanent casing/pipe that will be welded for structural purposes, the following material conditions apply:

1. The carbon equivalency (CE) as defined in AWS D1.1 Section XI5.1, shall not exceed 0.45, as demonstrated by mill certifications.

2. The sulfur content shall not exceed 0.05%, as demonstrated by mill certifications.

For permanent casing/pipe that will be shop or field welded, the following fabrication or construction conditions apply:

1. The steel pipe shall not be joined by welded lap splicing.

2. Welded seams and splices shall be complete penetration welds.

3. Partial penetration welds may be restored in conformance with AWS D1.1.

4. The proposed welding procedure certified by a welding specialist shall be submitted for approval.

Threaded casing joints shall develop at least the required compressive, tensile, and/or bending strength.

Permanent casing pipe shall incorporate an additional 1/16 inch thickness for sacrificial steel corrosion protection.

2.7 Reinforcing Bars. Reinforcing steel shall be deformed bars in accordance with ASTM A 615/AASHTO M 31, Grade 75 or ASTM A 722/AASHTO M 275, Grade 150.

When a bearing plate and nut are required to be threaded onto the top end of reinforcing bars for the pile top to footing anchorage, the threading shall be continuous spiral deformed ribbing provided by the bar deformations (e.g., Dywidag, SAS, or Williams continuous threaded bars). Reinforcing steel shall be either epoxy coated or galvanized bars in accordance with either M8.01.7 or M8.01.8.

Mechanical Splicer shall meet M8.01.9 and must be either epoxy coated or galvanized consistent with the reinforcement to be spliced. It shall be able to develop 125% of the ultimate tensile strength of the bars without evidence of any failure.

2.8 Plates. Structural steel plates for pile top attachments shall conform to ASTM A 572/AASHTO M 223, Grade 50. Plates shall be primed with two coats of zinc-rich primer.

3.0 Construction Requirements

3.1 Qualifications. The Micropile Contractor shall be experienced in the construction and load testing of micropiles and have successfully constructed at least five (5) projects in the last five (5) years involving construction of similar micropiles to those required on the Plans and in this Special Provision.

The Contractor shall have previous micropile drilling and grouting experience in soil/rock similar to the project conditions. The Contractor shall submit construction details, structural details, and load test results for at least three (3) previous successful micropile load tests from different projects of similar scope to this project.

The Contractor shall assign an engineer to supervise the work with experience on at least three (3) projects of similar scope to this project, completed over the past five (5) years. The Contractor shall not use consultants or manufacturers' representatives to satisfy the supervising engineer requirements of this section.

The onsite foremen and drill rig operators shall also have at least three (3) years of experience installing similar micropiles to those required on the Plans and this Special Provision.

3.2 Installation Plan Submittal. At least 4 weeks prior to the planned start of micropile construction, the Contractor shall submit five (5) copies of the completed project reference list and a personnel list. The project reference list shall include a brief project description with the owner's name and current phone number and load test reports. The personnel list shall identify

the micropile supervising project engineer, drill rig operators, and on-site foremen to be assigned to the project. The personnel list shall contain a summary of each individual's experience and be complete enough for the Engineer to determine whether each individual satisfies the required qualifications. The Engineer will approve or reject the Contractor's qualifications within 15 calendar days after receipt of a complete submission. Additional time required due to incomplete or unacceptable submittals will not be cause for time extension or impact or delay claims.

Work shall not be started, nor materials ordered, until the Engineer's written approval of the Contractor's experience qualifications is given. The Engineer may suspend the work if the Contractor uses non-approved personnel. If work is suspended, the Contractor shall be fully liable for all resulting costs and no adjustment in contract time will result from the suspension.

At least four weeks prior to constructing drilled shafts, the Contractor shall submit an installation plan in accordance with 105.02 to the Engineer for review and approval. This plan shall be stamped by a licensed NH Professional Engineer knowledgeable in the design and construction of micropiles.

3.2.1 The Contractor's submittal shall contain as a minimum, the following specific information:

a. Written documentation of the Contractor’s qualifications as defined in 3.1.

b. Description of the equipment to be used, including manufacturer's specifications and catalog data for all drilling rigs, drilling tools, temporary casing, grout mixing equipment, grout placement equipment, and all other necessary tools.

c. Description of the micropile installation methods, including procedures for drilling overburden, obstructions, and bedrock, cleaning the drillhole bottom, placing and centering the inner core steel (reinforcing) and casing pipe, placing grout and centering and restraining the inner core steel during grouting.

d. Description of methods used to determine the depth to top of bedrock.

e. Description of drillhole support and to prevent detrimental ground movements.

f. Description of filling of the annular space between the casing and the ground.

g. Epoxy coating touch-up procedures

h. The proposed mix design and test results for the cement grout.

i. Description of the methods and equipment for accurately monitoring and recording the grout depth, grout volume and grout pressure during grout placement.

j. Details of the static verification load test in accordance with Section 3.9.

k. Details of the static proof load tests in accordance with Section 3.10.

l. Welding procedures.

m. Materials storage, handling, and protection procedures.

n. Methods of complying with all applicable environmental regulations.

3.2.2 The Engineer will evaluate the Installation Plan for conformance with the plans, specifications and this special provision. Within 21 days after receipt of the plan, the Engineer will notify the Contractor of additional information or changes needed to meet the contract requirements. Approval of the installation plan shall not relieve the Contractor of the responsibility to install the drilled shafts in accordance with the plans and specifications.

3.3 Subsurface Information. The Geotechnical Report and rock core samples from the test borings are available for inspection by the Contractor at the City of Portsmouth Public Works offices. Appointments to review the report or samples shall be made at least 3 days in advance. It is the Contractor's sole responsibility to make interpretations and draw conclusions with respect to the character of material to be encountered and its effect on the micropile installation.

3.4 Micropile Pre-Construction Meeting. A pre-construction meeting will be scheduled by the Engineer and held prior to the start of micropile construction. The Engineer, Contractor, Micropile Contractor, Excavation Contractor and the Contractor's micropile load testing engineer shall attend the meeting. Attendance is mandatory. The pre-construction meeting will be conducted to clarify the construction requirements for the work, to coordinate the construction schedule and activities, and to identify contractual relationships and delineation of responsibilities amongst the Contractor and the various Subcontractors – including but not limited to anticipated subsurface conditions, micropile installation and testing, micropile structure survey control, and site drainage control.

3.5 Micropile Tolerance and Acceptance Criteria.

3.5.1 Construction Tolerance. The microplies shall be constructed to the following Construction Tolerance:

1. Centerline of micropiles shall not be more than 3 inches from indicated plan location.

2. Micropiles shall be within 2 percent of total-length vertical alignment.

3. Top elevation of the micropile shall be plus or minus 1 inch maximum from vertical elevation indicated.

4. Centerline of reinforcing steel shall not be more than ½ inches from indicated location.

3.5.2 Acceptance Criteria. The micropiles shall be subject to the following Acceptance Criteria:

Piles that are damaged or defective due to defective materials, improper installation procedure, or piles that have an installed volume of cement grout not exceeding a volume equal to 110% of the theoretical volume of the drill hole will not be accepted. Pile acceptance will be by the sole judgment of the Engineer.

Piles that are damaged, defective, or mislocated beyond specified tolerances shall be cut off 12 inches below bottom of footing elevation and located on the Contractor's developed pile as-built drawing. These piles shall be replaced by additional piles installed adjacent thereto, as directed by the Engineer, at no additional cost. Any modification that necessitates change to the structure shall require the Engineer's prior review and acceptance. Any modifications shall be at the Contractor's expense.

3.6 Site Drainage Control. The Contractor shall control and properly dispose of drill flush and construction related waste, including excess grout, in accordance with the Standard Specifications and all applicable local codes and regulations. The Contractor shall provide positive control and discharge of all surface water that will affect construction of the micropile installation and maintain all pipes or conduits used to control surface water during construction. The Contractor shall repair damage caused by surface water at no additional cost. Upon substantial completion of the work, the Contractor shall remove surface water control pipes or conduits from the site. Alternatively, with the approval of the Engineer, pipes or conduits that are left in place may be fully grouted and abandoned or left in a way that protects the structure and all adjacent facilities from migration of fines through the pipe or conduit and potential ground loss.

3.7 Construction Site Survey. Prior to bidding, the Contractor shall review the available subsurface information and visit the site to assess the site geometry, equipment access conditions, and location of existing structures and above ground utilities and facilities. The Contractor is responsible for field locating and verifying the location of all utilities shown on the Plans prior to starting the work and shall maintain uninterrupted service for those utilities designated to remain in service throughout the work.

Prior to the start of any micropile construction activity, the Contractor and Engineer shall jointly inspect the site to observe and document the pre-construction condition of the site, existing structures, and facilities.

3.8 Micropile Installation. The micropile Contractor shall select the drilling method, the

grouting procedure, and the grouting pressure used for the installation of the micropiles. The micropile Contractor is also responsible for estimating the grout take. There will be no extra payment for grout overruns.

The drilling equipment and methods shall be suitable for drilling through the conditions to be encountered, without causing damage to overlying or adjacent structures, buried structures or utilities, or services. If called for in the drilling method description, or by the nature of the stratum to be drilled through, the micropile Contractor shall furnish an overburden casing of the type and thickness, which can be installed without distortion. Casings that fail, fracture, or otherwise distort during drilling or after drilling shall, unless otherwise directed, be withdrawn or replaced at the micropile Contractor's expense. The drillhole must be open along its full length to at least the design minimum drillhole diameter prior to placing grout and reinforcement.

Temporary casing or other approved method of pile drillhole support will be required in caving or unstable ground to permit the pile shaft to be formed the minimum design drillhole diameter. The Contractor's proposed method(s) to provide drillhole support and to prevent detrimental ground movements shall be reviewed by the Engineer. Detrimental ground movement is defined as movement which requires remedial repair measures, in order to maintain site conditions as determined by the Engineer. During construction, the Contractor shall observe the conditions in the vicinity of the micropile construction site on a daily basis for signs of ground heave or subsidence. The Contractor shall immediately notify the Engineer if signs of movements are observed. The Contractor shall immediately suspend or modify drilling or grouting operations if ground heave or subsidence is observed, if the micropile structure is adversely affected, or if adjacent structures are damaged from the drilling or grouting. If the Engineer determines that the movements require corrective action, the Contractor shall take corrective actions necessary to stop the movement or perform repairs. Use of drilling fluid containing bentonite or any other non-reverting drilling fluid is not allowed.

Reinforcement shall be placed in the casing prior to grouting. Reinforcement surface shall be free of deleterious substances such as soil, mud, grease or oil that might contaminate the grout or coat the reinforcement and impair bond.

The Contractor shall check pile top elevations and adjust all installed micropiles to the planned elevations.

Centralizers and spacers shall be provided at 10 feet centers maximum spacing in order to locate the steel reinforcing within the required tolerance and to provide a minimum 2 inches of grout cover over all steel reinforcing. The upper and lower most centralizer shall be located a maximum of 5 feet from the top and bottom of the reinforcing. Centralizers and spacers shall permit the free flow of grout without misalignment of the reinforcing bar(s) and permanent casing. The central reinforcement bars with centralizers shall be lowered into the casing and set. The reinforcing steel shall be inserted to the desired depth without difficulty. Partially inserted reinforcing bars shall not be driven or forced into the hole. The Contractor shall redrill and reinsert reinforcing steel when necessary to facilitate insertion.

Lengths of casing and reinforcing bars to be spliced shall be secured in proper alignment and in a manner to avoid eccentricity or angle between the axes of the two lengths to be spliced. Splices and threaded joints shall meet the requirements of this specification. Threaded pipe casing joints shall be located at least two casing diameters (OD) from a splice in any reinforcing bar.

If an annular space exists between the outside of the casing and the ground, it shall be filled to prevent soil settlement. The contractor shall use sand or grout to fill the space.

The Contractor shall use a stable neat cement grout or a sand cement grout to grout the rock socket and casing voids. Admixtures, if used, shall be mixed in accordance with manufacturer's recommendations. The grouting equipment used shall produce a grout free of lumps and undispersed cement. The Contractor shall have means and methods of measuring the grout quantity and pumping pressure during the grouting operations. The grout pump shall be equipped with a pressure gauge to monitor grout pressures. A second pressure gauge shall be placed at the point of injection into the pile top. The pressure gauges shall be capable of measuring pressures of at least 150 psi or twice the actual grout pressures used, whichever is greater. The grout shall be kept in agitation prior to mixing. Grout shall be placed within one hour of mixing. The grouting equipment shall be sized to enable each pile to be grouted in one continuous operation.

Immediately prior to grouting, the hole shall be flushed with clean water to remove all contaminated water and cuttings. The hole shall be flushed with the grout pipe located at the bottom of the hole. The water shall be pumped at a high velocity until the wash water at the top of the casing is clear.

The grout shall be injected from the lowest point of the drill hole and injection shall continue until uncontaminated grout flows from the top of the pile. The grout may be pumped through grout tubes, casing, hollow-stem augers, or drill rods. The tremie pipe shall always extend below the level of the existing grout in the drillhole. The grout pressures and grout takes shall be controlled to prevent excessive heave or fracturing of rock or soil formations. Upon completion of grouting, the grout tube may remain in the hole, but must be filled with grout. The grouted pile shall be covered to prevent disturbance.

Grout within the micropiles shall be allowed to attain the required design strength prior to being loaded.

If the Contractor elects to use a postgrouting system, working drawings and details shall be submitted to the Engineer for review in accordance with this specification.

Grout consistency as measured by grout density shall be determined by the micropile Contractor per API RP-13B-1 at a frequency of at least one test per pile, conducted just prior to start of pile grouting. The Baroid Mud Balance used in accordance with API RP-13B-1 is an approved device for determining the grout density of neat cement grout. The measured grout density shall be within ±10% of the density specified in the grout mix design submittal.

Grout samples shall be taken directly from the grout plant. The Contractor shall provide grout cube compressive strength and grout density test results to the Engineer within 24 hours of testing.

Micropile Installation Records –

The Contractor shall prepare and submit to the Engineer full-length installation records for each micropile installed. The records shall be submitted within one work shift after that pile installation is completed. The data shall be recorded on the micropile installation log. A separate log shall be provided for each micropile.

Each micropile installation log shall include the following information:

1. Top of pile casing and reinforcing steel elevation immediately after installation to the nearest ½ inch.
2. Pile cut-off elevation as installed to the nearest ½ inch.
3. Bottom of pile casing elevation to the nearest ½ inch.
4. Pile tip elevation as installed to the nearest ½ inch.
5. Deviation from specified plan location to the nearest ½ inch.
6. Pile length immediately after installation to the nearest ½ inch.
7. Pile designation number.
8. Damage (if any) to pile.
9. Grout takes and pressures.

3.9 Micropile Verification Load Testing. The Contractor shall perform a pre-production verification pile load test on one sacrificial pile at the location specified on the Plans or as designated by the Engineer. The testing can be performed as a tension or compression test using hydraulic loading equipment. A dead load reaction shall not be allowed. Compression load testing shall be performed in accordance with ASTM D 1143 and tension load testing shall be performed in accordance with ASTM D 3689, except as modified herein. The Design Load is defined as the maximum Factored Axial Load (compression) is shown on the Plans as the Maximum Strength Limit State Axial Load and is equal to 310 kips compression, and shall be used as the Factored Axial Load (FAL) for either compression or tension micropile testing. The maximum test loads shall be as specified above but not more than 80% of the structural capacity of the micropile elements, including steel yield in tension, steel yield or buckling in compression or grout crushing in compression. The structural elements of the verification test micropile shall be modified as required for testing the geotechnical capacity of the micropile.

The Alignment Load (AL) should not be more than 2% of the maximum test load (FAL).

Before starting the work, the Contractor shall submit to the Engineer, for approval, a pile load test plan including a written description of the equipment and methods which he intends to use. The methods must be of an approved type and shall be altered as necessary to meet the approval of the Engineer. The pile load test plan and description shall be prepared and stamped by a professional engineer registered in the state of New Hampshire.

Any damage to the existing structures determined to be caused by the Contractor's negligence shall be repaired to the approval of the Engineer at no additional cost.

The drilling and grouting method, casing length and outside diameter, reinforcing bar lengths, and depth of rock socket for the test micropile shall be identical to those specified for the production piles.

Grout within the micropile test piles shall attain the minimum required 28-day compressive strength of 4,000 psi prior to load testing. Previous test results for the proposed grout mix completed within one year of the start of work may be submitted for initial verification of the required compressive strengths for installation of pre-production verification test piles and initial production piles. During production, micropile grout shall be tested by the Contractor for compressive strength in accordance with AASHTO T 106/ ASTM C 109 at a frequency of no less than one set of three 2 inch grout cubes from each grout plant each day of operation. The compressive strength shall be the average of the 3 cubes tested.

Upon completion and acceptance of the pile load test, the test pile shall be cut-off 24 inches below grade.

Testing Equipment and Data Recording –

Testing equipment shall include dial gauges, dial gauge support jack and pressure gauge, electronic load cell, and a reaction frame with supports. The load cell is required only for the creep test portion of the test. The Contractor shall provide a description of test setup and jack, pressure gauge and load cell calibration curves in accordance with this specification.

The Contractor shall design the testing reaction frame to be sufficiently rigid and of adequate dimensions such that excessive deformation of the testing equipment does not occur. The jack, bearing plates, and stressing anchorage shall be aligned such that unloading and repositioning of the equipment will not be required during the test.

The test load shall be applied and measured using a hydraulic jack and pressure gauge. The pressure gauge shall be graduated in 100 psi increments or less. The jack and pressure gauge shall have a pressure range not exceeding twice the anticipated maximum test pressure. Jack ram travel shall be sufficient to allow the test to be done without resetting the equipment. The Contractor shall monitor the creep test load hold during testing with both the pressure gauge and the electronic load cell. The load cell shall be used to accurately maintain a constant load hold during the creep test load hold increment of the test.

Pile top movement and load shall be measured with a dial gauge capable of measuring

to 0.001 inch. The dial gauge shall have a travel sufficient to allow the test to be done without having to reset the gauge. The gauge shall be visually aligned to be parallel with the axis of the micropile and shall be independently supported from the jack, pile or reaction frame. A minimum of three (3) dial gauges shall be used, equally spaced around the pile top.

The pile movement measuring system shall be protected against rain, wind, frost, and any other disturbances that could affect the reliability of the movement measurements. Sun shading shall be provided for the measuring system for the duration of the test and for a minimum of 1 hour prior to the start of the test.

The required load test data shall be recorded by the Contractor's engineer. The Contractor's engineer shall submit a report of the results indicating the performance and acceptability of the test pile for the required factored axial load and displacement criteria specified below. Production piles shall not be installed until approval is given by Engineer.

Test Loading Schedule –

Designated piles shall be tested to a maximum test load of 1.60 times the maximum Factored Axial Design Load (FAL) shown on the Plans. Tests shall be made by incrementally loading the micropile in accordance with the following schedule, to be used for both compression or tension loadings:

Verification Test Loading Schedule			
Step	Loading	Applied Load	Hold Time (min.)
1	Apply AL	AL	4
2	Cycle 1	0.15 FAL	4
		0.30 FAL	4
		0.50 FAL	4
		AL	4
3	Cycle 2	0.15 FAL	4
		0.30 FAL	4
		0.45 FAL	4
		0.60 FAL	4
		0.75 FAL	4
		0.90 FAL	4
		1.00 FAL	4
		AL	4
4	Cycle 3	0.30 FAL	4
		0.60 FAL	4
		0.90 FAL	4
		1.20 FAL	4
		1.30 FAL	60 (MIN)
		AL	4
5	Cycle 4	0.30 FAL	4
		0.60 FAL	4
		0.90 FAL	4
		1.20 FAL	4

		1.50 FAL	4
		1.60 FAL (max.)	10
		1.20 FAL	4
		0.90 FAL	4
		0.60 FAL	4
		0.30 FAL	4
		AL	4

AL = Alignment Load, FAL = Factored Axial Load

At the 1.30 FAL Test Load, maintain the creep load for a minimum of 60 minutes and until the settlement (measured at the lowest point on the pile which measurements are made) over a 60 minute period is not greater than 0.01 inches. The alignment load (AL) shall not exceed 5 percent of the design load.

The acceptance criteria for micropile verification load test are:

1. The Engineer shall determine the criteria for tolerable movement during the load test at the top of the micropile. The pile shall sustain the compression or tension 1.00 FAL test load with no more than 1.0 inches (or as determined by the Engineer) total vertical movement at the top of the pile, relative to the position of the top of the pile prior to testing.

2. At the end of the 1.30 FAL creep test load increment, the test pile shall have a creep rate not exceeding 0.01 inches/hour. The creep rate shall be linear or decreasing throughout the creep load hold period.

3. Failure does not occur at the 1.60 FAL maximum test load. Failure is defined as load where the settlement exceeds the sum of the elastic deformation plus socket diameter divided by 120 plus 0.15 inches.

Test Pile Rejection –

If a micropile fails to meet the acceptance criteria, the Contractor shall test another micropile at a location determined by the Engineer. For failed piles and further construction of other piles, the Contractor shall modify the construction procedure. Any modification that necessitates changes to the structure design shall require the Engineer's prior review and acceptance. Any modifications of construction procedures, or cost of additional test piles and load testing, or replacement production micropiles, shall be at the Contractor's expense.

3.10 Micropile Proof Load Testing

The proof load test shall be performed on the first set of production piles installed on one micropile per abutment (for a total of 2 proof load tests). Adjacent piles may be used as reaction piles provided that such piles are not detrimentally affected by the test. The proof test pile shall be selected by the Contractor and approved by the Engineer. The test equipment and

procedures shall be as described in 3.9.

Proof test piles to a maximum test load of 1.0 times the FAL described in 3.9 and as shown on the plans. Proof tests shall be made by incrementally loading the micropile in accordance with the following schedule:

Proof Loading Schedule			
Step	Loading	Applied Load	Hold Time (min.)
1	Apply AL	AL	2.5
2	Load Cycle	0.10 FAL	2.5
		0.20 FAL	2.5
		0.30 FAL	2.5
		0.40 FAL	2.5
		0.50 FAL	2.5
		0.60 FAL	2.5
		0.70 FAL	2.5
		0.80 FAL	10 to 60 (see note)
		0.90 FAL	2.5
		1.0 FAL	2.5
3	Unload Cycle	1.00 FAL	4.0
		0.75 FAL	4.0
		0.50 FAL	4.0
		0.25 FAL	4.0
		AL	4.0

Notes: Depending on performance, either a 10 minute or 60 minute creep test shall be performed at the 0.80 FAL Test Load where movements shall be recorded at 1, 2, 3, 5, 6, and 10 minutes. When the pile top movement between 1 and 10 minutes exceeds 0.04 inches, the 0.80 FAL Test Load shall be maintained an additional 50 minutes. Movements shall be recorded at 20, 30, 50, and 60 minutes. Dial gauges shall be reset to zero after the initial AL is applied.

4.0 Method of Measurement

4.1 Mobilization and demobilization of micropile equipment will be measured as a unit. This unit shall include the furnishing of all supervision, equipment, crews, tools and all other equipment and materials as necessary to properly execute the work.

4.2 Micropile Proof Load Testing will be measured per each accepted load test.

4.3 Micropile Verification Load Testing will be measured per each accepted load test. The sacrificial verification test micropile will be measured in accordance with 4.4. No measurement will be made for modifications that may be required to increase the structural capacity of the test DMP.

4.4 Micropiles, including excavation, grout, core steel and rock socket will be measured by the linear foot to the nearest 0.1 of a foot from the plan top of drilled shaft concrete elevation to the rock socket bottom elevation at the center of the micropile.

4.4.1 Rock socket excavation will be measured by the linear foot to the nearest 0.1 of a foot from the approved bottom of the permanent casing to the approved bottom of the rock socket at the center of the shaft. Rock socket excavation that extends below the approved rock excavation depth will not be measured.

4.4.2 The permanent casing and inner core reinforcing will not be measured.

4.4.3 Drilling through obstructions and/or removal of obstructions by pre-excavation for the micropile installation shall be subsidiary to Item 510.301 and will not be measured.

4.4.4 Grout compression strength tests will not be measured.

4.4.5 The pay length for the sacrificial verification test micropile shall be based on the top of pile elevation as shown in the Abutment A Micropile table on the plans, even if the actual top of pile is higher than the elevation provided on the table. Reaction piles if utilized by the Contractor will not be measured.

4.4.6 The Contractor shall anticipate encountering obstructions as noted herein and shall utilize equipment and methods necessary to advance through or remove the obstructions. The presence of obstructions, any lost production, replacement piles and the removal of obstructions, if necessary, shall not be measured.

5.0 Basis of Payment

5.1 The accepted quantity of mobilization and demobilization of micropile equipment will be paid for at the contract unit price complete in place.

5.2 The Micropile Proof Load Tests will be shall be paid at the contract unit price per each completed and accepted test, for which payment shall be considered complete compensation for providing all design, materials, labor, equipment, load test report, and incidentals to complete the work including the installation and materials of the test.

5.3 The Micropile Verification Load Test will be paid for at the contract unit price per each pile test completed, which price shall constitute full and complete compensation for all design, labor, materials, and equipment, including instrumentation and all other incidentals items of work necessary to finish the work, complete and accepted by the Engineer, including the cost of furnishing and drilling reaction piles, if used.

5.4 The accepted quantity of Micropile Bearing Piles will be paid for at the contract unit price per foot, complete in place and accepted. Payment for micropiles shall be considered complete compensation for providing all design, materials, labor, equipment, proper disposal of drilling spoil, and incidentals to complete the work. The Contractor is also responsible for estimating the grout take. There will be no extra payment for grout overruns.

Pay items and units

510.101	Mobilization and Demobilization of Micropile Equipment	Unit
509.201	Micropile Proof Load Testing	Each
509.202	Micropile Verification Load Testing	Each
510.301	Furnishing Micropile Bearing Piles	Linear Foot