

TOWN OF MONTVILLE

Bid Interest Response

FINANCE@MONTVILLE-CT.ORG

Project Name: Moxley Road Bridge Deck Replacement

Date: _____

Bid No.: 2023-9

Company: _____

Address: _____

Contact: _____

Phone: _____ Fax: _____ E-mail: _____

Project Manual and Specifications

**BID #2023-9
Moxley Road Bridge
Deck Replacement**

**Town of Montville
Connecticut**

April 2023

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TOWN OF MONTVILLE
INVITATION FOR PROPOSALS
BID #2023-9

The Town of Montville is interested in receiving proposals for the construction of Moxley Road Bridge Deck Replacement. A copy of the plans and specifications is available at www.montville-ct.org.

All proposals are due no later than May 16, 2023 at 10:00 AM and must be received at the Finance Office prior to the due date and time. A proposal must be delivered by regular or overnight mail to the Town of Montville, Finance Office, 310 Norwich/New London Turnpike, Uncasville, Connecticut 06382, with the proposal contained in a sealed envelope marked “**Moxley Road Bridge Deck Replacement**”. The proposal must be signed by a Company official. Proposals will be opened and read aloud in the Finance Office, and interested persons may attend the opening remotely under procedures that will be posted on the Town of Montville’s website.

In addition to other reservations and conditions contained in the proposal documents, the Town of Montville reserves the right to waive any technical defects in the proposals received; waive any formalities or irregularities; to reject any and all proposals for any reason, including that it or they do not conform to the terms and conditions described herein, as determined by the Town in its sole discretion; to accept or reject any part of any proposal received; to present and negotiate terms of a contract together or separately with any party submitting a proposal; to determine qualifications exclusively and finally; to request additional qualifications; and to select any proposal or part thereof based on any combination of factors, including the amount proposal, the time of completion, and the Town’s best interests. The Town further reserves the right to retain all proposals submitted and to use any ideas in a proposal regardless of whether or not that proposal is selected.

Director of Finance

INFORMATION TO BIDDERS

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ARTICLE 1 RECEIPT AND OPENING OF BIDS

Sealed bids are requested to be delivered to the Town of Montville, Connecticut at the Office of the Director of Finance, third floor, Montville Town Hall, 310 Norwich-New London Turnpike, Uncasville, CT until 10:00 A.M. local time on May 16, 2023, at which time they will be publicly opened and read aloud. All bids must be submitted in a sealed envelope bearing the bidder's name and bid name.

The envelopes containing the bids must be sealed and designated as **Moxley Road Bridge Deck Replacement**.

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities in or reject any and all bids. Conditional or qualified bids will not be accepted. Any bid received after the time and date specified shall not be considered. Should there be reasons why the contract cannot be awarded within the specified period the time may be extended by mutual agreement between the Owner and the bidder.

The Town of Montville reserves the right to reject any or all bids and waive any informalities or irregularities in the bid procedure or bids.

The Town may hold the bids for a period not to exceed sixty (60) days from the date of the bid opening to review the bids and investigate the bidders' qualifications prior to awarding the contract.

ARTICLE 2 PREPARATION OF BID

Each Bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, both in words and figures. All bids must be prepared in conformity with and shall be based on and submitted subject to all requirements of the Specifications and Drawings together with all Addenda thereto.

ARTICLE 3 TELEGRAPHIC MODIFICATION

Any bidder may modify his bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received by the Owner prior to the closing time, and provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed and postmarked prior to the closing time. The telegraphic communication should not reveal the bid price but should provide the addition or subtraction or other modifications so that the final prices or items will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two days from the closing time, no consideration will be given to the telegraphic modifications.

ARTICLE 4 CORRECTIONS

Erasures or other changes in the bid must be explained or noted over the signature of the bidder.

ARTICLE 5 WITHDRAWAL OF BIDS

Bids may be withdrawn personally or on written or telegraphic request dispatched by the bidder in time for delivery in the normal course of business prior to the time fixed for the opening, provided that written confirmation of any telegraphic withdrawal over the signature of the bidder is placed in the mail and postmarked prior to the time set for the opening of the bids. Negligence on the part of the bidder in preparing his bid confers no right of withdrawal or modification of his bid after such bid has been opened.

ARTICLE 6 QUALIFICATIONS OF THE BIDDER

The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted.

ARTICLE 7 OBLIGATIONS OF THE BIDDER

Bidders must satisfy themselves by personal examination at the site of the proposed work, by review of the Drawings and Specifications including Addenda, and by additional means as they may prefer, as to the actual conditions, requirements, and limits of the proposed work, and as to the accuracy of the information and statements herein contained, and the submission of any bid will be accepted by the Owner as satisfactory proof that the bidder has satisfied himself in these respects. The bidder shall not at any time after the submission of a bid dispute or complain of such statements or information, nor, assert that there was any misunderstanding in regard to the nature, or amount of work to be done. The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve the bidder of his obligation to furnish all materials except those materials furnished by the Owner and labor necessary to carry out the provisions of the Contract Documents and to complete the contemplated work for the considerations set forth in his bid, if his bid is accepted.

ARTICLE 8 CONDITIONS OF WORK

Insofar as possible, the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with traffic, with the use of existing facilities and utilities, with the use of municipally or State or privately owned lands, or with the work being performed by others. The Contractor must satisfy himself by his own investigation and research as to the nature and location of the work, the general and local conditions, including

but not restricted to those bearing upon the transportation, disposal, handling and storage of materials, water, electric power, roads, means of access, the construction and making of connections of the work to existing facilities and utilities, or other similar conditions at the site, the character of equipment and facilities needed preliminary to and during the prosecution of the work, requirements of owners and controlling authorities having jurisdiction over the various lands, existing structures, facilities and utilities, and all other conditions affecting the work to be done and labor and materials needed.

ARTICLE 9 INFORMATION SUPPLIED TO BIDDERS

The Owner shall provide to bidders prior to bidding, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The Contract Documents contain the provisions required for the construction of the project. Information obtained from any officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Contractor or relieve him from fulfilling any of the conditions of the Contract.

ARTICLE 10 BID SECURITY

Each bid must be accompanied by a certified check of the bidder, or a bid bond prepared on the form of bid bond attached hereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the Owner and from securities listed on the most recent IRS Circular 570, in the amount of 5 percent of the bid. Such checks or bid bonds will be returned to all but the three lowest bidders within five days after the opening of bids, and the remaining checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contract; or if no award has been made within 60 days after the date of the opening of the bids, upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid. The bid bond of the successful bidder will be retained until the payment bond and performance bond have been executed and approved, after which it will be returned.

ARTICLE 11 METHOD OF AWARD-LOWEST QUALIFIED BIDDER

If, at the time this Contract is to be awarded, the lowest base bid submitted by a responsible bidder does not exceed the amount of funds then estimated by the Owner as available to finance the Contract; the Contract will be awarded on the lowest base bid by a responsible bidder. If such bid exceeds such amount, the Owner expressly reserves the right to increase or decrease any class, item, or part of the work, and this reservation includes the omission of any such item, items, class, or part of the work as may be decided by the Owner at unit prices submitted by the bidder to bring the Contract within available funds; or the Owner may reject all bids. In determining the lowest qualified bidder the total price bid for the Basic Contract will be used.

The term "lowest responsible bidder" shall mean the bidder whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work.

The low bidder shall supply the names and addresses of major material suppliers and subcontractors prior to any work on the project.

ARTICLE 12 EXECUTION OF THE AGREEMENT

A Contract in the form set forth hereinafter will be required to be executed by the successful bidder and the Owner. The attention of all bidders, therefore, is called to the form of the Agreement and the provisions thereof. The party to whom the Contract is awarded will be required to obtain the performance bond and payment bond and insurance certificates within ten (10) calendar days from the date when the Notice of Award is delivered to the bidder. The Notice of Award shall be accompanied by the necessary Agreement and bond forms. The Contractor shall furnish a performance bond and a payment bond, each in the amount of 100 percent of the Contract Price, with a corporate surety approved by the Owner, as security for faithful performance of the Contract.

The Bidder, ten (10) days after notification of award shall have three (3) copies of the Performance Bond, Payment bond, Insurance Certificates, Save harmless endorsement and Agreement ready for a contract signing with the Owner at the Owner's place of business, at which time a pre-construction conference shall be held.

ARTICLE 13 LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

The successful bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within 5 days after he has received notice of the acceptance of his bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal the surety deposited with his bid.

ARTICLE 14 NOTICE TO PROCEED

The Notice to Proceed shall be issued within ten (10) days of the execution of the Agreement by the Owner. Should there be reasons why the Notice to Proceed cannot be issued within such period; the time may be extended by mutual agreement between the Owner and Contractor.

ARTICLE 15 TIME OF COMPLETION AND LIQUIDATED DAMAGES

Time Completion

The bidder must agree to commence work on or before the date specified in the written Notice to Proceed of the Owner and to fully complete the total project within **45** consecutive calendar days thereafter.

Liquidated Damages

In addition to the above liquidated damages, the bidder must agree also to pay as liquidated damages, the sum of \$750.00 for each consecutive calendar day thereafter, as hereinafter provided in the Contract and General Conditions.

ARTICLE 16 POWER OF ATTORNEY

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

ARTICLE 17 ADDENDA AND INTERPRETATIONS

No interpretation of the meaning of the Drawings, Specifications, or other pre-bid documents will be made to any bidder orally. Every request for such interpretation should be in writing, addressed to: CLA Engineers, Inc., 317 Main Street, Norwich, CT 06360. In order to be given consideration, such request must be made at least 5 days prior to the date fixed for the opening of bids. Any and all interpretations and any supplemental instructions will be in the form of written Addenda to the Specifications, which, if issued, will be distributed to all prospective bidders, not later than three (3) days prior to the date fixed for the opening of bids in any one of the following methods:

1. Mailed by certified mail with return receipt requested; or
2. Faxed
3. Emailed
4. Posted on the Town of Montville website: <http://www.townofmontville.org/>

All Addenda so issued shall become a part of the Contract Documents.

ARTICLE 18 UNCERTAINTY OF QUANTITIES

The quantities listed in the bid (proposal) are approximate and are given only for use in comparing bids and to indicate approximately the total amount of the Contract; and the Owner does not expressly or by implication represent that the actual amounts of work will even approximately correspond therewith, but does call particular attention to the uncertainty of the quantities of the work involved which cannot be predicted in advance. The work under certain items may be materially greater or less than that given in the bid, as may be necessary in the judgment of the Owner to complete the work contemplated in the Contract.

Under the Contract, the Owner reserves the right to increase or decrease the approximate quantities for, or to omit entirely, any of the items as listed in the bid.

Only such quantities of the respective items of work actually performed and accepted will be paid for. An increase or decrease in the quantity for any item shall not be regarded as grounds for an increase or decrease in the bid prices.

ARTICLE 19 ITEMS NOT LISTED IN THE BID

Appurtenant items of work shown on the Drawings or specified or required to complete the work but not listed separately under the list of items in the bid shall be included in the cost of payment under the various applicable bid items of work and no separate payment will be made for such items. It shall be the responsibility of the Contractor to verify any missing or incomplete items.

ARTICLE 20 BALANCED BIDDING

Minus bidding on any item or items of the Specifications is prohibited. Bids should be made on each separate item of work shown in the bid (Proposal) with reasonable relation to the probable cost of doing the work included in such item and the right is reserved to reject wholly any bid in case any item or items thereof are obviously unbalanced or appear to the Owner to be so unbalanced as to affect or to be liable to affect adversely any interests of the Owner. The attention of the bidder is called to the fact that unbalancing of bids may adversely affect the Contractor if certain portions of the work are increased or decreased as provided in the Contract Documents.

ARTICLE 21 PRICES

Bidders shall state the proposed price for the work by which the bids will be compared. This price is to cover all the expenses incidental to the completion of the work in full conformity with the Contract, the Specifications, and the Drawings. The price or prices proposed shall be stated both in words and in figures, and any bid not so stated shall be rejected.

In the event there is a discrepancy between the unit prices and the extended totals, the unit prices shall govern. In the event that there is a discrepancy between the unit prices written in words and the unit prices written in figures, the unit prices written in words shall govern. No bid will be accepted which does not contain a unit or lump sum price for every item contained in the bid form.

ARTICLE 22 NONDISCRIMINATION

The Contractor agrees and warrants that in the performance of this contract he will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, sex, mental retardation or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved in any manner prohibited by the laws of the United States or of the State of Connecticut, and further agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission concerning the employment practices and procedures of the Contractor as relate to the provisions of this section.

ARTICLE 23 EMPLOYMENT OF LABOR

The wages paid to mechanics, laborers or workmen employed upon the work herein contracted to be done shall be at a rate equal to the rate of wages prevailing for the same work in the same trade or occupation in the Montville area as determined by the labor Commissioner of the State of Connecticut. See Section 31.53 of the General Statutes of the State of Connecticut, Revision of 195S, as amended.

Public Act 79-325 passed by the 1979 Legislature covers exemptions from Section 31.53 of the General Statutes. Under the new exemptions, effective October 1985, the regulations that the prevailing wage must be paid for work performed by contractors and subcontractors in connection with work on public facilities will not apply:

To public work alterations, repair, refinishing projects with total cost of less than \$100,000.

To public works new construction with a total cost of less than \$1,000,000.

All Bidders are informed that the project is considered an alteration/refinishing construction.

All Bidders are advised to inform themselves and to comply with the requirements of Federal, State and local laws governing the employment of labor.

The Contractor shall provide certified payroll sheets to the Owner which includes all employees involved with the project for each payroll period during the course of the project.

The contractor will also be required to provide certified payrolls on a weekly basis to the Owner.

ARTICLE 24 LAWS AND REGULATIONS

The Bidder's attention is directed to the fact that all applicable federal and state laws and municipal ordinances for the construction, reconstruction, alteration, remodeling, repair or demolition of public works and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

ARTICLE 25 PAYMENT FOR DRAWINGS AND SPECIFICATIONS

See Advertisement for Bids

ARTICLE 26 CONSTRUCTION SCHEDULE

Prior to start of work the Contractor will be required to submit a construction schedule showing the order in which he proposes to carry on the work, including dates at which he will start and finish various parts of the work conforming to major divisions of the specifications.

ARTICLE 27 TAXES

The Town of Montville is considered exempt from the payment of Federal excise taxes, Connecticut Sales Taxes, etc. and such taxes shall be identified separately or excluded from the bid prices.

ARTICLE 28 NON-RESIDENT CONTRACTORS

Connecticut General Statute §12-430(7) requires that:

When a non-resident contractor enters into a contract they must post a 5% cash or guarantee bond for the total amount with the Commissioner of Revenue Services;

or

Any person dealing with a non-resident contractor without first obtaining a certificate of compliance must deduct 5% from the amount payable to the non-resident contractor and submit it to the state.

If the requirements are not met, the general contractor will be liable for all Connecticut taxes imposed.

All questions shall be directed to the State of Connecticut Department of Revenue Services Discovery Unit at 860-541-3280.

ARTICLE 29 OCCUPATIONAL SAFETY & HEALTH REGULATORY COMPLIANCE

Successful bidders must demonstrate compliance with the applicable safety and health acts as outlined in the Supplemental Information for Bidders.

ARTICLE 30 PROVISIONAL ITEMS

Provisional items are delineated in the bid form. Quantities for provisional items may or may not be used in whole or in part at the discretion of the Owner. This shall in no way affect the established contract unit prices. All bid unit prices for provisional items shall be added to establish the total bid amount.

PROPOSAL FORMS

BID FORM

TOWN OF MONTVILLE
MOXLEY ROAD BRIDGE DECK REPLACEMENT

TO: Dept. of Finance
Town of Montville
310 Norwich-New London Tpk.
Montville, Connecticut 06382

FROM: _____

The undersigned, having familiarized (himself, itself, themselves) with the existing conditions on the Project Site affecting the cost of the work, and with the Contract Documents for the MOXLEY ROAD BRIDGE DECK REPLACEMENT hereby proposes to furnish all supervision, technical personnel, labor, materials, equipment, tools, appurtenances, services, materials not supplied by the Owner, and anything else necessary, including utility and transportation services required to perform and complete this Contract, all in accordance with the Contract Documents, at and for the unit prices for work in place for the following work items.

The quantity of the units shown below is given for the purpose of determining the Award. The Owner reserves the right to increase or decrease these quantities. Payment to the Contractor will be based on completed measured quantities of these work items.

Prices are to be written in both words and figures. In case of discrepancy, the price shown in words will govern.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
1.	Mobilization	L.S.	L.S.	_____	_____

UNIT PRICE IN WORDS: _____

2.	Maintenance and Protection of Traffic	L.S.	L.S.	_____	_____
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UNIT PRICE IN WORDS: _____

3.	Dewatering, Control and Diversion of Water	L.S.	L.S.	_____	_____
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UNIT PRICE IN WORDS: _____

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
4.	Sedimentation and Erosion Control	L.S.	L.S.	_____	_____

UNIT PRICE IN WORDS: _____

5.	<u>Provisional Item:</u> Gravel Fill	40	C.Y.	_____	_____
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UNIT PRICE IN WORDS: _____

6.	<u>Provisional Item</u> Crushed Stone	40	C.Y.	_____	_____
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UNIT PRICE IN WORDS: _____

7.	Pavement Widening	50	S.Y.	_____	_____
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UNIT PRICE IN WORDS: _____

8.	Milling & Paving Concrete	420	S.Y.	_____	_____
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UNIT PRICE IN WORDS: _____

9.	Topsoil, Seed, Fertilize and Mulch	200	S.Y.	_____	_____
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UNIT PRICE IN WORDS: _____

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
10.	<u>Provisional Item:</u> Erosion Control Matting	60	S.Y.	_____	_____

UNIT PRICE IN WORDS: _____

11.	Metal Beam Rail (RB-350)	170	L.F.	_____	_____
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UNIT PRICE IN WORDS: _____

12.	Metal Beam Rail End Anchorage	4	Ea.	_____	_____
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UNIT PRICE IN WORDS: _____

13.	Masonry Stone Work	L.S.	L.S.	_____	_____
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UNIT PRICE IN WORDS: _____

14.	<u>Moxley Road Bridge Deck Replacement:</u> Including demolition, removal & disposal existing structure. Selective clearing and grubbing as needed. Temporary support of the existing structure. Construction of the new reinforced concrete bridge deck, waterproofing membrane, grout fill, mortar fill, and other items not specifically listed elsewhere.				
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L.S. L.S. _____

UNIT PRICE IN WORDS: _____

TOTAL BID AMOUNT: _____

TOTAL BID AMOUNT IN WORDS: _____

The low bid will be determined by either of the following:

This contract is to be awarded to that responsible Bidder whose total bid is the lowest number of dollars for the above items.

If the Contractor should choose to employ manufacturers or suppliers other than those listed on the drawings and specifications, he shall submit a list of said suppliers as part of this proposal. If no list is included in the proposal, it shall be concluded by the Town that the Contractor will use only those suppliers listed on the drawings. An "or equal" supplier shall be included on the submitted list.

Wherever in the plans and specifications, an item of equipment or material is designated by reference to a particular brand, manufacturer or trade name, it is understood that an equal product may be substituted by the bidder or Contractor, under the conditions as stated above.

The bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Municipality and to fully complete the project within 45 consecutive calendar days thereafter. The bidder must agree also to pay as liquidated damages, the sum of \$750.00 for each consecutive calendar day thereafter.

The undersigned has checked carefully all the above figures and understands that the OWNER will not be responsible for any errors or omissions on the part of the undersigned in making up this bid.

The Bidder acknowledges the receipt of the following Addenda;

Addendum No. _____, dated _____

Addendum No. _____, dated _____

Addendum No. _____, dated _____

Enclosed is the Bidder's Bond, Certified Check or Cashier's Check No. _____ in the amount of five (5%) of the Bid.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

Respectfully submitted:

By _____
(Title)

(Business Address)

(Telephone Number)

(SEAL - if bid is by a corporation)

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, _____

_____, as PRINCIPAL, and _____
as SURETY are held and firmly bound unto the Town of Montville hereinafter called the
"OWNER", in the penal sum of Five Percent of Total Bid Dollars, (\$5% of Total Bid) lawful
money of the United States, for the payment of which sum well and truly to be made, we bind
ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally,
firmly by these Presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted
the Accompanying Bid, dated _____, 20____, for

MOXLEY ROAD BRIDGE DECK REPLACEMENT

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified
therein after the opening of the same, or, if no period be specified, within ninety (90) days after
the said opening, and shall within the period specified therefor, or if no period be specified,
within ten (10) days after the prescribed forms are presented to him for signature, enter into a
written Contract with the Owner in accordance with the Bid, as accepted, and give bond with
good and sufficient surety or sureties, as may be required, for the faithful performance and
proper fulfillment of such Contract; or in the event of the withdrawal of said Bid within the
period specified, or the failure to enter into such Contract and give such bond within the time
specified, the Principal shall pay the Owner the difference between the amount specified in said
Bid and the Amount for which the Owner may procure the required work or supplies or both, if
the latter be in excess of the former, then the above obligation shall be void and of no effect,
otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this _____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body. In presence of:

(Individual Principal)

(SEAL)

(Partnership)

(Business Address)

(SEAL)

(Business Address)

Attest:

By: _____

(Corporate Principal)

(Business Address)

Affix

By: _____
Corporate Seal

Attest:

(Corporate Surety)

By: _____
Affix
Corporate Seal

Countersigned

by _____

Attorney-in-Fact, State of _____

(Power-of-Attorney for person signing for surety company must be attached to bond.)

PROPOSED SUBCONTRACTORS

THE BIDDER SHALL STATE THE NAMES OF ALL THE SUBCONTRACTORS THAT HE PROPOSES TO USE. ATTACH ADDITIONAL SHEETS IF NEEDED.

If none, write "None" _____

*Description of Work _____

Proposed Subcontractor, Name _____

Address _____

*Description of Work _____

Proposed Subcontractor, Name _____

Address _____

*Description of Work _____

Proposed Subcontractor, Name _____

Address _____

*Insert description of work and subcontractors' names as may be required.

This is to certify that all names of the above-mentioned subcontractors are submitted with full knowledge and consent of the respective parties.

The Bidder warrants that none of the proposed subcontractors have any conflict of interest as respects this contract.

Bidder _____
(Fill in Name)

By _____
(Signature and Title)

PROPOSED SUPPLIERS

THE BIDDER SHALL STATE THE NAMES OF PROPOSED MATERIAL SUPPLIERS FOR THE PROJECT. ATTACH ADDITIONAL SHEETS IF NEEDED.

If none, write "None" _____

*Description of Material _____

Proposed Supplier, Name _____

Address _____

*Description of Material _____

Proposed Supplier, Name _____

Address _____

*Description of Material _____

Proposed Supplier, Name _____

Address _____

*Insert description of work and suppliers names as may be required.

This is to certify that all names of the above-mentioned suppliers are submitted with full knowledge and consent of the respective parties.

The Bidder warrants that none of the proposed suppliers have any conflict of interest as respects this contract.

Bidder _____
(Fill in Name)

By _____
(Signature and Title)

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder.
2. Permanent main office address.
3. When organized.
4. If a corporation, where incorporated.
5. How many years have you been engaged in the contracting business under Your present firm or trade name?
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate dates of completion.
7. General character of work performed by your company.
8. Have you ever failed to complete any work awarded to you? If so, where and why?
9. Have you ever defaulted on a contract? If so, where and why?
10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.
11. List your major equipment available for this contract.
12. Experience in construction work similar in importance to this project.
13. Background and experience of the principal members of your organization including the officers.
14. Will you, upon request, fill out a confidential detailed financial statement and furnish any other information that may be required by the OWNER?

15. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Owner or representative in verification of the recitals comprising this Statement of Bidder's Qualifications.

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

(Name of Bidder)

By _____

Title _____

State of _____)
County of _____) ss.

_____ being duly sworn deposes and says that he is _____
_____ of _____
(name of organization)

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

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public

My Commission expires _____ 20__.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the Secretary of the corporation named as Principal in the within bond; that _____, who signed the said bond on behalf of the Principal was then _____ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was his duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

(Corporate Seal)

Title: _____

NONDISCRIMINATION IN EMPLOYMENT

State of _____)
) ss
County of _____)

_____, being first duly sworn, deposes and says that:

(1) He is (owner, partner, officer, representative, or agent), of _____
_____, the bidder that has submitted the attached bid;

(2) Said bidder (has _____) (has not _____) previously performed work subject to the President's Executive Order No. 11246, or any preceding similar Executive Order.

Signed _____

Title

Subscribed and Sworn to before me

this _____ day of _____ 20 ____.

Title

My Commission expires _____, 20 ____.

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
) ss.
County of _____)

_____, being first duly sworn, deposes and says that:

- (1) He is (owner, partner, officer, representative or agent) of _____,
_____, the Bidder that has submitted the attached bid;
- (2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
- (3) Such Bid is genuine and is not a collusive or sham Bid;
- (4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from Bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Owner or any person interested in the proposed Contract; and
- (5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

(Title)

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

(Title)

My Commission expires _____, 20 ____.

AGREEMENT AND BOND FORMS

AGREEMENT

THIS AGREEMENT, made this ___ th day of _____, by and between the Town of Montville, hereinafter called "OWNER" and _____

doing business as (an individual) or (a corporation) hereinafter called the "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned;

1. The CONTRACTOR will commence and complete the **Moxley Road Bridge Deck Replacement**.
2. The CONTRACTOR will furnish all of the material not supplied by Owner, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS WITHIN 10 calendar days after the date of the NOTICE TO PROCEED and will complete the same within **45** consecutive calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.
4. The CONTRACTOR agrees to perform all the work described in the CONTRACT DOCUMENTS and comply with the terms therein for the amount of \$ _____ as shown in the Bid schedule.
5. The CONTRACTOR agrees the sum of 5% of progress pay estimates will be retained until final acceptance of the PROJECT further the sum of 2% of the total PROJECT will be retained for a period of ninety days from final acceptance of the work.
6. The term "CONTRACT DOCUMENTS" means and includes the following:
 - Invitation to Bid
 - Information to Bidders
 - Bid Proposal
 - Bid Bond
 - Proposed Subcontractors
 - Statement of Experience
 - Qualification Statement
 - Contract Agreement
 - Form of Payment Bond
 - Form of Performance Bond
 - General Conditions
 - Special Conditions

- Technical Specifications
- Drawings prepared by CLA Engineers, Inc.
- Specifications prepared by CLA Engineers, Inc.
- Addenda:
 - No. _____, dated _____
 - No. _____, dated _____
 - No. _____, dated _____
 - No. _____, dated _____

7. The OWNER will pay the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.

8. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns. IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in (3 copies) each which shall be deemed an original on the date first above written.

OWNER: _____

CORPORATE SEAL:

BY _____
 (Title)

ATTEST _____

CONTRACTOR: _____

CORPORATE SEAL:

BY _____
 (Title)

ATTEST _____

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____
(Name of Contractor)

_____ a _____
(Corporation, Partnership, or Individual)

hereinafter called "Principal" and _____
(Surety)

of, _____ State of _____ hereinafter called the

"Surety", are held and firmly bound unto The Town Of Montville, hereinafter
(Owner)

called "Owner", in the penal sum of _____ Dollars
(\$_____) in lawful money of the United States, for the payment made, we
bind ourselves, and successors, jointly presents of which sum well and truly to be our heirs,
executors, administrators and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered
into a certain contract with the Owner, dated the _____ day of _____, 20_, a copy
of which is hereto attached and made a part hereof for the construction of:

_____ Moxley Road Bridge Deck Replacement _____

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties,
all the undertakings, covenants, terms, conditions, and agreements of said contract during the
original term thereof, and any extensions thereof which may be granted by the Owner, with or
without notice to the Surety, and if he shall satisfy all claims and demands incurred under such
contract, and shall fully indemnify and save harmless the Owner from all costs and damages
which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all
outlay and expense which the Owner may incur in making good any default, then this obligation
shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder of the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work of to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary thereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in six (6) counterparts, each one of which shall be deemed an original, this the ____ day of ____, 20__.

ATTEST:

(Principal) Secretary
(SEAL)

Witness as to Principal

(Address-Zip Code)

Principal
By _____ (s)

(Address-Zip Code)

Surety

ATTEST:

(Surety) Secretary
(SEAL)

Witness as to Surety

(Address-Zip Code)

By _____
Attorney-in-Fact

(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute bond.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____
(Name of Contractor)

_____ a _____
(Corporation, Partnership, or Individual)

hereinafter called "Principal" and _____
(Surety)

of, _____ State of _____ hereinafter called

the "Surety", are held and firmly bound unto The Town of Montville
(Owner)

hereinafter called "Owner", in the penal sum of _____ Dollars
(\$ _____) in lawful money of the United States, for the payment made, we
bind ourselves, and successors, jointly presents of which sum well and truly to be our heirs,
executors, administrators and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered
into a certain contract with the Owner, dated the _____ day of _____, 20_ , a copy
of which is hereto attached and made a part hereof for the construction of:

_____ Moxley Road Bridge Deck Replacement _____

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties,
all the undertakings, covenants, terms, conditions, and agreements of said contract during the
original term thereof, and any extensions thereof which may be granted by the Owner, with or
without notice to the Surety, and if he shall satisfy all claims and demands incurred under such
contract, and shall fully indemnify and save harmless the Owner from all costs and damages
which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all
outlay and expense which the Owner may incur in making good any default, then this obligation
shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder of the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work of to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in six (6) counterparts, each one of which shall be deemed an original, this the ____ day of _____, 20__.

ATTEST:

(Principal) Secretary
(SEAL)

Witness as to Principal

(Address-Zip Code)

Principal
By _____ (s)

(Address-Zip Code)

Surety

ATTEST:

(Surety) Secretary
(SEAL)

Witness as to Surety

(Address-Zip Code)

By _____
Attorney-in-Fact

(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute bond.

GENERAL CONDITIONS

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ARTICLE 1 CONTRACT AND CONTRACT DOCUMENTS

The drawings, plans, specifications, and addenda enumerated in Article 1 of the General Conditions, Special Conditions, the Advertisement for Bid, the Information for Bidders, and the Bid Proposal as accepted by the OWNER, shall be binding upon the parties to this Agreement as if fully set forth therein. Whenever the term Contract Documents is used it shall mean and include the drawings, specifications and addenda. The OWNER shall interpret his own requirements. In case of conflict or inconsistency between the provisions of the signed portions of the Contract Documents and those of the specifications, the provisions of the signed portions shall govern.

ARTICLE 2 DEFINITIONS

The following terms as used in this contract are defined as follows:

- A. Owner - The Owner of the project is the Town of Montville.
- B. Contractor - The term "Contractor" as hereinafter used shall refer to the General Contractor for this job.
- C. Owner's Representative - The term "Owner's Representative" as hereinafter used shall refer to any engineer or inspector whom the Owner may designate to inspect, test or oversee the work herein specified.
- D. Contract - Wherever the term "contract" is used in the General Conditions, it shall mean the actual bid form, specifications, Plans, General Conditions, Special Conditions and formal purchase order issued to successful bidder.

The rights and obligations of the CONTRACTOR under this contract shall include, but not be limited to the following:

ARTICLE 3 REPRESENTATIONS OF THE CONTRACTOR

The Contractor represents and warrants:

- a. That he is financially solvent and that he is experienced and competent to perform the type of work required under this contract and that he is able to furnish the plant, materials, supplies, or equipment that may be necessary to perform the work as specified.
- b. That he is familiar with all Federal, State and municipal laws, ordinances, orders, and regulations which may in any way effect the project work, or the employment of persons thereon, including but not limited to any special acts relating to the work or to the project of which it is a part.

- c. That such temporary and permanent work required by the contract documents to be done by him will be satisfactorily constructed and can be used for the purpose for which it was intended and that such construction will not injure any person or damage property.
- d. That he has carefully examined the drawings, specifications, and addenda, if any, and the site of the work and that from his own investigations, he has satisfied himself as to the nature and location of the work, the character of equipment and other facilities needed for the performance of the work, the general and local conditions, and all other items that may affect the work.
- e. That he is aware of the hazards involved in the work and the danger to life and property both evident and inherent and that he will conduct the work in a careful and safe manner without-injury to persons or property.

ARTICLE 4 CONTRACT SECURITY

The Contractor shall furnish a Performance Bond and Payment Bond in amounts equal to at least one hundred percent (100%) of the contract price as security for the faithful performance of the Contract, and for the payment of all persons performing labor on the project under this contract and furnishing materials, equipment and all other incidentals in connection with this contract. The Surety on such a bond shall be a from securities listed on the most recent IRS Circular 570, satisfactory to the Owner and the cost of the same shall be paid by the Contractor. prior to the starting of any work, the bonds must be approved by the Owner and be in the Owner's hands. The bonds must be from a surety company licensed and approved to do business in the State of Connecticut.

ARTICLE 5 CONTRACTOR'S OBLIGATIONS

The Contractor shall perform all work in a good workmanlike manner, and in accordance with the plans and specifications and any supplements thereto, and according to any directions or orders given by the Owner unless otherwise stipulated. He shall furnish all supplies, materials, except those supplies and materials furnished by the Owner, facilities, equipment, tools and anything else necessary or proper to perform and complete the work required by this contract. He shall furnish, erect, maintain, and remove any construction plant or temporary work as may be required. He alone shall be responsible for the safety, efficiency-, and adequacy of his plant, appliances, and methods and for any damage which may result from their failure or their improper construction maintenance, or operation. The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the contract and specifications and shall do, carry on, and complete the entire work to the satisfaction of the Owner.

The Contractor shall be solely responsible for all the work and shall provide all precautionary measures necessary for preventing injury to persons or damage to property. All injury or damage

of whatever nature resulting from the work or resulting to persons, property, or the work during its progress, from whatever cause, shall be the responsibility of the Contractor.

The Contractor shall hold the Owner and Engineer, or their duly authorized agents, harmless and defend and indemnify them against damages or claims for damages due to injuries to persons or property arising out of the execution of the project work, and for damages to materials furnished for the work, for infringement of inventions, patents, and patent rights used in doing the work, and for any act, omission, or instance of neglect by the Contractor, his agents, employees, or subcontractors.

The Contractor shall bear all losses resulting to him, including but not limited to losses sustained on account of the character, quality, or quantity of any part of the work, or all parts of the work, or because the nature of the conditions in or on the project site are different from what was estimated or indicted, or on account of the weather, elements, or other causes.

ARTICLE 6 SUPERINTENDENCE BY THE CONTRACTOR

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof and shall cooperate with the Owner in every possible way.

At the site of the work, the Contractor shall, at all times, employ a suitably experienced construction superintendent who shall have full authority to act for the Contractor. It is understood that the employment of such representative shall be acceptable to the Owner and shall be such a person as can be continued in the capacity for the duration of the contract, unless he ceases to be on the Contractor's payroll.

ARTICLE 7 CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

Within five (5) days after the date of "Notice to Proceed" the Contractor shall deliver to the Owner an estimated construction progress schedule in a form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the contract documents and the anticipated amount of each monthly payment that will become due the Contractor in accordance with the progress schedule. The Contractor shall also furnish the Owner: 1. a detailed estimate, giving a complete breakdown of the contract price; and 2. periodic itemized estimates of the work done for the purpose of making partial payments thereon.

ARTICLE 8 USE OF PREMISES AND REMOVAL OF DEBRIS

The Contractor undertakes, at his own expense:

- a. To take every precaution against injuries to persons or damage to property.

- b. To store his apparatus, materials, equipment, and supplies in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or any others.
- c. To place upon the work or any part thereof, only such loads as are consistent with the safety of that portion of the work.
- d. To clean frequently all refuse, scrap, and debris caused by his operations, and to dispose of same away from the site, so that the work site is maintained in a neat, workmanlike appearance.
- e. To effect all cutting, fitting, or patching of his work required to make the same conform to the drawings and specifications, and except with the consent of the Owner, not to cut or otherwise alter the work of any other contractor.
- f. Before final payment, to remove all surplus materials false work, temporary structures, including foundations thereof, plants of any description, and debris of any nature resulting from his operations and to dispose of same away from the site, so that the site is left in a neat, orderly, and workmanlike condition.

ARTICLE 9 GENERAL WARRANTY

Neither the final certificate of payment nor any provision in the contract documents nor partial or entire occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the contract documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty workmanship or materials.

The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of one year (1) from the date of final acceptance of the work, unless a longer period is specified by the Owner. The Owner will give final notice of observed defects with reasonable promptness.

ARTICLE 10 PROTECTION OF WORK AND PROPERTY - EMERGENCY

- a. The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this contract. He shall at all times safely guard and protect his own work, and that of adjacent property, from damage. The Contractor shall replace or make good any such damage, loss, or injury at no additional expense to the Owner.
- b. In case of an emergency which threatens loss or injury of property, and/or safety of life the Contractor will be allowed to act, without previous instructions from the Owner, in a diligent manner. He shall notify the Owner immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Owner for approval.

- c. Where the Contractor has not taken action but has notified the Owner of an emergency threatening injury to persons or damage to the work or to any adjoining property, he shall act as instructed or authorized by the Owner.
- d. The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner provided elsewhere in the contract documents.

ARTICLE 11 WEATHER CONDITIONS

In the event of temporary suspension of the work or during inclement weather, or whenever the Owner shall direct, the Contractor shall, and shall cause his subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Owner, any work or materials are damaged or injured by reason of failure to protect them on the part of the Contractor, or any of his subcontractors, or otherwise damaged or injured by the Contractor's negligence, or are found to be defective, such materials or work shall be removed and replaced at the expense of the Contractor.

ARTICLE 12 THE OWNER'S AUTHORITY

The Owner shall give all orders and directions contemplated under this contract and specifications relative to the execution of the work. The Owner shall determine the amount, quality, acceptability, and fitness of the several kinds of work and materials which are to be paid for under this contract and shall decide all questions which may arise in relation to said work and the construction thereof. The Owner's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any question shall arise between the parties hereto relative to said contract or specifications, the determination or decision of the Owner shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this contract affected by such questions. The Owner shall decide the meaning and intent of any portion of the specifications and of any plans or drawings where the same may be found to be obscure or be in dispute. Any differences or conflicts in regard to their work which may arise between the Contractor and other contractors performing work for the Owner, shall be adjusted and determined by the Owner.

ARTICLE 13 ALL WORK SUBJECT TO CONTROL BY THE OWNER

- a. In the performance of the work, the Contractor shall abide by all orders, directions, and requirements of the Owner, and shall perform all work to the satisfaction of the Owner, and at such times and places, by such methods, and in such manner and sequence as he may require. The Owner shall determine the amounts, quality, acceptability, and fitness of all parts of the work. The Owner shall interpret the drawings, specifications, contract documents, all other documents, and the extra work orders. The Owner shall also decide all other questions in connection with the work. The Contractor shall employ no plant, equipment, materials, methods or men to which the Owner objects and shall remove no plant, materials, or equipment or other

facilities from the work site without the Owner's permission. Upon request the Owner will confirm in writing any oral order, direction, requirement, or determination.

- b. Inspectors shall be authorized to inspect all work done and materials furnished. Such inspection may extend to all parts of the work and to the preparation or manufacture of the materials to be used. The presence or absence of an inspector shall not relieve the Contractor from any requirements of the contract. In case of any dispute arising between the Contractor and the inspector as to materials furnished or the manner in which the work is being executed, the inspector shall have the authority to reject material or suspend work until the question has been decided by the Owner. The inspector shall not be authorized to revoke, alter, enlarge, relax, or release any requirement of these specifications, nor to approve or accept any portion of the work, nor to issue instructions contrary to the drawings and specifications. The inspector shall in no case act as foreman or perform other duties for the Contractor, or interfere with the management of the work by the latter. Any advice which the inspector may give the Contractor shall in no way be construed as binding the Owner, or the Engineers in any way, nor releasing the Contractor from the fulfillment of the terms of the contract.

ARTICLE 14 THE OWNER'S CONTROL NOT LIMITED

The enumeration in this contract of particular instances in which the opinion, judgment, discretion, or determination of the Owner shall control or in which work shall be performed to his satisfaction or subject to his approval or inspection, shall not imply that only matters similar to those enumerated shall be so governed and performed, but without exception all the work shall be so governed and performed.

ARTICLE 15 RIGHT OF THE OWNER TO TERMINATE THE CONTRACT

In the event that any of the provisions of this contract are violated by the Contractor, or any of his subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate the contract, such notice to contain the reasons for such intention to terminate the contract. If within ten days (10) such violation or delay shall not cease and satisfactory arrangement of correction made, the contract shall, at the expiration of the ten days, cease and immediately serve notice thereof upon the Surety and the Contractor, and the Surety shall have the power to take over and perform the contract, provided, however, that if the Surety does not commence performing thereof within ten days (10) from the date of mailing to such Surety of Notice of termination, the Owner may take over the work and prosecute the same to completion by contract or force account at the expense of the Contractor, and the Contractor and his Surety shall be liable to the Owner for any excess cost occasioned the Owner thereby.

ARTICLE 16 INTERPRETATION OF THE DRAWINGS AND SPECIFICATIONS

Except for the Contractor's executed set, all drawings and specifications are the property of the Owner. The Owner will furnish the Contractor, without charge, three (3) sets of the drawings and

specifications. Additional sets will be furnished upon request, at actual cost of reproduction. Such drawings and specifications are not to be used on other work and those sets in usable condition shall be returned to the Owner upon request at the completion or cessation of the work or termination of the contract.

The Contractor shall keep one (1) copy of the drawings and specifications at the work site at all times and shall give the Owner and their representatives access thereto. Anything on the drawings and not mentioned in the specifications, or anything in the specifications that is not shown on the drawings shall have the same force and effect as if mentioned in both. In case of conflict or inconsistency between the drawings and the specifications, the specifications shall take precedence. Any discrepancy in the figures and the drawings shall be immediately submitted to the Owner for decision and the decision of the Owner shall be final. In case of differences between small and large scale drawings, the larger scale drawings shall take precedence .

ARTICLE 17 INSPECTION

The authorized representatives and agents of the Owner shall be permitted to inspect all work materials, payrolls, records of personnel, invoices for materials, and other relevant data and records.

ARTICLE 18 REPORTS, RECORDS AND DATA

The Contractor and each of his subcontractors, shall submit to the Owner such schedules of quantities, and costs, progress schedules, payrolls, reports, estimates, records, and other data as the Owner may request concerning the work Performed or to be performed under this contract.

ARTICLE 19 SUBCONTRACTORS

The Contractors may utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors.

The Contractor shall not award work to any subcontractor other than those listed in his bid, without the prior written approval of the Owner, which approval will not be given until the Contractor submits a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the Owner may require.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work, to bind the subcontractors to the contract documents insofar as applicable to the subcontract work and to give the Contractor under any provisions of the contract documents.

Nothing contained in this contract shall create any contractual relationship between the Owner and any subcontractor.

ARTICLE 20 ASSIGNMENTS

The Contractor shall not assign the whole or any part of this contract or any monies due or to become due hereunder without the written consent of the Owner. In case the Contractor assigns all or part of any monies due or to become due under this contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to the Contractor shall be subject to prior claims of all persons, firms, or corporations for services rendered or materials supplied for the performance of the work called for in this contract.

ARTICLE 21 MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect on the part of the Contractor, any other contractor or any subcontractor shall suffer loss or damage to the work, the Contractor agrees to settle with such other contractor or subcontractor by agreement or arbitration. If such other contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been sustained, the Owner shall notify the Contractor who shall indemnify and save harmless the Owner against any such claim.

ARTICLE 22 SAFETY AND HEALTH REGULATIONS

These contract documents, and the joint and several phases of construction hereby contemplated, are to be governed, at all times, by the applicable provisions of the Federal law(s) including but not limited to the following:

1. Williams-Steiger Occupational Safety and Health Act, 1970, Public Law 92-596;
2. Part 1910 of the Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.
3. This project is subject to all of the Safety and Health Regulations (CFR 29, Part 1926 and all subsequent amendments) as promulgated by the U.S. Department of Labor on June 24, 1974.

In the event of any inconsistencies between the above laws and regulations and the provisions of these contract documents, the laws and regulations shall prevail.

ARTICLE 23 ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

The Contractor will be furnished additional instructions and detail drawings as necessary to carry out the work included in the contract. The additional drawings and instructions thus supplied to the Contractor will coordinate with the contract documents and will be so prepared that they can be reasonably interpreted as part thereof. The Contractor shall carry out the work in accordance with the additional detail drawings and instructions. The Contractor and the Owner will prepare jointly a schedule fixing the respective dates for the submission of shop drawings, the beginning

of manufacture, testing, and installation of materials, supplies, and equipment, and the completion of the various parts of the work; each schedule to be subject to change from time to time in accordance with the progress of the work.

ARTICLE 24 MATERIALS, SERVICES AND FACILITIES

It is understood that, except as otherwise specifically stated in the contract documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever, necessary to protect, execute, complete, and deliver the work within the specified time.

It is necessary for some work to be performed after regular hours, on Saturdays, Sundays, or legal holidays as designated by the Owner. Any work necessary to be performed after regular hours, on Saturdays, Sundays, or legal holidays shall be performed by the Contractor without additional expense to the Owner.

ARTICLE 25 CONTRACTOR'S TITLE TO MATERIALS

No material, supplies, or equipment for the work shall be purchased by the Contractor or any subcontractor, subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor warrants good title to all material, supplies, and equipment installed or incorporated in the work and further warrants upon completion of all work, to deliver the premises, together with all improvements and appurtenances constructed or placed thereon by him, to the Owner free from any claims, liens, or charges, or encumbrances and further agrees that neither he 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 the premises or any improvement or appurtenance thereon.

ARTICLE 26 INSPECTION AND TESTING OF MATERIALS

All materials and equipment used in the construction of the project shall be new and of current manufacture. Testing will be done in accordance with accepted standards and as directed by the Owner; the laboratory or inspection agency shall be selected by the Owner. Except as specified elsewhere in these specifications, the Owner will pay for laboratory inspection.

All materials and workmanship shall be subject to inspection, examination, and testing by the Owner at any and all times during manufacture and/or construction and at any and all places where such manufacture and or construction is carried on, to establish conformance with these specifications and suitability for uses intended. Without additional charge the Contractor shall furnish promptly all reasonable facilities, labor, and materials necessary to make tests so required safe and convenient; he shall also furnish any mill, factory, or other such tests based on the Standards and Tentative Standards of the American Society for Testing Materials as required by the Owner.

ARTICLE 27 CONTRACTOR'S BOND AND INSURANCE

Each Bidder must be able to enter into contract, covering the work, within 10 days from the acceptance of his proposal.

The successful bidder must, within 10 days from the date of acceptance of his proposal, furnish and file with the Owner, a corporate performance bond and payment bond or equivalent security, guaranteeing, completion of the job in accordance with the proposal. This bond or equivalent security shall be for 100% of the amount of the contract. The cost of a bond is to be figured as part of the cost of the job. The Surety Company must be one licensed to do business in the State of Connecticut, from securities listed on the most recent IRS Circular 570 and must be satisfactory to the Owner.

The successful bidder must, within 10 days from the date of acceptance of his proposal, file with the Owner, Workmen's Compensation, Comprehensive General Liability, Comprehensive Auto Liability, Certificates of Insurance satisfactory to the Owner, in compliance with the law, and in the following form and amount:

Liability Insurance shall include all major divisions of coverage and be on a comprehensive basis including:

1. Premises Operations, including X, C and U coverages as applicable.
2. Independent Contractor' Protective.
3. Products and Completed Operations.
4. Personal Injury Liability with Employment Exclusion deleted.
5. Contractual.
6. Owned, non-owned and hired motor vehicles.
7. Broad Form Property Damage including Completed Operations.

Workers' Compensation

State:	Statutory
Voluntary Compensation (by any exempt entities)	Same as State Workers' Compensation
Employer's Liability	\$1,000,000 Each Accident \$1,000,000 Disease, Policy Limit \$1,000,000 Disease, Each Employee

General Liability (Including Premises-Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage):

- (a) Bodily Injury:
 - \$1,000,000 Each Occurrence
 - \$3,000,000 Aggregate

 - (b) Property Damage:
 - \$1,000,000 Each Occurrence
 - \$3,000,000 Aggregate

 - (c) Property Damage Liability Insurance shall include coverage for the following hazards:

 X X (Explosion), X C (Collapse), X U (Underground)

 - (d) Contractual Liability (Hold Harmless Coverage) or included in Commercial General Liability Coverage:
 - (1) Bodily Injury:
 - \$1,000,000 Each Occurrence

 - (2) Property Damage:
 - \$1,000,000 Each Occurrence
 - \$3,000,000 Aggregate

 - (e) Personal Injury, (with Employment Exclusion deleted if applicable):
 - \$1,000,000 Aggregate

 - (f) If General Liability policy includes a General Aggregate, such General Aggregate shall not be less than \$3,000,000. Policy shall be endorsed to have General Aggregate apply to this Project only.
3. Umbrella Excess Liability or \$5,000,000 excess which would not require a retention.
- \$5,000,000 Over Primary Insurance
 - \$10,000 Retention

4. Comprehensive Automobile Liability (owned, non-owned, hired):

(a) Bodily Injury: \$1,000,000 combined single limit.

Fire and Special Extended Coverage in Builder's Risk policy in the amount of 100% of insurable completed value.

The Contractor shall purchase and maintain a separate Owner's Protective Liability policy, issued to Owner at the expense of Contractor, including Owner and Engineer as named insured. This insurance shall provide coverage for not less than the following amounts:

- | | | |
|-----|--|---|
| (1) | Bodily Injury | \$1,000,000 Each Occurrence
\$1,000,000 Annual Aggregate |
| (2) | Property Damage including
Explosion Collapse and Under-
ground coverage. | \$1,000,000 Each Occurrence
\$1,000,000 Annual Aggregate |

The Contractor shall purchase and maintain, until final payment, property insurance upon the Work at the site in an amount equal to the total bid price for the completed construction. This insurance shall include the interests of Owner, Contractor, Subcontractors, Engineer and Engineer's consultants in the Work, shall insure against the perils of fire and extended coverage, shall include "all risk" insurance for physical loss and damage including theft, vandalism, and malicious mischief, collapse and water damage, and shall include damages, losses and expenses rising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals). This insurance shall be provided on the completed value form. If not covered under the "all risk" insurance or otherwise provided in these General Conditions, Contractor shall purchase and maintain similar property insurance on portion of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment.

The Town of Montville (Owner) and CLA Engineers, Inc. (Engineer) shall be named as additional insured on the above coverages.

If subcontractors are employed, same limits as named above shall apply and the certificate of insurance must be filed with the Owner.

No contract shall be binding upon the Owner until such bond shall have been given and until Comprehensive General Liability, Comprehensive General Auto Liability and Workmen's Compensation policy certificates indicated-above have been filed with the Owner and approved as to form and sufficiency by the Owner. The insurance policy certificate provided by the successful bidder and all subcontractors shall carry a statement by the insurance company that the Owner will receive at least ten (10) days notice prior to cancellation of any portion of the

policies or any modifications in the insurance coverage that may affect the Owner's interest. The cost of all insurance coverage shall be included in the price of the contract cost.

The insurance company must be licensed to do business in the State of Connecticut and must be satisfactory to the Owner. THE OWNER MUST BE NAMED AS ADDITIONAL INSURED.

ARTICLE 28 REPRESENTATIONS OF CONTRACTOR

The Contractor represents and warrants that he is financially solvent and that he is experienced and competent to perform the type of work outlined in the specifications and drawings and that he has carefully examined the drawings and specifications along with addendum (or addenda), if any, and the site of the work, and that from his own investigations, he has satisfied himself as to the nature and location of the work, the character, -quality and quantity of surface and sub-surface materials likely to be encountered, the character of equipment and other facilities needed for the performance of the work, the general and local conditions and all other materials which may in any way affect the work or its performance and that he is aware of the hazards involved in the work and the danger to life and property both evident and inherent and that he will conduct the work in a careful and safe manner without injury to persons or property. He further warrants that any injury to persons or property resulting from the work shall be the sole responsibility of the Contractor.

ARTICLE 29 INDEMNITY OF OWNER BY CONTRACTOR

The Contractor shall indemnify and save harmless the Owner against any and all damages to property or injuries to or death of any person or persons, including property and employees or agents of the Owner, and shall defend, indemnify and save harmless the Owner from any and all claims, demands, suits, actions or proceedings of any kind or nature including workmen's compensation claims, of or by anyone whomsoever, in any way resulting from or arising out of the operations in connection herewith, including operations of subcontractors and acts or omissions of employees or agents of Contractor or his subcontractors. Insurance coverage specified herein and in any special conditions constitutes the minimum requirements and said requirements shall in no way lessen or limit the liability of Contractor under the terms of the contract. The Contractor shall procure and maintain, at his own cost and expense, any additional kinds and amounts of insurance which, in his own judgment, may be necessary for his proper protection in the prosecution of the work. The Contractor agrees to well and truly save and indemnify and keep harmless, the Owner against all liability, judgments, costs and expenses which may in any wise come against the Owner or which may in any wise result from carelessness, omission or neglect of the Contractor or his agents, employees or workmen in any way arising or resulting from the operation in connection herewith, including all liability to the Owner resulting from the failure to erect or maintain sufficient railing or fence as required by Section 13a111, Connecticut General Statutes, and against all liability from defects claimed to be in violation of Section 13a-149, Connecticut General Statutes. Any additional cost of this save harmless insurance coverage shall be included in the price of the contract.

ARTICLE 30 TERMINATION FOR CONVENIENCE

The Owner hereby reserves the right to terminate the performance of this contract for any reason the Owner deems appropriate. The Owner will pay all actual costs to date of termination, however, the Contractor shall not be entitled to any profit on furnished or unearned work.

ARTICLE 31 COMPETENT HELP TO BE EMPLOYED

The Contractor shall employ experienced foreman, craftsmen and other workmen competent in the work in which they are to be engaged. All work shall be accomplished by able, skilled and competent personnel. If any person employed on the work by the Contractor shall appear to be incompetent or unreliable in any way, he shall be discharged immediately upon the request of the Owner and shall not -again be employed on the work.

ARTICLE 32 SPIRITUOUS LIQUORS AND DRUGS

The Contractor shall neither permit nor suffer the introduction or use of -spirituous liquors upon the work embraced in this contract. Dope or drugs of any kind unless ordered by a physician are prohibited. Any employee found using spirituous liquors, dope or drugs of any kind unless ordered by a physician shall be immediately discharged.

ARTICLE 33 PROHIBITING EMPLOYEE DISCRIMINATION BY CONTRACTOR

The Contractor agrees and warrants that in the performance of this contract he will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religion, national origin, sex, or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved in any manner prohibited by the laws of the United States or of the State of Connecticut, and further agrees to provide the commission on human rights and opportunities with such information requested by the commission concerning the employment practices and procedures of the Contractor as relate to the provisions of this section.

ARTICLE 34 CLAIMS FOR EXTRA WORK

After the contract has been signed, no claims for extra work will be honored. unless authorized in writing by the Owner.

ARTICLE 35 WORK CHANGES

The Owner may make changes in the scope of the work required to be performed by the Contractor under the Contract by making additions thereto, or by omitting work therefrom, without invalidating the Contract, and without relieving or releasing the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or

releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.

Except for the purpose of affording protection against any emergency endangering life or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the owner authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract price will be valid unless so ordered. Upon request the Contractor shall supply the Owner with a detailed proposal for the changes showing quantities of, and unit prices for his work and that of any subcontractor involved. No such change order shall be considered, however, unless approved by the Owner and their duly authorized representatives prior to its issuance. Upon receipt of the written order the Contractor shall proceed with the work as and when directed. The amount of compensation to be paid to the Contract for extra or additional work so ordered shall be determined as follows:

- (1) By such applicable Unit Price, if any, as set forth in the Agreement, or
- (2) If no such Unit Prices are so set forth, or if the total net change increases or decreases the total Contract price more than 25 percent (25%) then by a Lump Sum mutually agreed upon by the Owner and the Contractor, and establish as follows:

For work to be performed under a Lump Sum agreement the Contractor may apply a 15% allowance for overhead and profit against the net cost of work actually to be performed by him except that in the event the change in work to be performed by him results in a net omission then no percentage for overhead and profit shall be allowed.

The Contractor is permitted a 5% allowance to be applied against the net cost to a subcontractor for work actually performed by the subcontractor, but on any change involving more than one subcontractor, their net costs and/or net omission shall be combined as one before consideration is given to the application of the 5% for the Contractor's overhead and profit, and, in the event the Contractor shows a net omission for the changes as it affects the work actually to be performed by him, he is permitted only the 5% applied to the amount (if any) by which the net cost to the subcontractor exceeds the net omission by the Contractor.

For work to be performed by a subcontractor the cost to the Owner may include the net cost to the subcontractor plus an allowance of an amount not to exceed 15% of the net cost for the subcontractor's overhead and profit, except that in the event that the change in work results in a net omission for the subcontractor there shall be no application of the 15% overhead and profit.

Net cost to the Contractor and/or subcontractor shall be that defined in sub-section (3) of this article, but in every case taxes imposed by law upon labor employed at the site shall be excluded; and all credits (which in the case of the Contractor shall include net omissions by the subcontractor) shall be deducted before the percentage can be applied.

For the purposes of applying the provisions of the article, the Owner will not recognize other than a direct subcontractor of the Contractor nor permit the aggregate allowance to exceed 20% as applied above, to the net cost of work performed by any subcontractor.

- (3) If no such unit prices are set forth and if the parties cannot agree upon a lump sum, then the Owner may at his option either: 1) order the work to be done and compensated for in the following manner: by the actual net cost in money to the Contractor of the materials, the wages of applied labor, insurance, taxes imposed by law on labor employed on the work, plus such rental for equipment (other than tools) required and approved for such additional work. After excluding taxes imposed by law upon labor employed on the work, the Contractor shall receive 15% of the actual net cost outlined above as compensation for all other items of profit and costs or expenses including administration, overhead, superintendent, materials used in temporary structures, allowances (including provision for overhead and profit) made by the Contractor to subcontractors, additional premiums upon performance bond of the Contractor and the use of small tools; or (2) the Owner may order that item or portion of work omitted without invalidating any of the terms thereof, and there shall be deducted from the contract price the value as estimated by the Engineer of the labor and material omitted from the contract, if any be omitted.

ARTICLE 36 OWNER'S RIGHT TO DO WORK

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this contract, the Owner, after five (5) days written notice to the Contractor may, without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment, then or thereafter due the Contractor.

ARTICLE 37 PAYMENTS

Payment for the work will be made when the work outlined in the specifications is completed or in accordance with the terms stated herein. Invoices shall be prepared in prescribed form by the Contractor and shall be submitted to the Owner's Superintendent in triplicate for checking and certifications.

No payment or compensation of any kind shall be made to the Contractor for damages because of hindrance or delay from any cause in the progress of work. whether such hindrance or delays be avoidable or unavoidable.

ARTICLE 38 PAYMENT TO SUB-CONTRACTOR

The Owner assumes no obligation to pay to or to see to the payment of any sum to any sub-contractor.

ARTICLE 39 WORK IN INCLEMENT WEATHER

The Owner or the Owner's Superintendent will determine when conditions are unfavorable for work and may order the work or any portion of it suspended whenever, in his opinion the conditions are not such as will insure first class work. In general, work shall be prosecuted throughout the year and the Contractor will be expected to keep work going and employment of labor as continuous as possible. However, the Contractor shall, and shall cause his subcontractors to protect carefully his and their work against damage or injury from the weather. If this is not done to the Owner's satisfaction and any damage to the work occurs, the work shall be removed and replaced at the expense of the Contractor.

ARTICLE 40 POWER AND WATER

Should the Contractor require electric power and/or water, he shall make necessary arrangements with the Owner for securing it and bear any expense involved, unless expressly provided for otherwise in the specifications.

ARTICLE 41 TOILET ACCOMMODATIONS

The Contractor shall provide necessary sanitary toilet accommodations for the workmen.

ARTICLE 42 LIENS

The final payment for the work will not be made until the Owner is satisfied that no liens have, or can be placed for material or labor on this work. If required by the Owner, waivers of liens may be required. If the Contractor, or any subcontractor refuses to furnish a release or waiver of liens, they may furnish a bond satisfactory to the Owner to indemnify the Owner against any liens.

ARTICLE 43 PROGRESS PAYMENTS

The CONTRACTOR may submit periodically, but not more than once each month, a Request for Payment for work done. The CONTRACTOR shall furnish the OWNER all reasonable facilities required for obtaining the necessary information relative to the progress and execution of the work.

Within fifteen (15) days of submission of any Request for Payment by the CONTRACTOR, the OWNER shall:

- a. Approve the Request for Payment as submitted, or
- b. Approve such other amount as he shall decide is due the CONTRACTOR, informing and CONTRACTOR in writing of his reasons for approving the amended amount, or

- c. Withhold the Request for Payment, informing the CONTRACTOR in writing of his reasons for withholding it.

Within thirty (30) days from the date of approval of the Request for Payment the OWNER will:

- a. Pay the Request for Payment as approved less a five percent (5%) retainage, until substantial completion of the project, at which time the retainage will be reduced to two percent (2%) until final completion.
- b. Withhold payment in whole or in part on an approved Request for Payment to the extent necessary to protect himself from loss on account of any of the following causes discovered provided he informs the CONTRACTOR in writing of his reasons for withholding payment in whole or in part:
 1. Defective work.
 2. Evidence indicating the probable filing of claims by other parties against the CONTRACTOR.
 3. Failure of the CONTRACTOR to make payments to Subcontractors, material suppliers or labor.
 4. Damage to another Contractor.

ARTICLE 44 GENERAL GUARANTEE

The Contractor shall guarantee his work for a period of one (1) year after the date of the Owner's Superintendent's final inspection and acceptance as evidenced by final payment. he shall during that period repair promptly, at his own cost and expense all breaks, failures or defects which develop in his work as a result of faulty material or workmanship. The performance bond shall remain in effect through the guarantee period.

ARTICLE 45 FINAL INSPECTION AND ACCEPTANCE

Upon receipt of written notice from the Contractor that his work is complete, the Owner's Superintendent will make a final inspection and will notify the Contractor of all instances in which the work fails to comply with the specifications as well as any defects which he may discover. The Contractor shall thereupon immediately rebuild, alter and restore the work so that it will comply with the specifications and he shall remedy any defects at his own cost and expense and to the satisfaction of the Owner's Superintendent. Upon the completion of such alterations or repairs the Owner's Superintendent will issue his certificate of final acceptance of work. The issuance of such certificate of final acceptance by the Owner's Superintendent shall not prevent the Owner from recovering damages at any subsequent time for work found to be actually defective.

ARTICLE 46 FINAL PAYMENT

The acceptance by the Contractor of payment for the final invoice, made after the Owner's Superintendent's certification of final acceptance as provided for in these General Conditions, shall release the Owner and every agent of the Owner from all further claims or liabilities to the Contractor of whatever nature, except for the remaining sum or sums of money withheld under the provisions of the contract.

ARTICLE 47 CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT

The approval of the final Request for Payment by the Owner and the making of the final payment by the Owner to the Contractor shall NOT relieve and Contractor of the responsibility for faulty materials or workmanship. The Owner shall promptly give notice to faulty materials or workmanship and the Contractor shall promptly replace any such defects discovered within two years from the date of written acceptance of the work. The Owner shall decide all questions arising under this paragraph.

ARTICLE 48 USE OF "HE", "HIS" OR "HIM"

Whenever in these specifications the masculine words, "he", "his", or "him" are used pertaining to the Contractor, Owner, Engineer or any other entity or person it shall be for brevity, and in no way is any sexual discrimination intended.

INDEX TO TECHNICAL SPECIFICATIONS

<u>SECTION</u>	<u>TITLE</u>
1.00	General Requirements
1.02	Mobilization
2.01	Maintenance & Protection of Traffic
2.03	Work On or Near Private Property
2.04	Dewatering, Control and Diversion of Water
2.08	Clearing and Tree Removal
2.09	Sedimentation & Erosion Control
3.01	General Excavation
3.04	Gravel Fill
3.05	Removal of Pavement
3.07	Processed Gravel Base
3.10	Crushed Stone
3.18	Selective Demolition
4.06	Two Course Bituminous Concrete
4.09	Milling
8.01	Topsoil, Seed, Fertilize and Mulch
8.02	Erosion Control Matting
9.06	Metal Beam Rail and End Anchorages
9.16	Painted Pavement Markings and Signing
12.01	Bridge Deck Replacement
12.02	Cast-In-Place Reinforced Concrete
12.07	Membrane Waterproofing
12.10	Dry Rubble Masonry

SECTION 1.00
GENERAL REQUIREMENTS

1.01 SUMMARY OF WORK

1.01.1 Description:

The work required under this contract includes but is not limited to the following:

1. The replacement of an existing bridge deck with a new cast in place concrete bridge deck and parapet walls.
2. All maintenance and protection of traffic and establishing and maintaining a detour as outlined on the plans.
3. All surface restoration, including the roadway pavement and lawn re-establishment and guiderailing installation.

The contractor shall purchase, provide, and install all materials (temporary and permanent) and equipment necessary to complete the work specified in Contract Documents.

The entire work provided for in these technical specifications and on the Drawings shall be constructed and finished in every respect in a good workmanlike and substantial manner. It is not intended that the Drawings shall show every detail piece of material or equipment, but such parts and pieces as may be in accordance with the best practices and regulatory requirements, even though not shown, shall be furnished and installed. All materials and equipment shall be new unless specifically stated otherwise in these Contract Documents.

1.01.2 Location of Site:

The work site for this contract lies in the along *Moxley Road right-of-way in Montville, Connecticut* as shown on the Contract Drawings.

1.01.3 Work Sequence

Work shall be sequenced so as to allow for uninterrupted flow of existing stream. The contractor shall conform to the sequences of work as outlined in the Construction Drawings and Specifications. Variations or modifications to the work sequences shall be submitted in writing to the Engineer prior to construction, for their approval.

All costs associated with sequencing of work and coordination shall be included in the bid prices for other items.

The Contractor shall submit a construction schedule and modify it from time to time as need arises. The Construction schedule shall be based on the specified completion time. The Construction Schedule shall show the order of work including such significant tasks as construction of lines, connections, backfill and compaction, leakage tests, temporary and permanent restoration. The Construction Schedule shall be submitted for the Owner's approval prior to start of Construction and updated at the time of submitting each request for progress payment.

All completed pipelines, mainlines, service connections, etc. shall be tested as work progresses and in order to ensure this, the Contractor shall arrange for testing equipment to be on site prior to the commencement of pipe laying.

1.01.4 Survey Assistance:

Furnish helpers on an as needed basis to assist the Engineer in checking work.

1.01.5 Project Coordination

The work included in these Contract Documents is to be performed under the responsibility of a single prime contract. The Contractor is responsible for the coordination of all the work, whether performed by its own personnel or its subcontractor, and will maintain such procedures as necessary to keep its workman and suppliers informed of project progress so as not to unnecessarily delay completion of the Work.

1.01.6 Standard Specifications

The Standard Specifications for Roads, Bridges, and Incidental Construction, Supplement Form 818, dated 2022 of the State of Connecticut, as specifically referenced to in the Technical Specifications, shall apply and be considered a part of this specification as though it were bound herein. The Standard Specification is available from:

<https://portal.ct.gov/DOT/IT/ConnDOT-Publications-Manuals>

Department of Transportation
Engineer of Contracts
2800 Berlin Turnpike
P.O. Box 317546
Newington, CT 06131-7546

SECTION 1.02
MOBILIZATION

1.0 DESCRIPTION

This section shall consist of all work associated with the mobilization and demobilization of the contractor's forces and equipment necessary for performing the work required under the contract. It does not include mobilization and demobilization for specific items of work for which payment is provided elsewhere in the contract.

This section shall also include costs for required bonds, insurances and other incidental preconstruction items associated with the startup and completion of the work.

Mobilization shall include the following:

- A. Costs for performance and payment bonds.
- B. Costs for insurances.
- C. Provide, maintain, and remove temporary sanitary facilities.
- D. Establishing and removing temporary staging areas, lay down areas, and offices if needed.
- E. Any and all startup costs, removal costs, transportations costs, or costs or fees associated with mobilizing equipment or personnel to the project site and off the project site at the completion of work.

4.0 MEASUREMENT AND PAYMENT

The cost of this work shall be measured and paid for as a lump sum for "Mobilization" and shall include all fees, materials, equipment, tools, and labor incidental to the completion of this item.

SECTION 2.01
MAINTENANCE AND PROTECTION OF TRAFFIC

1.0 DESCRIPTION

The Contractor shall maintain traffic in the project area to the satisfaction of the Owner. The Contractor must maintain pedestrian and vehicular traffic and permit access to businesses, factories, residences, and intersecting streets. Where detours will be required, the Owner may require the Contractor to submit a proposed detour plan for all portions of the work to the Owner. This submittal shall be made at least seven days prior to commencing construction. It shall be the sole responsibility of the Contractor to keep the Local Agencies (including but not limited to the Police and Fire Departments) prewarned at least 72 hours in advance of changes in traffic patterns due to reduction of pavement widths or closing of streets. The Contractor shall supply, install, maintain, adjust, move, relocate, and store all signs, suitably lighted barricades, traffic cones and traffic delineators, as necessary to carry out the traffic routing plan and maintain vehicular and pedestrian traffic. All of this work shall meet with the requirements of the State of Connecticut, Local Agencies and the Owner.

The Bridge crossing may be closed to through traffic for a maximum duration of 4 weeks. Residents adjacent to the bridge approaches shall be allowed access to their property during construction.

The Contractor shall furnish, light, and maintain such signs as may be directed, or may be necessary for the safe regulation, or convenience of traffic. Said signs shall be adequate for the regulation, safety and convenience of traffic. The Contractor shall provide, erect, and maintain suitably lighted barricades, warning lights, etc., as needed, or as directed in order to keep people, animals and vehicles from excavations, obstacles, etc. Traffic signs shall be designed and installed in accordance with MUTCD where applicable. The Contractor shall be required to employ trafficmen and take other such reasonable means of precautions as the Owner may direct, or as may be needed to prevent damage or injury to persons, vehicles, or other property, and to minimize the inconvenience and danger to the public by his construction operations. He shall arrange his operations to provide access to properties along the street including temporary bridges to driveways, and provide access to fire hydrants, manholes, gate boxes, or other utilities. Whenever any trench obstructs traffic in or to any public street, private driveway, or property entrance, the Contractor shall take such steps as required to maintain necessary traffic and access including temporary bridging if required. The Contractor shall confine his occupancy of public or traveled ways to the smallest space compatible with the efficient and safe performance of the work contemplated by the contract.

Connecticut D.O.T. certified flagmen will be required for all traffic control work on this project in accordance with the State of Connecticut D.O.T. and MUTCD requirements.

The Contractor shall observe and obey all local and state laws, ordinances, regulations and permits in relation to the obstruction of streets and highways, keeping passageways open and protecting traffic where there may be danger from blasting or other construction activities.

Suitable lighted barriers or barricades shall be furnished by the Contractor and put up and maintained at all times during the night or daytime, around all open ditches, trenches, excavations, or other work potentially dangerous to traffic. Such barricades shall be securely supported and braced at least 3 feet high above the ground. Barricades shall be placed on all sides and throughout the entire length and width of all open ditches, trenches, excavations, or other work which must be barred to the general public. Barricades shall be properly painted to the satisfaction of the Owner in order to retain a high degree of visibility to vehicular and pedestrian traffic.

Suitably lighted barricades shall be defined as barricades lit by flashers in accordance with this paragraph or other lighting methods approved by the Owner in lieu thereof. Flashers shall be placed along the entire length of the barricades at an interval no greater than 8 feet, center to center. Flashers shall be power operated, lens directed, enclosed light units which shall provide intermittent light from 70 to 120 flashes per minute, with the period of light emittance occurring not less than 25 percent of each on-off cycle, regardless of temperature. The emitted light shall be yellow in color and the area of light on at least one face of the unit shall be not less than 12 square inches. The discernible light shall be bright enough to be conspicuously visible during the hours of darkness at a minimum distance of 800 feet from the unit under normal atmospheric conditions. For units which beam light in one or more directions, the foregoing specifications shall apply 10 degrees or more to the side and 5 degrees or more above and below the photometric axis.

The Contractor shall furnish and securely fasten flashing units to signs, barricades, and other objects in such numbers and for such lengths of time as are required for the maintenance and protection of traffic, or as the Engineer may order. The flasher shall be in operation during all hours between sunset and sunrise, and during periods of low visibility. The Contractor shall maintain, relocate and operate barricades and flashers throughout the life of the contract. No special payment will be made for barricades or flashers.

Should the Contractor or his employees neglect to set out and maintain barricades or lights, as required in these specifications, the Owner immediately, and without notice, may furnish, install and maintain barricades or lights. The cost thereof shall be borne by the Contractor any may be deducted from any amount due or to become due to the Contractor under this contract.

If the Contractor's operations or occupancy of any public street or highway, or the uneven surfaces over any trenches being maintained by the Contractor shall interfere with the removal or sanding of snow or ice by the public authorities or adjoining land owners, in an ordinary manner with regular highway equipment, the Contractor shall be required to perform such services for the public authorities or adjoining owners without charge. If the Contractor fails to do so, he shall reimburse the said authorities or adjoining owners for any additional cost to them for doing such occasioned by conditions arising from the Contractor's operations, occupancy, or trench surfaces, together

with any damage to the equipment of said parties by those conditions, or claims of any parties for damage or injury or loss by reason of failure to remove snow or ice or to sand icy spots under these conditions.

4.0 MEASUREMENT AND PAYMENT

"Maintenance and Protection of Traffic" will be paid monthly in proportion to the amount of work done as determined by the Owner. Said payments will be a proportionate amount of the Lump Sum Price bid for the Maintenance and Protection of which shall include all costs for furnishing lighted barricades and traffic protection devices and for labor, equipment and services involved in the erecting, maintaining, moving, adjusting, relocating and storing of signs, flashers, lights, barricades, traffic cones, traffic delineators and other devices furnished by the Contractor, as well as the cost of all labor and equipment involved in the maintenance of traffic lanes and detours ordered or included in the approved scheme for maintenance of traffic. Sufficient signing for all approved detours shall be erected to adequately guide traffic around construction.

The use of flagman by the Contractor to control the movements of his own vehicles (owned, rented or contracted for, or those delivering materials and equipment), for the protection of said vehicles, his workmen or other traffic shall not be measured for payment but shall be included in the Lump Sum Price for the Item "Maintenance and Protection of Traffic".

Connecticut D.O.T. certified traffic control flagman required shall be included as part of this lump sum item which price shall include all compensation, insurance, benefits, vehicles and any other cost or liability incidental to the furnishing of the certified flagman ordered.

The Contractor will be required under the Contract Lump Sum Price for "Maintenance and Protection of Traffic" to maintain and protect the traffic throughout the entire duration of the contract. No claim for additional payment due to unusual construction conditions encountered or delay caused by the Contractor or other outside agencies shall be considered.

SECTION 2.03
WORK ON OR NEAR PRIVATE PROPERTY

1.0 DESCRIPTION

The work under this Section includes the protection of private property and the restoration of areas near or on private property.

Every effort shall be made to protect private or public property during construction. All damaged areas shall be replaced in kind by the Contractor at no additional cost to the Owner.

2.0 MATERIALS

All materials not specifically described in other Sections, but required for work included in this Section, shall be new, first quality of their respective kinds, and subject to the approval of the Owner.

3.0 CONSTRUCTION METHODS

All areas affected by the construction outside of the work limits shall be repaired to the complete satisfaction of the Owner. This work shall also include the reinstallation of all mailboxes, signs, and posts that may be affected during construction. Should these items become damaged by the construction, the Contractor shall replace the damaged items at no additional cost to the Owner.

4.0 MEASUREMENT AND PAYMENT

No separate measurement or payment shall be made for this item and all costs in connection there with shall be included in other contract items.

SECTION 2.04
DEWATERING, CONTROL AND DIVERSION OF WATER

1.0 DESCRIPTION

The work covered under this Section includes furnishing all labor, equipment and materials, and performing all operations in connection with the dewatering, control and diversion of water, and all other operations necessary to maintain in a dry condition all excavation and work areas of this Contract.

The Contractor shall be responsible for performing all required dewatering and diversion of water in such a manner as to prevent injury to persons or public health, or damage to existing facilities of the work in progress.

2.0 MATERIALS

The Contractor shall be responsible for providing, maintaining, operating and removing all dewatering, and other facilities, including all pumping and appurtenant equipment, required to maintain in a dry condition the areas in which construction of this Contract is to be conducted. Materials shall be as shown on the Contract Drawings and as follows:

- A. Hay bales and silt fence shall be as called for on the Plans.
- B. Crushed stone as required shall be No. 3 stone in accordance with M.01.02 of the Standard Specifications.
- C. Stone for Riprap shall conform to the requirements of Article M.12.02 of the Standard Specifications.
- D. Geotextile silt bags for pump discharges shall be ACF Heavy Duty Dirtbag® 55 or approved equal.
- E. Sandbags shall be sized by the Contractor and shall be suitable to divert water as needed during construction.

3.0 CONSTRUCTION METHODS

Dewatering and control and diversion of water activities shall conform to the requirements of the State of CT DEEP 2002 Connecticut Guidelines for Soil Erosion and Sediment Control Manual.

A. DEWATERING EXCAVATIONS:

The excavations for work required under this Contract are to some extent below existing ground water levels. The Contractor shall provide, operate and maintain all pumps, drains, well points, screens or any facility necessary for the control, collection and disposal of all surface and subsurface water encountered in the performance of the Contract work. All excavations shall be performed in the dry.

Any damage to existing facilities or new work resulting from the failure of the Contractor to maintain the work areas in a dry condition shall be repaired by the Contractor, as directed by the Owner, at no additional expense to the Owner. Pumping shall be continuous where specified or directed, or as necessary to protect the work and to maintain satisfactory progress.

The Contractor's pumping and dewatering operation shall be carried out in such a manner that no loss of ground will occur. All pipelines or structures not stable against up-lift during construction or prior to completion shall be thoroughly braced or otherwise protected against movement or damage.

Water being disposed of by the pumping and dewatering operations shall be disposed of in such a manner to avoid injury to persons or public or private property, or to the work completed or in progress. Dewatering shall be accomplished by approved methods which have a successful record of dewatering similar excavations and subsurface conditions similar to those expected to be encountered in the work.

B. DIVERSION OF WATER:

The Contractor shall be responsible for providing and maintaining all ditching, grading, sheeting and bracing, pumping and appurtenant work for the temporary diversion of water courses and protection from flooding as necessary to permit the construction in dry conditions.

Upon completion of the Contract work, the Contractor shall remove all temporary measures and restore any disturbed areas to the existing conditions or as called for on the Contract Drawings.

Water shall not be permitted to flow into or through excavations in which work is underway or had been partially completed. Water shall not be allowed to pass through the drop inlet, proposed culvert or downstream channel until all work has been stabilized as called for on the Contract Drawings.

The Contractor shall not restrict or close off the natural flow of water in such a way that ponding or flooding will occur, and shall at all times prevent flooding of public and private property. All damages resulting from flooding or restriction of flows shall be the sole responsibility of the Contractor, at no additional expense to the Owner.

The Contractor shall provide all erosion and sedimentation controls required by the Contract and to carry out his operation by methods acceptable to the applicable local, State or Federal agencies.

Sequencing of work shall be generally as called for on the Contract Drawings and/or as proposed by the Contractor as part of these technical specifications.

The Contractor shall inspect and monitor the work as called for on the Contract Drawings.

4.0 MEASUREMENT AND PAYMENT

The cost of this work shall be measured and paid for as a lump sum for "Dewatering, Control, and Diversion of Water" and shall include all materials, equipment, tools, and labor incidental to the completion of this item.

"Dewatering, Control, and Diversion of Water " will be paid monthly in proportion to the amount of work done as determined by the Owner. Said payments will be a proportionate amount of the Lump Sum Price bid for the Dewatering, Control, and Diversion of Water of which shall include all costs for furnishing, installing, maintaining, and monitoring all dewatering pumps, piping, valves, and appurtenances furnished by the Contractor, as well as the cost of all labor and equipment involved in dewatering, control and diversion of water throughout the duration of the project.

SECTION 2.06
CALCIUM CHLORIDE FOR DUST CONTROL

1.0 DESCRIPTION

This item shall consist of furnishing calcium chloride and spreading it on the subgrade or in other areas of a project under construction, for the purpose of reducing dust conditions.

2.0 MATERIALS

Calcium chloride shall conform to the requirements of AASHTO M 144, except that the pellet form and the flake form shall be equally acceptable.

3.0 CONSTRUCTION METHODS

Calcium chloride shall be applied only at the locations, at such times and in the amount as may be directed by the Engineer. It shall be spread in such manner and by such devices that uniform distribution is attained over the entire area on which it is ordered placed.

4.0 MEASUREMENT AND PAYMENT

No separate measurement or payment shall be made for this item and all costs in connection there with shall be included in other contract items.

SECTION 2.08
CLEARING AND TREE REMOVAL

1.0 DESCRIPTION

This work shall consist of clearing the ground of trees, stumps, brush, rubbish and all objectionable material in accordance with these specifications or as directed by the Owner. This work shall also include the clearing of the ground necessary for the construction and installation of drainage structures. Included in this work shall be the preservation from injury or defacement of vegetation and objects designated to remain.

3.0 CONSTRUCTION METHODS

Within the excavation lines all trees shall be cut off and stumps removed and disposed of away from the site to a depth of not less than 12 inches below the finish graded surface.

In areas other than within excavation lines and where clearing is necessary for the construction and installation of various highway appurtenances, all trees and stumps shall be cut flush with the ground; and all dead or uprooted trees, brush, roots, or otherwise objectionable material shall be removed as directed unless otherwise indicated on the plans.

The Contractor shall dispose of all trees, stumps, brush, etc., which have been cut by the Contractor's or Owner's forces, in a satisfactory manner away from the site.

4.0 MEASUREMENT AND PAYMENT

No separate payment will be made for this item and all costs in connection therewith shall be included in the lump sum bid item "Bridge Deck Replacement".

SECTION 2.09
SEDIMENTATION AND EROSION CONTROL

1.0 DESCRIPTION

The work and materials required by this Section consists of the furnishing of all plant, labor, equipment and materials and in performing all operations in connection with providing and maintaining in an acceptable condition, the various erosion and sediment control devices specified below in accordance with these Specifications and as directed by the Owner.

The Contractor shall furnish all equipment, labor, materials and related work necessary for the proper execution of the intent of this Section. The Contractor shall operate and maintain and provide means and devices necessary to minimize, to the greatest extent possible, erosion within the work area of this Contract and to prevent the entrance of any silt laden runoff from the work areas into any standing or moving bodies of water on or adjacent to the Work.

The Contractor shall be responsible for the maintenance of all sedimentation and erosion control measures throughout the duration of construction and until all disturbed areas have been stabilized.

Sedimentation and erosion control measure shall be in accordance with the Contract Drawings and shall conform to the requirements of the State of CT DEEP 2002 Connecticut Guidelines for Soil Erosion and Sediment Control Manual.

2.0 MATERIALS

Materials for sedimentation and erosion control measures shall be in accordance with 2.19 of Standard Specification, the Contract Drawings, and the following:

Filter fabric fence shall conform to the requirements of the Standard Specification, Section 7.55.02 and Article M.08.

Hay bales shall conform to the requirements of the Standard Specification, Article 2.19.02.

3.0 CONSTRUCTION METHODS

Installation of sedimentation and erosion control measures shall be in accordance with 2.19 of the Standard Specification, the Contract Drawings, and the following:

All sediment and erosion control devices shall be properly installed, in a manner acceptable to the Owner, as necessary to minimize erosion within the work area of this contract and to prevent the entrance of any silt laden runoff from the work areas into any standing or moving bodies of water on or adjacent to the work, or as directed by the Owner.

The filter fabric fence shall be installed as recommended by the manufacturer. The bottom of the fabric shall be buried by either digging a six (6") inch on the ground and placing six inches of soil on the fence fabric. All erosion control devices shall be removed when ordered by the Owner after the regulated disturbed area has been reestablished. The Contractor's attention is called to particular notes on the drawings regarding erosion and sedimentation control and coordination with public agencies.

4.0 MEASUREMENT AND PAYMENT

The cost of this work shall be paid for as a lump sum for "Sedimentation and Erosion Control" and shall include all materials, equipment, tools, and labor incidental to the completion of this item.

SECTION 3.01
GENERAL EXCAVATION

1.0 DESCRIPTION

The work covered under this Section shall consist of the removal of all materials, not included in other Sections, required to accomplish the work indicated within the work limits. The Contractor shall remove all existing pavements, sidewalks, curbs, bases, subbase, earth, rock, etc., and all other material necessary for reconstruction of street sections shown on the Drawings or as directed by the Owner. Also included is the disposal of surplus material or unsuitable material, removal of old foundations, concrete or masonry walls, slabs and other structures. When unsuitable material has to be excavated below the subgrade, the excavation shall be backfilled and compacted up to the subgrade with material as ordered by the Owner.

Any quantities of rock excavation encountered as defined and classified by the Owner in accordance with the Section entitled "Rock Excavation and Disposal" and of boulders one (1) cubic yard or greater in volume, will not be included in the quantities to be paid for under General Excavation.

3.0 CONSTRUCTION METHODS

Construction methods shall conform to the applicable provision of Article 2.02.03 for reconstruction of paved areas. The word "general" shall be substituted for the word "roadway". At all limits of construction, the existing pavement shall be saw cut.

4.0 MEASUREMENT AND PAYMENT

No separate measurement or payment shall be made for this item and all costs in connection therewith shall be included in other contract items.

SECTION 3.04
GRAVEL FILL

1.0 DESCRIPTION

This material shall be used to replace unsuitable backfill material as specified in Section 3.02 of these contract specifications, and elsewhere as indicated on the plans, required by the specifications or as ordered by the Engineer. It shall consist of gravel conforming to the requirements of these specifications.

2.0 MATERIALS

Gravel fill shall conform to the requirements of Article M.02.01 of the Standard Specifications.

3.0 CONSTRUCTION METHODS

Gravel shall be placed and compacted in accordance with Article 3.04.03 of the Standard Specifications.

4.0 MEASUREMENT AND PAYMENT

Gravel fill will be measured in place after compaction by the Engineer. It shall be placed as directed by the Engineer.

The pay limits for gravel fill shall be as specified on the Contract Drawings. No payment will be made for gravel fill outside the specified payment limits.

This item is for replacement of excavated rock, for replacement of excavated material deemed unsuitable for refill by the Owner, and for miscellaneous fill where directed by the Owner.

Payment for this item will be the contract unit price per cubic yard bid for "Gravel Fill", which price shall include all materials, tools, equipment, labor and incidental work for providing, placing and compacting gravel fill as specified.

SECTION 3.05
REMOVAL OF PAVEMENT

1.0 DESCRIPTION

Pavement removal shall consist of the satisfactory removal of pavements as required for construction of improvements under this contract. It shall include asphalt, bituminous concrete pavements and bases as required by the contract or as directed by the Engineer.

3.0 CONSTRUCTION METHODS

Pavement shall be cut to neat lines as required by the contract drawings, or as directed by the Engineer. Pavement shall be excavated to the dimension shown on the plan. Excavated material shall be disposed of as directed by the Engineer and in the same manner as described for surplus material elsewhere in these specifications. No sections or pieces of pavement shall be used in trench backfill and pavement shall be kept separate from other excavated material.

4.0 MEASUREMENT AND PAYMENT

No separate measurement or payment shall be made for this item and all costs in connection there with shall be included in other contract items.

SECTION 3.07
PROCESSED GRAVEL BASE

1.0 DESCRIPTION

The Contractor shall furnish and place processed gravel base to the compacted thickness shown on the contract drawings and to supplement the Cold Reclaimed Asphalt base material, prior to placement of permanent pavement.

The processed gravel base shall be placed on the prepared existing subgrade or blended with the Cold Reclaimed Asphalt base material prior to placing of the pavement.

2.0 MATERIALS

Gravel base shall conform to the requirements of Subarticle M.05.01,1, M.05.01-2, M.05.01-3 of the Standard Specifications.

3.0 CONSTRUCTION METHODS

Gravel base shall be placed and compacted in accordance with Article 3.04.03 of the Standard Specification.

4.0 MEASUREMENT AND PAYMENT

The quantity measured for payment under this Section will be the number of cubic yards of processed gravel satisfactorily furnished, placed, compacted, and graded to as indicated or directed, measured in place. Contractor shall provide verification for quantity used with trucking slips or other acceptable method.

No payment shall be made for processed gravel placed outside the specified payment limits.

Payment for processed gravel base shall be made at the contract unit price per cubic yard for compacted gravel base placed to the lines and grade specified. "Processed Gravel", said price to include all costs of furnishing and placement of processed gravel base, preparation of subgrade and all other materials, labor and equipment necessary to satisfactorily complete the work.

SECTION 3.10 CRUSHED STONE

1.0 DESCRIPTION

The Contractor shall furnish and place all crushed stone as directed by the Engineer.

2.0 MATERIALS

Crushed Stone shall be 3/4 inch in size conforming to the requirements of Article M.01.01. Crushed stone gradation table of the standard specifications, Form 816. Crushed stone shall be free from dust, foreign matter and organic material.

3.0 CONSTRUCTION METHODS

Crushed Stone Bedding shall be placed in accordance with the details and at the locations indicated on the Contract Drawings or as directed by the Engineer. It shall be placed carefully and evenly on both sides of the structure/pipe/conduit being cushioned.

It shall be deposited in layers not over 6 inches thick and each layer shall be thoroughly compacted to not less than 95% of the specified ASTM maximum dry density before the addition of other layers.

4.0 MEASUREMENT AND PAYMENT

Crushed stone will be measured in place after compaction. It shall be placed as directed by the Engineer.

Payment for this item will be made at the Contract unit price per cubic yard bid for "Crushed Stone", which price shall include all materials, tools, equipment, labor and incidental work for providing, placing and compacting crushed stone as specified.

SECTION 3.18
SELECTIVE DEMOLITION

1.0 DESCRIPTION

This section requires the selective removal and off-site disposal of the Moxley Road Bridge deck, parapet walls and all appurtenances as shown on the Contract Drawings.

Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. State of Connecticut DOT Form 818 Standard Specifications for Roads, Bridges and Incidental Construction, applies to this section as if it were bound herein, including section 5.03 Removal and Alterations of Existing Bridge Structures.
- C. AASHTO Standard Specifications Highway Bridges applies to this section as if it were bound herein.

Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished.

Protections: Provide temporary barricades, insulated partitions and other forms of protection as required to protect general public from injury due to selective demolition work. Protect from damage, existing equipment and systems that becomes exposed during demolition operations.

Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to Owner.

Traffic: Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with adjacent occupied or used facilities.

Utility Services: Maintain existing utilities indicated to remain. Keep in service and protect against damage during demolition operations. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities. The Contractor shall be responsible for all costs and coordination for temporary relocation of utilities if needed, including overhead wires, utility poles, and all associated equipment and supports. Maintain fire protection services (if applicable) during selective demolition operations.

Environmental Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution. Any lead hazard abatement or other hazardous material abatement shall comply with applicable laws and regulations. Determination of the presence or absence of hazardous materials shall be the responsibility of the Contractor.

2.0 EXECUTION:

Inspection: Prior to commencement of selective demolition work, inspect areas in which work will be performed. Photograph existing conditions of structure surfaces, equipment, or surrounding properties that could be misconstrued as damage resulting from selective demolition work; file with Owner's representative prior to starting work

Preparation: Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structures, embankments, roadways, or other features to be demolished and adjacent facilities to remain. Cease operations and notify Owner immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

Protect equipment from soilage or damage.

Demolition: Perform selective demolition work in a systematic manner. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.

If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of conflict. Submit report to Owner's representative in written, accurate detail. Pending receipt of directive from Owner's representative, rearrange selective demolition schedule as necessary to continue overall job progress without delay.

Disposal of Demolished Materials: Remove debris, rubbish, and other materials resulting from demolition operations from site. Transport and legally dispose off site. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution. Burning of removed materials is not permitted on project site.

Salvage of Materials: Excavate and store any boulders and steam bed material for reuse as called for on the plans.

Cleanup and Repair: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave areas clean.

Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work

3.0 CONSTRUCTION METHODS

All work shall conform to the requirements of section 5.03 of the Standard Specifications, Removal and Alterations of Existing Bridge Structures.

4.0 MEASUREMENT AND PAYMENT

No separate measurement or payment shall be made for this item and all costs in connection there with shall be included in other contract items.

SECTION 4.06
TWO COURSE BITUMINOUS CONCRETE

1.0 DESCRIPTION

The work under this Section shall be the construction of a 3½" thick, two-course bituminous concrete pavement and multiple course bituminous concrete surfacing over the proposed bridge deck.

2.0 MATERIALS

The materials for the bituminous concrete mixture, sources of supply, formula for mix, mix tolerances, approval of mix formula and the control of the mixture shall conform to the requirements of Article M.04, Form 818.

- a. Bituminous concrete surface course shall conform to Article M.04, HMA S0.375.
- b. Bituminous concrete base course shall conform to Article M.04, HMA S0.375.
- c. Tack coat shall consist of CSS-1H oil.

3.0 CONSTRUCTION METHODS

Bituminous concrete shall be placed in accordance with Article 4.06.03.

The existing pavement shall be milled and placement shall be as directed on the plans or in the field, in a straight line using approved power tools, tack coat shall be applied to the edge of existing pavement where it meets the new pavement to be placed.

Contact surfaces of curbing, gutters, manholes, etc., shall be painted with a thin uniform coat of hot asphalt cement, or asphalt cement, or asphalt cement dissolved in naphtha, just before the material is placed against them.

All pavement surfaces that have been in place longer than five calendar days shall receive a tack coat between courses. The surface shall be swept clean and tack coated with CSS-1H at .035 gals. per square yard.

3.1 QUALITY ASSURANCE

The Owner or his authorized representative shall have access at any time to all parts of the producing plant for:

- 1) Inspection of the condition and operations of the plant and laboratory.
- 2) Confirmation of the adequacy of equipment in use.
- 3) Verification of the character and portions of the mixture.
- 4) Determination of temperatures being maintained in the preparation of the mixtures.

5) Inspection of incidental related procedures.

4.0 MEASUREMENT AND PAYMENT

This work shall be measured for payment by the number of square yards of the pavement installed to the specified thickness shown on the Drawings and as specified and within the pavement limits.

"Pavement Widening" and "Milling and Paving", measured as provided above, will be paid for at the Contract unit price bid per square yard of two course bituminous concrete completed and accepted in place, which price shall include all materials, equipment, tools, labor and work incidental thereto.

The Contractor shall include in the cost of this construction all resetting to grade existing or newly constructed catch basins, manholes, grates, frames, covers, valve boxes, access covers, and other items which normally must have a fixed relationship to finished grade.

The Contractor shall include in the cost of these items compaction of subgrade, placing of base course materials, milling, sweeping and tack coating between courses, as required. All surfaces that have been in place longer than five calendar days shall receive a tack coat. No separate payment shall be made for tack coating.

The Contractor shall include in the cost of these items saw cutting of all bituminous concrete pavements and providing tack coat along all cut edges.

SECTION 4.09
MILLING,
REMOVAL OF EXISTING WEARING SURFACE

1.0 DESCRIPTION

This work shall consist of the milling, removal, and disposal of existing bituminous concrete pavement. It shall also include the complete removal and disposal of the existing bituminous concrete wearing surface, membrane waterproofing and bond breaker covering the reinforced concrete bridge deck(s) as shown on the plans or as ordered by the Engineer. The types of milling shall be micro-milling to be used to remove bituminous concrete from 0 to 3 inches. It may also be used to remove bituminous concrete greater than 3 inches in limited areas or where required.

3.0 CONSTRUCTION METHODS

A. Milling:

1. General: The Contractor shall remove the bituminous concrete material using the milling type specified on the Plans. The pavement surface shall be removed to the line, grade, and existing or typical cross-section shown on the plans or as directed by the Engineer.

The bituminous concrete material shall be disposed of offsite by the Contractor at an approved disposal facility unless otherwise stated in the Contract. Any milled surface, or portion thereof, that is exposed to traffic shall be paved within 14 calendar days unless otherwise stated in the Contract.

2. Equipment: The equipment for milling the pavement surface shall be designed and built for milling bituminous concrete pavements. It shall be self-propelled with sufficient power, traction, and stability to maintain depth and slope and shall be capable of removing the existing bituminous concrete pavement.

The milling machine shall be equipped with a built-in automatic grade averaging control system that can control the longitudinal profile and the transverse cross-slope to produce the specified results. The longitudinal controls shall be capable of operating from any longitudinal grade reference, including string line, contact ski (30 feet minimum), non-contact ski (20 feet minimum), or mobile string line (30 feet minimum). The transverse controls shall have an automatic system for controlling cross-slope at a given rate. The Engineer may waive the requirement for automatic grade or slope controls where the situation warrants such action.

The machine shall be equipped with an integral pickup and conveying device to immediately remove material being milled from the surface of the roadway and discharge the millings into a truck, all in one operation. The machine shall also be equipped with a

means of effectively limiting the amount of dust escaping from the milling and removal operation.

When milling smaller areas or areas where it is impractical to use the above described equipment, the use of a lesser equipped milling machine may be permitted when approved by the Engineer.

The rotary drum of the milling machine shall have carbide or diamond-tipped teeth with the following maximum spacing and minimum milling depth:

Milling Type	Maximum Tooth Spacing*	Minimum Depth Capability (single pass)
Standard Milling	15 mm	4-8 inches
		Greater than 8 inches
Fine Milling	8 mm	0 – 4 inches
Mirco-Milling	5 mm	0 – 3 inches

* Industry standard

The forward speed of any milling machine shall be limited to no more than 45 feet/minute.

The teeth on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture, as outlined in 4.09.03-C, Surface Tolerance.

3. Protection: Protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractor’s responsibility and shall be repaired at the Contractor’s expense. To prevent the infiltration of milled material into the storm drainage system, the Contractor shall take special care to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that has fallen into inlet openings or inlet grates shall be removed at the Contractor’s expense.

- B. Removal of Existing Wearing Surface: The bituminous concrete wearing surface, membrane waterproofing and bond breaker shall be removed from the structure(s) using means acceptable to the Engineer to completely expose the concrete bridge deck(s).

Prior to removal of bituminous concrete wearing surface, the Contractor shall field verify the depth of the existing bituminous concrete by obtaining depth measurements (maximum 4 inch diameter holes) at intervals no greater than 25 feet apart in each lane. Depth verification holes shall be filled with bituminous material if the removal of wearing surface operation will not be completed within 5 days.

The existing bituminous concrete wearing surface and membrane waterproofing shall be removed in their entireties to the limits shown on the plans. The removal operations shall not

begin until the Contractor is prepared to perform the permanent patching or repair to the underlying concrete within 5 working days. If this is in conflict with "Prosecution and Progress," "Maintenance and Protection of Traffic," or other Contract requirements, the more stringent specification shall apply.

Methods for removal of existing wearing surfaces may include micro-milling or fine-milling and shall include as many passes or amount of effort required to completely expose the concrete deck(s). Any membrane not completely removed by the milling process shall be removed by scarifying or other means as approved by the Engineer.

Alternate methods for the removal of a bituminous concrete surface may be submitted to the Engineer for review. Demonstration of the alternate removal methods may be required prior to consideration.

The existing bituminous concrete wearing surface, membrane waterproofing, bond breaker, and any other products being removed shall be disposed of offsite by the Contractor unless otherwise noted in the Contract or as directed by the Engineer.

If membrane waterproofing, as specified elsewhere in the Contract, is to be re-installed on the existing deck(s), the surface profile following removal shall be suitable for such reinstallation. The profile of the cleaned concrete surface shall meet the membrane waterproofing manufacturer's recommendations, and have no gouges greater than 1/2 inch in depth. Any deficiencies that could, in the Engineer's opinion, cause failure of, or puncture the new membrane shall be removed as part of this work.

C. Surface Tolerance:

1. General: The surface shall be free from gouges, longitudinal grooves and ridges, oil film, and other imperfections, that are a result of defective equipment, improper use of equipment, poor workmanship, or inadequate field verification. Any unsatisfactory surfaces caused by the removal operations are the Contractor's responsibility and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer prior to opening the surface to traffic. Any raised structures shall be delineated with traffic control devices, as directed by the Engineer.
2. Tolerances: All milling types shall provide a satisfactory riding surface with a uniform textured appearance. The Contractor shall perform random spot-checks at a minimum of 5 locations per working shift with a Contractor-supplied 10 foot straight edge to verify the surface tolerances listed below. Random spot-checks (minimum of 5 checks per shift) shall occur at a maximum of 250 feet per pass of the milling machine and shall be performed with the Engineer present. The following tolerances shall apply:
 - (a) Standard Milling: The variation of the top of two ridges from the testing edge of the straightedge, between any two ridge contact points, shall not exceed 3/8 inch. The

variation of the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed 3/8 inch. 240 4.09.03

- (b) Fine-Milling: The variation of the top of two ridges from the testing edge of the straightedge, between any two ridge contact points, shall not exceed 1/4 inch. The variation of the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed 1/4 inch.
- (c) Micro-Milling: The variation of the top of two ridges from the testing edge of the straightedge, between any two ridge contact points, shall not exceed 1/16 inch. The variation of the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed 1/16 inch.

Where a surface delamination between bituminous concrete layers or a surface delamination of bituminous concrete on Portland cement concrete causes a non-uniform texture to occur, the depth of milling shall be adjusted in small increments to a maximum of +/- 1/2 inch to eliminate the condition.

When removing bituminous concrete pavement entirely from an underlying Portland cement concrete pavement, all bituminous concrete pavement shall be removed leaving a uniform surface of Portland cement concrete, unless otherwise directed by the Engineer.

Any unsatisfactory surfaces produced by the milling operation are the Contractor's responsibility and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer.

D. Transitions:

1. Construction Joints: No transverse vertical face shall be left exposed to traffic. No longitudinal vertical face greater than 1 inch shall be left exposed to traffic. Any other vertical face created by milling shall have a bituminous concrete taper constructed to the temporary transition requirements as described below.
2. Roadway Structures: Roadway structures shall not have a vertical face of greater than 1 inch exposed to traffic as a result of milling. All roadway structure edges and bituminous concrete tapers shall be clearly marked with fluorescent paint. The paint shall be maintained throughout the exposure to traffic.

All structures within the roadway that are exposed to traffic and greater than 1 inch above the milled surface shall receive a transition meeting the following requirements:

- (a) For roadways with a posted speed limit of 35 mph or less:

- (i) Round structures with an exposed vertical face between 1 inch and 2.5 inches shall be transitioned with a hard rubber tapered protection ring designed for that purpose of the appropriate inside diameter designed specifically to protect roadway structures. Bituminous concrete tapers at a minimum 12 to 1 (12:1) taper in all directions may be substituted for the protection rings if approved by the Engineer.
 - (ii) Round structures with an exposed vertical face greater than 2.5 inches shall receive a transition of bituminous concrete formed at a minimum 12 to 1 (12:1) taper in all directions.
 - (iii) All rectangular structures shall receive a transition of bituminous concrete formed at a minimum 12 to 1 (12:1) taper in all directions. (b) For roadways with a posted speed limit of 40, 45 or 50 mph: All structures shall receive a transition of bituminous concrete formed at a minimum 24 to 1 (24:1) taper in all directions of travel. Direction of travel shall include both the leading and trailing sides of a structure. The minimum taper shall be 12 to 1 (12:1) in all other directions. (c) For roadways with a posted speed limit of greater than 50 mph: All structures shall receive a transition of bituminous concrete formed at a minimum 36 to 1 (36:1) taper in the direction of travel. Direction of travel shall include both the leading and trailing sides of a structure. The minimum taper shall be 12 to 1 (12:1) in all other directions.
3. Temporary Transitions: If any vertical face is formed in an area exposed to traffic, a temporary paved transition shall be established according to the requirements shown on the plans or in accordance with 4.06.03-5. If a milling machine is used to form a temporary transition, the length of the temporary transition shall meet the requirements of 4.06.03-5 "Transitions for Roadway Surface," the requirements shown on the plans, or as directed by the Engineer. A clean vertical face shall be established by saw cutting at all final termini limits of the Project.
4. Milling for Permanent Pavement Transitions: When called for on the plans, milling a tapered "keyway" to transition the top course of a bituminous concrete overlay to an existing pavement shall be performed as specified elsewhere in the Contract.
- E. Sweeping: Prior to opening an area which has been milled to traffic, the pavement shall be thoroughly swept with a sweeper truck. The sweeper truck shall be equipped with a water tank and be capable of removing the millings and loose debris from the surface. The sweeper truck shall operate at a speed that allows for the maximum pickup of millings from the roadway surface. Other sweeping equipment may be provided in lieu of the sweeper where acceptable by the Engineer.

Any milled area that will not be exposed to live traffic for a minimum of 48 hours prior to paving shall require a vacuum sweeper truck in addition to, or in lieu of, mechanical sweeping. The vacuum sweeper truck shall have sufficient power and capacity to

completely remove all millings from the roadway surface including any fine particles within the texture of the milled surface. Vacuum sweeper truck hose attachments shall be used to clean around pavement structures or areas that cannot be reached effectively by the main vacuum. Compressed air may be used in lieu of vacuum attachments if approved by the Engineer.

4.0 MEASUREMENT & PAYMENT

Milling of bituminous concrete will not be measured for payment and this work shall not be included in the appropriate paving item.

SECTION 8.01
TOPSOIL, SEED, FERTILIZE AND MULCH

1.0 DESCRIPTION

This work shall consist of placing topsoil, furnishing topsoil when required, fertilizing, seeding and mulching all areas disturbed by the work and the Contractor's operations.

2.0 MATERIALS

Materials for this work shall conform to the following requirements:

2.01 TOPSOIL

Topsoil excavated from the project shall be used whenever possible. Topsoil supplied by the Contractor shall conform to the requirement of Article M.13.01-1.

2.02 FERTILIZER

Fertilizer shall conform to the requirement of Article M.13.03.

2.03 MULCH

Mulch shall conform to Article M.13.05-1 and shall be hay or wood fiber.

2.04 SEED MIXTURE

Seed mixture for seeding shall conform to the Contract Drawings.

3.0 CONSTRUCTION METHODS

All topsoil excavated from the project shall be used. When, in the opinion of the Engineer, sufficient topsoil is not available, the Contractor shall supply topsoil from other sources. The areas on which topsoil is to be placed shall be graded to a reasonable true surface. Topsoil shall then be spread and shaped to the lines and grades shown on the plans, or as directed by the Owner. The depth shown on the plans to which the topsoil is to be placed is that required after settlement of the material has taken place. All stones, roots, debris, sod, weeds and other undesirable material shall be removed. After shaping and grading, all trucks and other equipment shall be excluded from the topsoil area to prevent excessive compaction. The Contractor shall perform such work as required to provide a friable surface for seed germination and plant growth prior to seeding. During hauling and spreading operations, the Contractor shall immediately remove any material dumped or spilled on pavement.

It shall be the Contractor's responsibility to restore to the line, grade and surface all eroded areas with approved material and to keep topsoiled areas in acceptable condition until the completion of the construction work.

The areas to be seeded shall be made friable and receptive to seeding by approved methods which will not disrupt the line and grade of the slope surface. In no event will seeding be permitted on hard or crusted soil surface. All areas shall be free from weeds taller than three (3) inches.

The normal seeding seasons shall be March 15th to June 15th and August 15th to October 15th. Seeding at other times shall be done only when ordered by the Engineer.

Areas of disturbed soil which will contribute significantly to air and stream pollution shall be established to the designated vegetative cover as soon as feasible or when directed by the Engineer.

Seed shall be uniformly applied by any ergonomically acceptable and feasible method approved by the Engineer. Seed mixture shall be applied at the rate of 200 pounds per acre. Fertilizer shall be uniformly placed at the rate of 640 pounds per acre.

All seeded areas shall be mulched with hay or, if hydroseeding is used, wood fiber. Hay shall be uniformly applied by an approved method to a placed depth of two (2) inches. Hay shall be held in place by one uniform Application of asphalt emulsion, Type SS-1, applied at the rate of 0.08 gallons per square yard. The emulsion shall have a temperature range within 50 to 120 degrees F. at the time of the application. The emulsion may be applied during or immediately after the application of the mulch. Wood fiber mulch shall be uniformly applied at the rate of one (1) tone per acre.

The Contractor shall keep all equipment and vehicular and pedestrian traffic off areas that have been seeded to prevent excessive compaction and damage to young plants.

The Contractor shall be required to replant areas damaged by water, wind, fire, equipment or pedestrian traffic when ordered by the Owner at no cost to the Owner.

Work under this item shall not be complete until all stones and debris have been removed from the seeded areas. In areas where topsoil and seeding are not required, all disturbed areas shall be neatly graded and cleared of all debris.

4.0 MEASUREMENT AND PAYMENT

The cost of this work shall be measured and paid for as a lump sum for "Topsoil, Seed, Fertilizer, and Mulch" and shall include all materials, equipment, tools, and labor incidental to the completion of this item.

Any excavation required to provide for the specified thickness of topsoil in the designated areas will not be measured for payment but the cost shall be included in the price bid for topsoil, seed, fertilizer and mulch.

"Topsoil, Seed, Fertilize and Mulch" measured as provided above, will be paid for at the Contract Lump Sum price completed and accepted in place, which price shall include all materials, equipment, tools, excavation, labor and work incidental thereto

SECTION 8.02
EROSION CONTROL MATTING

1.0 DESCRIPTION

This work shall consist of furnishing and installing erosion control matting following loaming and seeding where called for on the plans or as specified by the Owner or Engineer.

2.0 MATERIALS

Materials for this work shall be included on the State of Connecticut DOT Qualified Product List and conform to the following requirements:

2.01 EROSION CONTROL MATTING

Materials for this work shall be included on the State of Connecticut DOT Qualified Product List and conform to the following requirements of Section 9.50.02 of the Standard Specification.

Erosion control matting shall be Class 1: Slope Protection, Type D (Slopes steeper than 3:1 – sandy soil), as outlined on the State of Connecticut DOT Qualified Product List.

Erosion control matting shall be coconut fiber, straw fiber, or a blend of the two. Matting must be 100% biodegradable, with a degradable life of 12 to 18-months.

2.02 STAPLES

Staples shall be 6” (min.) long wire staples or 6” (min.) rigid biodegradable stakes.

3.0 CONSTRUCTION METHODS

Erosion Control Matting and staples shall be installed per the manufactures recommendations and construction details shown on the plans.

Loam, seed and fertilize disturbed areas as outlined in section 8.01 of these specifications and as outlined on the plans.

Begin at the top of the slope by anchoring the blanket in a 6” deep x 6” wide trench, backfill and compact the trench after stapling.

Roll the blanket down or horizontally across the slope

The edges of parallel blankets must be stapled with approximately 2” of overlap.

When blankets must be spliced down the slope, place blankets end over end (shingle style) with approximately 4” of overlay. Staple through overlapped area, approximately 12” apart.

Staple blankets along edges and through the field of the blankets as recommended by the manufacturer.

4.0 MEASUREMENT AND PAYMENT

This item will be measured by the actual number of square yards of completed and installed Erosion Control Matting, as indicated on the Drawings or as directed by the Engineer.

"Erosion Control Matting" measured as provided above, will be paid for at the Contract unit price bid per square yard completed and accepted in place, which price shall include all materials, equipment, tools, excavation, labor and work incidental thereto.

SECTION 9.06
METAL BEAM RAIL AND END ANCHORAGES

1.0 DESCRIPTION

The work under this Section shall be the construction of metal beam guide rails and end anchorages in conformance with these specifications to the dimensions and details as shown on the Contract Drawings at the locations directed by the Owner.

2.0 MATERIALS

METAL BEAM RAIL & POSTS:

Materials for this work shall conform to the requirements of Section 9.10.02 of the Standard Specifications. **Rail & Posts shall be galvanized.**

METAL BEAM RAIL END ANCHORAGES:

Materials for this work shall conform to the requirements of Section 9.11.02 of the Standard Specifications. **End Anchorages shall be galvanized.**

CRUSHED STONE:

Crushed Stone shall be 3/4 inch in size conforming to the requirements of Article M.01.01. Crushed stone gradation table of the standard specifications. Crushed stone shall be free from dust, foreign matter and organic material.

3.0 CONSTRUCTION METHODS

METAL BEAM RAIL:

Construction methods shall conform to the requirements of Article 9.10.03 of the Standard Specifications.

METAL BEAM RAIL END ANCHORAGES:

Construction methods shall conform to the requirements of Article 9.11.03 of the Standard Specifications.

CRUSHED STONE:

Crushed Stone Bedding shall be placed in accordance with the details and at the locations indicated on the Contract Drawings or as directed by the Engineer

4.0 MEASUREMENT AND PAYMENT

“Metal Beam Rail (RB-350)” shall be measured and paid for by the linear feet of Metal Beam Rail (RB-350) as measured along the rail furnished, installed, accepted and measured in place and shall include a 2’ wide, 4” thick crushed stone surface treatment under the railing. Said price shall include all materials, equipment, tools and labor incidental thereto.

“Metal Beam Rail End Anchorages” shall be measured and paid for as units furnished, installed and accepted in place and shall include a 2’ wide, 4” thick crushed stone surface treatment under the railing. Said price shall include all materials, equipment, tools and labor incidental thereto.

SECTION 9.16
PAINTED PAVEMENT MARKINGS AND SIGNAGE

1.0 DESCRIPTION

This work shall consist of installing painted pavement markings, removing and reinstalling existing signage and the installation of new signage as shown on the Contract Drawings.

2.0 MATERIALS

Painted pavement markings shall conform to Article 12.09.02 of the Standard Specifications.

Traffic signage and sign posts shall conform to Article 12.08.02 of the Standard Specifications and the details shown on the Contract Drawings.

3.0 CONSTRUCTION METHODS

The installation of painted pavement markings shall conform to Article 12.09.03 of the Standard Specifications.

The installation of new traffic signage and the reinstallation of existing signage shall conform to Article 12.08.03 of the Standard Specifications and the details shown on the Contract Drawings.

4.0 MEASUREMENT AND PAYMENT

No separate measurement or payment shall be made for this item and all costs in connection there with shall be included in other contract items.

SECTION 12.01
BRIDGE DECK REPLACEMENT

1.0 DESCRIPTION

This section shall consist of all work necessary to complete the replacement of the existing bridge deck with a new cast-in-place concrete deck, and cast-in-place concrete parapet walls and all work not specifically paid for in other items including work on or near private property, structural backfill, bedding, removal of pavement, selective demolition, crushed stone, cast-in-place reinforced concrete, mortar fill, grout fill, waterproofing membrane, final site restoration, and all other work delineated on the contract drawings but not specifically paid for under other items.

Related Documents:

- A. Drawings and general provisions of the Contract, including General and Supplemental Conditions, apply to this Section.
- B. State of Connecticut DOT Form 818 Standard Specifications for Roads, Bridges and Incidental Construction, applies to this section as if it were bound herein.
- C. AASHTO Standard Specifications for Highway Bridges applies to this section as if it were bound herein.

2.0 MATERIALS

Materials shall conform to the Contract Drawings and applicable sections of the specifications including State of Connecticut DOT Form 818 Standard Specifications for Roads, Bridges and Incidental Construction and AASHTO Standard Specifications for Highway Bridges.

3.0 CONSTRUCTION METHODS

Construction methods shall conform to the Contract Drawings and applicable sections of the specifications including State of Connecticut DOT Form 818 Standard Specifications for Roads, Bridges and Incidental Construction and AASHTO Standard Specifications for Highway Bridges.

4.0 MEASUREMENT AND PAYMENT

This item shall be measured for payment as a lump sum.

This item shall be paid for as a lump sum for “**Bridge Deck Replacement**” and shall include all site work described in the specification and delineated on the drawings unless specifically paid for separately.

Said payment shall include, but not be limited to, general requirements, work on or near private property, structural backfill, bedding, removal of pavement, selective demolition, cast-in-place reinforced concrete, concrete parapet walls waterproofing membrane, and all other work

delineated on the Contract Drawings but not specifically paid for under other items, and the cost of labor, materials and equipment necessary to complete this item.

SECTION 12.02
CAST-IN-PLACE REINFORCED CONCRETE

1.0 DESCRIPTION

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. State of Connecticut DOT Form 818 applies to this section as if it were bound herein.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, as applicable.
- B. Reinforcing Steel Certifications: Submit mill test certificates for all reinforcing steel furnished under this section, showing physical and chemical analysis. Include in chemical analysis for steel to be welded the percentages of carbon, manganese, copper, nickel, and chromium, and optionally the percentages of molybdenum and vanadium.
- C. Aggregates: Submit test reports showing compliance with specified quality and gradation.
- D. Concrete Quality Control Submittals: Submit the following information related to the quality control assurance requirements specified:
 - 1. Design Data: Submit proposed mix designs and test data before concrete operations begin. Identify for each mix submitted the method by which proportions have been selected.
 - a. For mix designs based on field experience, include individual strength test results, standard deviation, and the required average compressive strength calculations.
 - b. For mix designs based on trial mixtures, include trial mix proportions, test results, and graphical analysis and show required average compressive strength calculations.
 - c. Indicate quantity of each ingredient per cubic yard of concrete.
 - d. Indicate type and quantity of admixtures proposed or required.
 - 2. Certifications: Provide certification from manufacturers of concrete admixtures that chloride content complies with specified requirements.
 - 3. Placement Schedule: Submit concrete placement schedule prior to start of any concrete placement operations. Include location of all joints indicated on drawings, plus anticipated construction joints.
 - 4. Delivery Tickets: Submit copies of delivery tickets complying with ASTM C94 for each load of concrete delivered to the site.
 - 5. Cold Weather Concreting: Submit, well in advance, a description of planned protective measures.

6. Hot Weather Concreting: Submit, well in advance, a description of planned protective measures.
7. Rebar Shop Drawings: Submit rebar shop drawings detailing bar size, strength, location, and quantities.

1.3 QUALITY ASSURANCE

- A. Codes and Standards: Comply with the following documents, except where requirements of the contract documents or of governing codes and governing authorities are more stringent:
 1. ACI 301
 2. ACI 318
 3. ACI 302
 4. CRSI Manual of Standard Practice.
 5. ACI 211.1 – Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
 6. ACI 211.2 - Standard Practice for Selecting Proportions for Structural Lightweight Concrete.
 7. ACI 305R – Hot Weather Concreting.
 8. ACI 306R – Cold Weather Concreting.
 9. ASTM C33 – Standard Specification for Concrete Aggregates.
- B. Testing Agency Services: Owner will engage testing agency to conduct tests and perform other services specified for quality control during construction.
- C. Source of Materials: Obtain materials of each type from the same source during the project.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store cementitious materials in a dry, weather tight location. Maintain accurate records of shipment and use.
- B. Store aggregates to permit free drainage and to avoid contamination with deleterious matter or other aggregates. When stockpiled on ground, discard bottom 6 inches of pile.
- C. Handle aggregates to avoid segregation.
- D. Deliver reinforcement to project site bundled and tagged with metal tags indicating bar size, lengths, and other data corresponding to information shown on the placement drawings.
- E. Store concrete reinforcement materials to prevent damage and accumulation of dirt or rust.

1.5 PROJECT CONDITIONS

- A. Cold Weather Concreting: Comply fully with the recommendations of ACI 306. Well in advance of proposed concreting operations, advise the engineer of proposed protective measures including, but not limited to heating of materials, heated enclosures, and insulating blankets.
- B. Hot-weather Concreting: Comply fully with the recommendations of ACI 305R. Well in advance of proposed concreting operations, advise the engineer of proposed protective measures including, but not limited to cooling of materials, placement during evening to dawn hours, fogging during finishing and curing, shading, and windbreaks.
- C. Depositing concrete underwater: Contractor shall comply with CTDOT form 816 section 6.01.03 subsection 10 – “depositing concrete underwater” and subsection 11 – “Concrete exposed to Sea Water.”

2.0 MATERIALS

2.1 FORMWORK

- A. Facing Materials:
 - 1. Unexposed finish concrete: Any standard form materials that produce structurally sound concrete.
 - 2. Exposed and textured finish concrete: Materials selected to offer optimum smooth, stain-free final appearance and minimum number of joints.
- B. Formwork Accessories:
 - 1. Form coating: Form release agent that will not adversely affect concrete surfaces or prevent subsequent application of concrete coatings.
 - 2. Metal ties: Commercially manufactured types; cone snap ties, taper removable bolt, or other type which will leave no metal closer than 1-1/2 inches from surface of concrete when forms are removed, leaving not more than a 1-inch-diameter hole in concrete surface.
 - 3. Embedded steel accessories: Galvanized where located less than 2 inches clear from galvanized reinforcing.
 - 4. Fillets: Wood or plastic fillets for chamfered corners, in maximum lengths possible.
 - 5. Isolation Material: Polystyrene insulation of required size and thickness.

2.2 REINFORCING MATERIALS

- A. Reinforcing Steel: ASTM A 615, Grade 60. All reinforcing for pilasters, curbs, and abutment stem walls shall be epoxy coated.
- B. Smooth dowels: ASTM A615, Grade 60, Plain billet steel free of burrs or deformations.
- C. Welded Wire Fabric: ASTM A185, cold-drawn steel, plain.
- D. Reinforcing Accessories:
 - 1. Tie wire: Black annealed type, 16-1/2 gage or heavier.
 - 2. Supports: Bar supports conforming to specifications of CRSI "Manual of Standard Practice."
 - a. Class 1 (plastic protected) at all formed surfaces which will be exposed to weather.
 - b. Class 1 (plastic protected) or Class 2 (stainless steel protected) at all formed surfaces which will be exposed to view but not to weather.
 - c. Precast concrete blocks of strength equal to or greater than specified strength of concrete or Class 3 supports equipped with sand plates, where concrete will be cast against earth. Concrete masonry units will not be accepted.

2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, and as follows:
 - 1. Type I, except where other type is specifically permitted or required. Type I may be replaced by Type III (high early strength) for concrete placed during cold weather.
- B. Water: Potable
- C. Aggregates: Normal weight concrete: ASTM C 33.
- D. Admixtures - General: Admixtures which result in more than 0.1 percent of soluble chloride ions by weight of cement are prohibited.
- E. Air-Entraining Mixture: ASTM C 260 and certified by manufacturer for compatibility with other mix components.
- F. Water Reducing Admixture: ASTM C 494, Type A.
- G. Water Reducing, Retarder Admixture: ASTM C 494, Type D.
- H. Water Reducing and Accelerating Admixtures: ASTM C 494, Type E.
- I. High Range Water Reducing Admixture (Super plasticizer): ASTM C 494, Type F or G.

2.4 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Waterstop: 1" x 3/4" Bentonite clay continuous strip, Volclay Waterstop-RX, or equal. Install per manufacturer's specifications.
- B. Nonshrink Grout: ASTM C 1107. Type: Provide non-metallic type only. Obtain 2 day compressive strength of 3400 psi, 28-day compressive strength of 10,000 psi.

- C. Plastic Curing Membranes: 4 mil polyethylene
- D. Liquid Curing Compounds: Comply with ASTM C 309, Type I. Prior to use, verify compatibility of curing compound with floor finishes.
- E. Expansion Joint Filler: Nonextruding bituminous type: ASTM D 1751.
- F. Anchor Bolts: ASTM A307, Grade A; with ASTM A563 hex nuts and flat washers.
- G. Joint Sealant: Conform to Section 8.9 of AASHTO Standard Specifications for Highway Bridges
- H. Vapor Retarder: Clear 10-mil thick polyolefin with lapped and taped joints.

2.5 CONCRETE MIX DESIGN

- A. Mix Design Review: Do not begin concrete operations until proposed mixes have been reviewed by the engineer.
- B. Proportioning of Normal Weight Concrete: Comply with recommendations of ACI 211.1.
- C. Mix concrete in accordance with ACI 304. Deliver concrete in accordance with ASTM C94/C94M.
- D. Use accelerating admixture in cold weather only when approved by A/E.
- E. Use of admixtures will not relax cold weather placement requirements.
- F. Required Average Strength: For each type and strength of concrete, establish the required average strength of the design mix on the basis of either field experience or trial mixtures as specified in ACI 301, and proportion mixes accordingly. If trial mixtures method is used, employ an independent testing agency acceptable to the engineer for preparing and reporting proposed mix designs.
- G. Admixtures:
 - 1. Air Entraining Admixture: Add at rate to achieve specified air content.
 - 2. Water-reducing admixture: Add as required for placement and workability.
 - 3. Water-reducing and retarding admixture: Add as required in concrete mixes to be placed at ambient temperatures above 90 degrees F.
 - 4. Water-reducing and accelerating admixture: Add as required in concrete mixes to be placed at ambient temperatures below 50 degrees F.
 - 5. High-range water-reducing admixture (super plasticizer): Add as required to achieve a 7 inch slump for all concrete that will be placed against a form liner.
 - 6. Do not use admixtures not specified or approved.
- H. Concrete Mix Design: refer to Contract Drawings.
- I. Mix Adjustments: Provided that no additional expense to owner is involved, contractor may submit for engineer's approval requires for adjustment to approved concrete mixes when circumstances such as changed project conditions, weather, or unfavorable test results occur. Include laboratory test data substantiating specified properties with mix adjustment requests.

2.6 CONTROL OF MIX IN FIELD

- A. Slump: A tolerance up to 1 inch above the specified will be permitted for 1 batch in 5 consecutive batches tested. Concrete lower than that specified may be used, provided proper placing and consolidation is obtained.
 - 1. If slump upon arrival at the site is lower than 1 inch below the specified value, one addition of water with ASTM C 94 will be permitted to bring the slump within tolerance, provided that:
 - a. A positive means is available to measure the amount of water added at the site.
 - b. The specified maximum water content is not exceeded.
 - c. Not more than 45 minutes since batching has elapsed.
- B. Air Content: A tolerance of plus or minus 1½ percent of that specified will be allowed for field measurements.
- C. Do not use batches that exceed tolerances.

2.07 CONCRETE MIXING

- A. Transit Mixers: Mix concrete in transit mixers, complying with the requirements of ASTM C 94.
 - 1. At ambient temperatures of 85 to 90 degrees F, reduce mixing and delivery time to 75 minutes.
 - 2. At ambient temperatures above 90 degrees F, reduce mixing and delivery time to 60 minutes.

3.0 CONSTRUCTION METHODS

3.1 CONCRETE FORM PREPARATION

- A. General: Comply with requirements of ACI 301 for formwork, and as herein specified. The contractor is responsible for design, engineering, and construction of formwork, and for its timely removal.
- B. Earth Forms: Earth forms are not permitted unless shown on contract drawings or approved in writing by the Structural Engineer.
- C. Design: Design and fabricate forms for easy removal, without impact, shock, or damage to concrete surfaces or other portions of the work. Design to support all applied loads until concrete is adequately cured, within allowable tolerances and deflection limits.
- D. Construction: Construct and brace formwork to accurately achieve end results required by contract documents, with all elements properly located and free of distortion. Provide for necessary openings, inserts, anchorages, and other features shown on otherwise required.

1. Joints: Minimize form joints and make watertight to prevent leakage of concrete. Align joints symmetrically at exposed conditions.
 2. Chamfers: Provide chamfered edges and corners at exposed locations, unless specifically indicated otherwise on the drawings.
 3. Permanent openings: Provide openings to accommodate work of other trades, sized and located accurately. Securely support items built into forms; provide additional bracing at openings and discontinuities in formwork.
 4. Temporary openings: Provide temporary openings for cleaning and inspection in most inconspicuous locations at base of forms, closed with tight-fitting panels designed to minimize appearance of joints in finished concrete work.
- E. Tolerances for Formed Surfaces: Comply with minimum tolerances established in ACI 117, unless more stringent requirements are indicated on the drawings.
- F. Release Agent: Provide either form materials with factory-applied non absorptive liner or field-applied form coating. If field-applied coating is employed, thoroughly clean and recondition formwork and reapply coating before each use. Rust on form surfaces is unacceptable.

3.2 REMOVAL OF FORMS AND SUPPORTS

- A. Non-Load-Bearing Formwork: Provided that concrete has hardened sufficiently that it will not be damaged, forms not actually supporting weight of concrete or weight of soffit forms may be removed after concrete has cured at not less than 50 degrees F for 24 hours. Maintain curing and protection operations after form removal.
- B. Keep supports in place until heavy loads due to construction operations have been removed.

3.3 PLACING REINFORCEMENT

- A. General: Comply with requirements of ACI 301 and as herein specified.
- B. Preparation: Clean reinforcement of loose rust and mill scale, soil, and other materials which adversely affect bond with concrete.
- C. Placement: Place reinforcement to achieve not less than minimum concrete coverage required for protection. Accurately position, support, and secure reinforcement to prevent displacement. Provide Class B tension lap splices complying with ACI 318 unless otherwise indicated. Do not field-bend partially embedded bars unless otherwise indicated or approved.
1. Use approved bar supports and tie wire, as required. Set wire ties to avoid contact with or penetration of exposed concrete surfaces. Tack welding of reinforcing is not permitted.

2. Wire fabric: Install in maximum lengths possible, lapping adjoining pieces not less than one full mesh. offset end laps to prevent continuous laps in either direction, and splice laps with tie wire.
 3. Smooth Dowels: Install smooth dowels perpendicular to formed surface. Secure dowels in place prior to placement of concrete.
- D. Welding: Welding of reinforcement is not permitted, except with the Engineer's specific approval. Perform welds in accordance with AWS D1.4.

3.4 FIELD QUALITY CONTROL - REINFORCING STEEL

- A. Inspection of the in-place reinforcing steel and its conformance with the contract documents shall be performed by an inspection services designated by the Owner, and unless otherwise note, all costs and expenses occasioned by the employment of such inspection service shall be paid by the Owner.
- B. Inspection service to inspect all reinforcing placement for its conformance to the contract documents. If reinforcing does not conform to contract documents, then the Inspection service is to notify the contractor of non conforming items. If the contractor fails to remedy the non conforming items, then the Inspection service is to report to the Engineer, by phone and in writing, prior to the start of concrete placement.
- C. The Contractor is to cooperate with the Inspection Service and the Engineer to ensure that the reinforcing is placed properly. Contractor to notify Inspection Service and Engineer 24 hours prior to the time that reinforcing can no longer be inspected due to formwork placement or concreting operations.
- D. Contractor to rectify reinforcing placement errors that are identified by the Inspection Service and/or Engineer at no additional costs to the Owner.

3.5 JOINT CONSTRUCTION

- A. Construction Joints: Locate and install construction joints as indicated on drawings. If construction joints are not indicated, locate in manner which will not impair strength and will have least impact on appearance, as acceptable to the engineer.
 1. Keyways: Provide keyways not less than 1-1/2 inches deep at footings, walls and beams.
 2. Reinforcement: Continue reinforcement across and perpendicular to construction joints, unless details specifically indicate otherwise.
 3. Water stops: Provide water stops if indicated, installing to form continuous, watertight dam, with field joints fabricated in strict accordance with manufacturer's instructions.
- B. Expansion Joints: Construct expansion joints where indicated. Install expansion joint filler to full depth of concrete. Recess edge of filler to depth indicated to receive joint filler specified.

3.6 VAPOR RETARDER INSTALLATION

- A. General: Place vapor retarder sheet over prepared base material, aligning longer dimension parallel to direction of pour and lapped 12 inches. Seal joints with appropriate tape as per manufacturer's recommendations.

3.7 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set anchorage devices and other items required for other work connected to or supported by cast-in-place concrete, using templates, setting drawings, and instructions from suppliers of items to be embedded. Set edge forms and intermediate screeds as necessary to achieve final elevations indicated for finished slab surfaces.

3.8 CONCRETE PLACEMENT

- A. Preparation: Provide materials necessary to ensure adequate protection of concrete during inclement weather before beginning of installation of concrete.
- B. Inspection: Before beginning concrete placement, inspect formwork, reinforcing steel, and items to be embedded, verifying that all such work has been completed.
- C. Placement - General: Comply with requirements of ACI 304 and as follows:
 - 1. Schedule continuous placement of concrete to prevent the formation of cold joints.
 - 2. Provide construction joints if concrete for a particular element or component cannot be placed in a continuous operation.
 - 3. Deposit concrete as close as possible to its final location, to avoid segregation.
- D. Placement in Forms: Limit horizontal layers to depths which can be properly consolidated, but in no event greater than 24 inches.
 - 1. Consolidate concrete by means of mechanical vibrators, inserted vertically in freshly placed concrete in a systematic pattern at close intervals. Penetrate previously placed concrete to ensure that separate concrete layers are knitted together.
 - 2. Vibrate concrete sufficiently to achieve consistent consolidation without segregation of coarse aggregate.
 - 3. Do not use vibrators to move concrete laterally.
 - 4. Vibrate against all forms to consolidate concrete and prevent honeycombing.
- E. Slab Placement: Schedule continuous placement and consolidation of concrete within planned construction joints.
 - 1. Thoroughly consolidate concrete without displacing reinforcement or embedded items, using internal vibrators, vibrating screeds, roller pipe screeds, or other means acceptable to the engineer.

2. Strike off and level concrete slab surfaces, using highway straight edges, darbies, or bull floats before water can collect on surface. Do not work concrete further until finishing operations are commenced.
- F. Cold Weather Placement: Comply with recommendations of ACI 306 when air temperatures are expected to drop below 40 degrees F either during concrete placement operations or before concrete has cured.
1. Do not use frozen or ice-laden materials.
 2. Do not place concrete on frozen substrates.
- G. Hot Weather Placement: Comply with recommendations of ACI 305R when ambient temperature before, during, or after concrete placement is expected to exceed 90 degrees F or when combinations high air temperature, low relative humidity, and wind speed are such that the rate of evaporation from freshly poured concrete would otherwise exceed 0.2 pounds per square foot per hour.
1. Do not add water to approved concrete mixes under hot weather conditions.
 2. Provide mixing water at lowest feasible temperature, and provide adequate protection of poured concrete to reduce rate of evaporation.
 3. Use fog nozzle to cool formwork and reinforcing steel immediately prior to placing concrete.
- G. Depositing concrete underwater: Contractor shall comply with CTDOT form 816 section 6.01.03 subsection 10 – “depositing concrete underwater”.

3.9 FINISHING FORMED SURFACES

- A. Repairs, General: Repair surface defects, including tie holes immediately after removing formwork.
1. Remove honeycombed areas and other defective concrete down to sound concrete, cutting perpendicular to surface or slightly undercutting. Dampen patch location and area surrounding it prior to applying bond compound or patching mortar.
 2. Before bonding compound has dried, apply patching mixture matching original concrete in materials and mix except for omission of coarse aggregate, and using a blend of white and normal portland cement as necessary to achieve color match. Consolidate thoroughly and strike-off slightly higher than surrounding surface.
- B. Textured Form Finish: Repair tie holes and patch defective areas to match pattern created by form construction or form liners.
- C. Unexposed Form Finish: Repair tie holes and patch defective areas. Rub down or chip off fins or other raised areas exceeding 1/4 inch in height.
- D. Exposed Form Finish: Repair and patch defective areas, with fins or other projections completely removed and smoothed.
1. Smooth rubbed finish: Apply to surfaces indicated no later than 24 hours after removal of forms. Wet concrete surfaces to be finished and rub with Carborundum brick or other abrasive until uniform color and texture are achieved. Do not apply separate grout mixture.

2. Contiguous unformed surfaces: Strike smooth and float to a similar texture tops of walls, horizontal offsets, and other unformed surfaces adjacent to or contiguous with formed surfaces. Continue final finish of formed surfaces across unformed surfaces, unless otherwise specifically noted.

3.10 CONCRETE CURING AND PROTECTION

- A. General:
 1. Prevent premature drying of freshly placed concrete, and protect from excessively cold or hot temperatures until concrete has cured.
 2. Provide curing of concrete by one of the methods listed and as appropriate to service conditions and type of applied finish in each case.
- B. Curing Period:
 1. Not less than 7 days for standard cements and mixes.
 2. Not less than 4 days for high early strength concrete using Type III cement.
- C. Formed Surfaces: Cure formed concrete surfaces by moist curing with forms in place for full curing period or until forms are removed.
 1. Keep wooden or metal forms moist when exposed to the heat of the sun.
 2. If forms are removed prior to completion of curing process, continue curing by one of the applicable methods specified.
- D. Surfaces Not in Contact with Forms:
 1. Start curing as soon as free water has disappeared, but before surface is dry. Place to protect adjacent concrete edges. Acceptable curing methods:
 - a. Curing compound: Apply at rate stated by manufacturer to conform to moisture-retention requirements specified, using second, immediate application to right angles first, if necessary, and reapply if damaged by rain.
 - b. Curing and hardening compound: Apply one or more applications as recommended by manufacturer to achieve maximum hardness and at rate stated by manufacturer to conform to moisture-retention requirements specified.
 - c. Use curing compounds only in locations permitted or requires, and where use will not interfere with other finishes, coatings, or coverings to be applied.
- E. During and following curing period, protect concrete from temperature changes of adjacent air in excess of 5 degrees F per hour and 50 F degrees per 24 hours. Progressively adjust protective measures to provide uniform temperature changes over entire concrete surface.

3.11 MISCELLANEOUS CONCRETE ITEMS (AS APPLICABLE)

- A. Fill-In: Fill in holes and openings left in concrete structures left for passage of work by other trades or after such work is in place. Place such fill-in concrete to blend with existing construction, using same mix and curing compounds.

3.13 CONCRETE REPAIRS

- A. Perform cosmetic repairs of concrete surfaces as specified under concrete application.
- B. Perform structural repairs with prior approval of engineer for method and procedure, using epoxy-bonded systems. The engineer's approval is required for repair methods using materials other than specified.
- C. Repair existing concrete elements as specified on the Contract Drawings.

3.14 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. Composite Sampling, and making and curing of specimens, ASTM C 172 and ASTM C 31.
 - 1. Take samples at point of discharge.
 - 2. For pumped concrete, perform sampling and testing at the frequencies specified herein at point of delivery to pump, and perform additional sampling and testing at the same frequency at discharge from line obtained at discharge from line shall be used for acceptance of concrete.
- B. Slump: ASTM 143. One test per strength test and additional tests if concrete consistency changes. Modify testing to comply with ASTM C 94.
- C. Air Content of Normal Weight Concrete: ASTM C 173 or ASTM C 231. One test per strength test performed on normal weight concrete.
- D. Concrete Temperature:
 - 1. Test hourly when air temperature is 40 degrees F or below.
 - 2. Test hourly when air temperature is 90 degrees F or above.
 - 3. Test each time a set of strength test specimens is made.
- E. Compressive Strength Tests: ASTM C 39.
 - 1. Compression Test Specimens: Mold and cure one set of 4 standard cylinders for each compressive strength test required. Mold an additional cylinder and cure on site using conditions similar to the concrete sampled, contractor shall provide a curing box for site cured concrete.
 - 2. Testing for acceptance of potential strength of as-delivered concrete:
 - a. Obtain samples on a statistically sound, random basis.
 - b. Minimum frequency:
 - i. Once each day a given class is placed, nor less than,
 - ii. Once for each 150 yd³ of each class placed each day, nor less than,
 - iii. Once for each 5000ft² of slab or wall surface area placed each day.
 - iv. When the above testing frequency would provide less than 5 strength tests for a class of concrete during the project,

- conduct tests from not less than 5 randomly selected batches, or from each batch if fewer than 5.
- c. Test one specimen per set at 7 days for information unless an earlier age is required.
 - d. Test two specimens per set for acceptance of strength potential; test at 28 days unless other age is specified. The test result shall be the average of the two specimens. If one specimen shows evidence of improper sampling, molding, or testing, the test result shall be the result of the remaining specimen; if both show evidence disregard the test and contact the engineer.
 - e. Retain one specimen from each set for later testing, if required.
 - f. Strength potential of as-delivered concrete will be considered acceptable if all of the following criteria are met:
 - i. No individual test result falls below specified compressive strength by more than 500 psi.
 - ii. Not more than 10 percent of individual test results fall below specified compressive strength f_c .
 - iii. Average of any three consecutive test results equals or exceeds the specified compressive strength.
3. Testing for evaluation of field-curing:
- a. Frequency: 1 field set of concrete specimens per day for each type of concrete poured during cold weather concreting.
 - b. Mold specimens from same sample used for strength acceptance tests. Field-cure, and test at same age as for strength acceptance tests.
 - c. Evaluate construction and curing procedures and implement corrective action when strength results of field-cured specimens are less than 85 percent of test values of companion laboratory-cured specimens.
4. Removal of Forms and Supports: Mold additional specimens and field cure with concrete represented; test to determine strength of concrete at proposed time of form and support removal.
- F. Test Results: Testing agency shall report test results in writing to engineer and contractor within 24 hours of test.
- 1. Test results shall contain following data:
 - a. Project name, number, and other identification.
 - b. Name of concrete testing agency.
 - c. Date and time of sampling.
 - d. Concrete type and class.
 - e. Location of concrete batch in the completed work.
 - f. All information required by respective ASTM test methods.
 - 2. Nondestructive testing devices such as impact hammer or sonoscope may be used at engineer's option for assistance in determining probable concrete

strength at various locations or for selecting areas to be cored, but such tests shall not be the sole basis for acceptance or rejection.

3. The testing agency shall make additional tests of in-place concrete as directed by the engineer when test results indicate that specified strength and other concrete characteristics have not been attained.
 - a. Testing agency may conduct tests of cored cylinders complying with ASTM C 42, or tests as directed.
 - b. Cost of additional testing shall be borne by the contractor when unacceptable concrete has been verified.

4.0 MEASUREMENT AND PAYMENT

No separate payment will be made for this item and all costs in connection therewith shall be included in the lump sum bid item "Bridge Deck Replacement".

SECTION 12.07
MEMBRANE WATERPROOFING

1.0 DESCRIPTION

This section applies to furnishing and installing membrane water proofing over the precast concrete box culvert as shown on the Contract Drawings.

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.
- B. State of Connecticut DOT Form 818 Standard Specifications for Roads, Bridges and Incidental Construction, applies to this section as if it were bound herein.
- C. AASHTO Standard Specifications for Highway Bridges applies to this section as if it were bound herein.

2.0 MATERIALS

The materials for this work shall meet the requirements of M.12.04 for primer, woven glass fabric saturated with asphalt, seal coat, and for asphalt flashing cement.

3.0 CONSTRUCTION METHODS

Concrete surfaces which are to be waterproofed shall be smooth, free from projections or holes, which might cause puncturing of the membrane fabric. The surface shall be thoroughly cleaned of loose or foreign substances.

No priming or waterproofing shall be done in wet weather nor when the temperature of the air or concrete surface is below 35°F, without special authorization from the Engineer.

Unless otherwise directed, construction joints above those at the footings of abutments, wing walls and retaining walls shall be made impervious to water by the application of membrane waterproofing on the unexposed surface for a distance of 18 inches on each side of the joint.

Primer: Beginning at the low point of the surface to be waterproofed, the primer shall be applied in one coat at a rate of 0.1 gal./s.y. The cure time of the primer shall be as recommended by the manufacturer.

Membrane Fabric: The waterproofing fabric and the seal coat shall be applied as follows: The asphalt shall be heated to a temperature of about 300°F (not over 350°F) with frequent stirring to avoid local overheating. The heating kettles shall be equipped with approved thermometers.

Waterproofing shall begin at the low point of the surface so that water will run over and not against or along the laps. A section about 20 inches wide and the full length of the surface shall be mopped with hot asphalt, and a strip of fabric of half width shall be rolled into it, pressed into place to eliminate all air bubbles and to obtain close conformity with the surface. This strip and an adjacent section of the surface of a width equal to slightly more than half the width of the fabric being used, shall then be mopped with hot asphalt, and a full width of fabric rolled into it, completely covering the first strip, and pressed into place as before. This second strip and adjacent section of the concrete surface shall then be mopped with hot asphalt and the next succeeding strips of fabric "shingled" on so that there will be 2 layers of fabric at all points with laps not less than 2 inches wide. All end laps shall be at least 12 inches.

This process shall be continued until the entire surface to be waterproofed has been covered. The fabric shall then be given a final mopping of hot asphalt. The mopping on concrete shall cover the surface so that no gray spots appear, and on fabric it shall be sufficiently heavy to completely conceal the weave. Special care shall be taken that all laps are thoroughly sealed down.

To insure a watertight joint between the bridge deck and the curb, asphalt flashing cement shall be applied to the joint for a distance of approximately 2 inches up on the curb and 2 inches out on the deck after the primer has set up and before the membrane is started. After the final mopping of the membrane, an additional coat of asphalt flashing cement shall be applied to the top edge of the membrane waterproofing to completely cover the fabric and to seal the joint made with the curb.

Care shall be taken to prevent injury to the finished membrane by the passage over it of men and equipment. Any damage which may occur shall be repaired by patching. Patches shall extend at least 12 inches beyond the outermost damaged portion, and the second ply shall extend at least 3 inches beyond the first.

Vehicular traffic shall not be allowed to pass over the finished membrane waterproofing. Upon completion of the membrane waterproofing, at least 1 course of the bituminous concrete wearing surface shall be placed as soon as practicable in order to prevent damage to the membrane waterproofing.

4.0 MEASUREMENT AND PAYMENT

No separate payment will be made for this item and all costs in connection therewith shall be included in the lump sum bid item "Bridge Deck Replacement".

SECTION 12.10 DRY RUBBLE MASONRY

1.0 DESCRIPTION

This item shall consist of approved stone, laid without the aid of mortar, so as to fit neatly and firmly, constructed in such shapes and at such places as indicated on the plans or where directed, and in accordance with these specifications.

2.0 MATERIALS

The materials for this work shall meet the requirements of M.11.02 for rubble masonry stone.

3.0 CONSTRUCTION METHODS

The masonry shall be constructed in the location and to the dimensions shown on the plans or as ordered.

1. Dressing Stone: All necessary dressing or shaping of stone shall be done before the stone is laid in the wall. No dressing or hammering which will loosen the stone will be permitted after it is placed. Stones at angles or at ends of walls shall be roughly squared and dressed to the required lines.
2. Laying Stones: The masonry shall be laid to line in courses, roughly leveled up. The bottom or foundation courses shall be composed of large, selected stones, and all courses shall be laid with bearing beds parallel to the natural bed of the material. Face joints shall have a width of not more than 1 1/2 inches.

In laying rubble masonry, care shall be taken that each stone takes a firm bearing at not less than 3 separate points upon the underlying course. Open joints, both front and rear, shall be chinked with spalls, fitted to take firm bearing upon their top and bottom surfaces, for the purpose of securing firm bearing throughout the length of the stone.

4.0 MEASUREMENT AND PAYMENT

The quantity of dry rubble masonry shall be the actual number of cubic yards, completed and accepted, within the neat lines of the structure as shown on the plans or as ordered by the Engineer. No deduction will be made for the volume occupied by culvert or drainage pipes having an exposed surface area of less than 9 s.f. for each opening. The computation of the surface area shall be based on the nominal diameter of the pipe, disregarding the thickness of the shell.

This work will be paid for at the Contract unit price per cubic yard "Masonry Stone Work" per cubic yard complete in place, which price shall include all materials, equipment, tools, labor and work incidental thereto.