

CONTRACT FORM
INCLUDING SPECIFICATIONS
FOR FIELD SUBSURFACE INVESTIGATIONS
BY TEST PIT CONTRACTORS

STATE PROJECT NO. 166-103
BRIDGE NO. 03240, IN WOLCOTT, CONNECTICUT
ROUTE 69 OVER MAD RIVER

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INVITATION TO BID

Proposals for the performance of test pits in the general vicinity of the proposed State Project No. 166-103; Bridge No. 03240 in Wolcott, Connecticut; Route 69 over Mad River will be received by CME Associates, Inc., until July 31st, 2019 at 5:00 PM, Eastern Time. Deliver all bids to CME Associates, Inc. 101 East River Drive, East Hartford, CT 06108, and via email to knervais@cmeengineering.com.

Plans, Specifications, test pit location plan, proposal form and form of contract are attached hereto.

Proposals must be made upon the form provided. The blank places in the form must be filled in as noted, and no change shall be made in the phraseology of the proposal or in the items mentioned herein. Proposals that contain any omissions, alternations, additions, or items not called for in the itemized proposal, or that contain irregularities of any kind, may be rejected as non-responsive.

All bids received without the following documents will be considered non-responsive:

1. Proposal Form – Completed and Signed
2. Bid Sheet – Completed and Signed
3. Certificate of Insurance

A performance contract bond and payment bond, each in the sum of one hundred percent (100%) of the contract price, will be required on execution of the contract.

A Certificate of Insurance in compliance with the insurance terms set forth in the Contract Agreement for Subsurface Explorations, must be submitted with this proposal.

CME Associates, Inc. reserves the right to reject any or all bids.

PROPOSAL FOR TEST PITS

AT THE SITE OF

**STATE PROJECT NO. 166-103
BRIDGE NO. 03240, IN WOLCOTT, CONNECTICUT
ROUTE 69 OVER MAD RIVER**

TO: CME Associates, Inc.

In submitting this bid, the undersigned declares that he/she is the only person or persons interested in the said bid; that it is made without any connection to any person making another bid for the same contract; and that the bid is, in all respects, fair and without collusion, fraud, or mental reservation.

The undersigned also declares that he has carefully examined the plans, specifications and form of contract and that he, or his duly authorized agent, has personally inspected the actual location of the work, together with the local sources of supply; has satisfied himself as to all the quantities and conditions; and understands that in signing this proposal, he waives all right to plead any misunderstanding regarding same.

The undersigned further understands and agrees that he is to furnish and provide for the respective unit bid price, all the necessary material, machinery, implements, tools, labor, services, etc., and to do and perform all the necessary work under the aforesaid conditions, to complete the work in accordance with the plans and specifications, which plans and specifications it is agreed are a part of this proposal. The list of bid items, together with the estimated quantities thereof, is set forth in the Bid Sheet, which accompanies and forms a part of this proposal. The undersigned further agrees that his total bid prices, which shall be evaluated in comparison with the total bid prices of other bidders, shall be completed as the summation of the products of the approximate quantities shown on the Bid Sheet multiplied by the gross sum bid. In case of discrepancy between the words and the numerals giving the unit bid prices, the words shall govern.

Furthermore, the undersigned fully understands that the quantities of the items set forth in the Bid Sheet are only approximate and agrees to accept the unit price as full compensation for the actual quantities of such items required to complete the work to the satisfaction of the Engineer, be the quantities more or less than those set forth in the Bid Sheet.

The undersigned agrees to submit a schedule of progress or time chart for the work concerned if so requested by the Engineer after the opening of the bids, and to do so within three (3) days of such request. The schedule or chart will be used in consideration of the bids, and after award of the contract, by the Inspector in the field as a check on the actual progress.

On acceptance of this proposal for said work, the undersigned does hereby bind himself to enter into written contract with CME Associates, Inc. within five (5) days of the date of notice of award and to comply in all respects with the terms of said contract. The undersigned agrees that this proposal shall be valid for thirty (30) calendar days from the date of this proposal.

Date _____, 20____

Print Legal Name of Person, Firm, or Corporation

By (Signature)

(Printed Name)

Bidder's Address (Not a P.O. address):

_____ Street

_____ City and State

_____ Telephone Number

_____ Email Address

If a Corporation:

Name

Address

_____ President _____

_____ Secretary _____

_____ Treasurer _____

If a Firm:

Name

Address

PROPOSAL FOR TEST PITS - BID SHEET

**STATE PROJECT NO. 166-103
BRIDGE NO. 03240 IN WOLCOTT, CONNECTICUT
ROUTE 69 OVER MAD RIVER**

Item No.	Approx. Quantities	Item Description – Pay Unit <i>Unit Bid Price (in words)</i>	Unit bid price dollars/cents <i>(in figures)</i>	Amount of Bid dollars/cents <i>(in figures)</i>
1	15	Vacuum/Manual Excavation Test Pits, per Linear Foot _____		
2	1	Mobilization and Demobilization, per Lump Sum _____		

TOTAL OR GROSS SUM BID, (*WRITTEN IN WORDS*):

**TOTAL OR GROSS SUM BID, *DOLLARS/CENTS (IN FIGURES)*: \$ _____

**This value will be used for comparison of Bids.

CONTRACT AGREEMENT FOR TEST PITS

AT THE SITE OF

**STATE PROJECT NO. 166-103
BRIDGE NO. 03240 IN WOLCOTT, CONNECTICUT
ROUTE 69 OVER MAD RIVER**

1. **GENERAL AGREEMENT**

This agreement, made and entered into this _____ day of _____, 2019, by and between CME Associates, Inc., hereinafter referred to as the "Engineer" or the Party of the First Part, and _____, hereinafter referred to as the Contractor or the Party of the Second Party,

WITNESSETH:

The Contractor shall furnish all labor, materials, equipment, supplies and other facilities, and shall perform all work necessary or proper for or incidental to the making of test pits at the locations on the plans at the site of Bridge No. 03240, Route 69 over Mad River in Wolcott, Connecticut, in strict accordance with the Specifications found herewith and the accompanying Contract Plans, and to the satisfaction and approval of the Engineer; and shall perform all other obligations and assume all liability imposed upon him by the Contract and Specifications.

In full consideration thereof, the Engineer will pay the Contractor, at the times and in the manner hereinafter provided, an amount determined by the prices named in the Clause, hereof entitled "Contract Unit Prices," and, except as otherwise provided herein, such amounts only. The prices for items named therein include full compensation to the Contractor for all labor, materials, and other things incidental to the completion of the entire work. Such payment shall be computed upon the basis of the actual quantities in the completed work, whether such quantities be more or less than those shown in the Bid Sheet bound herewith.

2. **CONTRACT UNIT PRICES**

Subject to the provisions of this Contract, the Engineer will pay and the Contractor shall accept in full consideration for the performance of the Contractor's obligation hereunder, the following unit prices:

- 1. For Vacuum/Manual Excavation Test Pits , \$ _____ per Linear Foot
- 2. For Mobilization and Demobilization , \$ _____ per Lump Sum

DIRECT COSTS

Subject to the provisions of this Contract, the Engineer will pay and the Contractor shall accept in full consideration for the performance of the Contractor's obligation hereunder, reimbursement as Direct Costs for the following items:

Item No. and Description	Estimated Duration	*Daily Rate	*Weekly Rate	*Weekend Rate	*Monthly Rate
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3. Traffic Person (For uniformed traffic control on non-railroad property)	2 days	\$_____	\$_____	\$_____	\$_____
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* If applicable, the Bidder should submit a rate for each category. "N/A" should be shown for non-applicable categories.

Estimated Total for Traffic Person \$_____

Item No. and Description	Estimated Duration	*Daily Rate (8hr/per day at job site including travel time)	*Weekly Rate (8hr/per day at job site including travel time)	*Weekend Rate (8hr/per day at job site including travel time)	*Monthly Rate (8hr/per day at job site including travel time)	*Over-time Hourly Rate (for hours beyond daily rate)
4. Truck Mounted Attenuation (TMA) Unit	2 days	\$_____	\$_____	\$_____	\$_____	\$_____ (weekday) \$_____ (weekend)
Additional Fees	Describe:					\$_____
Additional Fees	Describe:					\$_____

* If applicable, the Bidder should submit a rate for each category. "N/A" should be shown for non-applicable categories.

Estimated Total for Traffic Control Equipment \$_____

Item No. and Description	Estimated Qty.	Per Hole Rate	Or	Daily Rate
5. Hot Mix Asphalt Patching	3 locations	\$_____		\$_____

Estimated Total for Hot Mix Asphalt Patching \$_____

Item No. and Description	Estimated Qty.	Per Hole Rate	Or	Daily Rate
6. Cold Mix Asphalt Patching	3 locations	\$_____		\$_____

Estimated Total for Cold Mix Asphalt Patching \$_____

Item No. and Description	Estimated Duration	Hourly Rate
7. Standby Time, per hour	2 hours	\$_____

Estimated Total for Standby Time \$_____

Note: If the Bidder is providing Traffic Persons with their own employees and/or Traffic Control Equipment with their own equipment, then N/A should be put in all spaces in the tables above. Consequently, these costs shall be included in the Lump Sum cost for "Mobilization".

3. AUTHORIZED FEE LIMIT:

The value of the "Total or Gross Sum Bid" combined with the estimated value of all Direct Costs, submitted by the Contractor in the bid, will be the "Authorized Fee Limit" unless unexpected subsurface or site conditions are encountered or a change in drilling methodology is required and is approved by the Engineer. Under these circumstances adjustments to the "Authorized Fee Limit" *may* apply.

If the "Approximate Quantity", indicated on the Bid Sheet, exceeds the amount by up to ten percent (10%), authorization for additional payment by the Inspector in the field will be acceptable. If the "Estimated Duration" for Traffic Person and/or Traffic Control Equipment, indicated on the Bid Sheet, exceeds the amount by up to fifty percent (50%), authorization for additional payment by the Inspector in the field will be acceptable. If either of the authorized percentages is exceeded, authorization by the Engineer will be required.

If any item on an invoice is questioned, CME Associates, Inc may withhold payment of the amount in question, without interest, until the matter is resolved between the Parties, but shall promptly pay the amount not in question, in accordance with Payment terms of this contract.

4. EXTRA WORK

Unforeseen work made necessary by changes in plans or work necessary to complete the test pits, for which no price is provided in the contract, shall be classified as extra work and done in accordance with the requirements of the specifications and as directed by the Engineer.

The Engineer shall notify the Contractor of the necessity for extra work, stipulating its character and extent. Upon receipt of such notification, the Contractor shall notify the Engineer, in writing, of the fair compensation, either unit price or lump sum as requested, for which he proposes to perform the required extra work. The Engineer may accept the compensation proposed by the Contractor, or if he considers the prices submitted to be excessive, he may order the work done on a "Cost Plus" basis as specified hereinafter. In either case, the character and extent of extra work, together with the accepted basis of compensation shall be communicated to the Contractor in writing.

If the Engineer orders extra work performed on a "Cost Plus" basis, the Contractor shall perform the same and shall receive in payment therefor an amount equal to the actual net cost in money to him of the materials, wages of applied labor, other direct expense and insurance required for labor, plus 20 percent of the above items and plus such rental for plant and other equipment (other than small tools) as the Engineer deems reasonable, and that amount only. If the work is performed on a unit price basis, there is no markup.

No work shall be considered Extra Work unless it has been ordered in writing as such by the Engineer before the said work started, or unless the Contractor shall file a written claim for Extra Work with the Engineer within two (2) days from the date of instructions from the Engineer or his representative to proceed with such work.

5. PAYMENT

Partial Payment(s): On or about the first day of each calendar month, the Engineer will request the Contractor to furnish information necessary to estimate the value of the work satisfactorily done up to that time. Within fifteen (15) days after receipt of this information, the Engineer will request the State to pay him 90% of the value of the work thus estimated, less any previous payments made; and the Engineer, within ten (10) days after receipt of such payment from the State, will pay to the Contractor the amount thus received.

Final Payment: Upon verification of the satisfactory completion of all work whatsoever required, the Contractor shall furnish to the Engineer satisfactory evidence that all just liens, claims and demands for rental of equipment, labor and material, arising out of such work, are fully satisfied, and that all of the work is fully released from liens, claims and demands, whether just or otherwise. Within fifteen (15)

days after receipt of such evidence, the Engineer will request the State to pay him the total value of all work satisfactorily done, less any payments previously made, and within ten (10) days of receipt of this Final Payment from the State, the Engineer will pay to the Contractor all amounts still outstanding and due him. All prior estimates and payments shall be subject to correction in this payment, which is throughout this Contract called the Final Payment.

6. CONTRACT NOT TO BE ASSIGNED

The Contractor shall give his personal attention constantly to the faithful prosecution of the work. He shall not assign or otherwise dispose of the Contract, or his right, title or interest in or to the same or any part thereof.

7. MODIFICATION OF CONTRACT

No modification of or change in this Contract shall be valid or enforceable against either of the parties unless it is in writing and signed by the parties or their duly authorized representatives.

8. DEFAULT OF CONTRACT

When, in the opinion of the Engineer, the project or any part thereof has been abandoned, or the Contractor is willfully violating any of the covenants of this Contract, then the Engineer may declare the Contractor in default of the Contract and notify him to discontinue the project. The Engineer may then call on the Surety to complete the project.

9. TERMINATION

“CME” may terminate this “Agreement” for cause on one week’s written notice of default to “the Sub-consultant”. If the breach or default is capable of being cured within two weeks of receipt of the notice of default, “the Sub-consultant”, at “CME’s” discretion, shall be given up to two weeks to cure the default provided they make an immediate and substantive effort to cure the default. If the default, in “CME’s” view, will take longer than two weeks to cure or if the default places “CME” or “the Sub-consultant” in violation of the law or the “Contract” requirements, no opportunity to cure the default shall be required. Upon termination with cause, “the Sub-consultant” shall be due payment for the percentage of work completed by “the Sub-consultant” at the time the notice is given less the amount needed to cure the default. No other profit or compensation shall be due to “the Sub-consultant” for termination with cause.

10. COMMENCEMENT OF WORK

Subject to weather and/or safe navigation circumstances and/or delays receiving required permits, the Contractor agrees to mobilize and actually start work on the Contract within twenty-one (21) consecutive calendar days from the date of the written notice to proceed.

Failure to start the work within this timeframe will be considered a breach of this contract and may be cause for collection of the monies in the Performance and Payment bonds for completion of the work by others, unless the delayed start is authorized by the Engineer in writing.

11. PERFORMANCE CONTRACT BOND AND PAYMENT BOND

The successful Bidder, at the time of the execution of the contract, may deposit with the Engineer, a surety company bond for the satisfactory completion of the work and a surety company bond for the payment of all debts pertaining to materials, rental of equipment, and labor used or employed in the

execution of the Contract. These bonds shall each be in an amount equal to the amount of the contract award and in a form acceptable to the Engineer.

The Surety must be a corporate surety licensed to sign surety bonds in the State of Connecticut.

12. INSURANCE

The Bidder, to whom the Contract has been awarded, shall furnish to the Engineer, prior to the commencement of any work, satisfactory proof that all provisions, herewith specified, relating to the Contractor's insurance have been fully complied with.

13. WAIVER OF RESPONSIBILITY

It shall be understood that preliminary data obtained by subsurface explorations prior to this Contract and presented for examination by prospective bidders is not intended as a warranty of actual subsurface conditions to be encountered. The Engineer will bear no responsibility for the accuracy or suitability of subsurface information made available for examination and the conditions indicated by such information shall not be used by the Contractor as possible cause for subsequent revisions or waivers in the Contract.

14. NON-LIABILITY OF THE STATE AND ENGINEER'S REPRESENTATIVES

No agents or employees of the Engineer, the State of Connecticut, all officers, agents and servants of the State of Connecticut, Commissioner of Transportation and his successors, shall be charged personally by the Contractor with any liability or held liable to him, under any terms or provisions of this Contract or because of its execution or attempted execution, or because of any breach thereof.

15. CONTRACTOR'S WARRANTIES

The Contractor represents and warrants:

That he is financially solvent; that he is experienced in and competent to perform the type of work contemplated by this Contract. That he has carefully examined the specifications, plans, and the site of the work, the general and local conditions, and other matters which may in any way affect the work or its performance.

**STATE PROJECT NO. 166-103
BRIDGE NO. 03240, IN WOLCOTT, CONNECTICUT
ROUTE 69 OVER MAD RIVER**

IN WITNESS WHEREOF, the parties have caused these presents to be signed and sealed the day and year first above written.

Witness

Witness Signature	By	Contractor Signature
Print Name and Title		Print Name and Title
Date		Date

Witness

Witness Signature	By	Engineer Signature
Print Name and Title		Print Name and Title
Date		Date

SPECIFICATIONS FOR TEST PITS

SECTION 1 – GENERAL CONDITIONS

1-1 Definitions

"Engineer" shall mean the firm of CME Associates, Inc., or their authorized representative.

"Commissioner of Transportation" shall mean the Commissioner of Transportation for the State of Connecticut, acting directly or through his duly authorized representative.

"Contractor" shall mean the person, persons, or corporation, which has executed the Contract with the Engineer for the proposed work.

"Inspector" shall mean the firm of CME Associates, Inc., the authorized representative of the Engineer assigned to the inspection of work and materials.

"State" and/or "Department" shall mean the State of Connecticut Department of Transportation

1-2 Authority and Duties of the Engineer

All work shall be performed to the satisfaction of the Engineer and at such times and places, by such methods and in such manner and sequence as he may require and shall at all stages be subject to his inspection. Upon request of the Contractor, the Engineer will confirm in writing any oral order, direction or requirement.

1-3 Authority and Duties of the Inspector

The Inspector is the Engineer's representative in the field, responsible for oversight of the Contractor and ensuring that the work progresses in accordance with these Specifications. The Inspector has the authority to make decisions in the field regarding, but not limited to, test pit locations and quantities of pay items. The Inspector will record the locations of the test pits and verify footings, junction box and culvert elevations.

1-4 Injury to Persons or Property

The Contractor shall be responsible for all injury to persons or damage to property, either directly or indirectly, that may result from his operations.

1-5 Insurance

With respect to the operations performed by the Contractor under the terms of this contract and also those performed for the Contractor by its subcontractors, the Contractor will be required to carry at its own cost and for the duration of this contract, and any supplements thereto, with the State of Connecticut, National Railroad Passenger Corporation (AMTRAK), Metro North Railroad (MNRR) (*when applicable on projects over/near Amtrak/MNRR*) CME Associates, Inc., and other 3rd Parties necessary for successful completion of the work, being named as additional insured parties in conjunction with paragraph (A) and (B) below, the following minimum insurance coverages at no direct cost to the State or CME Associates, Inc. In the event the contractor secures excess/umbrella liability insurance to meet the minimum requirements specified in paragraphs (A) and/or (B) below, the State of Connecticut, AMTRAK, MNRR, CME Associates, Inc., and other 3rd Parties necessary for successful completion of the work, shall be named as additional insured.

1-5a Insurance Provisions

The State of Connecticut, its officers, officials, employees, agents, Boards and Commissions, and CME Associates, Inc. and other 3rd Parties necessary for successful completion of the work, shall be named as additional insured. The coverage shall contain no special limitations on the scope of protection afforded to the State.

The Contractor shall assume any and all deductibles in the described insurance policies.

The Contractor's insurers shall have no right of recovery or subrogation against the State and the described insurance shall be primary coverage.

Any failure to comply with the claim reporting provisions of the policy shall not affect coverage provided to the State.

Each required insurance policy shall not be suspended, voided, cancelled or reduced except after 30 days prior written notice by certified mail has been given to the State.

"Claims Made" coverage is unacceptable, with the exception of Professional Liability.

The Contractor agrees that he/she will not use the defense of Governmental immunity in the adjustment of claims or in the defense of any suit, unless requested by the State.

A. COMMERCIAL GENERAL LIABILITY

The Contractor shall carry Commercial General Liability Insurance, including Contractual Liability Insurance, providing for a total limit of One Million Dollars (\$1,000,000) for all damages arising out of bodily injuries to or death of all persons in any one accident or occurrence, and for all damages arising *out* of injury to or destruction of property in any one accident or occurrence, and, subject to that limit per accident, a total (or aggregate) limit of Two Million Dollars (\$2,000,000) for all damages arising out of bodily injuries to or death of all persons in all accidents or occurrences and out of injury to or destruction of property during the policy period.

B. AUTOMOBILE LIABILITY

The operation of all motor vehicles, including those hired or borrowed, used in connection with the Agreement shall be covered by Automobile Liability Insurance providing for a total limit of One Million Dollars (\$1,000,000) for all damages arising out of bodily injuries to or death of all persons in any one accident or occurrence, and for all damages arising out of injury to or destruction of property in any one accident or occurrence. In cases where an insurance policy shows an aggregate limit as part of the automobile liability coverage, the aggregate limit must be at least Two Million Dollars (\$2,000,000).

C. RAILROAD PROTECTIVE LIABILITY (When applicable on projects over/near railroads)

When the Agreement requires work on, over or under the right of way of any railroad company, the Contractor shall provide, with respect to the operations that it or its subcontractors perform under the Agreement, Railroad Protective Liability Insurance for and on behalf of the railroad company as named insured, and the State named as additional insured, providing for coverage limits of (1) not less than Two Million Dollars (\$2,000,000) for all damages arising out of any one accident or occurrence, in connection with bodily injury or death and/or injury to or destruction of property; and (2) subject to that limit per accident, a total (or aggregate) limit of Six Million Dollars (\$6,000,000) for all injuries to persons or property during the policy period. If such insurance is required, the Contractor shall obtain and submit the minimum coverage indicated above to the State prior to the commencement of rail related work and/or activities and shall maintain coverage until the work and/or activities is/are accepted by the State.

D. VALUABLE PAPERS AND RECORDS (When applicable)

The Contractor shall secure and maintain a Valuable Papers Insurance Policy at no direct cost to the State, until the complete design has been accepted by the State, and all original tracings, highway and bridge design computations, survey data, documents or data will have been returned to the State. This will assure the State that all records, papers, maps, statistics, survey notes, all tracings, highway and bridge design and other data or documents will be reestablished, recreated or restored if made unavailable by fire, theft, or any other cause. When survey data is furnished by the State it shall retain in its possession duplications of all survey plans and field notes. The Contractor shall retain in its possession duplications of all products of its work under this Agreement, if and when it is necessary for the originals to be removed from its possession during the time that this policy is in force. This policy shall provide coverage in the amount of Seventy-five Thousand Dollars (\$75,000) when the insured items are in its possession, and in the amount of Twenty Thousand Dollars (\$20,000) regardless of the physical location of the insured items.

E. WORKERS' COMPENSATION

With respect to all operations the Contractor performs and all those performed for the Contractor by subcontractors, the Contractor and subcontractor(s) shall carry Workers' Compensation Insurance and, as applicable, insurance required in accordance with the U.S. Longshore and Harbor Workers' Compensation Act, in accordance with the requirements of the laws of the State of Connecticut, and of the laws of the United States respectively.

Failure on the contractor to maintain insurance coverage in accordance with the terms of the agreement shall constitute a violation of the agreement and shall subject the Contractor to liquidated damages in the amount of ten percent (10%) of the total contract price, subject to the continued commercial availability of such insurance.

F. POLLUTION AND/OR ENVIRONMENTAL

The Contractor agrees to acquire and maintain pollution and environmental impairment coverage, if such insurance is applicable to the work performed by the Contractor under this agreement.

Failure of the Contractor to maintain insurance coverage in accordance with the terms of the agreement shall constitute a violation of the agreement and shall subject the Contractor to liquidated damages in the amount of ten percent (10%) of the total contract price, subject to the continued commercial availability of such insurance.

G. PROTECTION AND INDEMNITY INSURANCE FOR MARINE OPERATIONS IN NAVIGABLE WATERS (Not applicable)

If a vessel of any nature or kind is involved, the Contractor shall obtain the following insurance coverage:

Protection and Indemnity Coverage of \$300,000 per vessel or a limit equal to the value of hull and machinery, whichever is greater.

If there is any limitation or exclusion with regard to crew or employees under the protection and indemnity form, there must be a worker's compensation policy in effect, including coverage for operations under admiralty jurisdiction with a limit of liability of \$300,000 per accident or to a limit equal to the hull and machinery, whichever is greater, or as otherwise required by statute.

H. CERTIFICATE OF INSURANCE

In conjunction with the above, the Contractor agrees to furnish to the State a Certificate of Insurance on a form acceptable to the State, fully executed by an insurance company or companies satisfactory to the State, for the insurance policy or policies required hereinabove, which policy or policies shall be in accordance with the terms of said Certificate of Insurance.

In addition, the original Railroad Protective Liability Insurance Policy must be submitted to Amtrak prior to commencement of operations (not applicable).

The Contractor shall produce, within five (5) business days, a copy of copies of all applicable insurance policies when requested by the State. In providing said policies, the Contractor may redact provisions of the policy that are proprietary. This provision shall survive the suspension, expiration or termination of this agreement/contract.

1-5b – Additional Coverage

Other types of coverage may be offered by the Contractor.

(I) UMBRELLA LIABILITY:

In the event the Contractor secures excess/umbrella liability insurance to meet the minimum requirements specified in items A, B, C, D, E, F, G and H (when required), the State of Connecticut must be named as Additional Insured. The State of Connecticut must be the Named Insured if a separate umbrella policy is obtained to supplement the coverage specified for item A.

1-5c – Certificate of Insurance

The Contractor agrees to furnish to the Engineer a Certificate of Insurance in conjunction with Items A, B, C, D, E, F, G, and H above, fully executed by an insurance company or companies satisfactory to the State, for the insurance policy or policies herein above, which policy or policies shall be in accordance with the terms of the Accord form. For the Workers' Compensation Insurance and, if applicable, the U.S. Longshoremen and Harbor Workers' Compensation Act coverage, the policy number (s) and term of the policy (ies) shall be indicated on the Certificate of Insurance. Each insurance policy shall state that the insurance company agrees to investigate and defend the insured against all claims for damage, even if groundless.

1-5d – Responsibility for Claims and Liability

- (a) The Contractor shall indemnify and hold harmless, National Railroad Passenger Corporation (AMTRAK), Metro North Railroad (MNRR) (*when project is over/near railroad*), CME Associates, Inc., and other 3rd Parties necessary for the successful completion of the work, the State and its officers, representatives, agents, servants, employees, successors and assigns from and against any and all (1) Claims arising directly or indirectly in connection with the Agreement, concerning the negligent acts of commission or omission (collectively, the "Acts") of the Contractor or Contractor Parties, and (2) liabilities, damages, losses, costs and expenses, including but not limited to attorneys' and other professionals' fees, arising directly or indirectly in connection with Claims, Acts or the Agreement, to the extent of the Contractor's or Contractor Parties' negligence. The Contractor's obligations under this section to indemnify and hold harmless against Claims includes Claims concerning confidentiality of any part of or all of the Contractor's bid, proposal or any Records, any intellectual property rights, other proprietary rights of any person or entity, copyrighted or uncopyrighted compositions, secret processes, patented or unpatented inventions, article or appliances furnished or used in the performance.
- (b) The Contractor shall not be responsible for indemnifying or holding the State harmless from any liability arising due to the negligence of the State or any third party acting under the direct control or supervision of the State.
- (c) The Contractor shall reimburse the State for any and all damages to the real or personal property of the State caused by the Acts of the Contractor or any Contractor Parties. The State shall give the Contractor reasonable notice of any such Claims.

- (d) The Contractor's duties under this section shall remain fully in effect and binding in accordance with the terms and conditions of the Agreement, without being lessened or compromised in any way, even where the Contractor is alleged or is found to have merely contributed in part to the Acts giving rise to the Claims and/or where the State is alleged or is found to have contributed to the Acts giving rise to the Claims.
- (e) The Contractor shall carry and maintain at all times during the term of the Agreement, and during the time that any provisions survive the term of the Agreement, sufficient general liability insurance to satisfy its obligations under this Agreement. The Contractor shall name the State as an additional insured on the policy. The Department shall be entitled to recover under the insurance policy even if a body of competent jurisdiction determines that the Department or the State is contributorily negligent.
- (f) This section shall survive the termination of the Agreement and shall not be limited by reason of any insurance coverage. The Contractor shall not use the defense of Sovereign Immunity in the adjustment of claims or in the defense of any suit, including any suit between the State and the Contractor, unless requested to do so by the State. If this Agreement is between the State and a Municipality, the Municipality agrees that in the event of an adjustment of claims or in the defense of any suit between the State and the Municipality, the Municipality shall not use the defense of Governmental Immunity.

1-6 Laws To Be Enforced

The Contractor, at all times, shall observe and comply with all federal and state laws and local bylaws, ordinances, and regulations in any manner affecting the conduct of the work or applying to employees on the project, as well as all orders or decrees which have been promulgated or enacted, by any legal bodies or tribunals having authority or jurisdiction over the work, materials, employees for contract.

1-7 Right of Way and Damage to Property

The Contractor shall obtain all necessary permits and licenses at his own expense from the authorities having jurisdiction. – *When applicable*

The Contractor shall comply with all federal laws, state statutes and local ordinances of the city, town, or village in which the work is being done.

The Contractor shall be responsible for carrying out the work in accordance with the provisions of all permits. – *When applicable*

The Contractor may occupy during his operations only those portions of streets or public places at the boring locations for which the required permits have been obtained by him. – *When applicable*

If the Contractor desires to use additional areas outside of those required for the borings, he shall arrange for such areas at his own expense.

The Contractor shall take every precaution against injuring paving, utilities, or private properties and shall promptly repair at his own expense any damage to such paving, utilities, or private property, to the satisfaction of the Engineer. The requirement includes the filling of all drill holes and the re-sodding of any areas where the grass is damaged. Property, which is damaged as the result of the Contractor's operations, shall be repaired at the Contractor's expense, to the satisfaction of the Engineer.

The location of all stationary and mobile equipment shall be subject to the approval of the Engineer and upon the completion of the Contractor's operations at each site, he shall remove equipment therefrom and shall clear the area of all debris and restore it to the condition existing before the start of his operations. All casings shall be withdrawn from the drill holes.

The Contractor shall carry on his operations without interference or delay to traffic, including marine. He shall furnish all labor, material, watchmen, barricades, signs, and lights necessary to maintain traffic, to protect his work and the public during the operations, and to comply with all orders of the Engineer, of the Corps of Engineers, U. S. Army, and of the U. S. Coast Guard pertaining to navigation, and of all other agencies having jurisdiction. - *When applicable*

The Contractor is cautioned that there shall be no entry of his equipment or personnel upon private property until the Engineer first notifies him that such entry is permissible in accordance with state statutes and state policy and until he, the Contractor, then informs the property owner that entry is being made pursuant to said notification. He shall, at all times, carry out his operations so as to inconvenience no resident at or near the working area. The Contractor shall make clear to all his personnel, the importance of proper public relations. The Engineer will not condone any rude or inconsiderate treatment of any citizens of the State by personnel employed on this project. The Engineer reserves the right to require the removal from the work of any persons or persons employed by the Contractor who has violated this section of the specifications, and such person or persons shall not be employed again thereon without the written consent of the Engineer.

1-8 Cleaning Up and Restoration

After completing the work, the Contractor shall promptly remove all equipment and other materials brought by him to the site and restore the site to its original condition. It is anticipated that hot patch will be required for test pits in paved areas.

Each test pit site shall be restored to the condition that it was received in. The cost of this work will be incidental to the work and included in the overall cost of the Contract.

1-9 Progress and Time of Completion

Subject to weather and/or safe navigation circumstances and/or delays receiving required permits, the field work under this Contract shall be commenced within twenty-one (21) consecutive calendar days from the date of the written notice to proceed. Once the actual field work is started, subject to weather and/or safe navigation circumstances, it shall be prosecuted continuously to completion within Five (5) business days.

If the quantities stated in the proposal are increased, as hereinafter provided, the number of calendar days allowed for completion will be similarly increased. This increase will be in the same proportion as the increase in the total payments to the Contractor above the amount of the executed Contract.

Aside from weather and/or safety navigation delays, or other delays outside of the Contractor's control, shall the Contractor fail to complete the work hereunder in accordance with the Contract within forty-five (45) calendar days from written Notice to Proceed, he shall pay to the Engineer the sum of \$500 for each and every calendar day that the time consumed in said completion exceeds the above-mentioned time allowed for that purpose. This sum shall not be considered as a penalty, but as the liquidated damages that the State will suffer by reason of said delay. The Engineer shall deduct the amount of such liquidated damages from the monies, which may be due or become due to the Contractor under this Contract.

1-10 Health and Safety Plan

The Contractor shall have a General Health and Safety Plan for the work to be performed and assumes full responsibility for site safety of the Contractor's personnel. The Department or Engineer may request a copy of the health and safety plan. The purpose of this requirement is to assure proper and safe conduct of excavation operations. Items to be covered in the General Health and Safety Plan include, but are not limited to general safety practices of equipment movement and operation:

- Protective clothing and gear
- Buried and overhead utilities
- Working over water
- Traffic Safety
- First Aid
- Inclement weather policy

1-11 Railroad Safety Training – *When applicable on projects over/near railroads.*

The Contractor and his/her personnel involved in the work to be performed shall coordinate and complete all required railroad safety training as set forth by Railroad requirements and assumes full responsibility for Railroad Safety Training of the Contractor’s personnel. The Engineer may request a copy of the certificate of training completion and/or copy of ID passes, if any, issued by the railroad.

1-12 Work Day

Typical allowable hours for operations in the river are 7:00 AM to 5:00 PM, Monday through Friday, may be assumed for completion of this work. However, the typical allowable work hours may vary by season. This includes the time to move the barge to and from where it is stored overnight to the work site and set up any devices needed for marine traffic control.

Typical allowable work hours for operations on paved surfaces of State roadways are from 9:00 a.m. to 4:00 p.m. This includes the time to set up and remove sign patterns and any other devices needed for traffic control. The Order of Conditions of the project specific Encroachment Permit may shorten or lengthen the typical allowable hours. The Contractor is required to obtain an Encroachment Permit from the District before performing any work within the State ROW.

Typically, no work is allowed during inclement weather. Work on Interstate Highways and other Limited Access Expressways may have further restrictions, one of which may be, work requiring the closure of 2 or more lanes may need to be performed at night.

Work which can be performed from outside of the paved surfaces of roadways and which does not require any traffic control on the adjacent roadway is typically allowed from 7:30 a.m. to 5:00 p.m. However, the typical allowable work hours may vary by season.

The Contractor will not be permitted to work on the following Legal Holidays; New Year's Day, Washington's Birthday, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, Martin Luther King Day, Lincoln's Birthday, Columbus Day, and Veteran's Day. Also, the Contractor will not be permitted to work on the day before and the day after any of the above Legal Holidays on Interstate Highways, Limited Access Expressways, or Railroads. This applies also to the Friday immediately preceding any of the above Legal Holidays celebrated on a Monday and the Monday immediately following any of the above Legal Holidays celebrated on a Friday.

The Contractor may work on the above Legal Holidays, if pre-approved by the Department.

No additional premium will be paid for work required outside of the normal work hours. No work of any kind shall be performed by the Contractor without prior approval of the Engineer.

On Site work hours will be restricted for work on Interstates and Expressways, which includes most of the exploration work for this project. On site work deviating from normal work hours (restricted hours and night work) will be required, and shall be conducted as shown in the Order of Conditions of the Encroachment Permit, which the Contractor must obtain from the District prior to executing the work. A list of conditions expected

to be included on the Contractor's Encroachment Permit is included in the appendices. One and two-lane closures are anticipated, and shall be included under Section 2-17, Mobilization and Demobilization-Land.

Restrictions for work on Interstates and Expressways are expected to include the following:

1. No work that will interfere with the flow of traffic will be permitted before 8:00 p.m. and after 5:00 a.m., for any work on the paved surface.
2. For work off the road, in the grass areas, the hours will be 8:30 a.m. to 4:00 p.m. Monday through Friday.
3. No work will be allowed during inclement weather.
4. Holiday Restrictions: No permit work within the highway right of way will be permitted the day before a legal holiday and no work shall be resumed until 12:00 noon the day following the holiday, unless otherwise approved or indicated. Weekends shall be considered as part of the holiday when the legal holiday falls on a Friday or Monday.

SECTION 2 – TECHNICAL PROVISIONS

2-1 Scope of Work

The work to be done under this contract includes the furnishing of all material, labor, equipment, water supply and all else necessary for excavating test pits, backfilling the area, and patching the pavement as described herein and shown on the test pit location plan.

It is anticipated that hot patch will be required for test pits in paved areas.

The work is located on the route and in the general vicinity of Route 69 over Mad River, Bridge No. 03240 in Wolcott, Connecticut.

The proposal shall include, but not limited to, all costs associated with: excavating a minimum of three (3) test pits using vacuum excavation and/or conventional excavation along Route 69, & between Hillside Drive and MacCormack Drive in accordance with the provided drawing; traffic control (if required); temporary excavation support system (if necessary); mobilization; demobilization; all necessary equipment and tools; fuel costs; materials and labor for patching of areas where test pits are dug, acquisition of State permit, coordination with CME personnel, overhead, profit and administrative costs. CME's survey crew will mark the desired location of the test pits. Upon the completion of each test pit the disturbed area ground and/or pavement structure shall be restored to its original condition.

It is anticipated that temporary lane or shoulder closures will be necessary to perform the test pit excavation. A State Permit will need to be obtained to perform the work anywhere within the Route 69 Right-Of-Way. Depending on the requirements of the State Permit, State Police, local police officers or flaggers may be needed to assist with traffic control.

2-2 Contract Plans

The work shall conform to drawings prepared by CME, numbered and titled as follows:

Drawing Set Title	Bridge No. 03240 in Wolcott, Connecticut Route 69 over Mad River
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Drawing Description	Test Pit Location Plan - Water
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2-3 Supervision

The work shall be performed under the supervision and direction of the Inspector. No subsurface explorations shall be made except in the presence of the Inspector. The Inspector will check the logs of the explorations to determine that the information designated herein is being obtained, and see that all samples are properly preserved, protected against damage, boxed and stored in a suitable place or immediately turned over to the Inspector as provided hereafter.

2-4 Existing Conditions

Before any test pits are performed, the Contractor shall contact "Call Before You Dig" at (860) 922-4455 to obtain a request number in accordance with State and Federal laws. The request number expires in 30 calendar days; therefore, the Contractor is responsible for maintaining an active request number. The Contractor will supply the Engineer with the request number(s) prior to the start of work. During the progress of the work, the Contractor shall cooperate with the owners of the utilities and permit their representative access to the work to determine if their utilities are being endangered in any way. Any relocation of test pits shall be done with the approval of the Inspector. In addition to contacting "Call

Before You Dig”, the Contractor is required to notify Mr. Robert Kennedy at (860) 594-3458, of the State of Connecticut Department of Transportation, to locate all State-owned utilities.

2-5 Contractor's Plant and Equipment– *When applicable*

All plant, equipment, and methods to be used by the Contractor shall be subject to approval by the Engineer and Amtrak/MNRR (*when applicable for projects over railroads*) at all times during the work; however, approval of the equipment shall not be construed as including the approval of the performance thereof. Additional equipment and methods shall be provided when ordered by the Engineer if required to perform the work satisfactorily according to the Specifications. For work on water, the barge, boat, or other float shall be securely anchored.

If drilling equipment for track level work consists of hi-rail, truck mounted drilling equipment, only one track will be shut down at a time, as such the equipment must allow a train to pass on an adjacent track. All equipment used within the Amtrak/MNRR right-of-way must be pass inspection by the Railroad prior to mobilization to the site. Access for hi-rail equipment will be as directed by the railroad company

The Contractor shall be required at all times when the work is in progress to have a minimum of **one** (1) drilling rig with a complete crew at the site and engaged in field operations. The Contractor shall submit in writing, upon request of the Engineer, a schedule of operations for the work. The Engineer shall be notified at least 48 hours in advance of deviations from the schedule and such deviations shall be subject to the approval of the Engineer.

2-6 Schedule of Operations

The Contractor shall submit in writing, upon request of the Engineer, a schedule of operations for the work. The Engineer shall be notified at least 48 hours in advance of deviations from the schedule and such deviations shall be subject to the approval of the Engineer.

2-7 Cooperation by Contractor

The Contractor shall at all times have on the work, as his agent, a competent superintendent or foreman thoroughly experienced in the type of work being performed, who shall receive instructions from the Inspector. The superintendent shall have full authority to execute the orders or directions of the Inspector, without delay, and to supply promptly such materials, equipment, tools, labor and incidentals as may be required.

2-8 Character of Workmen

The Contractor shall employ only superintendents, foremen, and workmen as are careful and competent, and the Engineer may demand the dismissal of any person or persons employed by the Contractor in or about the work who misconduct himself or be incompetent or negligent in the due and proper performance of his or their duties, or neglects or refuses to comply with the directions given, and such person or persons shall not be employed again thereon without the written consent of the Engineer. Should the Contractor continue to employ or again employ such person or persons, the Engineer may withhold all payments, which are due or become due, or the Engineer may suspend the work until such orders are complied with.

2-9 Line and Grade

Line and grade for the entire work will be established and laid out by the Engineer or Inspector. The Contractor shall execute the work to such line and grade.

2-10 Facilities to be Furnished by the Contractor– *When applicable*

If project involves work on water, the Contractor shall provide and set a water level gauge at his own expense as directed by the Engineer, the use of a boat or float, and boatmen, laborers and material to constitute a part of the usual equipment and crew on his contract, as may be required in supervising with work. The Contractor shall construct his own access roads or trails as required. The cost of all these items shall be included in the unit bid prices.

2-10 Test Pits

a. General:

Excavation shall be performed at location directed by the Engineer or Inspector. The horizontal size of test pits dug shall be kept as small as practical, for the type of equipment used, to limit disturbance to the adjacent ground but large enough to locate the underground feature and allow for visual inspection and location by survey. When non-cohesive soils are encountered, the Contractor shall provide a method of keeping the test pit open in order to allow easy inspection of underground features, which is acceptable to the Inspector. When the test pit is approved and accepted by the Engineer, it shall be backfilled with compacted suitable granular material to existing grade, or subgrade in paved areas. Paved areas shall be patched to match the existing pavement to the satisfaction of the Engineer.

If a test pit reaches the maximum depth and the anticipated underground feature is not found within the limits of the excavation, the horizontal size of the excavation shall be increased by 50% in one direction, as directed by the Engineer or Inspector, in an attempt to locate the underground feature. If the underground feature is still not found, the test pit will be considered unsuccessful and shall be abandoned.

b. Vacuum Excavation:

When specified, test pits shall be dug by using an appropriately sized vacuum truck to remove soil from the test pit. Test pits shall be dug to maximum depth shown on the plans entitled "Test Pits Location Plan".

c. Conventional Excavation:

Non-applicable

d. Manual Excavation:

When specified, due to the close proximity of sensitive features or hazards associated with feature being located, test pits shall be hand dug with shovels, picks and other small hand held tools. Test pits shall be dug to maximum depth shown on the plans entitled "Test Pits Location Plan"

2-11 Asphalt Patching

At the discretion of the CTDOT District that prepares the Encroachment Permit, all boreholes through state-owned pavement will require either hot-mix or cold-mix patching.

Hot-Mix Patching

The CTDOT Encroachment Permit obtained for the project may require that all boreholes conducted through pavement on state-owned roadways and lots be patched in kind with hot bituminous concrete. The patching shall include pounded stone base and bituminous concrete matching the thickness of the pavement section drilled into. The Contractor shall make certain that hot bituminous concrete is available at the time of year for which the work is to be completed.

Cold-Mix Patching

The CTDOT Encroachment Permit obtained for the project may require that all boreholes conducted through pavement on state-owned roadways be patched using high-performance cold-mix compound such as Aquaphalt®, or approved equal, applied per manufacturer recommendations. The patching shall include pounded stone base and cold-mix compound matching the thickness of the pavement section drilled into.

2-12 Submittals – *When applicable*

Contractor shall prepare a written Work Plan and submit it with this Proposal, to include the following (at minimum):

- A. Craft: A listing of the proposed watercraft to be used in support of this operation, including size and any other pertinent information.
- B. Sampling: The mechanism proposed to obtain sediment samples as required herein. Include examples of prior use of proposed sampling technique in similar conditions.
- C. Location: Proposed methods for navigating to and obtaining as-drilled location information for the borings.
- D. Launch and Storage: Proposed launch and overnight storage provisions. Also, proposed work hours.
- E. Disposal: Proposed sample facility.

Any requested deviations from the Technical Provisions, including rationale for request.

2-13 Standby Time

Certain projects may require the Contractor to suspend operations during the normal work day, after work has already begun for the day, due to unexpected restricted working hours imposed by the Department or for other reasons such as: traffic related issues (including air and rail traffic), unexpected weather conditions, tides or other conditions. Work on site of active construction projects may periodically require that the Contractor temporarily stop the boring operations. When a stoppage of work occurs for any reason, it will be determined by the Engineer as to whether or not it qualifies as Standby Time.

Standby Time will not be paid when a full scheduled work day cannot be performed due to predicted adverse weather conditions, lack of qualified laborers/operators or equipment breakdown.

Should the State or Engineer deem the equipment or workers to be unsafe, no Standby Time will be paid for the Contractor to furnish replacement workers or equipment.

Standby Time will not be paid to assemble or remove a traffic control pattern.

If more than one (1) drill rig is being used on a project this item will be paid per hour per drill rig when applicable, as determined by the Engineer.

If Traffic Control services consisting of State Troopers or Local Police have been scheduled and confirmed with the entity on a particular work day and a Trooper or Police Officer does not show up on site, Standby Time will only be paid from the time that the Contractor normally begins work on site to the time that the Contractor leaves the site, as directed by the Inspector. If Flagmen services have been scheduled and confirmed with the Railroad on a particular work day and the Flagmen do not show up on site, Standby Time will only be paid from the time that the Contractor normally begins work on site to the time that the Contractor leaves the site, as directed by the Inspector.

2-14 Trafficpersons- *When Applicable*

The Contractor shall provide the services of Trafficpersons of the type and number, and for such periods, for the control and direction of vehicular traffic and pedestrians in accordance with the State of Connecticut DOT Traffic Control Manual.

The Contractor shall inform the Engineer of his scheduled operations and the number and type of Trafficpersons requested and/or required by permit.

If the Contractor changes or cancels any scheduled operations without prior notice of same, as required by the agency providing the Trafficperson, and such that Trafficperson services are no longer required, the Contractor will be responsible for payment, at no cost to the Engineer, of any shown-up cost for any Trafficperson not used because of the change. Exceptions may be granted for adverse weather conditions and unforeseeable causes beyond the control and without the fault or negligence of the Contractor.

Trafficpersons shall consist of the following types:

State Police Officers: State Police Officers shall be uniformed off-duty sworn Connecticut State Troopers. Their services will also include the use of Official State Police vehicles and associated equipment.

State Police Officers will be used on all limited access highways. State Police Officers will not be used on non-limited access State highways. State Police Officers with Official State Police vehicles will be used at such locations and for such periods necessary to control traffic operations and promote increased safety to motorists through the construction sites. On limited access highways, State Police Officers will be utilized for regional work zone traffic safety and enforcement operations in addition to project-related work zone assignments.

Uniformed Municipal Police Officers: Uniformed Municipal Police Officers shall be sworn Municipal Police Officers or Uniformed Constables who perform criminal law enforcement duties for the Municipality in which the project is located. Their services will also include an official Municipal Police vehicle. Uniformed Municipal Police Officers will be used on all non-limited access highways. If the Town where work is being performed does not have a municipal police force then State Police Officers will be used on non-limited access State Highways and in some cases on local roads as determined by the Town's traffic authority.

Uniformed Municipal Police Officers and requested Municipal Police vehicles will be used at such locations and for such periods deemed necessary to control traffic operations and promote increased safety to motorists through the work site.

Uniformed Flaggers: Uniformed Flaggers shall be persons who have successfully completed flagger training by the American Traffic Safety Services Association, National Safety Council or other programs. Services of Uniformed Flaggers shall include the following equipment: garments (including high visibility headgear) so as to be readily distinguishable as a Flagger in accordance with Standard 6E-3 of the MUTCD, and these specifications, and a STOP/SLOW paddle that is at least 18 inches in width and with letters at least 6 inches high, mounted on a handle of sufficient length so that the bottom of the sign will be 6 feet above the ground, and conforms to Standard 6E-4 of the MUTCD and catalog number 387-80-9950 of the Catalog of Signs Connecticut DOT.

Uniformed Flaggers will only be used on non-limited access highways when authorized by the Traffic Control Manual. Uniformed Flaggers will be used at such locations and for such periods necessary to control traffic operations.

General: Uniformed Law Enforcement Personnel being used as Trafficpersons may conduct motor vehicle enforcement operations in and around work areas.

Trafficpersons shall wear a high visibility safety garment that complies with OSHA, MUTCD, ASTM Standards and the following:

Uniformed Law Enforcement Personnel shall wear the high visibility safety garment provide by their law enforcement agency. If no high visibility safety garment is provided, the Contractor shall provide the law enforcement personnel with a garment meeting the requirements stated below for the Uniformed Flaggers' garment.

Uniformed Flagger – The base material for the safety garment shall be a fluorescent color of orange, yellow, or strong yellow-green. The garment shall have vertical and horizontal stripe markings of contrasting color to the base material to enhance noticeability of the wearer. These markings shall be made of retroreflective or combination of retroreflective and non-retroreflective materials. The retroreflective material shall be orange, yellow, white, silver, strong yellow-green, or a fluorescent version of one of these colors and shall have a minimum width of 5/8". A minimum area of 40 square inches of retroreflective material must be visible when the garment is viewed from either the front or back and a minimum of 12 square inches of retroreflective material must be visible from any other normal observation angle. The safety garment shall have the words "Traffic Control" clearly visible on the front and rear panels (minimum letter size 2 inches).

Worn/faded safety garments that are no longer highly visible shall not be used. The Inspector shall direct the replacement of any worn/faded garment at no additional cost to the State.

A Trafficperson shall assist in implementing the traffic control specified in the Maintenance and Protection of Traffic contained elsewhere in these specifications or as directed by the Engineer. Any situation requiring Trafficpersons to operate in a manner contrary to the Maintenance and Protection of Traffic Specification shall be authorized in writing by the Engineer.

Prior to the start of operations on the project requiring the use of Trafficpersons, a meeting will be held with the Contractor, Trafficperson agency, and Inspector to review the Trafficperson operations, lines of responsibility, and operating guidelines which will be used on the project.

In the event of an unplanned, emergency, or short-term operation, the Inspector may approve the use of properly clothed, non-certified Trafficpersons until such time as a certified Trafficperson may be obtained. In no case shall this temporary use exceed 8 hours for any particular operation.

2-15 Traffic Control Equipment– *When applicable*

When the Contractor's operations obtrude onto any part of the roadway, the Contractor is to adhere to the Department's publication "Traffic Control During Maintenance Operation" latest edition (revised 07/2002 included in attachments). When Traffic Control equipment and devices are provided by a Sub-contractor, payment shall be made as a direct cost and shall be included on the bid form under "Traffic Control Equipment."

2-16 Truck Mounted Impact Attenuator Vehicles ("TMAs") – *When Applicable*

Operations on limited access, high volume roadways which require the use of a TMA (commonly referred to as a crash truck) will be provided in accordance with this item. The TMA will be placed prior to the first work area in the traffic control pattern. If there are multiple drill rigs working within the same pattern then each drill rig will have a TMA positioned at a sufficient distance (25 to 100 feet), as directed by the Client Agency, to protect the workers and traveling public.

The Contractor will document and demonstrate to the Client Agency's satisfaction that the system conforms to the requirements of a new system, or National Cooperative Highway Research Program ("NCHRP") Report 230 or NCHRP 350 (TL-2), both of which are incorporated herein as they may be amended, updated or succeeded from time to time.

The attenuation device will be mounted on a truck or service vehicle similar in size and weight to the truck that was used in the crash testing for the device that was submitted and approved by the Federal Highway Administration (“FHWA”). In addition, the truck will have a minimum weight (mass) of 15,000 pounds (6,800 kilograms) and a maximum weight (mass) in accordance with the manufacturer’s recommendations. Any ballast used to obtain the minimum weight requirement, or any other object that is placed on the vehicle will be anchored so that it will be retained on the vehicle during an impact.

The truck will be equipped with an internally illuminated flashing arrow visible from the rear. The bottom of the illuminated arrow sign will be installed a minimum of 7 feet above the ground. The illuminated arrow will conform to the requirements of Part VI MUTCD, Advance Warning Flashing Sequencing Arrow panels, Type C.

The truck will be equipped with a minimum of two (2) amber strobe type flashers mounted above the internally illuminated flashing arrow.

The TMA unit will have a chevron pattern that covers the rear face of the unit. The standard chevron pattern will consist of stripes, alternating non-reflective black and Type III retro-reflective yellow sheeting, slanted at 45 degrees in an inverted “V” pattern, centered on the rear of the unit. The width of the stripes will be between 4 and 8 inches.

The disposal of crushed or damaged systems is the responsibility of the Contractor. The disposal method employed will be approved by the Client Agency.

This item will be measured for payment by the actual number of TMA(s) that are used on a daily basis when determined necessary by the Client Agency. This item will be due for payment at the time of the final payment.

2-17 Mobilization and Demobilization

Land- *When Applicable*

This item shall include the initial mobilization of the drill rig at the project site and the final demobilization after all borings are complete. The Contractor is required to furnish the drill rig and tools, in good condition and all other equipment necessary to carry on and complete the work properly. The Contractor may be required to mobilize and dismantle his equipment at existing highway structures, highway embankments, highway rights of way, off the traveled way, wooded areas and other difficult sites. The Contractor shall have the necessary equipment and personnel to assemble his drilling equipment at the desired locations.

The backfilling and casing, work hours, permits or any other requirements made by the Department or other public transportation authority shall be complied with by the Contractor and any costs shall be considered as part on the unit price of Mobilization and Demobilization and no additional compensation will be allowed. No additional compensation will be made to the Contractor for preparing the application for and acquiring the entry permit and its associated fee.

This item shall also include full compensation for all Traffic Control Equipment (such as; traffic control devices, cones, signs, etc.) when owned, provided and used by the Contractor. This does not include TMA units, arrow boards, message signs, etc. when provided by a Traffic Control subcontractor.

All material or equipment furnished under this item shall remain the property of the Contractor and shall be maintained and disposed of by him. This item shall carry all charges incident to such plant setup and removal, in order that the charges need not be distributed among the more variable items of the contract.

Railroad (*applies to any explorations located within the Railroad right-of-way, or impacting the right-of-way during mobilization, possibly including borings S2-2, S2-3, and others when applicable*).

This item shall include the initial mobilization of the drill rig at the project site and the final demobilization after all borings are complete. The Contractor is required to furnish the drill rig and tools, in good condition and all other equipment necessary to carry on and complete the work properly. The Contractor may be required to mobilize and dismantle his equipment at existing railroad structures, railroad embankments, railroad rights-of-way, and other areas under railroad ownership. The Contractor shall have the necessary equipment and personnel to assemble his drilling equipment at the desired locations. The Contractor will be required to prepare and submit for approval, a Work Plan detailing how the subsurface exploration work will be performed prior to mobilization to the site. This work plan shall include equipment cut sheets, mounting details, manner of work, location or equipment, etc.

The backfilling and casing, work hours or any other requirements made by a railroad or public transportation authority for entering on their property shall be complied with by the Contractor and any costs shall be considered as part on the unit price of Mobilization and Demobilization-Railroad and no additional compensation will be allowed.

The Engineer will prepare and obtain an Entry Permit from the railroad or public transportation authority and, provided that insurance requirements have been met, grant permission to the Contractor, acting as the Engineer's Contractor, to enter the Rail Line Property to perform said work. A copy of the Railroad's Permit to Enter Upon Property shall be provided to the Contractor after selection. All the requirements, terms, and conditions outlined within the Railroad's Permit to Enter Upon Property are hereby incorporated into this Contract Agreement for Subsurface Explorations. The Contractor by submitting a bid for this project, assumes full responsibility to assure all his/her personnel involved in the work, including him/herself and anyone under the direction of the Contractor, will read the Entry Permit in its entirety before entering railroad property, and abide by the rules and regulation set forth in the Railroad's Permit to Enter Upon Property. The cost of the entry permit required by the railroad or public transportation authority will be borne by the Engineer. No compensation will be made to the Contractor for preparation or coordination of the Entry Permit. Should Railroad Flagmen and/or Groundmen be required, the Engineer will establish a Force Account with the railroad for their payment.

This item shall include full compensation for all traffic control devices, cones, signs, light plants, etc. when provided by the Contractor. When the Contractor's operations or means to access the railroad ROW obtrude onto any part of a roadway, the Contractor is to adhere to the Department's publication "Traffic Control During Maintenance Operation" latest edition.

All material or equipment furnished under this item shall remain the property of the Contractor and shall be maintained and disposed of by him. This item shall carry all charges incident to such plant setup and removal, in order that the charges need not be distributed among the more variable items of the contract.

Water – *When applicable*

This item shall include the initial mobilization of the drill rig at the project site, the launching, positioning and moving of rafts and other equipment necessary for making borings over water and the final demobilization after all borings are complete. The contractor is required to furnish the drill rig and tools, in good condition and all other equipment necessary to carry on and complete the work properly. The Contractor shall have the necessary equipment and personnel to assemble his drilling equipment at the desired locations.

This item shall include full compensation for all traffic control devices, cones, signs, light plants, etc. when provided by the Contractor. When the Contractor's operations or means to access the water obtrude onto any part of a roadway, the Contractor is to adhere to the Department's publication "Traffic Control During Maintenance Operation" latest edition.

All material or equipment furnished under this item shall remain the property of the Contractor and shall be maintained and disposed of by him. This item shall carry all charges incident to such plant setup and removal, in order that the charges need not be distributed among the more variable items of the contract.

CPT – *When applicable*

This item shall include the initial mobilization of the testing rig at the project site and the final demobilization after all testing is complete. The Contractor is required to furnish the testing rig and tools, in good condition and all other equipment necessary to carry on and complete the work properly. The Contractor may be required to mobilize and dismantle his equipment at existing highway structures, highway embankments, highway rights of way, off the traveled way, wooded areas and other difficult sites. The Contractor shall have the necessary equipment and personnel to assemble his testing equipment at the desired locations.

The work hours, permits or any other requirements made by the Towns of East Haddam and Haddam or other public transportation authority shall be complied with by the Contractor and any costs shall be considered as part on the unit price of Mobilization and Demobilization – CPT and no additional compensation will be allowed. No additional compensation will be made to the Contractor for preparing the application for and acquiring the entry permit and its associated fee.

This item shall also include full compensation for Trafficpersons when they are employees of the Contractor and all Traffic Control Equipment (such as; traffic control devices, cones, signs, light plants, Traffic Attenuation Vehicle, etc.) when owned, provided and used by the Contractor.

All material or equipment furnished under this item shall remain the property of the Contractor and shall be maintained and disposed of by him. This item shall carry all charges incident to such plant setup and removal, in order that the charges need not be distributed among the more variable items of the contract.

2-18 Records

The Contractor shall keep complete, neat, accurate and legible daily reports. The records shall be made at the site as the work progresses and shall be furnished to the Engineer at the completion of each day. The records shall contain the following information:

General

- Name of Inspector, Contractor and Engineer
- Date of start and date of finish.
- Town, State Project Number, Route Number/Name, and Bridge Number when applicable
- Test pit Number
- Quantities completed for each pay Item
- Field Receipts for Direct Costs

Test Pits

- Full information in tabular form on 03240 existing water main including pipe depth, pipe size, top of pipe elevation, bottom of pipe elevation and location (Station and offsets)
- Notes regarding any other pertinent information and remarks on miscellaneous conditions encountered at Bridge No. 03240

2-17 Submission of Reports and Samples

A copy of the Contractor's daily reports shall be given to the Inspector daily.

2-18 Measurement and Payment

a. General

The contract items include all services, labor, equipment, transportation, fuel costs, material and supplies for the complete work, acquisition of permits, coordination with CME personnel, overhead, profit and administrative costs. CME's survey crew will be present during excavation to measure and record the depth of approved test pits for payment.

No other payments for any specified or indicated work, nor for any work implied therefrom, shall be made. The quantities stated in the proposal are approximate only and are for the specific purpose of comparing bids. The Engineer does not guarantee that these items or quantities will be performed. The Engineer and Inspector reserve the right to vary the quantities or delete items in their entirety, and the Contractor shall not be entitled to any extra payment due to such amended quantities or deleted items.

b. Test Pits

1. This work will be measured for payment by the actual number of vertical linear feet excavated, measured from the existing ground surface to the bottom of the accepted test pit. Test pit depth shall be measured to the nearest half foot.
2. This work will be paid for at the contract unit price each for "Test Pits" of the specified excavation method, including all tools, material and equipment needed to excavate the test pit, backfill the area and patch the pavement (when present) and all other work incidental thereto. Fractions of a foot shall be paid at the fractional portion of the unit price.
3. If a test pit is excavated and no water main is found, the test pit will be considered unsuccessful and abandoned and the Contractor will be paid for the test pit at the contract unit price. No additional measurement or payment will be made for the widening of the excavation as described above.
4. If the Engineer or Inspector directs the Contractor to widening a test pit more than 50% of its original size, the original excavation will be considered 1 test pit with a depth measured for payment and the additional excavation will be considered as a second test pit and have its actual depth measured separately for payment.

c. Trafficpersons – *When Applicable*

1. Only Trafficperson services in accordance with the State of Connecticut DOT Traffic Control manual will be measured for payment. Services of Trafficpersons will be measured for payment by the actual number of hours for each person rendering services in accordance with these specifications. Services of Trafficpersons utilized by the Contractor not necessary for the proper completion of the project or at locations where traffic is unnecessarily restricted by the Contractor's method of operation, will not be measured for payment.
2. The minimum hours of payment for each Trafficperson supplied by a law enforcement agency or Trafficperson subcontractor in any one day shall be four hours. No Uniformed Trafficperson shall work more than twelve hours in any one-day. In case such services are required for more than twelve hours, the Contractor may request additional Trafficpersons. In cases where the Trafficperson is an employee on the Contractor's payroll, payment for the Trafficperson will be made only for those hours when the Contractor's employee is performing Trafficperson duties.
3. Travel time charged by State Police Officers, up to one hour per day, will be measured for payment. No travel time will be allowed or paid for Uniformed Municipal Police Officers or Uniformed Flaggers. Safety garments and STOP/SLOW paddles will not be

measured for payment.

4. The sum of money shown on the Estimate and in the itemized proposal as “Estimated Cost” for this work will be considered the bid price even though payment will be made as described below. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown the altered figure will be disregarded and the original price will be used to determine the total amount for the contract.

“Trafficperson” will be paid for at the actual hourly rate charged for the Trafficperson service (monthly statement or receipted bills) by the entity which actually provide the service plus a five percent (5%) markup. Use of a Municipal police vehicle will be paid at the actual rate charged by the Municipality plus a five percent (5%) markup. The rate charged by the Municipality for use of a Uniformed Municipal Police Officer and/or an official Municipal Police vehicle shall not be greater than the rate it normally charges others for similar services

d. Traffic Control Equipment

1. Method of Measurement: Traffic Control Equipment, including operators, which is provided by a Subcontractor or is rented, will be measured for payment by the actual time that the equipment was in place for traffic control on the roadway. The unit of time, i.e. Days, Weeks, Months, shall be that included in the Subcontractor of Rental agreement. This item will be due for payment at the time of final payment after removal of all materials and equipment from the project.
2. Basis for Payment: Traffic Control Equipment will be paid for at the actual daily, weekly, or monthly rate billed by the sub-consultant / rental company providing the traffic control services. The sub-consultant / rental company’s invoice shall be included with the Contractor’s invoice as backup for direct costs. Rental equipment will be paid for at actual cost with no mark-up.

e. Asphalt Patching

1. The Estimated Total sums of money shown for the Cold Mix Asphalt Patching and Hot Mix Asphalt Patching items will be used as a budget value to set aside project funds and will not be used for bid comparison. Payment will be made as described below.
2. As dictated by the CTDOT Encroachment Permit, Cold Mix Asphalt Patching or Hot Mix Asphalt Patching will be paid for at the actual per-borehole or daily rate quoted under Item 7 and Item 8 of Direct Costs. Backfill of boreholes with drill cuttings, supplemented with sand, etc. (as required), and the pounded stone base shall be considered incidental to the work and incorporated into the Unit Bid Prices.

f. Truck-mounted Attenuation (TMA) Unit

1. The Estimated Total sum of money shown in the itemized proposal for this work will be used as a budget value to set aside project funds and will not be used for bid comparison. Payment will be made as described below.
2. Truck-mounted Attenuation Units, including operators, which are provided by a Subcontractor or are rented, will be measured for payment by the actual time that the equipment was in place for traffic control on the roadway. The unit of time, i.e. Days, Weeks, Months, shall be that included in the Subcontractor or Rental agreement. This item will be due for payment at the time of final payment after removal of all materials and equipment from the project.

3. TMA Units will be paid for at the actual daily, weekly, or monthly rate billed by the sub-contractor / rental company providing the TMA Unit. The sub-contractor's / rental company's invoice shall be included with the Contractor's invoice as backup for direct costs. This will be paid for at actual cost with no mark-up.

g. **Mobilization and Demobilization – Land – When applicable**

1. **Method of Measurement:** This item will be measured for payment by the actual number of boring rigs and/or crews specified or as directed by the Engineer. This item will be due for payment at the time of final payment after removal of all materials and equipment from the project.
2. **Basis for Payment:** This work will be paid for at the contract unit price each for "Mobilization and Demobilization", for the number of drill rigs specified by the Engineer for a project. This item will also include full compensation for all traffic control devices, cones, signs, etc., and all other materials, equipment, tools, labor and work incidental thereto that were provided and used by the Contractor.

l. **Mobilization and Demobilization—Railroad – When applicable**

1. **Method of Measurement:** The Mobilization and Demobilization—Railroad item will be measured for payment by the actual number of drill rigs required to mobilize on railroad property. This item will be due for payment at the time of final payment after removal of all materials and equipment from the project.
2. **Basis for Payment:** This work will be paid for at the contract unit price each for "Mobilization and Demobilization—Railroad". This item will include full compensation for all traffic control patterns, cones, light plants, and all other materials, equipment, tools, labor and work incidental thereto that were provided by the Contractor.

m. **Mobilization and Demobilization—Water – When applicable**

1. **Method of Measurement:** This item will be measured for payment by the actual number of boring rigs and/or crews specified in the Purchase Order or as directed by the Engineer. This item will be due for payment at the time of final payment after removal of all materials and equipment from the project.
2. **Basis for Payment:** This work will be paid for at the contract unit price each for "Mobilization and Demobilization—Water", for the number of raft/barge mounted drill rigs specified by the Engineer for a project. This item shall also include full compensation for Trafficpersons when they are employees of the Contractor and all Traffic Control Equipment (such as; traffic control devices, cones, signs, light plants, Traffic Attenuation Vehicle, etc.) when owned, provided and used by the Contractor, and all other materials, equipment, tools, labor and work incidental thereto that were provided and used by the Contractor.

n. **Mobilization and Demobilization—CPT – When applicable**

1. This item will be measured for payment by the actual number of CPT rigs specified that are required to mobilize. This item will be due for payment at the time of final payment after removal of all materials and equipment from the project.
2. This work will be paid for at the contract unit price each for "Mobilization and Demobilization—CPT". This item shall also include full compensation for Trafficpersons when they are employees of the Contractor and all Traffic Control Equipment (such as; traffic control devices, cones, signs, light plants, Traffic

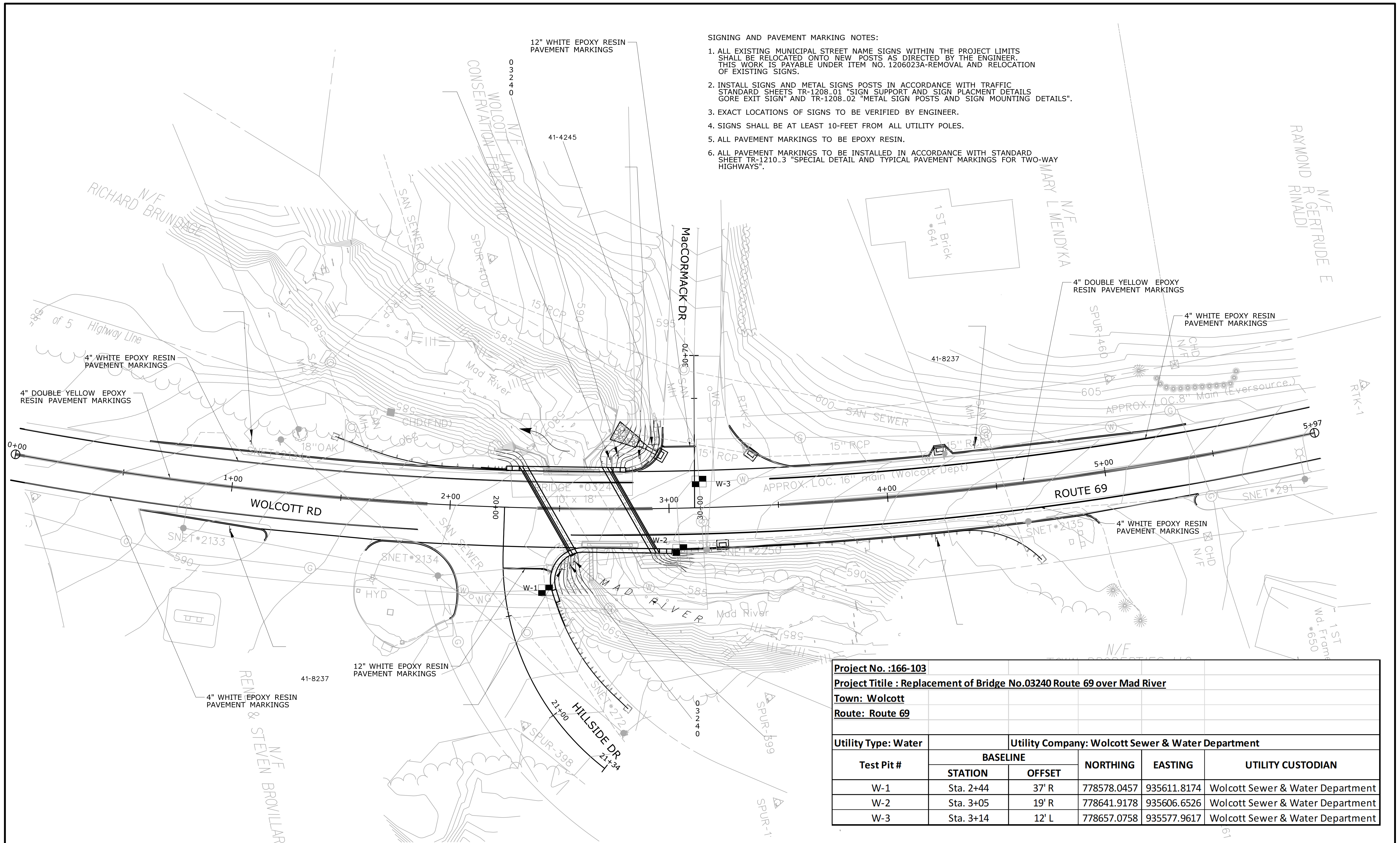
Attenuation Vehicle, etc.) when owned, provided and used by the Contractor, and all other materials, equipment, tools, labor and work incidental thereto that were provided and used by the contractor.

V LIST OF ATTACHMENTS

1. Proposed Location Plan
2. Test Pits Location Plan
3. Conditions Expected to be included in the Contractor's Encroachment Permit
4. Test Pit Work Plan To be provided by selected Substructure Exploration (SSE) Contractor
5. Traffic Control During Maintenance Operations

SIGNING AND PAVEMENT MARKING NOTES:

1. ALL EXISTING MUNICIPAL STREET NAME SIGNS WITHIN THE PROJECT LIMITS SHALL BE RELOCATED ONTO NEW POSTS AS DIRECTED BY THE ENGINEER. THIS WORK IS PAYABLE UNDER ITEM NO. 1206023A-REMOVAL AND RELOCATION OF EXISTING SIGNS.
2. INSTALL SIGNS AND METAL SIGNS POSTS IN ACCORDANCE WITH TRAFFIC STANDARD SHEETS TR-1208.01 "SIGN SUPPORT AND SIGN PLACEMENT DETAILS GORE EXIT SIGN" AND TR-1208.02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS".
3. EXACT LOCATIONS OF SIGNS TO BE VERIFIED BY ENGINEER.
4. SIGNS SHALL BE AT LEAST 10-FEET FROM ALL UTILITY POLES.
5. ALL PAVEMENT MARKINGS TO BE EPOXY RESIN.
6. ALL PAVEMENT MARKINGS TO BE INSTALLED IN ACCORDANCE WITH STANDARD SHEET TR-1210.3 "SPECIAL DETAIL AND TYPICAL PAVEMENT MARKINGS FOR TWO-WAY HIGHWAYS".



Project No. :166-103					
Project Title : Replacement of Bridge No.03240 Route 69 over Mad River					
Town: Wolcott					
Route: Route 69					
Utility Type: Water		Utility Company: Wolcott Sewer & Water Department			
Test Pit #	BASELINE		NORTHING	EASTING	UTILITY CUSTODIAN
	STATION	OFFSET			
W-1	Sta. 2+44	37' R	778578.0457	935611.8174	Wolcott Sewer & Water Department
W-2	Sta. 3+05	19' R	778641.9178	935606.6526	Wolcott Sewer & Water Department
W-3	Sta. 3+14	12' L	778657.0758	935577.9617	Wolcott Sewer & Water Department

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DESIGNER/DRAFTER: KN CHECKED BY: TB	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	SIGNATURE/ BLOCK:	PROJECT TITLE: REPLACEMENT OF BRIDGE NO.03240 ROUTE 69 OVER MAD RIVER	TOWN: WOLCOTT	PROJECT NO. 166-103 DRAWING NO. TP-2 SHEET NO. 2 OF 2
REV. DATE REVISION DESCRIPTION SHEET NO.	Plotted: 6/6/2019	SCALE IN FEET 0 20 40 SCALE 1"=20'		Filename: ..._SB_MSH_D1_170_3064_BRG03240_GRN_Test_Pit_Plan - Water.dgn	DRAWING TITLE: Test Pit Plan - Water		

CONDITIONS EXPECTED TO BE INCLUDED IN THE CONTRACTOR'S ENCROACHMENT PERMIT

(Note: The Contractor must obtain an Encroachment Permit from the Department prior to the start of work)

- a. A copy of the Encroachment Permit must be available on site at all times.
- b. Vehicular and pedestrian traffic must be adequately protected through the use of appropriate traffic control patterns. Uniformed police officers or personnel who are certified for traffic control to a level equivalent to the National Safety Council shall be utilized to direct traffic through the work area. All traffic control signing and appurtenances shall be in accordance with the latest edition of the "Manual on Uniform Traffic Control Devices" and must meet NCHRP 350 requirements. Traffic Plans are attached.
- c. No work that will interfere with the flow of traffic will be permitted between 6:00 a.m. and 9:00 a.m. and also between 4:00 p.m. and 7:00 p.m.
- d. No work will be allowed during inclement weather.
- e. Holiday Restrictions: No permit work within the highway right of way will be permitted the day before a legal holiday and no work shall be resumed until 12:00 noon the day following the holiday, unless otherwise approved or indicated. Weekends shall be considered as part of the holiday when the legal holiday falls on a Friday or Monday.
- f. Vehicles must be parked off the roadway whenever possible to avoid impeding traffic flow or distracting the traveling public.
- g. Appropriate work zone signs must be set out to alert the traveling public of activity in the area.

TEST PIT WORK PLAN

(TO BE PROVIDED BY SSE CONTRACTOR AFTER SELECTION)

TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

TRAFFIC CONTROL PATTERNS

Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the following:

- Speed and volume of traffic
- Duration of operation
- Exposure to hazards

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

If a lane reduction taper is required to shift traffic, the entire length of the taper should be installed on a tangent section of roadway so that the entire taper area can be seen by the motorist.

Any existing signs that are in conflict with the traffic control patterns shall be removed, covered, or turned so that they are not readable by oncoming traffic.

When installing a traffic control pattern, a Buffer Area should be provided and this area shall be free of equipment, workers, materials and parked vehicles.

Typical traffic control plans 19 through 25 may be used for moving operations such as line striping, pot hole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns will not be required when vehicles are on an emergency patrol type activity or when a short duration stop is made and the equipment can be contained within the shoulder. Flashing lights and appropriate trafficperson shall be used when required.

Although each situation must be dealt with individually, conformity with the typical traffic control plans contained herein is required. In a situation not adequately covered by the typical traffic control plans, the Contractor must contact the Engineer for assistance prior to setting up a traffic control pattern.

PLACEMENT OF SIGNS

Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs shall be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads), where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

ALLOWABLE ADJUSTMENT OF SIGNS AND DEVICES SHOWN ON THE TRAFFIC CONTROL PLANS

The traffic control plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans whenever possible.

The proper application of the traffic control plans and installation of traffic control devices depends on actual field conditions.

Adjustments to the traffic control plans shall be made only at the direction of the Engineer to improve the visibility of the signs and devices and to better control traffic operations. Adjustments to the traffic control plans shall be based on safety of work forces and motorists, abutting property requirements, driveways, side roads, and the vertical and horizontal curvature of the roadway.

The Engineer may require that the traffic control pattern be located significantly in advance of the work area to provide better sight line to the signing and safer traffic operations through the work zone.

Table I indicates the minimum taper length required for a lane closure based on the posted speed limit of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the traffic control plans cannot be achieved.

TABLE I – MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT MILES PER HOUR	MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE
30 OR LESS	180
35	250
40	320
45	540
50	600
55	660
65	780

SECTION 1. WORK ZONE SAFETY MEETINGS

- 1.a) Prior to the commencement of work, a work zone safety meeting will be conducted with representatives of DOT Construction, Connecticut State Police (Local Barracks), Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the project. Other work zone safety meetings during the course of the project should be scheduled as needed.
- 1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. Any issues that can't be resolved at these meetings will be brought to the attention of the District Engineer and the Office of Construction. The agenda should include:
- Review Project scope of work and time
 - Review Section 1.08, Prosecution and Progress
 - Review Section 9.70, Trafficpersons
 - Review Section 9.71, Maintenance and Protection of Traffic
 - Review Contractor's schedule and method of operations.
 - Review areas of special concern: ramps, turning roadways, medians, lane drops, etc.
 - Open discussion of work zone questions and issues
 - Discussion of review and approval process for changes in contract requirements as they relate to work zone areas

SECTION 2. GENERAL

- 2.a) If the required minimum number of signs and equipment (i.e. one High Mounted Internally Illuminated Flashing Arrow for each lane closed, two TMAs, Changeable Message Sign, etc.) are not available; the traffic control pattern shall not be installed.
- 2.b) The Contractor shall have back-up equipment (TMAs, High Mounted Internally Illuminated Flashing Arrow, Changeable Message Sign, construction signs, cones/drums, etc.) available at all times in case of mechanical failures, etc. The only exception to this is in the case of sudden equipment breakdowns in which the pattern may be installed but the Contractor must provide replacement equipment within 24 hours.
- 2.c) Failure of the Contractor to have the required minimum number of signs, personnel and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for loss time.
- 2.d) In cases of legitimate differences of opinion between the Contractor and the Inspection staff, the Inspection staff shall err on the side of safety. The matter shall be brought to

the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

SECTION 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

- 3.a) Lane Closures shall be installed beginning with the advance warning signs and proceeding forward toward the work area.
- 3.b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advance warning signs.
- 3.c) Stopping traffic may be allowed:
- As per the contract for such activities as blasting, steel erection, etc.
 - During paving, milling operations, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation.
 - To move slow moving equipment across live traffic lanes into the work area.
- 3.d) Temporary road closures using Rolling Road Blocks (RRB) may be allowed on limited access highways for operations associated with the installation and removal of temporary lane closures. RRB may be allowed for the installation and removal of lead signs and lane tapers only and shall meet the following requirements:
- RRB may not start prior to the time allowed in the contract Limitations of Operation for sign pattern installation. Sign pattern removal must be complete prior to the time indicated in the Limitations of Operation for restoring the lanes to traffic.
 - On limited access highways with 4 lanes or more, a RRB may not start until the Limitations of Operation Chart allows a 2 lane closure. In areas with good sight lines and full shoulders, opposite side lead signs should be installed in a separate operation.
 - Truck-Mounted Impact Attenuators (TMAs) equipped with arrow boards shall be used to slow traffic to implement the RRB. State Police Officers in marked vehicles may be used to support the implementation of the RRB. The RRB shall start by having all vehicles, including Truck-Mounted Impact Attenuators TMAs and police vehicles leave the shoulder or on-ramp and accelerate to a normal roadway speeds in each lane, then the vehicles will position themselves side by side and decelerate to the RRB speed on the highway.
 - An additional Truck-Mounted Impact Attenuator TMAs equipped with a Portable Changeable Message Sign shall be utilized to advise the motorists that sign pattern installation / removal is underway. The Pre-Warning Vehicle (PWV) should be initially positioned in the right shoulder ½ mile prior to the RRB operation. If a traffic queue reaches the PWV's initial location, the contractor shall slowly reverse the PWV along the shoulder to position itself prior to the new back of queue. A Pre-

Warning Vehicle, as specified elsewhere in the contract, shall be utilized to advise the motorists that sign pattern installation / removal is underway.

- The RRB duration shall not exceed 15 minutes from start of the traffic block until all lanes are opened as designated in the Limitation of Operation chart. If the RRB duration exceeds 15 minutes on 2 successive shifts, no further RRB will be allowed until the Contractor obtains approval for a revised installation procedure from the respective construction District.
 - RRB should not be utilized to expand a lane closure pattern to an additional lane during the shift. The workers and equipment required to implement the additional lane closure should be staged from within the closed lane. Attenuator trucks (and State Police if available) should be used to protect the workers installing the taper in the additional lane.
 - Exceptions to these work procedures may be submitted to the District Office for consideration. A minimum of 2 business days should be allowed for review and approval by the District.
 - The RRB procedures (including any approved exceptions) will be reviewed and discussed by the inspection team and the Contractor in advance of the work. The implementation of the agreed upon plan will be reviewed with the State Police during the Work Zone Safety meeting held before each shift involving temporary lane closures. If the State Police determine that alternative procedures should be implemented for traffic control during the work shift, the Department and Contractor will attempt to resolve any discrepancies with the duty sergeant at the Troop. If the discrepancies are unable to be resolved prior to the start of the shift, the work will proceed as recommended by the Department Trooper. Any unresolved issues will be addressed the following day.
- 3.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.
- 3.f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travel path prior to merging/exiting with/from the main line traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.
- 3.g) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.
- 3.h) On limited access roadways, workers are prohibited from crossing the travel lanes to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

**SECTION 4. USE OF HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING
ARROW**

- 4.a) On limited access roadways, one Flashing Arrow shall be used for each lane that is closed. The Flashing Arrow shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the traffic control plan. For multiple lane closures, one Flashing Arrow is required for each lane closed. If conditions warrant, additional Flashing Arrows should be employed (i.e.: curves, major ramps, etc.).
- 4.b) On non-limited access roadways, the use of a Flashing Arrow for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the Flashing Arrow.
- 4.c) The Flashing Arrow shall not be used on two lane, two-way roadways for temporary alternating one-way traffic operations.
- 4.d) The Flashing Arrow board display shall be in the “arrow” mode for lane closure tapers and in the “caution” mode (four corners) for shoulder work, blocking the shoulder, or roadside work near the shoulder. The Flashing Arrow shall be in the “caution” mode when it is positioned in the closed lane.
- 4.e) The Flashing Arrow shall not be used on a multi-lane roadway to laterally shift all lanes of traffic, because unnecessary lane changing may result.

SECTION 5. USE OF TRUCK MOUNTED OR TRAILER MOUNTED IMPACT ATTENUATOR VEHICLES (TMAs)

- 5.a) For lane closures on limited access roadways, a minimum of two TMAs shall be used to install and remove traffic control patterns. If two TMAs are not available, the pattern shall not be installed.
- 5.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to utilize the TMAs.
- 5.c) Generally, to establish the advance and transition signing, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane. The flashing arrow board mounted on the TMA should be in the “flashing arrow” mode when taking the lane. The sign truck and workers should be immediately ahead of the second TMA. In no case shall the TMA be used as the sign truck or a work truck. Once the transition is in place, the TMAs shall travel in the closed lane until all Changeable Message Signs, signs, Flashing Arrows, and cones/drums are installed. The flashing arrow board mounted on the TMA should be in the “caution” mode when traveling in the closed lane.
- 5.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs shall be positioned at each

additional work area as needed. The flashing arrow board mounted on the TMA should be in the “caution” mode when in the closed lane.

- 5.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to the specification entitled “Truck-Mounted or Trailer-Mounted Impact Attenuator”. Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the specified distances. In these situations, the TMA(s) should be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.
- 5.f) TMAs should be paid in accordance with how the unit is utilized. If it is used as a TMA and is in the proper location as specified, then it should be paid at the specified hourly rate for “Truck-Mounted or Trailer-Mounted Impact Attenuator”. When the TMA is used as a Flashing Arrow, it should be paid at the daily rate for “High Mounted Internally Illuminated Flashing Arrow”. If a TMA is used to install and remove a pattern and is also used as a Flashing Arrow in the same day, then the unit should be paid as a “Truck-Mounted or Trailer-Mounted Impact Attenuator” for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove). If the TMA is also used as a Flashing Arrow during the same day, then the unit should be paid at the daily rate as a “High Mounted Internally Illuminated Flashing Arrow”.

SECTION 6. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

- 6.a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.
- 6.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.
- 6.c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.
- 6.d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

SECTION 7. USE OF (REMOTE CONTROLLED) CHANGEABLE MESSAGE SIGNS (CMS)

- 7.a) For lane closures on limited access roadways, one CMS shall be used in advance of the traffic control pattern. Prior to installing the pattern, the CMS shall be installed and in

operation, displaying the appropriate lane closure information (i.e.: Left Lane Closed - Merge Right). The CMS shall be positioned ½ - 1 mile ahead of the lane closure taper. If the nearest Exit ramp is greater than the specified ½ - 1 mile distance, than an additional CMS shall be positioned a sufficient distance ahead of the Exit ramp to alert motorists to the work and therefore offer them an opportunity to take the exit.

- 7.b) CMS should not be installed within 1000 feet of an existing CMS.
- 7.c) On non-limited access roadways, the use of CMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the CMS.
- 7.d) The advance CMS is typically placed off the right shoulder, 5 feet from the edge of pavement. In areas where the CMS cannot be placed beyond the edge of pavement, it may be placed on the paved shoulder with a minimum of five (5) traffic drums placed in a taper in front of it to delineate its position. The advance CMS shall be adequately protected if it is used for a continuous duration of 36 hours or more.
- 7.e) When the CMS are no longer required, they should be removed from the clear zone and have the display screen cleared and turned 90° away from the roadway.
- 7.f) The CMS generally should not be used for generic messages (ex: Road Work Ahead, Bump Ahead, Gravel Road, etc.).
- 7.g) The CMS should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs (Examples include: Exit 34 Closed Sat/Sun - Use Exit 35, All Lanes Closed - Use Shoulder, Workers on Road - Slow Down).
- 7.h) Messages that need to be displayed for long periods of time, such as during stage construction, should be displayed with construction signs. For special signs, please coordinate with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.
- 7.i) The messages that are allowed on the CMS are as follows:

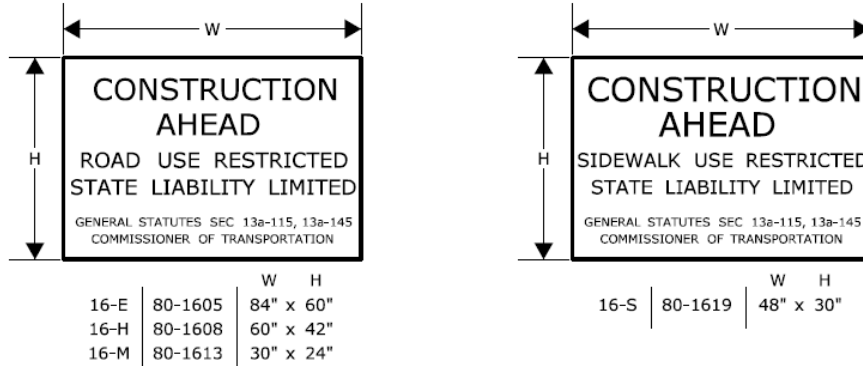
<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>	<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	WORKERS ON ROAD	REDUCE SPEED
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	WORKERS ON ROAD	SLOW DOWN
5	RIGHT LANE CLOSED	MERGE LEFT	13	EXIT XX CLOSED	USE EXIT YY
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	EXIT XX CLOSED USE YY	FOLLOW DETOUR
7	RIGHT LANE CLOSED	REDUCE SPEED	15	2 LANES SHIFT AHEAD	USE CAUTION
8	2 RIGHT LANES CLOSED	REDUCE SPEED	16	3 LANES SHIFT AHEAD	USE CAUTION

For any other message(s), approval must be received from the Office of Construction prior to their use. No more than two (2) displays shall be used within any message cycle.

SECTION 8. USE OF STATE POLICE OFFICERS

- 8.a) State Police may be utilized only on limited access highways and secondary roadways under their primary jurisdiction. One Officer may be used per critical sign pattern. Shoulder closures and right lane closures can generally be implemented without the presence of a State Police Officer. Likewise in areas with moderate traffic and wide, unobstructed medians, left lane closures can be implemented without State Police presence. Under some situations it may be desirable to have State Police presence, when one is available. Examples of this include: nighttime lane closures; left lane closures with minimal width for setting up advance signs and staging; lane and shoulder closures on turning roadways/ramps or mainline where sight distance is minimal; and closures where extensive turning movements or traffic congestion regularly occur, however they are not required.
- 8.b) Once the pattern is in place, the State Police Officer should be positioned in a non-hazardous location in advance of the pattern. If traffic backs up beyond the beginning of the pattern, then the State Police Officer shall be repositioned prior to the backup to give warning to the oncoming motorists. The State Police Officer and TMA should not be in proximity to each other.
- 8.c) Other functions of the State Police Officer(s) may include:
- Assisting entering/exiting construction vehicles within the work area.
 - Enforcement of speed and other motor vehicle laws within the work area, if specifically requested by the project.
- 8.d) State Police Officers assigned to a work site are to only take direction from the Engineer.

SERIES 16 SIGNS



THE 16-S SIGN SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHALL BE INSTALLED ON ANY MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHALL BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMPS PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

THE LOCATION OF SERIES 16 SIGNS CAN BE FOUND ELSEWHERE IN THE PLANS OR INSTALLED AS DIRECTED BY THE ENGINEER.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL EXPRESSWAYS.

SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS, AND MAJOR TOWN/CITY ROADWAYS.

SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

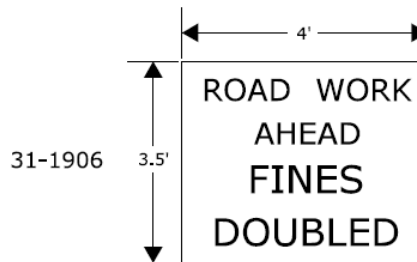
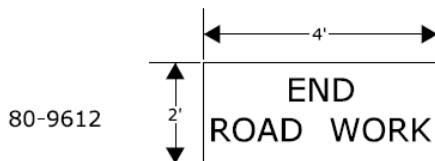
REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHERE THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

"END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN MUST BE THE "END ROAD WORK" SIGN.



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
REQUIRED SIGNS

NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.
2. SIGNS (AA), (A), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.
3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.
4. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.
5. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.
6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.
7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).
8. IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.
9. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.
10. SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT (MILES PER HOUR)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE
30 OR LESS	180' (55m)
35	250' (75m)
40	320' (100m)
45	540' (165m)
50	600' (180m)
55	660' (200m)
65	780' (240m)

METRIC CONVERSION CHART (1" = 25mm)

ENGLISH	METRIC	ENGLISH	METRIC	ENGLISH	METRIC
12"	300mm	42"	1050mm	72"	1800mm
18"	450mm	48"	1200mm	78"	1950mm
24"	600mm	54"	1350mm	84"	2100mm
30"	750mm	60"	1500mm	90"	2250mm
36"	900mm	66"	1650mm	96"	2400mm

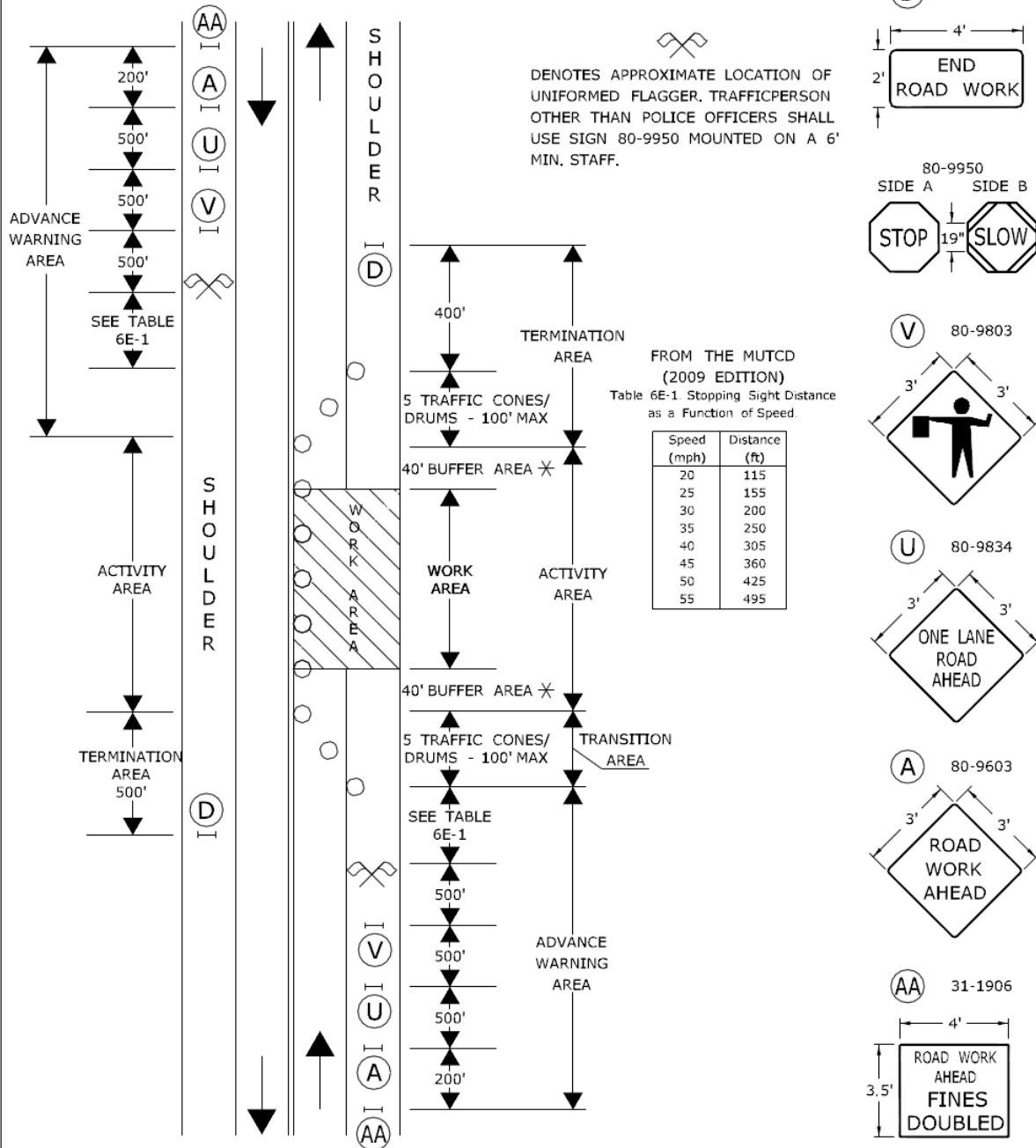


SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN NOTES

WORK IN TRAVEL LANE AND SHOULDER TWO LANE HIGHWAY ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE
108 SQ. FT (MIN.)



- TRAFFIC CONE **OR** TRAFFIC DRUM
- ✱ OPTIONAL ⊗ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
- ◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 1 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles S. Harlow* Charles S. Harlow
2012.06.05 15:55:23-04'00"
PRINCIPAL ENGINEER

WORK IN TRAVEL LANE AND SHOULDER TWO LANE HIGHWAY ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE
108 SQ. FT (MIN.)

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.



B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.



C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.



- TRAFFIC CONE **OR** TRAFFIC DRUM
- * OPTIONAL ⊗ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
- ◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



SCALE: NONE

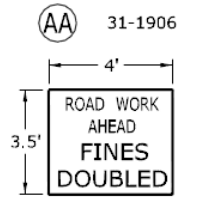
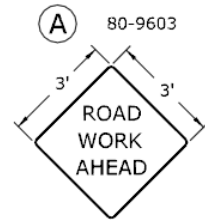
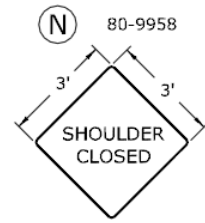
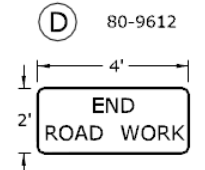
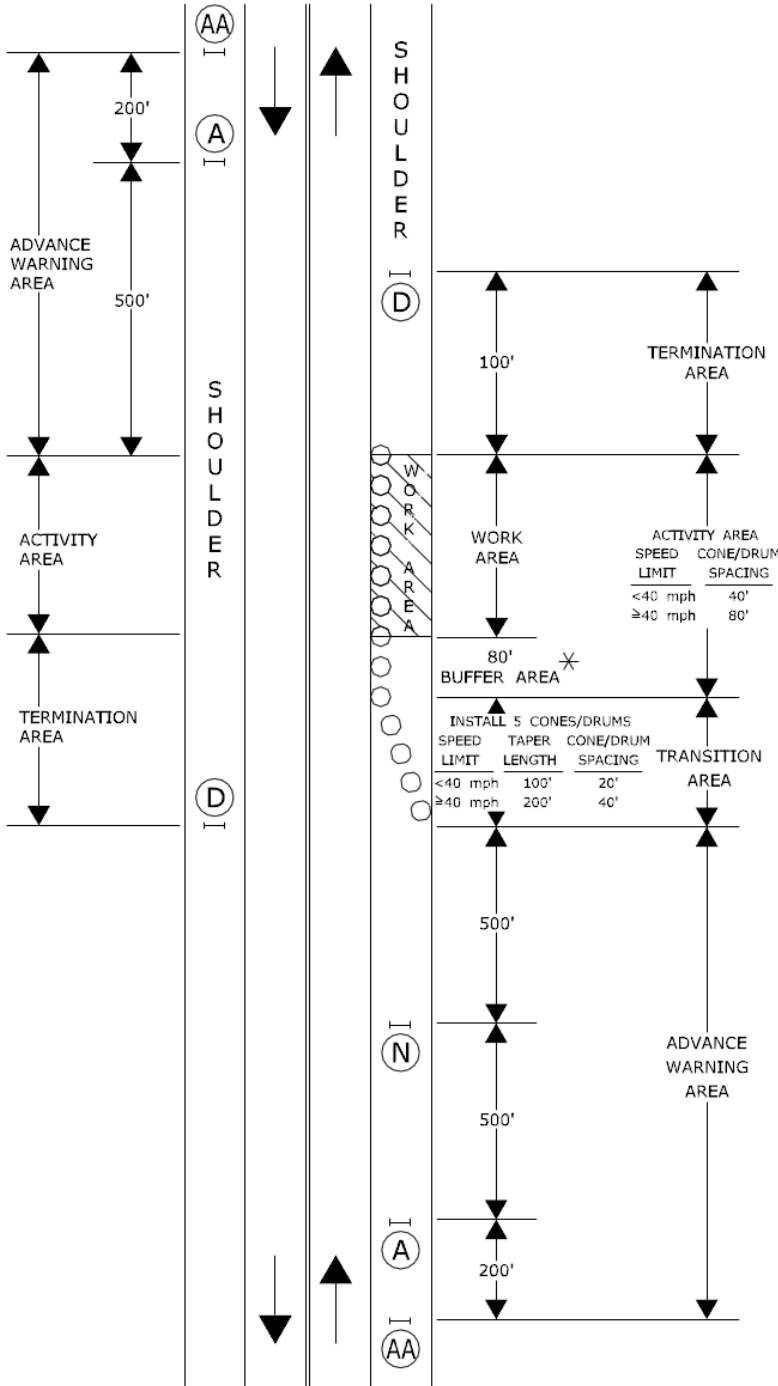
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
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APPROVED *Charles S. Harlow*
PRINCIPAL ENGINEER Charles S. Harlow
2012.06.05 15:55:45-04'00'

WORK IN SHOULDER - TWO LANE HIGHWAY

SIGN FACE
71 SQ. FT (MIN.)



- TRAFFIC CONE **OR** TRAFFIC DRUM
- * OPTIONAL ⊗ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
- ← HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



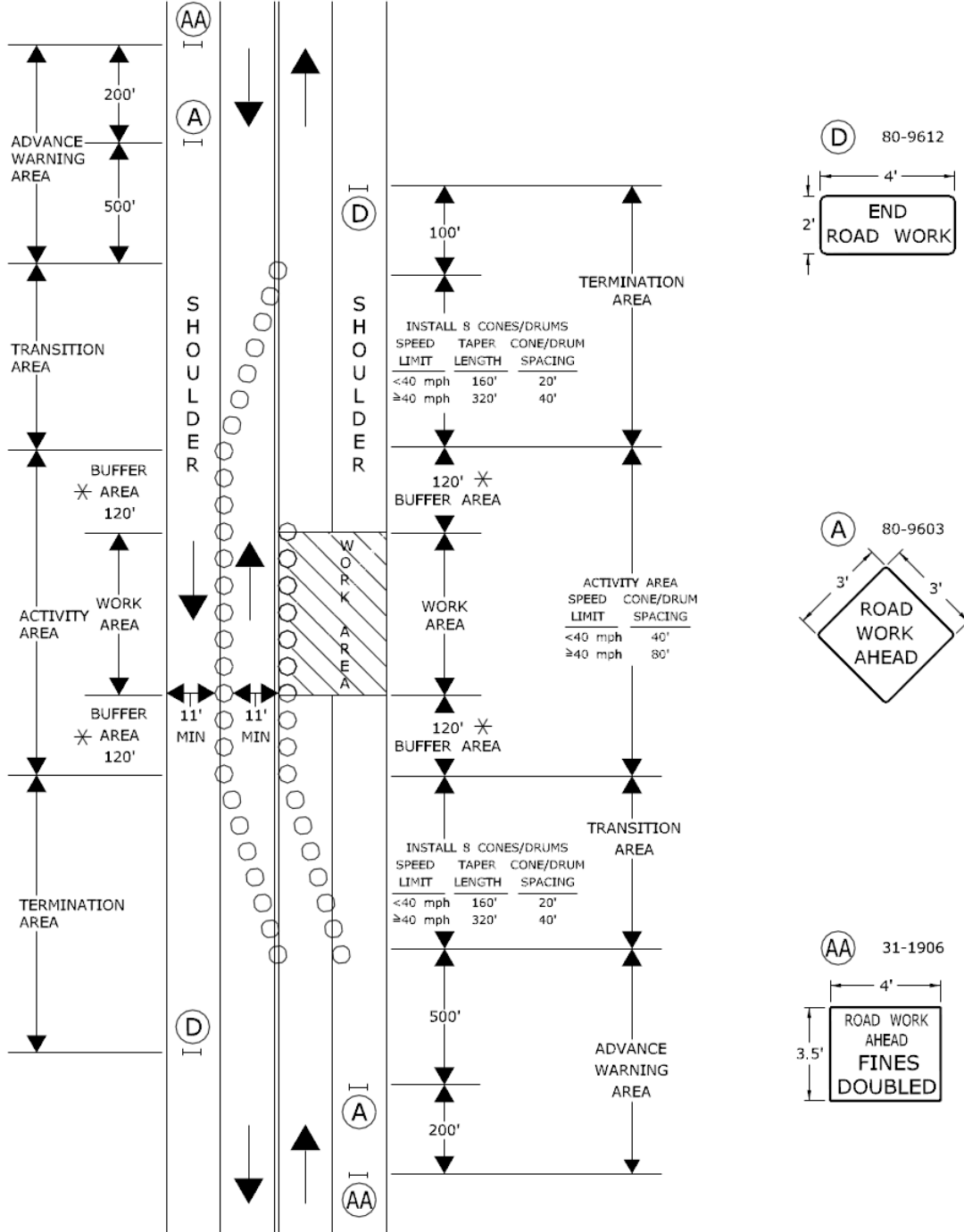
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 14
SEE NOTES 1, 2, 4, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
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APPROVED *Charles S. Harlow*
PRINCIPAL ENGINEER
Charles S. Harlow
2012.08.05 15:56:09-04'00"

WORK IN TRAVEL LANE AND SHOULDER TWO LANE HIGHWAY

SIGN FACE
62 SQ. FT (MIN.)



INSTALL 8 CONES/DRUMS

SPEED LIMIT	TAPER LENGTH	CONE/DRUM SPACING
<40 mph	160'	20'
≥40 mph	320'	40'

ACTIVITY AREA

SPEED LIMIT	CONE/DRUM SPACING
<40 mph	40'
≥40 mph	80'

INSTALL 8 CONES/DRUMS

SPEED LIMIT	TAPER LENGTH	CONE/DRUM SPACING
<40 mph	160'	20'
≥40 mph	320'	40'

- TRAFFIC CONE **OR** TRAFFIC DRUM
- ✱ OPTIONAL ✕ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
- ◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



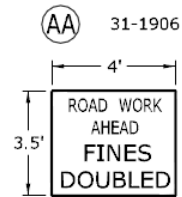
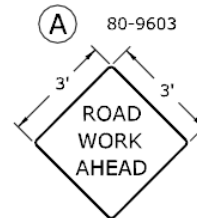
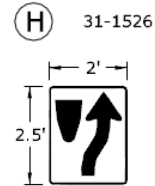
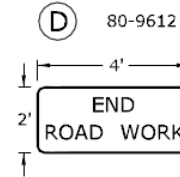
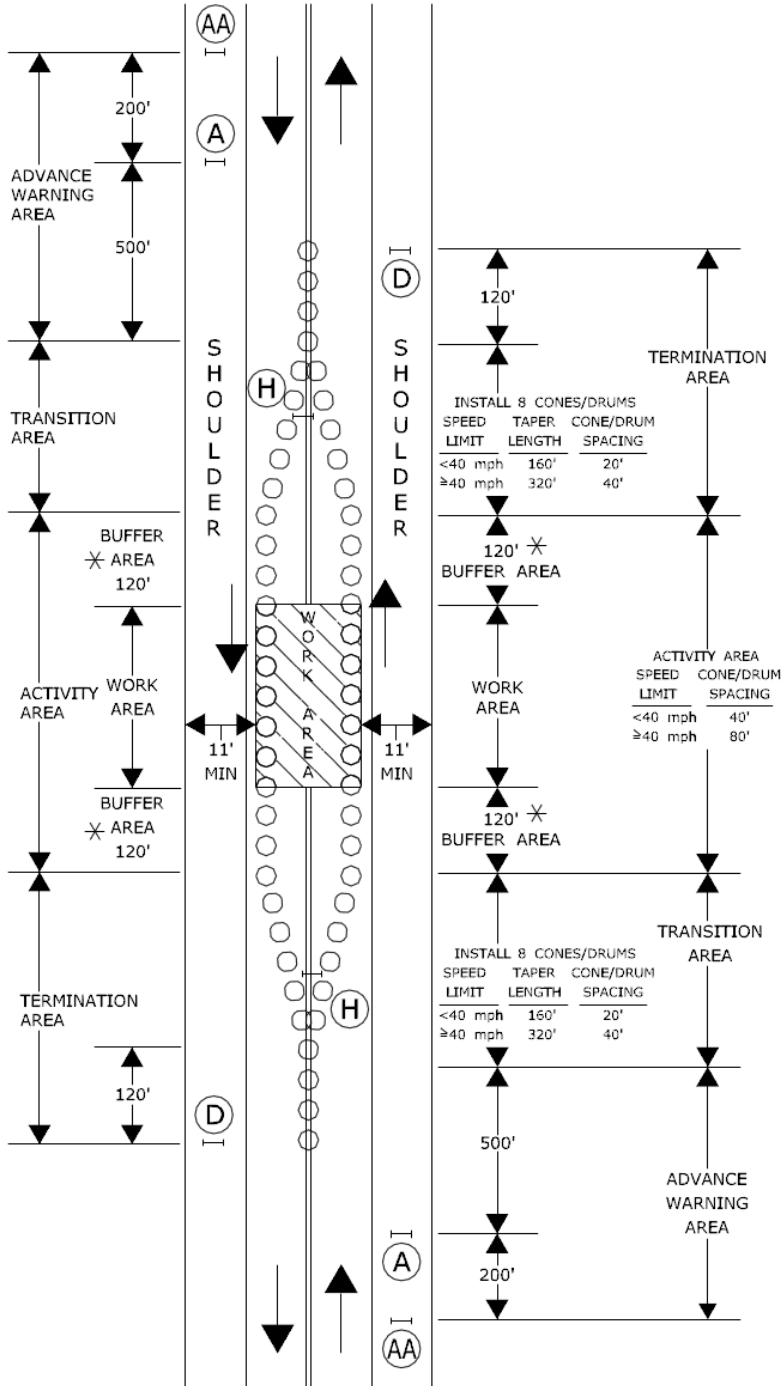
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 15
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
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APPROVED *Charles S. Harlow* Charles S. Harlow
2012.06.05 15:56:29-04'00"
PRINCIPAL ENGINEER

WORK IN MIDDLE OF ROADWAY TWO LANE HIGHWAY

SIGN FACE
72 SQ. FT (MIN.)



- TRAFFIC CONE **OR** TRAFFIC DRUM
- * OPTIONAL ⊗ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
- ◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 16

SEE NOTES 1, 2, 4, 6, 7, 8

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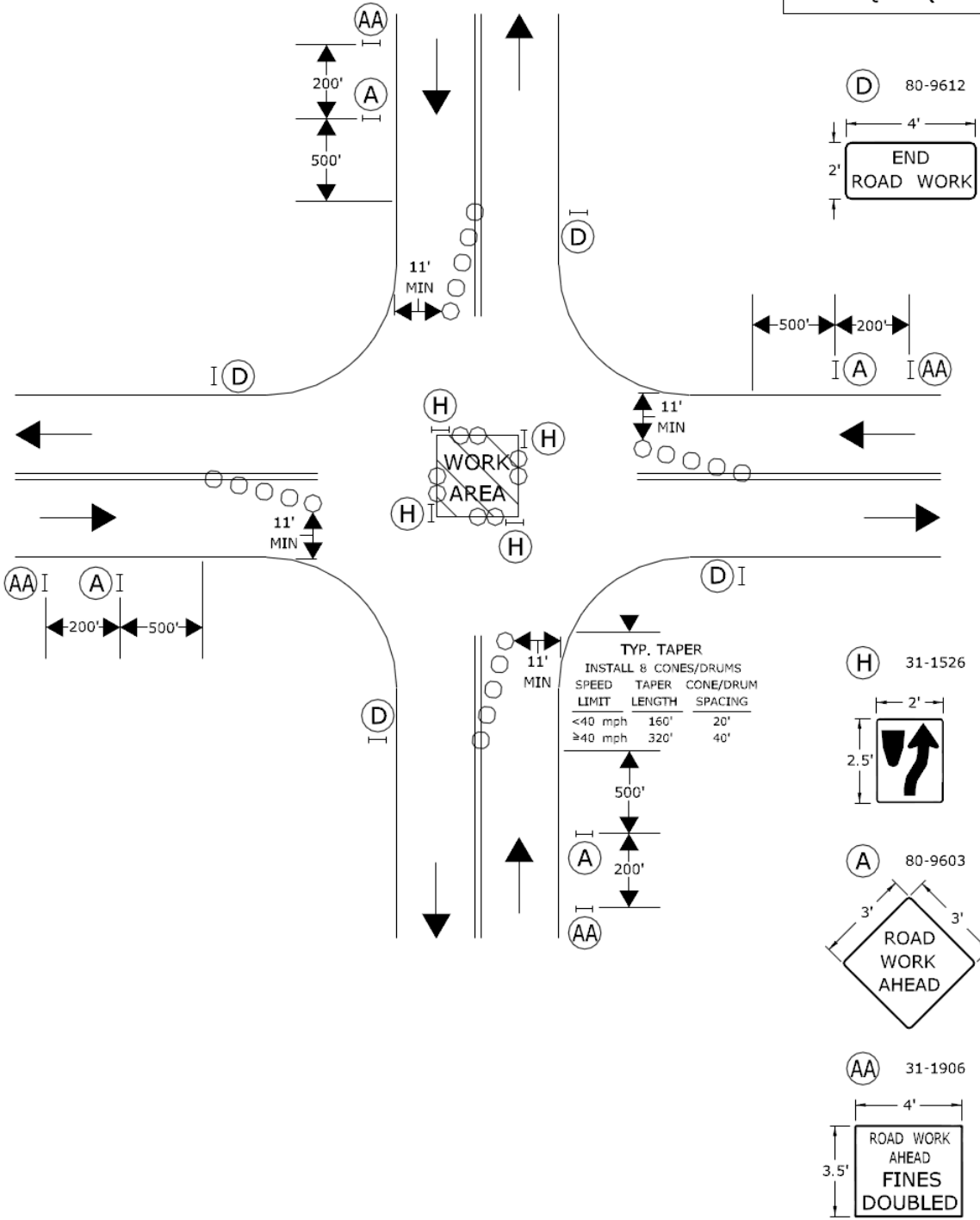
APPROVED

Charles S. Harlow
PRINCIPAL ENGINEER

Charles S. Harlow
2012.08.05 15:56:51-04'00"

WORK IN MIDDLE OF ROADWAY AT INTERSECTION

SIGN FACE
144 SQ. FT. (MIN.)



TYP. TAPER
INSTALL 8 CONES/DRUMS

SPEED LIMIT	TAPER LENGTH	CONE/DRUM SPACING
<40 mph	160'	20'
≥40 mph	320'	40'

- TRAFFIC CONE **OR** TRAFFIC DRUM
- * OPTIONAL ⊗ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
- ← HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 17

SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
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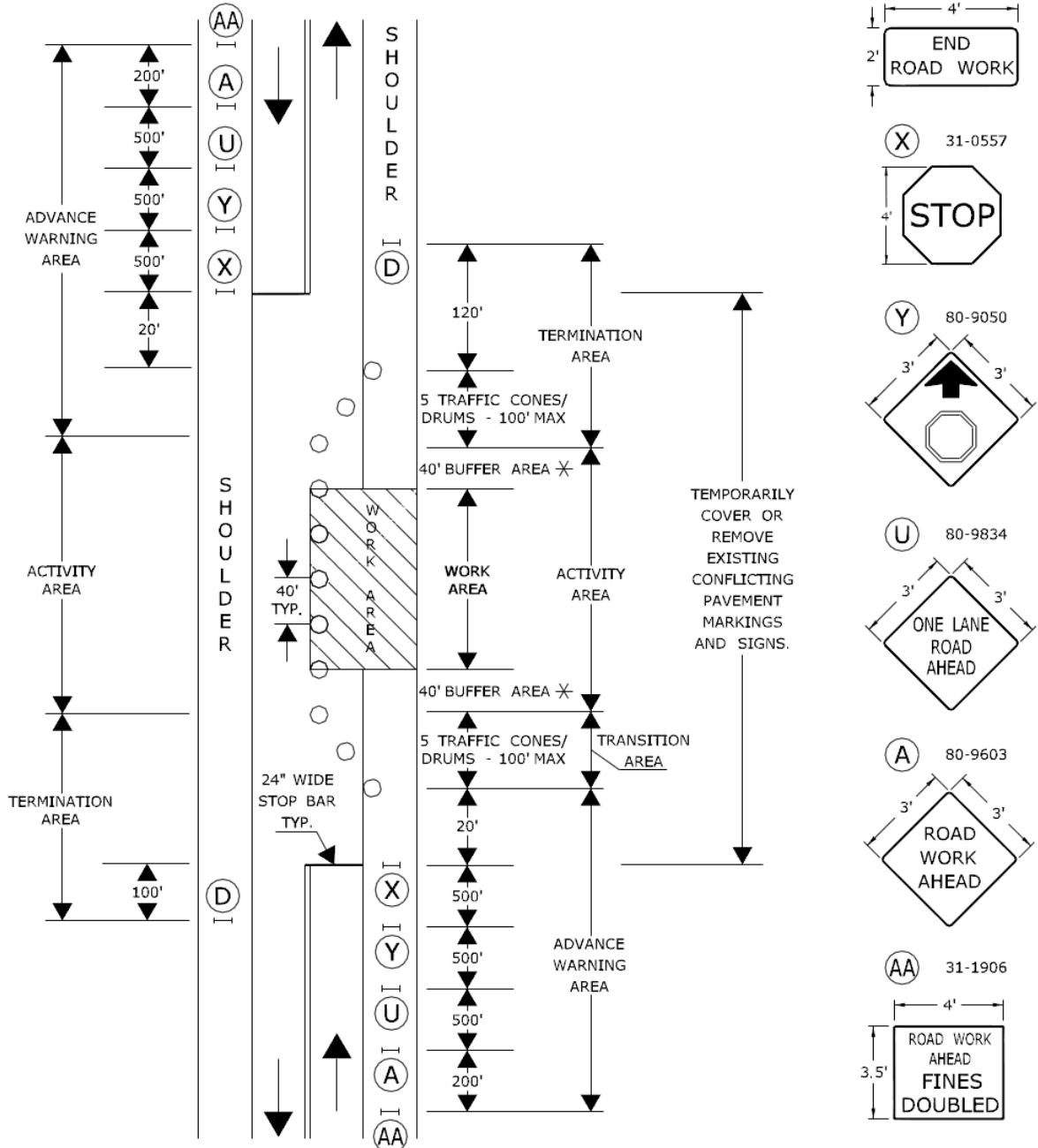
APPROVED

Charles S. Harlow
PRINCIPAL ENGINEER

Charles S. Harlow
2012.08.05 15:57:16-04'00"

**WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS
STOP SIGN CONTROL**

SIGN FACE
125 SQ. FT (MIN.)



- (D) 80-9612
4' x 2' END ROAD WORK
- (X) 31-0557
4' x 4' STOP
- (Y) 80-9050
3' x 3' Arrow sign
- (U) 80-9834
3' x 3' ONE LANE ROAD AHEAD
- (A) 80-9603
3' x 3' ROAD WORK AHEAD
- (AA) 31-1906
3.5' x 4' ROAD WORK AHEAD FINES DOUBLED

○ TRAFFIC CONE OR TRAFFIC DRUM
 ✖ OPTIONAL ✕ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
 ◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 18
 SEE NOTES 1, 2, 4, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
 BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles S. Harlow* Charles S. Harlow
 2012.06.05 15:57:37-0400
 PRINCIPAL ENGINEER