

ADDENDUM NO. 1

REPLACEMENT OF THAMES STREET WALL AT ELECTRIC BOAT GROTON, CT

MMI #2536-13
November 26, 2019

▪ **Administrative Items**

Pre-Bid Meeting on December 3, 2019 at 10:00 am at the intersection of Thames Street & Eastern Point Road. Bidders that would like to enter Electric Boat Property after the meeting please follow the directions below.

Bidders are required to submit visitor applications to **Brian Bogar** as the sponsor prior to Pre-Bid Meeting to access Electric Boat Property. If visitor applications are not submitted they will not be allowed on the premises.

Below are the requirements to obtain Controlled Industrial Area (CIA) access:

This link will provide you with directions as outlined below

http://www.gdeb.com/suppliers/8_visiting_eb_contractors/

"Orientation Video" You may watch the ~20 minute video on line or at Visitor Control. If you watch on line at the end of the video it will prompt you to print, sign and date.

Submit to sponsor.

"Unclassified Visits to EBC Facilities" Includes additional information to fill out the remaining forms.

"Unclassified Visit Request Form" Includes four tabs.

1. "Instructions"
2. "Visit Request" This must be signed by an officer of the company and cannot be signed by yourself. **Submit to sponsor.**
3. "Additional Visitors" If required it accompanies the "Visit Request". Must be signed by an officer of the company and cannot be signed by yourself. **Submit to sponsor.**

4. "CSHRM Signature Tab" The Contractor Safety Health Regulation Manual is located near the bottom of the web page. This form is for the individual(s) to acknowledge that they have read, understand and commit to comply with Electric Boat's Contractor Safety, Health & Regulation Manual. **Submit to sponsor.**

"Background Check Requirements" A State and Federal Background check is required to obtain unescorted access to Controlled Industrial Area (CIA), Production Areas or if you will exceed 30 onsite visits in a 365 day period. **Submit to ebbackgroundcheck@gdeb.com.**

Request a new or renewal permanent picture badge through your sponsor. If request is for a renewal provide current badge number. **Submit to sponsor.**

Sponsor

Brian T. Bogar, PE
General Dynamics Electric Boat
D508 Facilities Engineering
Office: (860) 433-9261
Mobile: (860) 389-8490
Email: bbogar@gdeb.com

- **Revised Plan Sheets**

Replace sheet 03 with updated sheet 03.

- **Revised Project Manual Sheets**

Replace the following sheets in the project manual.

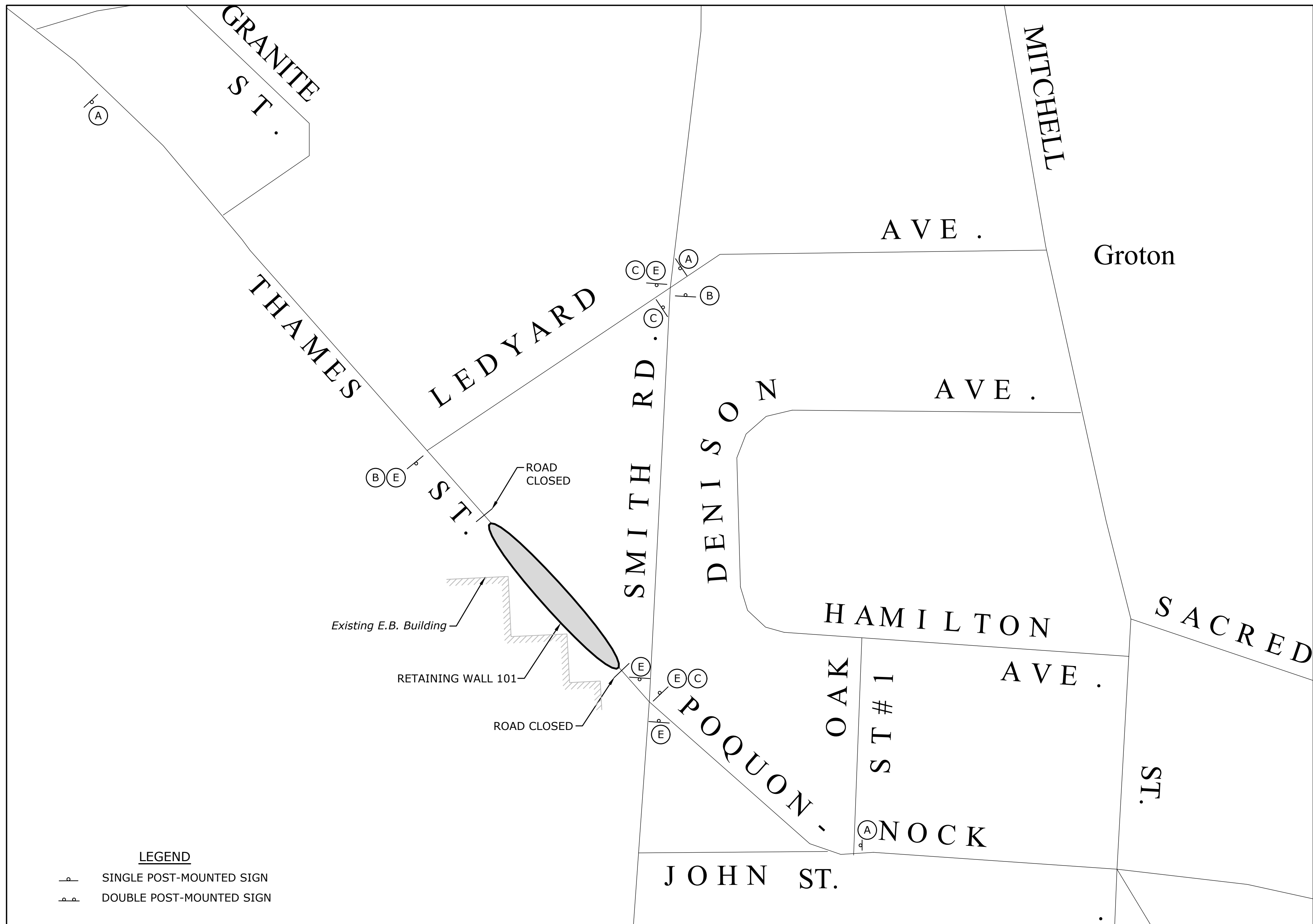
IB-5

BPF-2, BPF-3 & BPF-4

SC-4

Section 1.08 – Prosecution and Progress (Sheet 1 – General)

Replace the entire specification – "ITEM #0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC".



LEGEND

- SINGLE POST-MOUNTED SIGN
- DOUBLE POST-MOUNTED SIGN

DETOUR PLAN
SCALE: 1"=100'

GENERAL NOTES - MAINTENANCE & PROTECTION OF TRAFFIC

1. INSTALL TYPE DE-7 DELINEATORS ON THE RIGHT AND TYPE DE-7A DELINEATORS ON THE LEFT OF TEMPORARY PRECAST CONCRETE BARRIER CURB IN ACCORDANCE WITH TRAFFIC STANDARD SHEET "DELINEATION, DELINEATOR AND OBJECT MARKER DETAILS".
2. EXISTING SIGNS ARE TO BE RELOCATED AS NEEDED AND AS DIRECTED BY THE ENGINEER DURING CONSTRUCTION SO THAT THEY ARE IN THE APPROPRIATE LOCATION AND VISIBLE TO MOTORISTS. SOME SIGNS MAY HAVE TO BE TEMPORARILY LOCATED WITHIN THE WORK AREA.
3. SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION.
4. WHEN CONSTRUCTING FINAL PAVEMENT, THE FINAL LIFT OF BITUMINOUS CONCRETE AND FINAL PAVEMENT MARKINGS SHALL NOT BE PLACED UNTIL ALL CONSTRUCTION HAS BEEN COMPLETED.
5. EXISTING SIGNS THAT CONFLICT WITH TEMPORARY CONSTRUCTION SIGNS SHALL BE REMOVED OR COVERED AS DIRECTED BY THE ENGINEER.
6. BARRICADE WARNING LIGHTS - HIGH INTENSITY SHALL BE INSTALLED ON ALL POST-MOUNTED CONSTRUCTION SIGNS.
7. THE LOCATIONS OF TEMPORARY SIGNS SHOWN ON THE PLANS ARE APPROXIMATE AND SHALL BE ADJUSTED BY THE CONTRACTOR TO MEET FIELD CONDITIONS.
8. THE LOCATIONS OF TRAFFIC DRUMS AND TYPE III CONSTRUCTION BARRICADES SHOWN ON THE PLANS ARE APPROXIMATE AND SHALL BE ADJUSTED BY THE CONTRACTOR TO MEET FIELD CONDITIONS AND TO CLEARLY DEFINE ACCESS TO AND EGRESS FROM ALL ROADWAYS AND DRIVEWAYS.

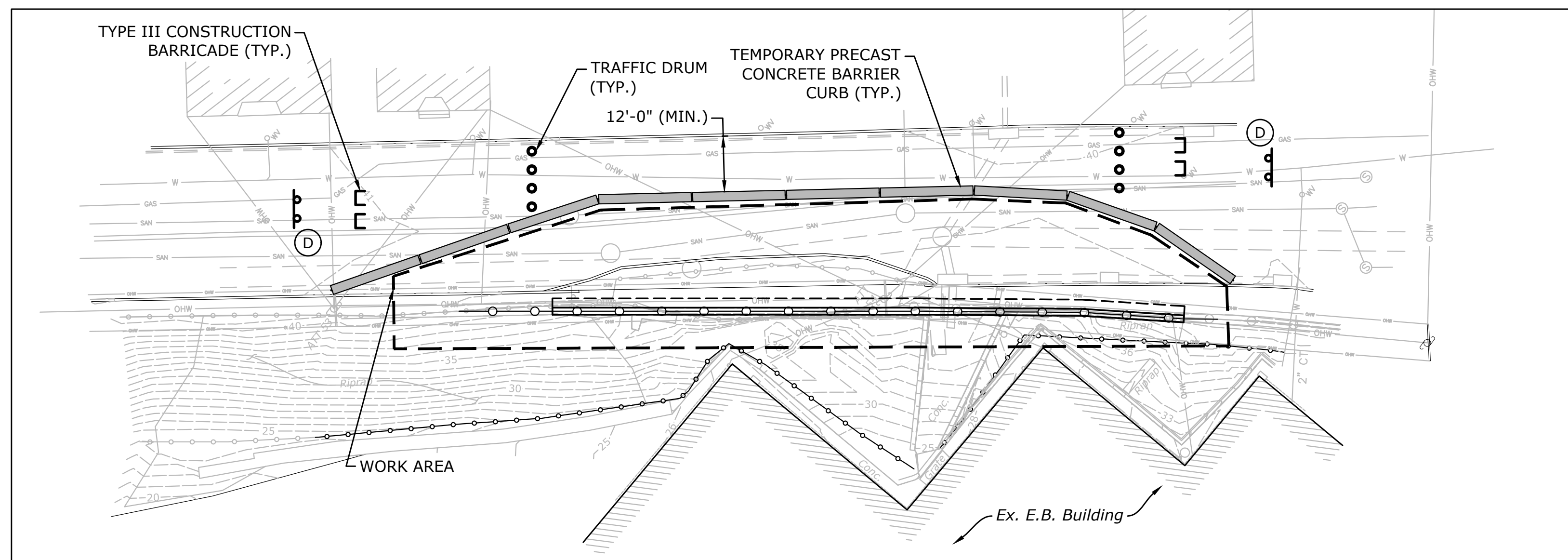
NOTE

1. ALL WORK FOR DETOUR SIGNAGE AND ROADWAY CLOSURE SHALL BE PAID UNDER THE ITEM "MAINTENANCE AND PROTECTION OF TRAFFIC".
2. RELOCATION OF EXISTING SIGNS & REPLACEMENT OF DAMAGED EXISTING SIGNS TO BE PAID FOR UNDER ITEM "MAINTENANCE AND PROTECTION OF TRAFFIC".
3. SEPARATE PAYMENT FOR TEMPORARY PRECAST CONCRETE BARRIER CURB.
4. CONTRACTOR SHALL PLACE AND RELOCATE TEMPORARY PRECAST CONCRETE BARRIER CURB AS NECESSARY.
5. CONTRACTOR SHALL SECURE SITE AT END OF DAY WITH PRECAST CONCRETE BARRIER CURB.
6. PRECAST CONCRETE BARRIER CURB SHALL BE PAID AS LUMP SUM.

CONSTRUCTION SIGN LEGEND			
PLAN DESIGNATION	MESSAGE	SIZE	CONNDOT DESIGNATION
A		48"	80-9604
B		30" X 24"	80-9710 (L)
C		30" X 24"	80-9710 (R)
D		48" X 30"	80-9080 INSTALL W/ BWL-HI
E		48" X 10" 60" X 30"	80-9916 80-9081

LEGEND

- SINGLE POST MOUNTED SIGN
- DOUBLE POST MOUNTED SIGN W/ BARRICADE WARNING LIGHT - HIGH INTENSITY
- TYPE III CONSTRUCTION BARRICADE W/ BARRICADE WARNING LIGHT - HIGH INTENSITY
- TRAFFIC DRUM



ROADWAY CLOSURE PLAN
SCALE: 1"=20'-0"

DESCRIPTION	BY	DATE
ADDENDUM NO. 1	KP	11-26-2019

MILONE & MACBROOM
 99 REALTY DRIVE
 CHESTER, CT 06410
 WWW.MMAMINC.COM

DETOUR PLAN
RECONSTRUCTION OF THAMES STREET WALL
AT ELECTRIC BOAT
 THAMES STREET
 GROTON, CONNECTICUT

NP	NP	KP
DESIGNED	DRAWN	CHECKED
AS NOTED		
NOVEMBER 22, 2019		
DATE		
PROJECT NO.	2536-13	
DRAWING NO.	MPT-01	

13. PAYMENTS

Monthly estimates and/or invoices shall be furnished to the City Engineer for verification and approval of the amount of work done and the amount earned by the Contractor. An amount of 95% of the estimated amount due, less any payments previously made and/or any monies to be held will be paid to the Contractor monthly. The balance will be retained by the Owner until final completion of the work. Final payment will not be made until final completion and acceptance by the City of Groton of all work covered by the Contract. The Contractor agrees that he will indemnify and save the Owner harmless for all claims growing out of the lawful demands of subcontractors, laborers, suppliers, and assignees.

Payment for the work associated with this bid shall be made within thirty (30) days by the City, following the completion of all work invoiced to the satisfaction of the City, as determined by inspection of the completed project by the City or its designated agent, and upon submission of an invoice to the City of Groton Finance Department, Attn: Ronald Yuhas, 295 Meridian Street, Groton, Connecticut 06340. Payment for materials shall only be for materials already used or for materials stored on site at the job location. Frequency of invoices shall not exceed one per month. Payment for all items shall be made at the contract unit price for the actual amount of work required, performed and accepted.

14. DBE PARTICIPATION

All Bidders to this Contract are advised that it is the intent of the City of Groton to encourage the participation of disadvantaged business enterprise contractors and/or suppliers. DBE is not a requirement.

15. PRE-BID MEETING

Attendance at the pre-bid meeting to be held on December 3, 2019, at 10:00 A.M. to review the project is mandatory. The meeting will be held at the site at the intersection of Thames Street and Eastern Point Road, Groton, Connecticut 06340. This will be the only meeting to review the project with City of Groton officials and the City Engineer. Each bidder is responsible for any information discussed or presented at the pre-bid meeting.

16. SALES TAX

Certain materials and supplies incorporated in the work of this project are exempt from Connecticut Sales Tax. The Bidder shall familiarize himself with current regulations of the State Tax Department. The tax on materials or supplies exempted by such regulations shall not be included as part of the bid. Upon request, the City will furnish the successful Bidder a sales tax exemption letter.

BID SCHEDULE:**BIDDER'S NAME:**

ITEM NO.	ITEM/ DESCRIPTION	UNIT	QTY	UNIT PRICES BID		AMOUNT IN FIGURES
				IN FIGURES	IN WRITING	
0201013	Removal of Existing Fence	LS	1			
0201030A	Clearing and Grubbing (Site No. 1)	LS	1			
0201031A	Clearing and Grubbing (Site No. 2)	LS	1			
0202502	Removal of Concrete Pavement	SY	200			
0202529	Cut Bituminous Concrete Pavement	LF	180			
0203000	Structure Excavation - Earth (Complete)	CY	260			
0203100	Structure Excavation - Rock (Complete)	CY	5			
0209001	Formation of Subgrade	SY	90			
0213050	Bank Run Gravel	CY	30			
0214000	Compacted Gravel Fill	CY	15			
0216000	Pervious Structure Backfill	CY	40			
0216011A	Flowable Fill	CY	3			
0219001	Sedimentation Control System	LF	215			

ITEM NO.	ITEM/ DESCRIPTION	UNIT	QTY	UNIT PRICES BID		AMOUNT IN FIGURES
				IN FIGURES	IN WRITING	
0219002	Sedimentation Control Hay Bale System	LF	42			
0304002	Processed Aggregate Base	CY	15			
0406010-1	Bituminous Concrete - Class 1	Ton	45			
0406010-2	Bituminous Concrete - Class 2	Ton	17			
0406236	Material for Tack Coat	Gal	30			
0406267	Milling of HMA (0"-4")	SY	295			
0601201A	Class 'F' Concrete	CY	50			
0601445A	Embankment Wall (Site No. 1)	LS	1			
0602006	Deformed Steel Bars (Epoxy Coated)	LB	5,000			
0703013A	Special Riprap	CY	30			
0708001	Dampproofing	SY	45			
0728014	3/4" Crushed Stone	CY	30			
0728016	3" Crushed Stone	CY	215			
0815001	Bituminous Concrete Lip Curbing	LF	175			
0822001	Temporary Precast Concrete Barrier Curb	LS	1			
0905018A	Rebuild Stone Wall	CY	3			
ITEM	ITEM/	UNIT	QTY	UNIT PRICES BID		AMOUNT

NO.	DESCRIPTION			IN FIGURES	IN WRITING	IN FIGURES
0913968A	Protective Fence (8'-0" High)	LF	300			
0922001	Bituminous Concrete Sidewalk	SY	75			
0944001	Furnishing and Placing Topsoil	SY	100			
0950005A	Turf Establishment	SY	100			
0969060A	Construction Field Office, Small	Mo	2			
0971001A	Maintenance & Protection of Traffic	LS	1			
0974001	Removal of Existing Masonry	CY	3			
0975002	Mobilization and Project Closeout	LS	1			
1210101	4" White Epoxy Resin Pavement Markings	LF	400			
1210102	4" Yellow Epoxy Resin Pavement Markings	LF	400			
<u>Total Bid (in words)</u>						
				\$ _____		
					(in Dollars)	

By Submission of this Bid, each bidder certifies that his Bid has been arrived at independently, without consultation, communication, or agreement as to any matter related to this Bid with any other Bidder or with any competitor.

Bodily Injury - each occurrence:	\$1,000,000
Bodily Injury – annual aggregate:	\$2,000,000
Property Damage - each occurrence:	\$1,000,000
Property Damage - annual aggregate:	\$2,000,000

4. SCOPE OF WORK

The work to be completed under this Contract is the construction of a cast in place concrete retaining wall and roadway reconstruction and restoration. The Contract plans and special provisions identify all work required under the contract.

5. TIME FOR COMPLETION

The Contractor shall commence work upon a written "Notice to Proceed" from the Owner and the Contractor shall complete, including fully opening the roadway, this Contract for Bid No. 19-11-01 within sixty (60) calendar days from the date of the written "Notice to Proceed."

6. LIQUIDATED DAMAGES

The Contractor shall proceed with the work at such rate of progress to ensure full completion within the time requirements stated above. It is expressly understood and agreed by and between the Contractor and the City that the Contract time for the completion of the work described herein shall be reasonable, taking into consideration the climatic and economic conditions and other factors prevailing in the locality of the work.

If the Contractor shall fail to complete the work within the Contract times, or extension of time granted by the City, then the Contractor and his sureties shall be liable for and shall pay to the City for each and every calendar day that he shall be in default in completing any given assignment in the time stipulated above, the sum of one thousand dollars (\$1,000.00). This sum is hereby agreed upon, not as a penalty, but as fixed liquidated damages which the Owner will suffer by reason of such default, time being of the essence of the Contract and a material consideration thereof. The Owner shall have the right to deduct the amount of any such damages from any monies due the Contractor under this Contract.

7. PAYMENTS AND RETAINAGE

Monthly applications for payment shall be submitted to the City Engineer for consideration. Payment shall be made within thirty days after approval of the application for payment by the City.

An amount of 95 percent (95%) of the estimated amount due, less any payments previously made and/or any moneys to be held will be paid to the Contractor monthly. The balance will be retained by the City until final completion of the work. Final payment will not be made until final completion and acceptance by the City of all work covered by the Contract. The

SECTION 1.08 – PROSECUTION AND PROGRESS

1.08.03 – Prosecution of Work: is supplemented as follows:

The Contractor shall not be permitted to interrupt traffic for any continuous period of time until both of the following conditions are satisfied:

1. The Contractor has secured all of the required approvals from the Engineer, and,
2. The Contractor has, as much as practical, all of the required materials needed on the site or readily available for that construction which requires the interruption of traffic.

1.08.04 – Limitation of Operations: is supplemented by the following:

The Contractor shall schedule his construction operations, so that construction at the site in this contract does not begin, extend into or end during the period from December 1 through March 31, except as approved by the Engineer.

Start times for municipal police officers is 7:30 a.m., unless coordinated otherwise with the City of Groton Police Department.

In order to provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor will not be allowed to perform any work that will interfere with the existing traffic operations on all project roadways as follows:

THAMES STREET

The Contractor shall follow Detour Plan on Thames Street. Emergency vehicles must be able to pass through per plans with the use of traffic cones. Precast concrete barrier shall be utilized to secure any excavation at end of each day.

COORDINATION WITH OTHER PROJECTS

The Contractor shall be aware of work on adjacent projects that may be ongoing simultaneously with this project. The Contractor shall be aware of those projects so that coordination is maintained for proper traffic flow at all times on all project roadways and this coordination is acceptable to the Engineer.

ITEM #0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 - Description is supplemented as follows:

The Contractor shall maintain and protect traffic as follows and as limited in the Special Provision "Prosecution and Progress":

The Contractor shall maintain and protect traffic in accordance with the current edition of "The Manual on Uniform Traffic Control Devices (MUTCD), Part VI", The portions of streets over which traffic is maintained shall be kept in such condition that traffic will be safely and adequately accommodated. Sidewalks outside the limits of construction are to be kept free of excavated materials, tool, machinery and other subjects that will impede or endanger pedestrian traffic.

The Contractor shall furnish erect, light and maintain such signs, barricades, barrels, flashers and warning lights as needed or directed by the Engineer, for the regulation and protection of traffic and pedestrians. Such signs, barricades, barrels, flashers, and warning lights shall be used to safely and adequately keep pedestrians, including handicapped persons, and vehicles from equipment, materials, obstacles, excavations, and newly constructed structures.

The Contractor shall sweep areas as required and/or directed by the Engineer.

At no time, unless otherwise approved by the Engineer, shall the Contractor close or cause to be closed any portion of roadways beyond what is stipulated herein, or on the plans, as necessary to perform the work.

The Contractor shall be required to provide and/or relocate any required roadway safety measures (e.g. Construction Barricades, Traffic Cones, Drums, etc.) as shown on the plans or as directed by the Engineer or Town. The costs for these measures will be measured and paid for under those specific contract items.

Thames Street and Side Streets

Contractor shall follow detour and closure plan.

Commercial and Residential Driveways

The Contractor shall maintain access to and egress from all commercial, residential, school and cemetery driveways throughout the project limits unless the Contractor has first negotiated alternate arrangements with the property owners or business proprietors or as otherwise noted on the plans. All driveways shall be accessible to delivery trucks at all times throughout construction. Driveway construction shall be coordinated with the property owners. At a minimum, temporary graded surfaces shall consist of subbase, processed aggregate base, granular fill, or other suitable materials approved by the Engineer. The Contractor will be allowed to close said driveways to perform the required work during those periods when the businesses are closed, unless permission is granted from the business owner to close the driveway during business hours. If a temporary closure of a residential driveway is necessary, the Contractor shall coordinate with the owner to determine the time period of the closure. The

cost for installation and maintenance of all such temporary access shall be included in the Maintenance and Protection of Traffic item. If temporary access is to be provided longer than five days, then a temporary bituminous concrete driveway will be installed in accordance with the specifications and paid for under "Maintenance and Protection of Traffic".

Article 9.71.03 - Construction Method is supplemented as follows:

General

Unpaved travel paths will only be permitted for areas requiring full depth and full width reconstruction, in which case, the Contractor will be allowed to maintain traffic on processed aggregate for a duration not to exceed 10 calendar days. The unpaved section shall be the full width of the road and perpendicular to the travel lanes. Opposing traffic lane dividers shall be used as a centerline.

The Contractor is required to delineate any raised structures within the travel lanes, so that the structures are visible day and night, unless there are specific contract plans and provisions to temporarily lower these structures prior to the completion of work.

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway (bridge) section by the end of a workday (work night), or as directed by the Engineer.

When the installation of all intermediate courses of bituminous concrete pavement is completed for the entire roadway, the Contractor shall install the final course of bituminous concrete pavement.

When the Contractor is excavating adjacent to the roadway, the Contractor shall provide a 3-foot shoulder between the work area and travel lanes, with traffic drums spaced every 50 feet. At the end of the workday, if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary traversable slope of 4:1 or flatter that is acceptable to the Engineer.

If applicable, when an existing sign is removed, it shall be either relocated or replaced by a new sign during the same working day.

The Contractor shall not store any material on-site which would present a safety hazard to motorists or pedestrians (e.g. fixed object or obstruct sight lines).

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed, except during the allowable periods.

Construction vehicles entering travel lanes at speeds less than the posted speed are interfering with traffic and shall not be allowed without a lane closure. The lane closure shall be of sufficient length to allow vehicles to enter or exit the work area at posted speeds, in order to merge with existing traffic.

Existing Signing

The Contractor shall maintain all existing overhead and existing side-mounted signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary, and install temporary sign supports if necessary and as directed by the Engineer.

Signing Patterns

The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory.

Pavement Markings - Limited Access Highways, Turning Roadways and Ramps

During construction, the Contractor shall maintain all pavement markings throughout the limits of the project.

Interim Pavement Markings

The Contractor shall install painted pavement markings, which shall include lane lines (broken lines), edge lines, stop bars, lane-use arrows and gore markings, on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work day/night. All painted pavement markings will be paid under the appropriate items.

If the Contractor does not install permanent Epoxy Resin Pavement Markings by the end of the work day/night on exit ramps where the final course of bituminous concrete pavement has been installed, the Contractor shall install temporary 12-inch-wide white stop bars. The temporary stop bars shall consist of Temporary Plastic Pavement Marking Tape and shall be installed by the end of the work day/night. Stop bars may consist of two 6-inch-wide white markings or three 4-inch-wide white markings placed side by side. The Contractor shall remove and dispose of these markings when the permanent Epoxy Resin Pavement Markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

If an intermediate course of bituminous concrete pavement will be exposed throughout the winter, then Epoxy Resin Pavement Markings should be installed unless directed otherwise by the Engineer.

Final Pavement Markings

The Contractor should install painted pavement markings on the final course of bituminous concrete pavement by the end of the work day/night. If the painted pavement markings are not installed by the end of the work day/night, then Temporary Plastic Pavement Marking Tape shall be installed as described above and the painted pavement markings shall be installed by the end of the work day/night on Friday of that week.

If Temporary Plastic Pavement Marking Tape is installed, the Contractor shall remove and dispose of these markings when the painted pavement markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

The Contractor shall install permanent Epoxy Resin Pavement Markings in accordance with Section 12.10 entitled "Epoxy Resin Pavement Markings" after such time as determined by the Engineer.

Pavement Markings -Non-Limited Access Multilane Roadways

Secondary and Local Roadways

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

Interim Pavement Markings

The Contractor shall install painted pavement markings, which shall include centerlines, edge lines, lane lines (broken lines), lane-use arrows, and stop bars, on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work day/night. If the next course of bituminous concrete pavement will be placed within seven days, edge lines are not required. The painted pavement markings will be paid under the appropriate items.

If the Contractor will install another course of bituminous concrete pavement within 24 hours, the Contractor may install Temporary Plastic Pavement Marking Tape in place of the painted pavement markings by the end of the work day/night. These temporary pavement markings shall include centerlines, lane lines (broken lines) and stop bars; edge lines are not required. Centerlines shall consist of two 4-inch-wide yellow markings, 2 feet in length, side by side, 4 to 6 inches apart, at 40-foot intervals. No passing zones should be posted with signs in those areas where the final centerlines have not been established on two-way roadways. Stop bars may consist of two 6-inch-wide white markings or three 4-inch-wide white markings placed side by side. The Contractor shall remove and dispose of the Temporary Plastic Pavement Marking Tape when another course of bituminous concrete pavement is installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

If an intermediate course of bituminous concrete pavement will be exposed throughout the winter, then Epoxy Resin Pavement Markings should be installed unless directed otherwise by the Engineer.

Final Pavement Markings

The Contractor should install painted pavement markings on the final course of bituminous concrete pavement by the end of the work day/night. If the painted pavement markings are not installed by the end of the work day/night, then Temporary Plastic Pavement Marking Tape shall be installed as described above and the painted pavement markings shall be installed by the end of the work day/night on Friday of that week.

If Temporary Plastic Pavement Marking Tape is installed, the Contractor shall remove and dispose of these markings when the painted pavement markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

The Contractor shall install permanent Epoxy Resin Pavement Markings in accordance with Section 12.10 entitled “Epoxy Resin Pavement Markings” after such time as determined by the Engineer.

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, pothole 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 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.

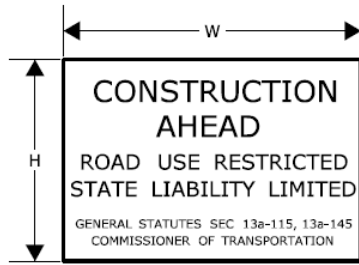
SECTION 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

- 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) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.
- 3.e) 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.f) 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.g) 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.

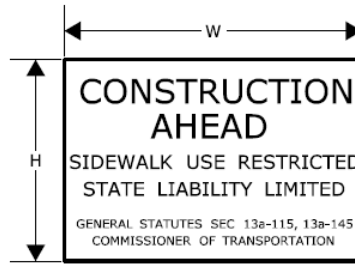
SECTION 4. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

- 4.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.
- 4.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.
- 4.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.
- 4.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.

SERIES 16 SIGNS



		W	H
16-E	80-1605	84" x 60"	
16-H	80-1608	60" x 42"	
16-M	80-1613	30" x 24"	



		W	H
16-S	80-1619	48" x 30"	

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.

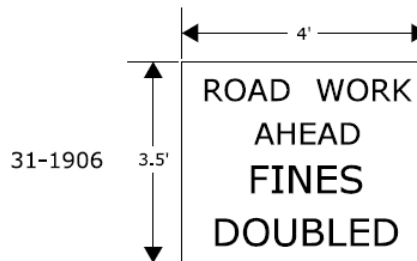
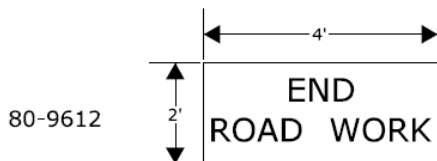
REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

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

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

Charles S. Harlow
PRINCIPAL ENGINEER

Charles S. Harlow
2012.06.05 11:35:43-04'00'

Article 9.71.05 – Basis of Payment is supplemented by the following:

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include furnishing, installing, and removing the material for the temporary traversable slope in those areas where a longitudinal dropdown exists.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include temporarily relocating existing signs and sign supports as many times as deemed necessary and furnishing, installing, and removing temporary sign supports and foundations if necessary during construction of the project. This contract lump sum price shall also include final installation of temporarily relocated signs in their original location.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include any temporary adjustments or modifications required to the permanent drainage structures, including but not limited to the resetting of catch basin and manhole tops as necessary, to facilitate temporary drainage measures prior to final paving.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include the cost for installation and maintenance of all temporary access to all residential and commercial properties, including but not limited to temporary graded surfaces consisting of subbase, processed aggregate base, granular fill, or other suitable materials approved by the Engineer.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include furnishing, installing and relocating all temporary protective systems including, but not limited to, construction signs, traffic drums, traffic cones, construction barricades, barricade warning lights and temporary construction fencing.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include all dust control measures required during construction, including but not limited to water for dust control and sweeping. This item shall also include the preparation and submission of a dust control plan.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include the cost for furnishing, installation, maintenance and removal of all temporary painted pavement markings, as required by the specifications, throughout the duration of the project.

Pay Item

Maintenance and Protection of Traffic

Pay Unit

LS