

JUNE 30, 2020
REPLACEMENT OF BRIDGE NO. 02929 ROUTE 80 OVER DEEP RIVER
FEDERAL AID PROJECT NO. 0080(008)
STATE PROJECT NO. 0122-0103
TOWN OF DEEP RIVER

ADDENDUM NO. 1

SPECIAL PROVISIONS

REVISED SPECIAL PROVISIONS

The following Special Provisions are hereby deleted in their entirety and replaced with the attached like-named Special Provisions:

- CONTRACT TIME AND LIQUIDATED DAMAGES
- SECTION 1.03 – AWARD AND EXECUTION OF CONTRACT
- SECTION 1.08 – PROSECUTION AND PROGRESS
- ITEM NO. 0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

DELETED SPECIAL PROVISIONS

The following Special Provisions are hereby deleted in their entirety:

- MILESTONE INCENTIVE AND LIQUIDATED DAMAGES PROVISIONS
- ITEM NO. 0108100A – LUMP SUM INCENTIVE PAYMENT (ESTIMATED COST)

CONTRACT ITEM

REVISED CONTRACT ITEM

| <u>ITEM NO.</u> | <u>DESCRIPTION</u> | <u>ORIGINAL QUANTITY</u> | <u>REVISED QUANTITY</u> |
|-----------------|--|--------------------------|-------------------------|
| <u>0970007</u> | <u>TRAFFICPERSON (UNIFORMED FLAGGER)</u> | <u>480 HR</u> | <u>832 HR</u> |

DELETED CONTRACT ITEM

| <u>ITEM NO.</u> | <u>DESCRIPTION</u> | <u>ORIGINAL QUANTITY</u> | <u>REVISED QUANTITY</u> |
|-----------------|--|--------------------------|-------------------------|
| <u>0108100A</u> | <u>LUMP SUM INCENTIVE PAYMENT (ESTIMATED COST)</u> | <u>\$75,000.00</u> | <u>\$ 0</u> |

The Bid Proposal Form has been revised to reflect these changes.

The Detailed Estimate Sheet does not reflect this change.

There will be no change in the number of calendar days due to this Addendum.

The foregoing is hereby made a part of the contract.

JUNE 03, 2020
FEDERAL AID PROJECT NO. 0080(008)
STATE PROJECT NO. 122-103

REPLACEMENT OF BRIDGE NO. 02929 – ROUTE 80 OVER DEEP RIVER

Town of Deep River
Federal Aid Project No. 0080(008)

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817, 2016, as revised by the Supplemental Specifications dated July 2019 (otherwise referred to collectively as “ConnDOT Form 817”) is hereby made part of this contract, as modified by the Special Provisions contained herein. Form 817 is available at the following DOT website link <http://www.ct.gov/dot/cwp/view.asp?a=3609&q=430362>. The current edition of the State of Connecticut Department of Transportation's "Construction Contract Bidding and Award Manual" ("Manual"), is hereby made part of this contract. If the provisions of this Manual conflict with provisions of other Department documents (not including statutes or regulations), the provisions of the Manual will govern. The Manual is available at the following DOT website link <http://www.ct.gov/dot/cwp/view.asp?a=2288&q=259258>. The Special Provisions relate in particular to the Replacement of Bridge No. 02929 – Route 80 over Deep River in the Town of Deep River.

CONTRACT TIME AND LIQUIDATED DAMAGES

In order to minimize the hazard, obstruction, inconvenience, and cost to the public, pollution of the environment, and detriment to area businesses, it is necessary to limit the time of construction work which interferes with traffic as specified in Article 1.08.04 of the Special Provisions.

There will be two assessments for liquidated damages and they will be addressed in the following manner:

1. Two hundred twenty-six (226) calendar days will be allowed for completion of the work on this Contract and the liquidated damages charge to apply will be One Thousand Five Hundred Dollars (\$1,500.00) per calendar day.
2. If the Contractor fails to complete the listed activities of Article 1.03.09 by the Milestone Completion Date specified in Article 1.08.03, the Contractor will be assessed a per day

liquidated damage charge of Fifteen Thousand Dollars (\$15,000.00) until the listed activities of Article 1.03.09 are complete and accepted by the Engineer. The maximum assessment of Milestone Liquidated Damages will be capped at One-Hundred Fifty Thousand Dollars (\$150,000.00) and shall be considered separate and independent from any Liquidated Damages assessed the Contractor for failure to complete the project on time as described above.

SECTION 1.03 – AWARD AND EXECUTION OF CONTRACT

Article 1.03.08 - Notice to Proceed and Commencement of Work:

Change the first paragraph to read as follows:

The Contractor shall commence and proceed with the Contract work on the date specified in a written Notice to Proceed issued by the Engineer to the Contractor. The date specified will be no later than 45 calendar days after the date of the execution of the Contract by the Department, however, the Contractor is hereby put on notice that it is the Department's intent to issue the Notice to Proceed on or about November 2, 2020. The intent is to provide the Contractor sufficient time before the end of the construction season for the Contractor to begin tree clearing and other necessary activities to establish construction access roads for the temporary relocation of overhead utilities in the Fall of 2020 by the respective utility companies as shown on Contract Plans.

Add the following:

Article 1.03.09 – Contractor Readiness Plan

For all projects that have a scheduled road closure or a critical phase in which Contract work must be completed during a specific timeframe that concludes on a Milestone Completion Date, the Contractor must develop and submit a Readiness Plan. Some elements of the work may require extra manpower, equipment and work shifts in order to complete the required activities detailed below on or before the specified Milestone Completion Date found in Article 1.08.03.

The Contractor shall develop and submit a Readiness Plan a minimum of thirty (30) days prior to the scheduled road closure, for the Department's review and comment. A minimum of ten (10) days prior to the scheduled road closure date, the Contractor shall provide a confirmation report to the Engineer detailing how the Contractor has addressed all the Department's comments and pending items. Five (5) days prior to the scheduled closure, the Contractor shall meet with the Department to review any outstanding Readiness items and coordinate final details for the implementation of the road closure and any corresponding detour.

The information in the Readiness Plan shall contain at least the following:

- a. Scheduled delivery dates for materials that are required to be on site prior to closure of the road
- b. A daily bar chart schedule in accordance with the requirements of 1.05.08 which details, at minimum, the activities listed below that must be completed by the Milestone Completion Date. The activities are:
 - The closure of Route 80 and implementation of the detour. **The closure timeframe begins.**
 - Removal of Superstructure

- Cofferdam and Dewatering
- Removal of Existing Masonry
- Channel Excavation
- Excavation and Reuse of Existing Channel Bottom Material
- Structure Excavation
- The bridge has been replaced and accepted by the Engineer which includes, but is not limited to, the following items:
 - All piles are in place.
 - The reinforced concrete abutments are in place.
 - The precast concrete arch is in place.
 - The reinforced concrete wingwalls and headwalls are in place.
 - The connection to the existing masonry wall is in place.
 - Channel grading is complete.
 - River flow has been established under the precast concrete arch.
 - The waterproofing membrane, subbase, and first course of bituminous concrete pavement are in place on the top of the precast concrete arch.
 - The parapets are securely fastened in place or some other form of temporary traffic barrier is in place, which has been approved by the Engineer.
- The approach roadways are in a condition that which will allow the safe passage of vehicles which includes, but is not limited to, the following items:
 - The approach guiderail is securely anchored to the bridge wingwalls at all four (4) corners of the bridge or some other form of traffic barrier with leading end protection is in place, which has been approved by the Engineer.
 - All portions of the travel lanes, shoulders, and driveways have the first course of bituminous concrete pavement in place.
 - Proper temporary signage and other traffic controls are in place to safely guide motorists and pedestrians through the work zone and alert them of uncompleted features within the work zone.
- The reopening of Route 80 to 1 lane of traffic in each direction with full shoulders, exclusive of temporary alternating one-way traffic operations during the hours permitted by this Contract, that may be necessary to complete the project. The temporary precast concrete barrier may temporarily remain in place after the road is reopened to allow for proper curing time for the parapets. **The closure timeframe ends.**

c. Detail of Required Resources

- i. Staffing and shift times
- ii. Equipment (include contingency plan for equipment failure)

d. Maintenance and Protection of Traffic coordination

SECTION 1.08 – PROSECUTION AND PROGRESS

Article 1.08.03 – Prosecution of Work – Add the following:

A “MILESTONE” is herein defined as the completion of specific contract work (“activities”) on or before the scheduled “Milestone Completion Date”.

A maximum of seventy-seven (77) consecutive days is permitted for the closure of Route 80 and Bridge No. 02929 beginning at 7:00 a.m. the day following the last day of school for the Town of Deep River (Regional School District No. 4) for the 2020-2021 school year. The exact date has yet to be determined by the Regional School District No. 4 due to the possibility for snow day makeup days, but the last day of school is currently scheduled for June 9, 2021. Coordination with the Regional School District No. 4 will be required prior to the start of construction to determine the exact date. The Milestone Completion Date of will be seventy-seven (77) days after the closure of Route 80. If the start of the roadway closure occurs on June 10, 2021, at 7:00 a.m. (the day following the currently scheduled last day of school), then the Milestone Completion Date will be August 26, 2021, at 7:00 a.m. If the last day of school is at a later date due to snow day makeup days, the Milestone Completion Date will be adjusted to be at seventy-seven (77) days after the day following the last day of school at 7:00 a.m. The Contractor is required to complete the activities listed in Article 1.03.09 within the permitted closure timeframe. A corresponding approximate seven (7) mile detour will service the traffic as detailed within the Contract.

Article 1.08.04 - Limitation of Operations - Add the following:

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

Route 80

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.

The Contractor will also be allowed to institute alternating one-way traffic controlled by uniformed flagger along Route 80 for a period of thirty (30) consecutive days prior to and after the completion the detour. During these time periods, any work that produces loud noises, i.e. installation of sheeting or piles and/or as determined by the Engineer, will be strictly prohibited between the hours of 10:00 p.m. and 7:00 a.m. The Contractor shall maintain two-way traffic during the times specified above. Additional materials needed to maintain two-way traffic, such as steel plates, gravel backfill, temporary paving, or any other necessary material, will be the responsibility of the Contractor should the Contractor elect to implement alternating one-way traffic operations. The traffic control for these operations will be reimbursable by the Department.

The Contractor will be allowed to close Route 80 and Bridge No. 02929 for a period of seventy-seven (77) consecutive days beginning at 7:00 a.m. the day following the last day of school for the

Town of Deep River (Regional School District No. 4) for the 2020-2021 school year and detour traffic as shown on the Detour Plan contained in the contract plans. The exact date has yet to be determined by the Regional School District No. 4 due to the possibility for snow day makeup days, but the last day of school is currently scheduled for June 9, 2021. Coordination with the Regional School District No. 4 will be required prior to the start of construction to determine the exact date. During this time period, the Contractor will be allowed to work twenty-four (24) hours per day; however, work that produces loud noises, i.e. installation of sheeting or piles and/or as determined by the Engineer, will be strictly prohibited between the hours of 10:00 p.m. and 7:00 a.m.

The Contractor shall notify the Engineer at least fourteen (14) days in advance of the Route 80 30-day alternating one-way traffic allowable period(s) and prior to the roadway closure. The Engineer shall then notify the Town of Deep River and all emergency services.

Residents shall have access to private driveways throughout the duration of the project. During driveway reconstruction, the Contractor shall coordinate with the Engineer and the Engineer shall coordinate with residents to provide temporary access which may include temporary areas for parking.

All Other Roadways

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.

Additional Lane Closure Restrictions

It is anticipated that work on adjacent projects will be ongoing simultaneously with this project. The Contractor shall be aware of those projects and anticipate that coordination will be required to maintain proper traffic flow at all times on all project roadways, in a manner consistent with these specifications and acceptable to the Engineer.

The Contractor will not be allowed to perform any work that will interfere with traffic operations on a roadway when traffic operations are being restricted on that same roadway, unless there is at least a one mile clear area length where the entire roadway is open to traffic or the closures have been coordinated and are acceptable to the Engineer. The one mile clear area length shall be measured from the end of the first work area to the beginning of the signing pattern for the next work area.

Article 1.08.09 – Failure to Complete Work on Time – Add the following:

The Milestone Completion Date and time has been established for the Contract under Article 1.08.03, and said Date and time will not be adjusted thereafter for any reasons, cause or circumstance, regardless of fault on the part of any party, unless delays result from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. The Milestone Liquidated Damages determined for this project have been calculated as the daily hourly cost to road users for delays beyond the Milestone Completion Date and time. Delays due to weather or seasonal conditions shall not be included in such unforeseeable causes (unless extraordinary and

catastrophic such as a hurricane or declared state of emergency). Unforeseeable causes include, but are not limited to, natural catastrophes, acts of State in either its sovereign or contractual capacity, acts of another contractor in the performance of a contract with the State, or delays resulting from utility work by Utility Companies.

Separate from the above unforeseeable causes, the Contractor must anticipate that Project delays may occur and may arise from any one of various kinds of events and circumstances prior to or during the Contract period, including, but not limited to, the deletion of Contract work, the issuing of construction orders, the execution of supplemental agreements, the discovery of differing site conditions, the adding of extra work to the Contract, the emergence of right-of-way conflicts, problems with the obtaining or the terms of permits, action or inaction by persons or entities working on the project or by third parties, delays in the process of reviewing or approving shop drawings, expansion of the physical limits of the Project, the effects of weather conditions on Project activities, the occurrence of weekends or holidays, the suspension of any Project operation, or other events, forces or factors that affect highway construction work. Such events, forces or factors, and the Project delays, disruptions, inefficiencies or any other detrimental effects caused by them, are to be deemed to have been anticipated and contemplated by the parties in entering into this Contract, and **shall not extend or constitute cause for extending any Milestone Completion Date.**

Further, any and all costs or detrimental effects incurred by the Contractor in accelerating its work in an attempt to meet the Milestone Completion Date and time, regardless of the effects of any delay, disruption, inefficiency or other detrimental effect of the kinds of events, forces or factors referred to above, shall be solely the Contractor's responsibility, and may not be used as the basis for any claim by the Contractor for additional compensation. **The work shall be conducted in a manner and with sufficient materials, equipment and labor as are necessary to ensure completion of the listed activities of Article 1.03.09 on or before the Milestone Completion Date.**

If a catastrophic event (as defined above), acts of State in either its sovereign or contractual capacity or acts of another contractor in performance of a contract with the State directly and substantially delays or disrupts a portion of the Contract work as described in the bulleted tasks of Article 1.03.09, and if said effects and their claimed extent are supported by the Contractor's Critical Path Schedule, the Contractor and the Department shall agree on the number of calendar days by which to extend the pertinent Milestone Completion Date, and the adjusted Date will be used in calculating any related Milestone Liquidated Damages. If the Contractor and the Department cannot agree on the appropriate adjustment of the pertinent Date, the Department will adjust the Date in accordance with the period of delay that the Department reasonably deems to have been caused solely by the catastrophic event, acts of State in either its sovereign or contractual capacity or acts of another contractor in performance of a contract with the State. The Contractor shall have no right whatsoever to contest such determination, except in the event that the Contractor establishes that the number of calendar days of delay recognized by the Department in this context was arbitrary and without any reasonable basis.

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 – Description *is supplemented by the following:*

The Contractor shall maintain and protect traffic as described by the following and as limited in the special provision for Section 1.08 - Prosecution and Progress:

Route 80

The Contractor shall maintain and protect a minimum of 1 lane of traffic in each direction with each lane on a paved travel path not less than 11 feet in width, with the following exceptions:

1. During the allowable periods and when the Contractor is actively working, the Contractor will be permitted to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width and no more than 300 feet in length, unless specified elsewhere in the Contract. There shall be no more than one alternating one-way traffic operation within the Project limits without prior approval of the Engineer. The Contractor shall utilize Trafficperson (Uniformed Flagger) during one-way alternating traffic.
2. The Contractor will be allowed to close Route 80 and detour traffic as dictated by the Special Provision for Section 1.08 – Prosecution and Progress, and as shown on the Roadway Closure Signage Plan contained in the contract plans. The Contractor shall notify the Engineer at least 14 days in advance of implementing the detour.

All Other Roadways

The Contractor shall maintain and protect a minimum of 1 lane of traffic in each direction with each lane on a paved travel path not less than 11 feet in width, with the following exceptions:

1. During the allowable periods and when the Contractor is actively working, the Contractor will be permitted to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width and no more than 300 feet in length, unless specified elsewhere in the Contract. There shall be no more than one alternating one-way traffic operation within the Project limits without prior approval of the Engineer. The Contractor shall utilize Trafficperson (Uniformed Flagger) during one-way alternating traffic.

Commercial and Residential Driveways

The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the Project limits. The Contractor will be permitted to temporarily close affected driveways while actively working with coordination and permission from the owner or proprietor.

Article 9.71.03 - Construction Methods *is supplemented as follows:*

General

Unpaved travel paths will only be permitted for areas requiring full depth and full width reconstruction. The unpaved section shall be the full width of the road and shall be perpendicular to the travel lanes. The Contractor will be allowed to maintain traffic on processed aggregate for a duration not to exceed 10 calendar days and 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 or bridge section by the end of a work shift, 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 then 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 work shift if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary bituminous concrete traversable slope of 4:1 or flatter that is acceptable to the Engineer.

The Contractor, during the course of any active overhead construction work, shall close the lanes directly below the work area for the entire length of time overhead work is being undertaken.

At no time shall an overhead sign be left partially removed or installed.

When an existing sign is to be relocated or replaced, the work shall be completed during the same work shift.

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

On limited-access highways, construction vehicles entering travel lanes 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 the posted speed limit, in order to merge with existing traffic.

Existing Signing

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

Requirements for Winter

The Contractor shall schedule a meeting with representatives of the Department, including the offices of Maintenance and Traffic, and the Town/City to determine any interim traffic control measures the Contractor shall accomplish prior to winter to provide safety to motorists and permit adequate snow removal procedures. This meeting shall be held prior to October 31 of each year and will include, but not be limited to, discussion of the status and schedule of the following items:

lane and shoulder widths, pavement restoration, traffic signal work, pavement markings, and signing.

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 - Non-Limited Access Roadways

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

Temporary pavement markings shall be installed on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work shift.

Permanent Epoxy Resin Pavement Markings shall be installed on the final course of bituminous concrete pavement within 10 calendar days of the final pavement installation if no Pavement Marking Grooves are proposed.

Temporary Pavement Markings

Temporary pavement markings that will be in place for less than 72 continuous hours may consist of temporary plastic pavement marking tape at the Contractor's expense. Additionally;

1. These temporary pavement markings shall include centerlines, lane lines (solid and broken), and stop bars.
2. Centerlines shall consist of two 4 inch wide yellow markings, 2 feet in length, side by side, 4 inches apart, at 40 foot intervals.
3. Lane lines shall consist of 4 inch wide white markings, 2 feet in length, at 40 foot intervals.
4. No passing zones shall be posted with signs in those areas where the final centerlines have not been established on two-way roadways.
5. Stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side.
6. The temporary plastic pavement marking tape shall be installed in accordance with Section 12.12.
7. The Contractor shall remove and dispose of the temporary plastic pavement marking tape prior to another course of bituminous concrete pavement being installed.

Temporary pavement markings that will be in place for 72 continuous hours or more should consist of temporary painted pavement markings and shall be installed in accordance with Section 12.09. The markings shall include centerlines, edge lines, lane lines (solid and broken), 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 shift. Edge lines and lane-use arrows are not required if the next course of bituminous concrete pavement will be placed within 10 calendar days.

All temporary pavement markings exposed throughout the winter shall be Epoxy Resin Pavement Markings, unless directed otherwise by the Engineer.

Temporary pavement markings, as described above, shall be maintained until the permanent pavement markings are installed.

Final Pavement Markings

Refer to Pavement Marking Groove special provisions for pavement marking requirements. Permanent epoxy resin pavement markings shall be installed in accordance with Section 12.10 and the applicable Traffic Engineering Standard Drawings.

If Temporary Plastic Pavement Marking Tape is installed, then the Contractor shall remove and dispose of these markings during the same work shift that the permanent epoxy resin pavement markings are to be installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

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 a safer and more 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 or is within the clear zone. 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 in order to command respect from the motorist.

Lane reduction tapers should be placed so that the entire length of the taper is installed on a tangent section of roadway and the entire taper area can be seen by the motorist.

All existing conflicting signs shall be removed, covered with an opaque material, or turned so that they are not legible to oncoming traffic prior to implementing a traffic control pattern. The existing signs shall be uncovered or reinstalled once the pattern is removed.

A buffer area should be provided during installation of a traffic control pattern and maintained for the duration of the work. The buffer area shall be free of any equipment, workers, materials, and parked vehicles.

Construction Traffic Control Plans 19 through 25 should be used for moving operations such as line striping, rumble strips, pothole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns are not required for vehicles on an emergency patrol type activity or for a short duration stop of up to one hour, as long as the equipment is contained within the shoulder. Flashing lights, arrow boards, truck-mounted or trailer-mounted impact attenuators, and appropriate Trafficperson(s) shall be used when required.

In a situation not adequately covered by the Construction Traffic Control Plans, the Contractor shall contact the Engineer for assistance prior to setting up a traffic control pattern.

Placement of Signs

Signs shall be placed in a position that allows 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 Construction Traffic Control Plans

The Construction 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.

The proper application of the Construction Traffic Control Plans and installation of traffic control devices is dependent upon actual field conditions.

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.

Adjustments to the Construction Traffic Control Plans shall only be made at the direction of the Engineer.

Table 1 indicates the minimum taper lengths required for a lane closure based on the posted speed limit and lane width of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the Construction Traffic Control Plans cannot be achieved.

Table 1 – Minimum Taper Length

| POSTED SPEED LIMIT (MPH) | MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE (FEET) | |
|--------------------------------|--|-----------------|
| | FREEWAYS | SECONDARY ROADS |
| 30 OR LESS | 180 | 165 |
| 35 | 245 | 225 |
| 40 | 320 | 295 |
| 45 | 540 | 495 |
| 50 | 600 | 550 |
| 55 | 660 | 605 |
| 65 | 780 | 715 |

1. Work Zone Safety Meetings

- 1.a) Prior to the commencement of work, a Work Zone Safety Meeting shall be conducted with representatives from 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. DOT Traffic Engineering shall be invited to the Work Zone Safety Meeting. 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 shall include:
 - i. Review Project scope of work and time;
 - ii. Review Section 1.08, Prosecution and Progress;
 - iii. Review Section 9.70, Trafficpersons;
 - iv. Review Section 9.71, Maintenance and Protection of Traffic;
 - v. Review Contractor's schedule and method of operations;
 - vi. Review special concern areas: ramps, turning roadways, medians, lane drops, etc.;
 - vii. Open discussion of work zone questions and issues;
 - viii. Discussion of review and approval process for changes in Contract requirements as they relate to work zone areas.

2. General

- 2.a) Traffic control patterns shall only be installed if the required minimum number of signs, traffic cones, traffic drums, and other equipment (i.e. one Arrow Board for each lane closed, two Truck-Mounted or Trailer-Mounted Attenuators (TMAs), Changeable Message Sign, etc.) are on Site.
- 2.b) The Contractor shall have spare maintenance and protection of traffic equipment (TMAs, Arrow Board, Changeable Message Sign(s), construction signs, traffic cones, traffic drums, etc.) available at all times in case of mechanical failures, etc. Spare maintenance and protection of traffic equipment installed as a result of a sudden equipment breakdown shall be replaced by the Contractor 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 lost time.
- 2.d) In cases of differences of opinion between the Contractor and the Inspection staff, the Contractor shall follow the directions of the Engineer. 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.

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 end of the work area, or traffic control pattern, and proceeding back toward the advance warning signs.
- 3.c) Stopping traffic may be allowed within the allowable hours stated in Section 1.08.04:
 - i. For those activities stated within the Contract.
 - ii. During paving, milling operations, or similar activities 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 so traffic does not travel across the longitudinal joint or difference in roadway elevation.
 - iii. To move slow moving equipment across live traffic lanes into the work area.
- 3.d) The Contractor shall 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 with or exiting from the mainline traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.
- 3.f) Workers are prohibited from crossing the travel lanes on limited access roadways 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.

4. Implementation of Rolling Road Block (RRB)

- 4.a) Temporary road closures using a 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:
 - i. Refer to the Limitation of Operations Chart provided in Section 1.08.04 for the hours allowed for implementing a RRB operation. The Contractor shall only implement a RRB operation within the hours shown in the Chart.
 - ii. In areas with good sight lines and full shoulders, signs on the side of the road opposite the traffic pattern should be installed in a separate operation.
 - iii. 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 TMAs and police vehicles, leave the shoulder or on-ramp and accelerate to normal roadway speeds in each lane. The vehicles will then position themselves side by side and decelerate to the RRB speed on the highway.

- iv. A Pre-Warning Vehicle, as specified elsewhere in the Contract, shall be used to advise the motorists that sign pattern installation or removal is underway.
- v. The RRB duration shall not exceed 15 minutes from the start of the traffic block until all lanes are opened as designated in the Limitation of Operations 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 District.
- vi. RRB shall not be used 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. TMAs (and State Police if available) shall be used to protect the workers installing the taper in the additional lane.
- vii. Exceptions to these work procedures may be submitted to the District Office for consideration. A minimum of 2 business days shall be allowed for review and comment by the District.
- viii. The Engineer and the Contractor will review and discuss the RRB procedures (including any revisions) 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, then the work will proceed as recommended by the Department. Any unresolved issues shall be addressed the following day.

5. Use of Arrow Boards

- 5.a) On limited access roadways, one Arrow Board shall be used for each lane that is closed. The Arrow Board shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the Construction Traffic Control Plans. Additional Arrow Boards shall be deployed if sight distances are limited.
- 5.b) On non-limited access roadways, the use of an Arrow Board for lane closures is optional. The roadway geometry, sight distance, and traffic volume shall be considered in the decision to use the Arrow Board.
- 5.c) A vehicle displaying an arrow board shall be equipped with high-intensity rotating, flashing, oscillating, or strobe lights.
- 5.d) The flashing arrow mode shall be used for lane closure (merge) tapers.
- 5.e) The flashing arrow mode shall not be used for temporary alternating one-way traffic operations or to laterally shift lanes of traffic.

- 5.f) The flashing double arrow mode shall only be used for closing a center lane on a multilane roadway where adjacent left and right lanes remain open.
- 5.g) For shoulder work or roadside work near the shoulder, the Arrow Board shall be positioned in the shoulder and the flashing alternating diamond mode should be used.
- 5.h) The flashing alternating diamond caution mode should also be used when supplemental Arrow Boards are positioned in an already closed lane.

6. Use of Truck-Mounted or Trailer-Mounted Impact Attenuators (TMAs)

- 6.a) On limited access roadways, lane closures shall use a minimum of two TMAs to install and remove traffic control patterns. If two TMAs are not available, then the pattern shall not be installed.
- 6.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 shall be considered in the decision to utilize the TMAs.
- 6.c) On limited access roadways, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane to establish the advance and transition signing. The Arrow Board mounted on the TMA shall be in the arrow mode when taking the lane. The sign truck and workers shall be at sufficient distance 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 Portable Changeable Message Signs, signs, Arrow Boards, and cones/drums are installed. The Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when traveling in the closed lane.
- 6.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 Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when in the closed lane.
- 6.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 Section 18.06. 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) shall be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.
- 6.f) TMAs will be paid for in accordance with how the unit is used. If it is used as a TMA and is in the proper location as specified, then it will be paid for at the specified hourly rate for Truck-Mounted or Trailer-Mounted Impact Attenuator. When the TMA is used as an

Arrow Board, it will be paid for at the daily rate for Arrow Board. If a TMA is used to install and remove a pattern and is also used as an Arrow Board in the same day, then the unit will be paid for 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 an Arrow Board during the same day, then the unit will only be paid for at the daily rate as an Arrow Board.

7. Use of Traffic Drums and Traffic Cones

- 7.a) On limited-access highways, ramps, and turning roadways:
 - i. Traffic drums shall be used for taper channelization.
 - ii. Traffic drums shall be used to delineate raised catch basins and other hazards.
 - iii. Traffic cones with a minimum height of 42 inches may be used in place of drums in the tangent section of a closed lane or shoulder.
 - iv. Traffic cones less than 42 inches in height shall not be used.
- 7.b) On all roadways:
 - i. 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.
 - ii. Traffic cones shall not be left unattended.
 - iii. Traffic cones with a minimum height of 42 inches shall be used when the posted speed limit is 45 MPH or above.
- 7.c) Typical spacing of traffic drums and/or cones shown on the Construction Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

8. Use of Barricade Warning Lights

- 8.a) Barricade Warning Lights may be installed on channelizing devices when used in a merge taper. The Barricade Warning Lights shall flash in a sequential pattern when used in a merge taper. The successive flashing shall occur from the upstream end (beginning) of the merge taper to the downstream end (end) of the merge taper.
- 8.b) Type C Barricade Warning Lights may be used at night to delineate the edge of the travel way.
- c) Type B Barricade Warning Lights shall be used on post-mounted advanced warning signs.

9. Use of Portable Changeable Message Signs (PCMS)

- 9.a) On limited access roadways, one PCMS shall be used in advance of the traffic control pattern for all lane closures. Prior to installing the pattern, the PCMS shall be installed and in operation, displaying the appropriate lane closure information. The PCMS shall be positioned ½ to 1 mile ahead of the start of the lane closure taper. If the distance to the

nearest exit ramp is greater than the specified ½ to 1 mile distance, then an additional PCMS shall be positioned a sufficient distance ahead of the exit ramp (and before the previous on-ramp where practical) to alert motorists to the work and therefore offer them an opportunity to take the exit.

- 9.b) On non-limited access roadways, the use of PCMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume shall be considered in the decision to use the PCMS.
- 9.c) PCMS should be placed off the shoulder of the roadway and behind a traffic barrier, if practical. Where a traffic barrier is not available to shield the PCMS, it should be placed off the shoulder and outside of the clear zone. If a PCMS has to be placed on the shoulder of the roadway or within the clear zone, it should be placed on the paved shoulder with a minimum of five traffic drums placed in a taper in front of it to delineate its position. The taper shall meet minimum distance requirements for a shoulder closure. The PCMS shall be protected if it is used for a continuous duration of 36 hours or more.
- 9.d) The PCMS shall be removed from the clear zone and have the display screen cleared and turned 90 degrees away from the roadway when the PCMS is no longer required.
- 9.e) The PCMS should not be used within 1,000 feet of an existing PCMS or Variable Message Sign (VMS).
- 9.f) A PCMS message shall:
 - i. consist of no more than two phases;
 - ii. contain no more than three lines of text per phase;
 - iii. have no more than eight characters per line, including spaces.
- 9.g) The PCMS should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs. The PCMS should not be used for generic messages (ex.: Road Work Ahead, Bump Ahead, Gravel Road, etc.) or for messages that need to be displayed for long periods of time, such as during stage construction. These types of messages should be displayed with construction signs. Special signs shall be coordinated with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.
- 9.h) Typical messages that are allowed on the PCMS are shown below. Approval must be received from the Office of Construction for any message(s) different than the typical messages shown in Figure 1.
- 9.i) All messages shall comply with the information provided in Tables 2 and 3.

| <u>Message No.</u> | <u>Phase 1</u> | <u>Phase 2</u> | <u>Message No.</u> | <u>Phase 1</u> | <u>Phase 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 | EXIT XX CLOSED | USE EXIT YY |
| 4 | 2 LEFT LANES CLOSED | REDUCE SPEED | 12 | EXIT XX CLOSED USE YY | FOLLOW DETOUR |
| 5 | RIGHT LANE CLOSED | MERGE LEFT | 13 | 2 LANES SHIFT AHEAD | USE CAUTION |
| 6 | 2 RIGHT LANES CLOSED | MERGE LEFT | 14 | 3 LANES SHIFT AHEAD | USE CAUTION |
| 7 | RIGHT LANE CLOSED | REDUCE SPEED | | | |
| 8 | 2 RIGHT LANES CLOSED | REDUCE SPEED | | | |

Figure 1: Typical PCMS Messages

Table 2: Acceptable Abbreviations

| Word Message | Standard Abbreviation | Word Message | Standard Abbreviation |
|------------------------------------|------------------------------|---|---|
| Access | ACCS | Minimum | MIN |
| Afternoon / Evening | PM | Minor | MNR |
| Ahead | AHD | Minute(s) | MIN |
| Alternate | ALT | Monday | MON |
| Avenue | AVE, AV | Morning / Late Night | AM |
| Bicycle | BIKE | Mount | MT |
| Blocked | BLKD | Mountain | MTN |
| Boulevard | BLVD | National | NATL |
| Bridge | BR | Normal | NORM |
| CB Radio | CB | North | N |
| Center | CTR | Northbound | NBND |
| Center | CNTR | Oversized | OVRSZ |
| Chemical | CHEM | Parking | PKING |
| Circle | CIR | Parkway | PKWY |
| Compressed Natural Gas | CNG | Pavement | PVMT |
| Condition | COND | Pedestrian | PED |
| Congested | CONG | Place | PL |
| Construction | CONST | Pounds | LBS |
| Court | CT | Prepare | PREP |
| Crossing | XING | Quality | QLTY |
| Crossing (other than highway-rail) | XING | Right | RT |
| Downtown | DWNTN | Road | RD |
| Drive | DR | Roadwork | RDWK |
| East | E | Route | RT, RTE |
| Eastbound | EBND | Saint | ST |
| Electric Vehicle | EV | Saturday | SAT |
| Emergency | EMER | Service | SERV |
| Entrance, Enter | ENT | Shoulder | SHLDR |
| Exit | EX | Slippery | SLIP |
| Express | EXP | South | S |
| Expressway | EXPWY | Southbound | SBND |
| Feet | FT | Speed | SPD |
| Freeway | FRWY, FWY | State, county, or other non-US or non-Interstate numbered route | [Route Abbreviation determined by highway agency]** |
| Friday | FRI | Street | ST |
| Frontage | FRNTG | Sunday | SUN |
| Hazardous | HAZ | Telephone | PHONE |
| Hazardous Material | HAZMAT | Temporary | TEMP |
| High Occupancy Vehicle | HOV | Terrace | TER |

| | | | |
|-----------------------------|---------|----------------------|-----------|
| Highway | HWY | Thruway | THWY |
| Highway-Rail Grade Crossing | RR XING | Thursday | THURS |
| Hospital | HOSP | Tons of Weight | T |
| Hour(s) | HR, HRS | Traffic | TRAF |
| Information | INFO | Trail | TR |
| International | INTL | Travelers | TRVLRS |
| Interstate | I- | Tuesday | TUES |
| Junction / Intersection | JCT | Turnpike | TPK |
| Lane | LN | Two-Way Intersection | 2-WAY |
| Left | LFT | Two-Wheeled Vehicles | CYCLES |
| Liquid Propane Gas | LP-GAS | Upper | UPR |
| Local | LOC | US Numbered Route | US |
| Lower | LWR | Vehicle(s) | VEH, VEHS |
| Maintenance | MAINT | Warning | WARN |
| Major | MAJ | Wednesday | WED |
| Maximum | MAX | West | W |
| Mile(s) | MI | Westbound | WBND |
| Miles Per Hour | MPH | | |

** A space and no dash shall be placed between the abbreviation and the number of the route.

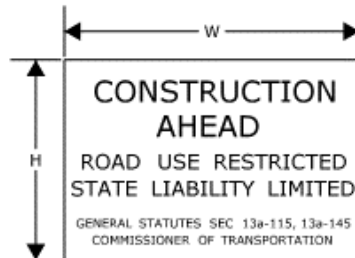
Table 3: Unacceptable Abbreviations

| Unacceptable Abbreviation | Intended Word | Common Misinterpretation |
|----------------------------------|----------------------|---------------------------------|
| ACC | Accident | Access (Road) |
| CLRS | Clears | Colors |
| DLY | Delay | Daily |
| FDR | Feeder | Federal |
| L | Left | Lane (Merge) |
| LT | Light (Traffic) | Left |
| PARK | Parking | Park |
| POLL | Pollution (Index) | Poll |
| RED | Reduce | Red |
| STAD | Stadium | Standard |
| WRNG | Warning | Wrong |

10. Use of State Police Officers

- 10.a) State Police may be used only on limited access highways and secondary roadways that are under their primary jurisdiction. A minimum of one Officer may be used per critical sign pattern; however, a State Police presence is not required. Shoulder closures and right lane closures can generally be implemented without the presence of a State Police Officer. Left lane closures may also be implemented without State Police presence in areas with only moderate traffic and wide, unobstructed medians. It may be desirable to have a State Police presence, when available, under specific situations, such as 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.
- 10.b) If a State Police presence is provided, once the pattern is in place, the State Police Officer should be positioned in a non- hazardous location in advance of the pattern to provide advance warning to the motorist. If traffic backs up beyond the beginning of the pattern, then the State Police Officer shall reposition so that they are located prior to the backup. The State Police Officer should not be located immediately behind or within the roll ahead area of any TMA or within the work zone buffer area. The State Police Officer shall not be positioned in such a way that the State Police Officer obstructs any construction warning signs or PCMS from view of the motorist.
- 10.c) Other functions of the State Police Officer(s) may include:
- i. Assisting construction vehicles entering and exiting the work area.
 - ii. Enforcement of motor vehicle laws within the work area, if specifically requested by the Engineer.
- 10.d) State Police Officers assigned to a work site shall take direction from the Engineer.

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" | |

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

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

SIGN 16-E SHALL BE USED ON ALL FREEWAYS AND 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.

CONSTRUCTION TRAFFIC CONTROL PLAN
SERIES 16 SIGNS

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
 BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

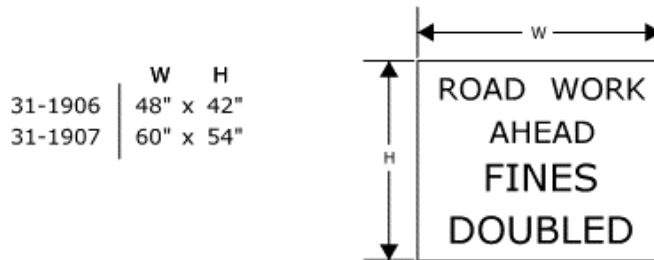
Tracy L. Fagarty
 PRINCIPAL ENGINEER

Tracy L. Fagarty, P.E.
 2013.10.09 16:30:32-0400'

REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

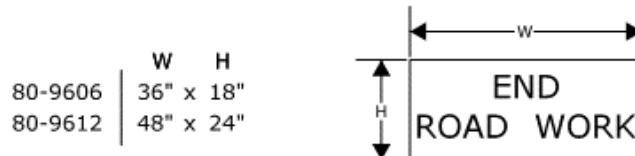
THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY AND MUNICIPAL ROAD IN CONNECTICUT WHERE THERE ARE WORKERS PRESENT ON THE HIGHWAY.

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 SHALL BE THE "END ROAD WORK" SIGN.



CONSTRUCTION TRAFFIC CONTROL PLAN
**ROAD WORK AHEAD
 SIGNS**

SCALE: NONE

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 IN ADVANCE 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. TRAFFIC CONES AND PORTABLE CONSTRUCTION SIGNS SHALL NOT BE LEFT UNATTENDED.
5. ALL CONFLICTING 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 48 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 \leq 40 MPH).
8. IF THIS PLAN IS TO REMAIN IN OPERATION FROM SUNSET TO SUNRISE, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.
9. A PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF MILE 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' |
| 35 | 245' |
| 40 | 320' |
| 45 | 540' |
| 50 | 600' |
| 55 | 660' |
| 65 | 780' |

CONSTRUCTION TRAFFIC CONTROL PLAN

NOTES

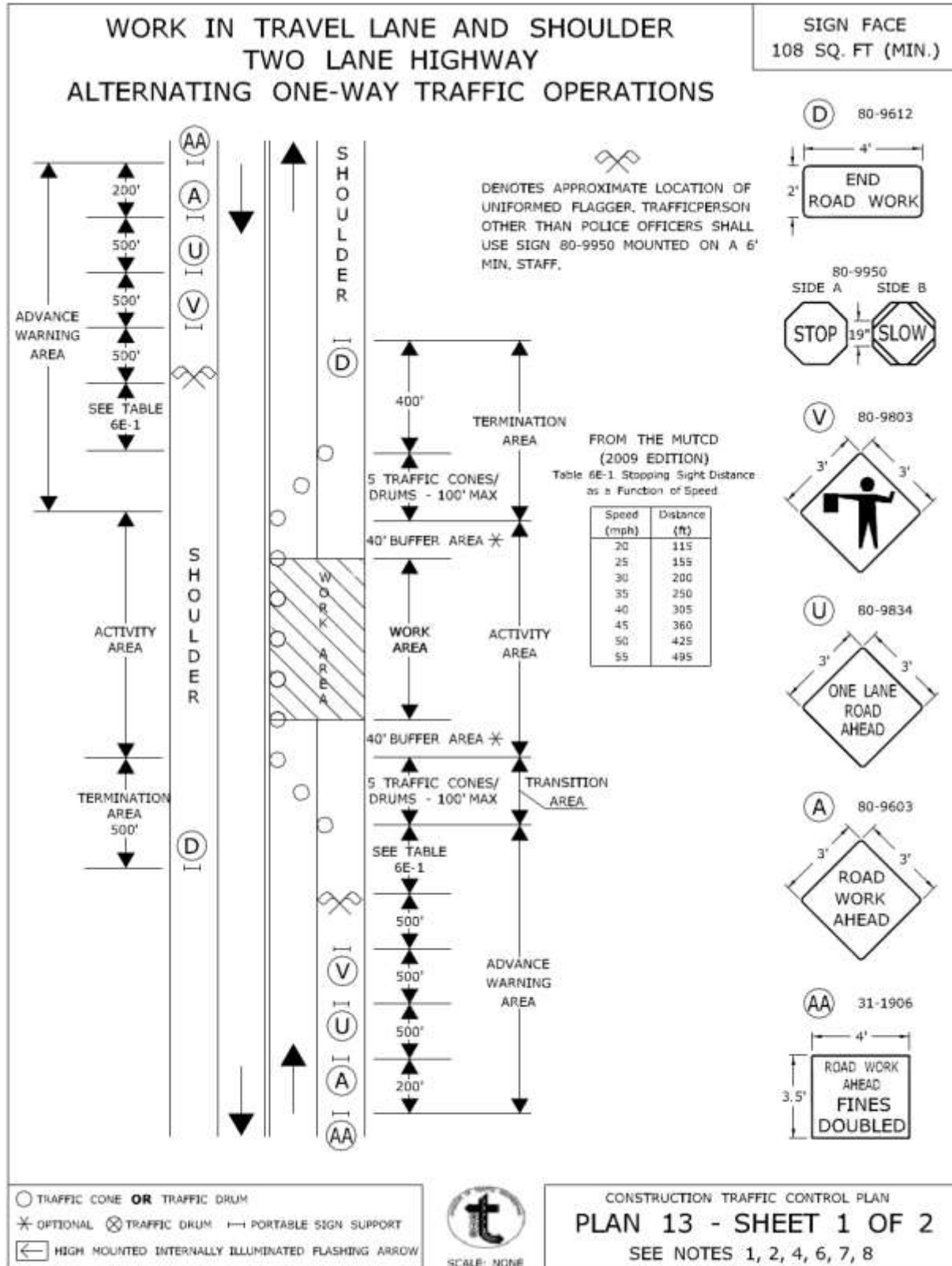
SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

Tracy L. Fogarty
PRINCIPAL ENGINEER

Tracy L. Fogarty, P.E.
2019.09.13 08:47:47-04'00'



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

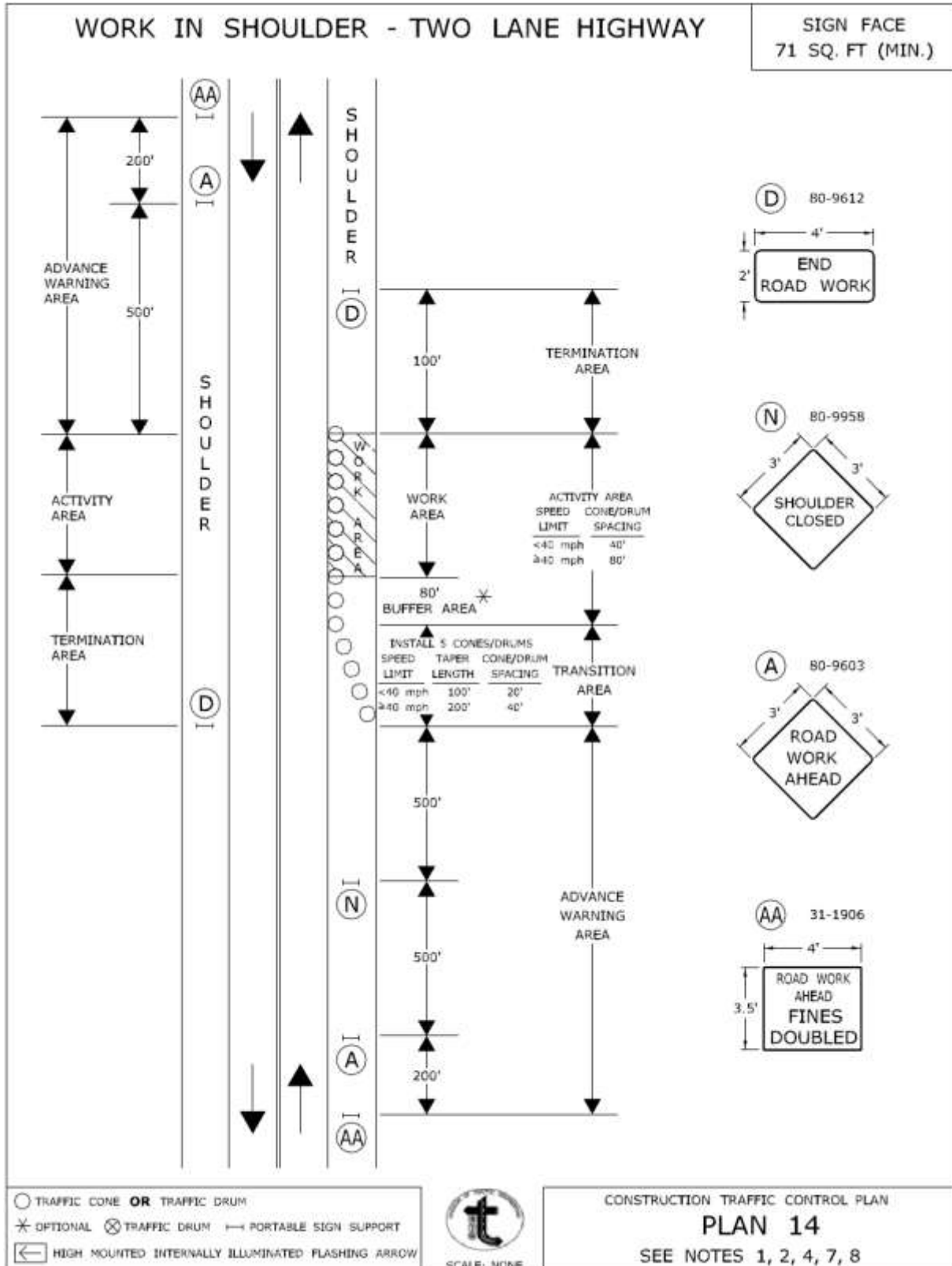


SCALE: NONE

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

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow
2012.06.05 15:55:45-04'00"
PRINCIPAL ENGINEER



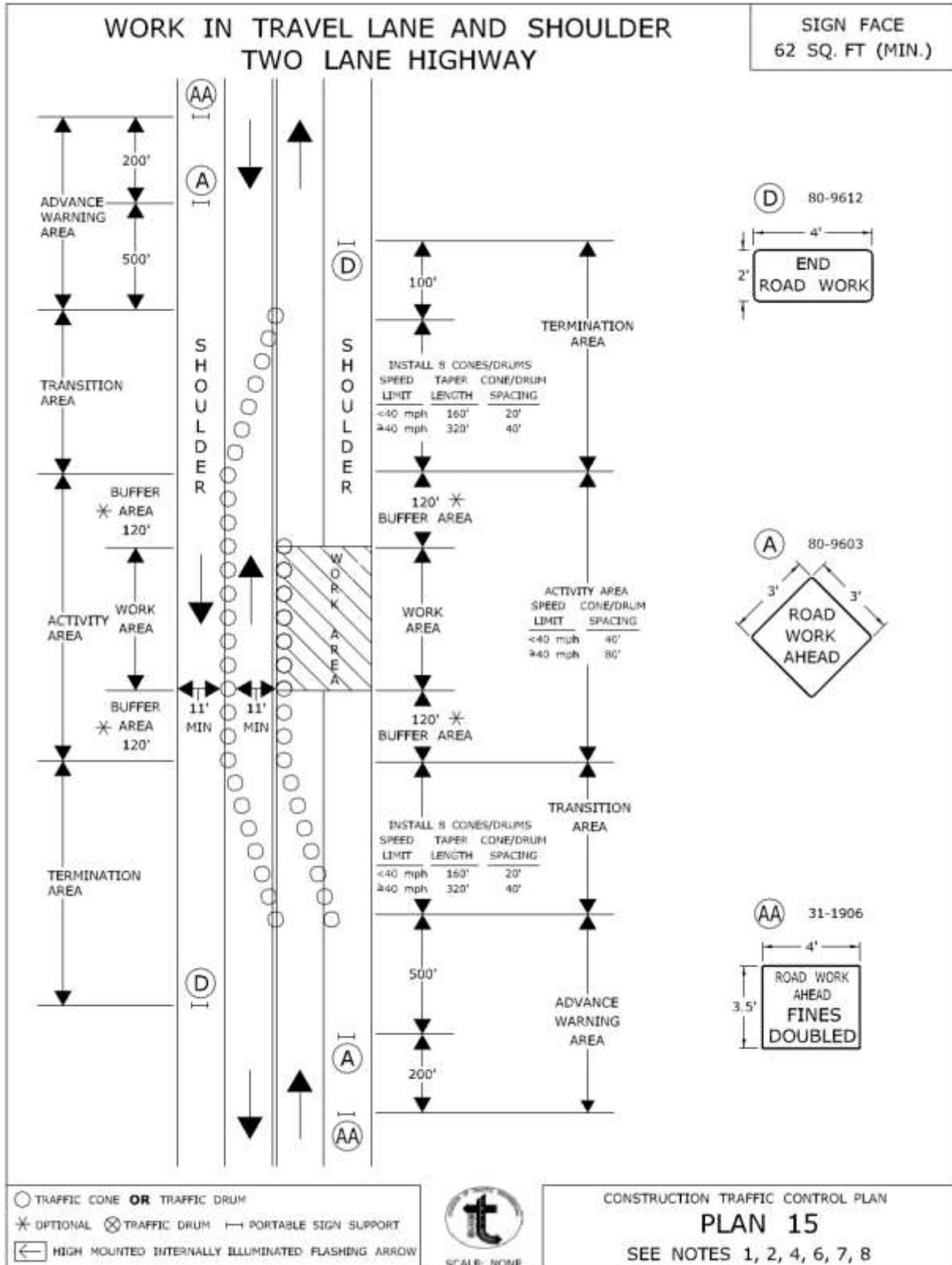
○ TRAFFIC CONE **OR** TRAFFIC DRUM
 ✱ OPTIONAL ⊗ TRAFFIC DRUM ⇌ PORTABLE SIGN SUPPORT
 ⇐ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



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

CONNECTICUT DEPARTMENT OF TRANSPORTATION
 BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED: *Charles S. Harlow*
 PRINCIPAL ENGINEER
Charles S. Harlow
 2012.06.03 15:58:08-04'00"



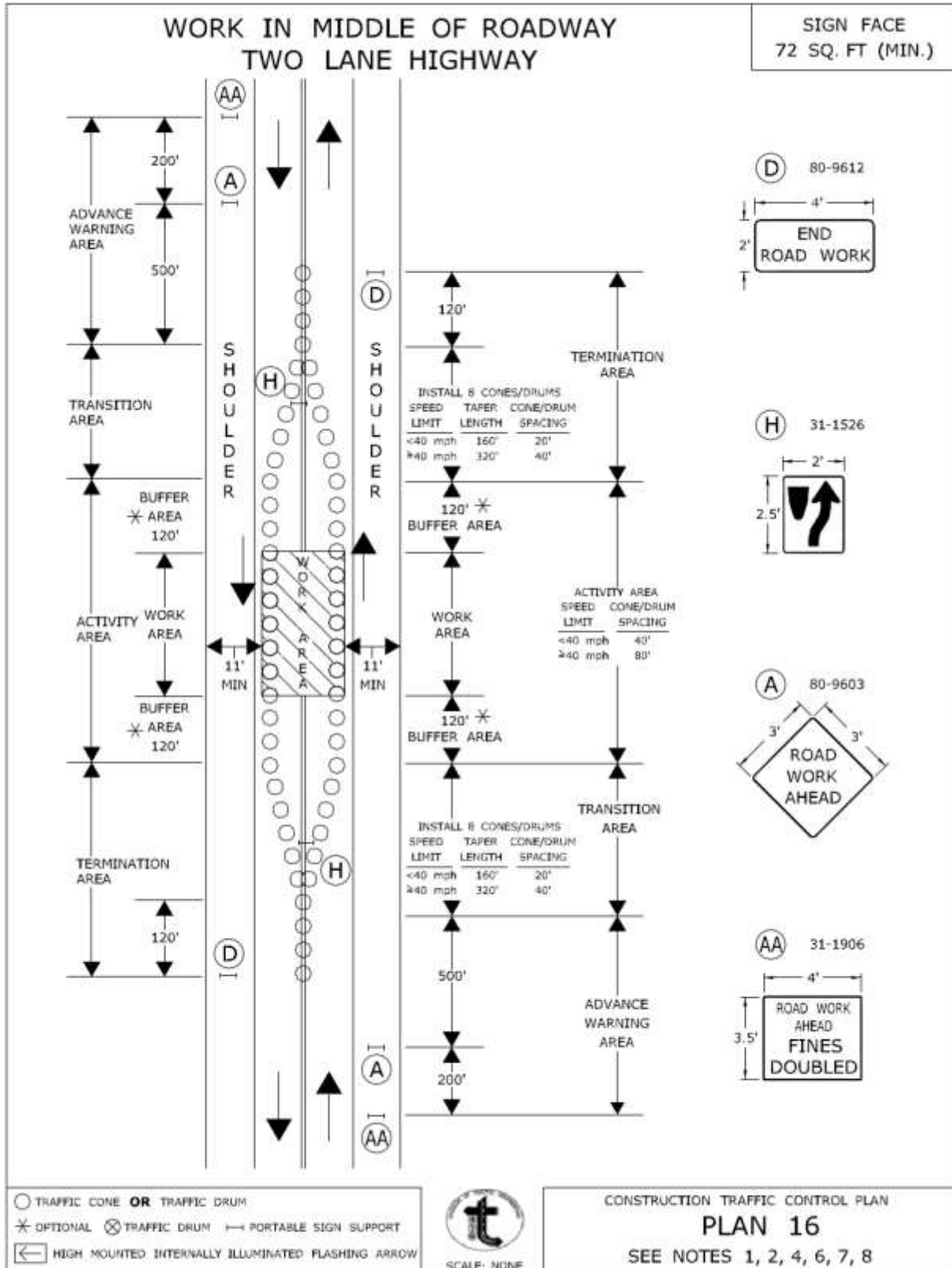
○ TRAFFIC CONE OR TRAFFIC DRUM
 ✱ OPTIONAL ✕ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
 HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



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

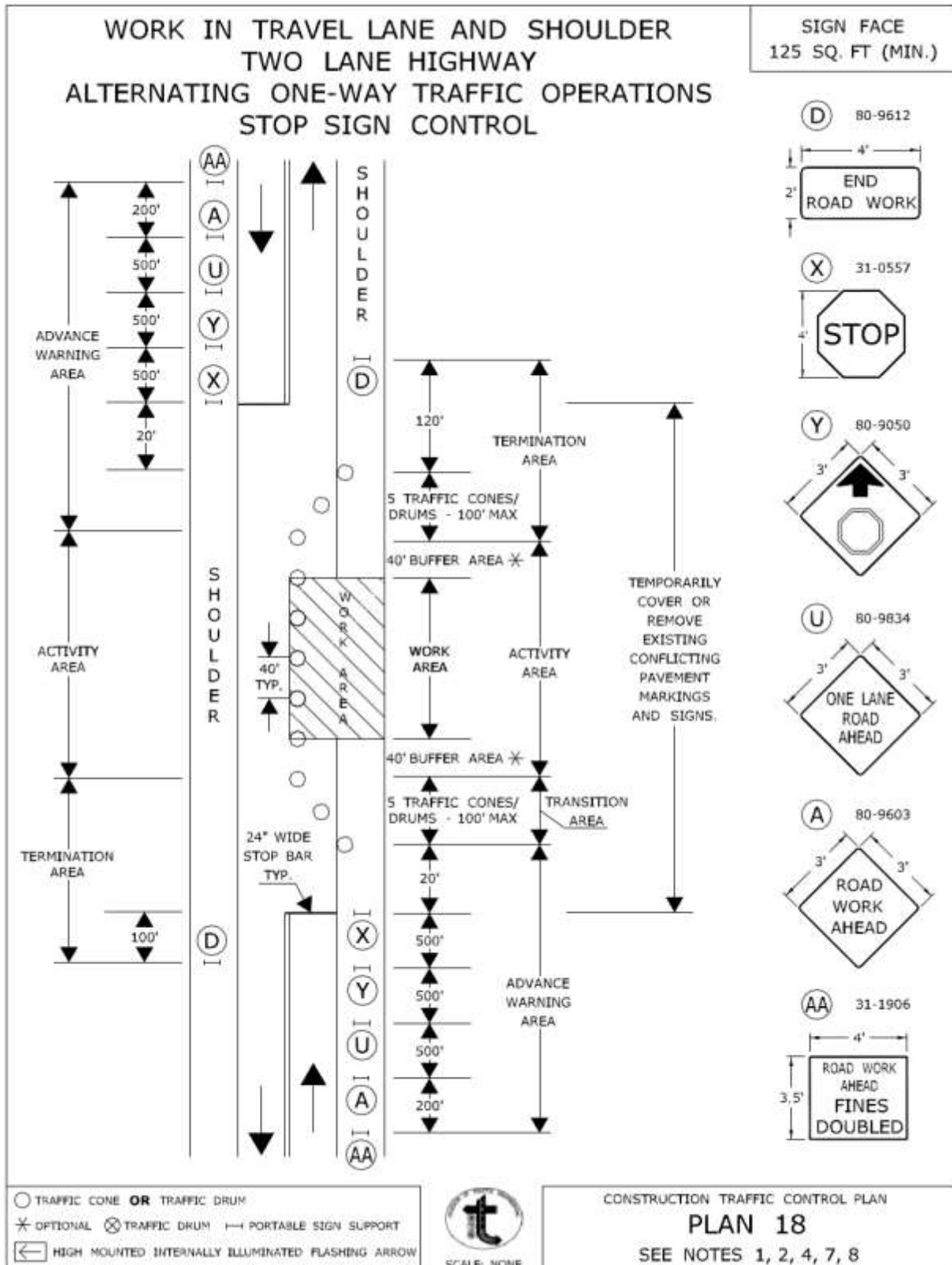
CONNECTICUT DEPARTMENT OF TRANSPORTATION
 BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow
 2012.06.05 15:56:29-04'00"
 PRINCIPAL ENGINEER



CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED: *Charles S. Harlow*
PRINCIPAL ENGINEER
2012.06.05 15:56:51-04:00



CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

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

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

The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports shall be paid for under the item “Maintenance and Protection of Traffic”. Temporary overhead sign supports and foundations shall be paid for under the appropriate item(s).

The cost of furnishing, installing, and removing the material for the 4H:1V traversable slope shall be paid for under the item “Maintenance and Protection of Traffic”.

The cost of furnishing, installing, and removing the detectable construction barricades used for intermediate term sidewalk closures shall be paid for under the item “Maintenance and Protection of Traffic”.