TABLE OF CONTENTS OF SPECIAL PROVISIONS

Note: This Table of Contents has been prepared for the convenience of those using this contract with the sole express purpose of locating quickly the information contained herein; and no claims shall arise due to omissions, additions, deletions, etc., as this Table of Contents shall not be considered part of the contract.

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November 22, 2023
FEDERAL AID PROJECT NO. N/A
STATE PROJECT NO. 0053-0201

2024 PAVEMENT PRESERVATION PROGRAM – Mill & Overlay
DISTRICT 1 & 2

ROUTE 2
Towns of Glastonbury and Marlborough

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 818, 2020, Merged With Supplemental Specification Dated January 2023, is herby made part of this contract, as modified by the Special Provisions Contained herein. Form 818 is available at the following DOT website link https://portal.ct.gov/DOT/IT/ConnDOT-Publications-Manuals. The current edition of the State of Connecticut Department of Transportation's "Construction Contract Bidding and Award Manual" ("Manual"), is herby made part of this contract, If the provisions of this Manual conflict with the provisions of other Department documents (not including statues or regulations), the provisions of the Manual will govern. The manual is available at the following DOT website link https://portal.ct.gov/DOT/Business/Contractor-Information/ConnDOT-Construction-Bids-Menu. The Special Provisions relate in particular to the 2024 Pavement Preservation Program – MILL AND OVERLAY – District 1 & 2 in the Towns of Glastonbury and Marlborough.

CONTRACT TIME AND LIQUIDATED DAMAGES

In order to minimize the hazard, cost and inconvenience to the traveling public and pollution of the environment, 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. For this contract, an assessment per day for liquidated damages, at a rate of Three Thousand Dollars ($3,000) per day shall be applied to each calendar day the work runs in excess of the Two Hundred Fifteen (215) allowed calendar days for the contract.

2. For this contract, an assessment per hour for liquidated damages shall be applied to each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours given in Article 1.08.04 of the Special Provisions. The liquidated damages shall be as shown in the following tables entitled "Liquidated Damages Per Hour" for each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours.

For the purpose of administering this contract, normal traffic operations are considered interfered with when:

1. Any portion of the travel lanes or shoulders is occupied by any personnel, equipment, materials, or supplies including signs.

2. The transition between the planes of pavement surfaces is at a rate of one inch in less than fifteen feet longitudinally.

LIQUIDATED DAMAGES PER HOUR

PROJECT 0053-0201

Route 2 EASTBOUND 2 Lane Section		
If Working Periods Extends Into	A.M. 1 Lane Closure	P.M. 1 Lane Closure
1st Hour of Restrictive Period	$500	$3,000
2nd Hour of Restrictive Period	$500	$25,000
3rd Hour or any Subsequent Hour of Restrictive Period	$500	$45,000
Route 2 WESTBOUND 2 Lane Section		
If Working Periods Extends Into	A.M. 1 Lane Closure	P.M. 1 Lane Closure
1st Hour of Restrictive Period	$500	$500
2nd Hour of Restrictive Period	$20,000	$1,000
3rd Hour or any Subsequent Hour of Restrictive Period	$30,000	$6,000

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a “0”, “S”, or “1”.

The above liquidated damages shall be applied when the actual number of lanes closed exceeds the number of lanes allowed to be closed, as dictated in the Limitation of Operations Chart.

If all available shoulder widths or gore areas are not available to traffic for each hour designated with a “0” on the Limitation of Operations Charts, then liquidated damages of $500 shall apply for each hour, or part thereof.

NOTICE TO CONTRACTOR - PRE-BID QUESTIONS AND ANSWERS

Questions pertaining to DOT advertised construction projects must be presented through the CTDOT Pre-Bid Q and A Website. The Department cannot guarantee that all questions will be answered prior to the bid date. **PLEASE NOTE - at 9:00 am Monday (i.e. typical Wednesday Bid Opening) the project(s) being bid will be closed for questions, at which time questions can no longer be submitted through the Q and A Website.**

Answers may be provided by the Department up to 12:00 noon, the day before the bid. At this time, the Q and A for those projects will be considered final, unless otherwise stated and/or the bid is postponed to a future date and time to allow for further questions and answers to be posted.

If a question needs to be asked the day before the bid date, please contact the Contracts Unit staff and email your question to dotcontracts@ct.gov immediately.

Contractors must identify their company name, contact person, contact email address and phone number when asking a question. The email address and phone number will not be made public.

The questions and answers (if any) located on the Q and A Website are hereby made part of the bid/contract solicitation documents (located on the State Contracting Portal) and resulting contract for the subject project(s). It is the bidder's responsibility to monitor, review, and become familiar with the questions and answers, as with all bid requirements and contract documents, prior to bidding. By signing the bid proposal and resulting contract, the bidder acknowledges receipt of, and agrees to the incorporation of the final list of Q and A, into the contract document.

Contractors will not be permitted to file a future claim based on lack of receipt, or knowledge of the questions and answers associated with a project. All bidding requirements and project information, including but not limited to contract plans, specifications, addenda, Q and A, Notice to Contractors, etc., are made public on the State Contracting Portal and/or the CTDOT website.

NOTICE TO CONTRACTOR – COMPASS SUBMITTALS

Upon execution of the Contract, the Contractor acknowledges and agrees that contractual submittals for this Project shall be submitted and handled through the Department's project management system, COMPASS.

Contractor submittals including, but not limited to, Shop Drawings, Working Drawings, Product Data, RFIs, and RFCs shall be generated and delivered by the Contractor in accordance with the Department's COMPASS Contractor's User Manual. The administering District office will inform the Contractor of other deliverables required to be similarly submitted.

Access credentials for COMPASS will be provided free of charge to the Contractor.

The Department shall not be held responsible for delays, lack of processing or responses to submittals that do not follow the specified guidelines in the COMPASS Contractor's User Manual.

NOTICE TO CONTRACTOR – MANDATED USE OF AASHTOWARE PROJECT CONSTRUCTION MANAGEMENT SOFTWARE (CONSTRUCTION)

The Contractor shall use ***AASHTOWare Project***® software as outlined in the specifications noted below. This will require that the Contractor and all subcontractor(s) designate and dedicate staff within 10 days after the execution of the Contract or approval to sublet as appropriate. It will also require the Contractor and all subcontractors to provide internet access, computing devices suitable for this work, training, and other related work as outlined in the specifications noted below.

All costs for these requirements shall be included in the general cost of the work.

The following special provisions are pertinent to, and detail the requirements for, this work:

SECTION 1.05 - CONTROL OF THE WORK

Article 1.05.12 – Payrolls
This Article outlines the requirements for submission of payrolls.

Article 1.05.25 –Use of AASHTOWare Project® Software
This Article outlines the overall requirements for the use of the AASHTOWare Project® Software.

SECTION 1.08 – PROSECUTION AND PROGRESS

Article 1.08.01—Transfer of Work or Contract
This Article outlines the requirements for subcontractor payment and payment verifications.

NOTICE TO CONTRACTOR – MILL AND OVERLAY

The following table identifies the routes and approximate locations where the mill and overlay treatment shall be performed. Refer to the project details for specific guidance at termini, shoulders, ramps, and bridges.

DISTRICT 2											
ROUTE	DIRECTION	TOWN	LOG TERMINI	START MILE POINT	END MILE POINT	CENTERLINE MILES	LANE MILES	TRAFFIC ADT	MAINLINE PAVEMENT TREATMENT SCOPE	RAMP PAVEMENT TREATMENT SCOPE	NOTES
2	E	GLASTONBURY/ MARLBOROUGH	.08 MI E/O UP COMMERCE ST TO .07 MI E/O UP PARK RD	6.27	14.60	8.33	21.26	48220	• 3" FINE MILLING OF BITUMINOUS CONCRETE PAVEMENT (0" TO 4") (CURB-TO-CURB) • BITUMINOUS CONCRETE SURFACE PATCHING • BITUMINOUS CONCRETE PATCHING - PARTIAL DEPTH • JOINT AND CRACK FILLING OF BITUMINOUS CONCRETE PAVEMENT • PAVE 2" PMA S0.5 TRAFFIC LEVEL 3, ON 1" HMA S0.25 TRAFFIC LEVEL 2 (CURB-TO-CURB)	• 2" FINE MILLING OF BITUMINOUS CONCRETE PAVEMENT (0" TO 4") (CURB-TO-CURB) • BITUMINOUS CONCRETE SURFACE PATCHING • BITUMINOUS CONCRETE PATCHING - PARTIAL DEPTH • JOINT AND CRACK FILLING OF BITUMINOUS CONCRETE PAVEMENT • PAVE 2" PMA S0.5 TRAFFIC LEVEL 3 (CURB-TO-CURB) • INCLUDED RAMPS - EB EXIT TO NEIPSIC RD (022) EXIT 9 - EB EXIT TO RTE 83 (024) EXIT 10 - EB ACC FR RTE 83 (026) - EB ACC FR WASSUC RD (027) - EB EXIT TO WEST RD (030) EXIT 12 - WB ACC FR NEIPSIC RD (021) - WB ACC FR RTE 83 (023) - WB EXIT TO RTE 83 (025) EXIT 10 - WB EXIT TO TOLL GATE RD (028) EXIT 11 - WB ACC FR WEST RD (029)	• SEE DETAILS FOR RESURFACING AREAS OF MEDIAN CROSSOVERS - FINE MILL 2" AND PAVE 2" HMA S0.5 TRAFFIC LEVEL 2 • SEE DETAILS FOR TREATMENT LIMITS AT RAMPS LISTED • SEE DETAILS FOR BRIDGE OVERPASS RESURFACING SCOPE
	W		.08 MI E/O UP COMMERCE ST TO .1 MI E/O UP PARK RD	6.27	14.63	8.36	18.51				
CONTRACT TOTALS						8.35	39.78				

NOTICE TO CONTRACTOR – STANDARD DETAIL SHEETS

It shall be made known to the Contractor that the applicable Standard Detail Sheets have been included as part of this contract. These full size PDF Standard Detail Sheets can be found online at the following addresses and printed out at full size as needed by the Contractor:

Highway Standard Drawings:

http://www.ct.gov/dot/cwp/view.asp?a=3610&q=411104

Traffic Engineering Standard Drawings:

http://www.ct.gov/dot/cwp/view.asp?a=3611&q=444578

Please contact Mathew Calkins with any technical problems at:

Phone: 860-594-2988
Email: Mathew.Calkins@ct.gov

NOTICE TO CONTRACTOR – PERMANENT PAVEMENT MARKINGS

The Contractor shall be required to inventory the existing pavement markings for the entire project, prior to the disturbance of any of these markings, in accordance with Item No. 0980020A – Construction Surveying. The Contractor shall reinstall permanent pavement markings to match the existing pavement markings, including locations of passing zones and breaks in the double yellow centerline and edge lines, with the exception of any existing pavement markings that are not in conformance with the following Pavement Marking Standard Sheets included in the Contract:

- TR-1210-04 – Pavement Marking Lines and Symbols
- TR-1210-05 – Pavement Markings for Divided Highways
- TR-1210-06 – Pavement Markings for Divided Highways
- TR-1210-07 – Pavement Markings for Exit Ramps

NOTICE TO CONTRACTOR – TEMPORARY PAVEMENT MARKINGS

Prior to milling and overlay, all existing pavement markings shall be removed, and replaced with Temporary Pavement Markings. These Temporary Pavement Markings shall conform with the requirements for items #1209114 Hot-Applied Painted Pavement Markings 4" Yellow, #1209124 Hot-Applied Painted Pavement Markings 4" White, and #1209131 Hot-Applied Painted Legend, Arrows and Markings ***with the following exceptions***:

- There shall be no glass beads applied to the paint.
- The paint shall be applied to the roadway at a 10-12 mil application thickness

The Contractor shall be required to remove the existing pavement markings by a method that does not materially damage the surface or texture of the pavement, as described in the Section 12.11 – Removal of Pavement Markings.

NOTICE TO CONTRACTOR – PAVEMENT REPAIR ITEMS

This Project includes the repair of flexible structures using various items. Please refer to the Plans for exact limits of repair types, pavement structures, and depths.

1. Utilize Item No. 0409001 – "Fine Milling of Bituminous Concrete (0" to 4")" on Route 2 to the depths specified on the Plans.

    - Mill 3" on the mainline and at underpasses
    - Mill 2" on ramps, median crossovers, and over bridges

2. Patch areas in need of temporary repair with Item No. 0406124A – "Bituminous Concrete Surface Patching" to open the section of road to traffic prior to permanent patching within all areas of milling as shown above.

3. Perform permanent shallow repairs (1.5"-2.5") in areas of deteriorated or delaminated pavement with Item No. 0406125.20A – "Bituminous Concrete Patching – Partial Depth" on Route 2 within the mainline, ramps, and at underpasses.

4. Utilize Item No. 0406195A – "Filling Joints and Cracks In Bituminous Concrete Pavement (LF)" to seal single cracks of appropriate width per the special provision.

5. Utilize Item No. 0406600 – "Material Transfer Vehicle" to reduce the chance of mixture segregation and allow for continuous paving when placing PMA S0.5.

NOTICE TO CONTRACTOR - QUALITY CONTROL PROGRAM

ITEM #0969054A CONTRACTOR QUALITY CONTROL PROGRAM LEVEL 1

This Contract includes the above-noted item and special provision for Contractor Quality Control Program, developed to supplement Article 1.05.03 of the standard specifications.

A minimum lump sum bid amount is included within the special provision.

The Contractor must be aware that the special provision requires that a Quality Control Manager (QCM) be proposed to the Department within thirty (30) days after Contract Award and that the written QC Program be submitted to the Department within forty-five (45) days after Contract Award.

The Contractor must also be aware of the staffing, inspection, reporting and all other requirements of the special provision.

NOTICE TO CONTRACTOR – USE OF STATE POLICE OFFICERS

The Department will reimburse services of State Police Officers as a direct payment to the Department of Emergency Services and Public Protection. Payment for State Police Officers must be approved by the Engineer. Any State Police Officers used by the Contractor for its convenience is the responsibility of the Contractor. A separate payment item for State Police Officers is not included in this Contract.

Any costs associated with coordination and scheduling of State Police Officers shall be included in the lump sum bid price for Item No. 0971001A – Maintenance and Protection of Traffic.

NOTICE TO CONTRACTOR – ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATINGS

This Contract includes the application of materials subject to the Volatile Organic Compounds (VOC) content limits stated in the Regulations of Connecticut State Agencies (RCSA) Sections 22a-174-41 and -41a. All architectural and industrial maintenance (AIM) coatings and applications of such coatings must comply with these regulations.

The Contractor shall submit a Material Safety Data Sheet/Safety Data Sheet or Product Technical Data Sheet developed by the manufacturer of each material that may be subject to the Regulations. The submittal must verify both the type of AIM and its VOC Content. VOC content shall be determined based on the formulation data supplied by the materials manufacturer.

The Contractor may only use AIM coatings that contain VOCs below the respective coating category Phase II limits specified in Table 1 if either:

a) the coating was manufactured on or after May 1, 2018, **or**
b) the coating is being applied after April 30, 2021.

The Contractor may use AIM coatings that contain VOCs exceeding the respective coating category Phase II limits specified in Table 1 only if all of the following four conditions are met:

a) the coating is being applied on or before April 30, 2021,
b) the coating contains VOCs below the applicable Phase I limits specified in Table 1,
c) the coating was manufactured prior to May 1, 2018, **and**
d) the coating container(s) are dated (or date coded) as such.

For any coating that is not categorized within Table 1, the Contractor shall classify the coating as follows and apply corresponding limits in Table 1.

- Registers gloss <15 on an 85-degree meter or <5 on a 60-degree meter) – Flat Coating,
- Registers gloss of ≥15 on an 85-degree meter and ≥5on a 60-degree meter) - Nonflat Coating,
- Registers gloss of ≥70 on a 60-degree meter - Nonflat-High Gloss Coating.

The Contractor must close all containers of coating and solvent when not in use.

Coating container labels must display the date the coating was manufactured, the manufacturer's recommendation regarding thinning with solvent, and the coating's VOC content in grams per liter (g/L) of coating. Certain coating categories as noted in Table 1 have additional labeling requirements.

The Contractor may add additional solvent to a coating only if such addition does not cause the coating to exceed the applicable VOC limit specified Table 1. The Contractor must adhere to

type(s) of solvent and maximum amount of solvent recommended by coating manufacturer. VOC content of a thinned coating shall be the VOC content as listed by the manufacturer after thinning in accordance with its recommendation

TABLE 1		
Coating Category	**Phase I**	**Phase II**
	manufactured prior to May 1, 2018 VOC content limit (g/L)	**manufactured on or after May 1, 2018 VOC content limit (g/L)**
Aluminum roof coating	---[1]	450
Antenna coating	530	---[1]
Antifouling coating	400	---[1]
Basement specialty coating	---[1]	400
Bituminous roof coating	300	270
Bituminous roof primer	350	350
Bond breaker	350	350
Calcimine recoater	475	475
Clear wood coating - Clear brushing lacquer[2]	680	275
Clear wood coating - Lacquer[2,3]	550	275
Clear wood coating - Sanding sealer[2,4]	350	275
Clear wood coating - Varnish[2]	350	275
Concrete curing compound	350	350
Concrete or masonry sealer/ Waterproofing concrete or masonry sealer	400	100
Concrete surface retarder	780	780
Conjugated oil varnish	---[1]	450
Conversion varnish	725	725
Driveway sealer	---[1]	50
Dry fog coating	400	150
Faux finishing coating[2]	350	350
Fire resistive coating	350	350
Fire retardant coating - Clear	650	---[1]
Fire retardant coating - Opaque	350	---[1]
Flat coating	100	50
Floor coating	250	100
Flow coating	420	---[1]
Form-release compound	250	250
Graphic arts coating (sign paint)	500	500
High temperature coating	420	420
Impacted immersion coating	780	780
Industrial maintenance coating[2]	340	250
Industrial maintenance coating	340	250
Low solids coating	120	120
Magnesite cement coating	450	450

Mastic texture coating	300	100
Metallic pigmented coating	500	500
TABLE 1		
Coating Category	**Phase I**	**Phase II**
	manufactured prior to May 1, 2018 VOC content limit (g/L)	**manufactured on or after May 1, 2018 VOC content limit (g/L)**
Multi-color coating	250	250
Nonflat coating	150	100
Nonflat high gloss coating[2]	250	150
Nuclear coating	450	450
Pre-treatment wash primer	420	420
Primer, sealer and undercoater	200	100
Quick-dry enamel	250	---[1]
Quick-dry primer, sealer and undercoater	200	---[1]
Reactive penetrating carbonate stone sealer[2]	---[1]	500
Reactive penetrating sealer[2]	---[1]	350
Recycled coating	250	250
Roof coating	250	250
Rust preventive coating[2]	400	250
Shellac Clear	730	730
Shellac Opaque	550	550
Specialty primer, sealer and undercoater[2]	350	100
Stain	250	250
Stone consolidant[2]	---[1]	450
Swimming pool coating	340	340
Thermoplastic rubber coating and mastic	550	550
Traffic marking coating	150	100
Traffic marking coating	150	100
Tub and tile refinish	---[1]	420
Waterproofing membrane	---[1]	250
Waterproofing sealer	250	---[1]
Wood coating[2]	---[1]	275
Wood preservative	350	350
Zinc-rich primer[2]	---[1]	340

1 Classify as follows and apply corresponding limits in Table 1.

- Registers gloss <15 on an 85-degree meter or <5 on a 60-degree meter) – Flat Coating,
- Registers gloss of ≥15 on an 85-degree meter and ≥5on a 60-degree meter) – Nonflat Coating
- Registers gloss of ≥70 on a 60-degree meter – Nonflat-High Gloss

Coating 2 Container must be appropriately labeled. See RCSA 22a-174-41a

3 "Clear Wood Coating – Lacquer" includes lacquer sanding sealer

4 "Clear Wood Coating - Sanding Sealer" does not include lacquer sanding sealer

-END-

NOTICE TO CONTRACTOR – PRECAST/PRESTRESSED PORTLAND CEMENT CONCRETE (PRC) MIX CLASSIFICATIONS

SECTIONS 5.14 and M.14 MIX CLASSIFICATIONS

Sections 5.14 *Prefabricated Concrete Structural Components* and M.14 *Prefabricated Concrete Members* have been revised as of the January 2022 supplements to Form 818 and should be thoroughly reviewed. The Precast/Prestressed Portland Cement Concrete Mix Classification Table is provided below. These classes of concrete should only appear within Prefabricated (Precast/Prestressed) items.

Table M.14-1 Precast/Prestressed Portland Cement Concrete Mix Classes

Class	28-day Strength (psi)	Resistivity (kΩ-cm) at 56 days AASHTO T 358	Entrained Air
PRC04060	4,000	NA	6.0 +/- 1.5%
PRC04062	4,000	29	6.0 +/- 1.5%
PRC05060	5,000	NA	5.0 +/- 1.5%
PRC05062	5,000	29	5.0 +/- 1.5%
PRC06060	6,000	NA	5.0 +/- 1.5%
PRC06062	6,000	29	5.0 +/- 1.5%
PRC08060	8,000	NA	5.0 +/- 1.5%
PRC08062	8,000	29	5.0 +/- 1.5%
PRC10060	10,000	NA	4.0 +/- 1.5%
PRC10062	10,000	29	4.0 +/- 1.5%

PRCXXXYZ() PRC=Precast/Prestressed Concrete

XXX = 28-day strength (x100 psi) Y=Stone size (No. 6 = No. 67)

Z= (0=no resistivity requirement, 2=resistivity requirement)

NOTICE TO CONTRACTOR – REVISIONS TO SECTION 1.06 – CONTROL OF MATERIALS AND ANTICIPATED SOURCE OF SUPPLY FORM (CON-083)

The Contractor is hereby notified that Section 1.06 Control of Materials, included in the January 2023 Supplements has been revised.

The revisions include a clarification to the **Buy America Act (BAA)** requirements and new requirements for the **Build America, Buy America Act (BABA).**

Note that the **Build America, Buy America Act (BABA)** does not supersede BAA with regard to the iron and steel requirement, however it expands the requirements to include manufactured products and construction materials. Such products and materials (with exceptions) incorporated into projects "must be produced in the United States."

BABA requires that all construction materials are manufactured in the United States. Construction materials include those listed on the Anticipated Source of Material (CON-083) Form, which has also been revised to address the BABA requirements.

NOTICE TO CONTRACTOR RESET MANHOLES AND ADJUST GATE BOXES

The Contractor shall identify all private utility manholes and gate boxes, and coordinate their reset or adjustment, as required by the Engineer, with the private utility owner and the CTDOT Utilities Unit. Contact information for CTDOT Utilities is:

Gregg Hendrickson – (860) 594-3264 – Gregg.hendrickson@ct.gov

There will be no separate payment for this work.

SECTION 1.02 -PROPOSAL REQUIREMENTS AND CONDITIONS

1.02.01 – Contract Bidding and Award: After the first sentence of the third paragraph, add the Following:

In accordance with the provisions of the Construction Contract Bidding and Award Manual, bidders must be prequalified for **Group No. 5 – Paving and Associated Construction: Limited Access Highway/Freeways** to be eligible on this project. Bidders that are not prequalified for this work classification will not be approved to bid on this project.

SECTION 1.05 – CONTROL OF THE WORK

Replace Article 1.05.02 *with the following:*

1.05.02—Plans, Working Drawings, Shop Drawings, Product Data, Submittal Preparation and Processing - Review Timeframes, Department's Action:

1. Plans: The plans prepared by the Department show the details necessary to give a comprehensive idea of the construction contemplated under the Contract. The plans will generally show location, character, dimensions, and details necessary to complete the Project. If the plans do not show complete details, they will show the necessary dimensions and details, which when used along with the other Contract documents, will enable the Contractor to prepare Working Drawings, Shop Drawings or Product Data necessary to complete the Project.

Project submittals shall be delivered to the Department using the Department's project management system COMPASS. The Contractor shall acquire and maintain access to COMPASS for the delivery of submittals as listed herein. The delivery processes and document tracking procedures shall be performed in accordance with this specification and the COMPASS Contractor's User Manual.

2. Working Drawings: When required by the Contract or when ordered to do so by the Engineer, the Contractor shall prepare and submit the Working Drawings, signed, sealed and dated by a qualified Professional Engineer licensed to practice in the State of Connecticut, for review. The Working Drawings shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Working Drawings, procedures or supporting calculations, but the cost thereof shall be considered as included in the general cost of the work.

The Contractor is only required to deliver paper copies that have been stamped with "No Exceptions Noted" or "Exceptions as Noted." Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

All Working Drawing submission documents shall conform to the following requirements:

A. Drawings:
   i. Delivered in a single multi-page PDF file.
   ii. Shall be sized ANSI D (34 inches × 22 inches).
   iii. Contain a border, title block and a rectangular box, 2.25 inches wide × 1.75 inches high, in the lower right hand corner for the Department's stamp.
   iv. Text height and width shall be 0.125 inch.
   v. All letter characters shall be uppercase.
   vi. Shall be searchable.
   vii. Shall be black and white.

viii. Cover Page - shall be digitally signed by the Contractor's Professional Engineer.
ix. All pages shall include a watermark of the Professional Engineer's stamp in a common area.

B. Calculations:
i. Delivered in a single PDF file
ii. Shall be sized ANSI A (8.5 inches × 11 inches).
iii. Cover Page shall be digitally signed by the Contractor's Professional Engineer.

C. Supporting Documentation:
i. Delivered as an independent single PDF file
ii. Shall be sized ANSI A (8.5 inches × 11 inches).

a. Working Drawings for Permanent Construction: The Contractor shall supply to the Department a certificate of insurance in accordance with 1.03.07 at the time that the Working Drawings for the Project are submitted.

The Contractor's designer, who prepares the working drawings, shall secure and maintain at no direct cost to the State a Professional Liability Insurance Policy for errors and omissions in the minimum amount of $2,000,000 per error or omission. The Contractor's designer may elect to obtain a policy containing a maximum $250,000 deductible clause, but if the Contractor's designer should obtain a policy containing such a clause, they shall be liable to the extent of at least the deductible amount. The Contractor's designer shall obtain the appropriate and proper endorsement of its Professional Liability Policy to cover the indemnification clause in this Contract, as the same relates to negligent acts, errors or omissions in the Project work performed by them. The Contractor's designer shall continue this liability insurance coverage for a period of

(i) 3 years from the date of acceptance of the work by the Engineer, as evidenced by a State of Connecticut, Department of Transportation form entitled "Certificate of Acceptance of Work," issued to the Contractor; or

(ii) 3 years after the termination of the Contract, whichever is earlier, subject to the continued commercial availability of such insurance.

b. Working Drawings for Temporary Construction: The Contractor shall submit drawings, calculations, procedures and other supporting data to the Department in accordance with this Specification, with the exception of requirements defined under a. Working Drawings for Permanent Construction.

3. Shop Drawings: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver Shop Drawings to the Department for review.

Shop Drawings shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Shop Drawings but the cost thereof shall be considered as included in the general cost of the work.

The Contractor is only required to deliver paper copies that have been stamped with "No Exceptions Noted" or "Exceptions as Noted." Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

Shop Drawing submission documents shall conform to the following requirements:

A. Delivered in a single multi-page PDF file.
B. Shall be sized ANSI D (34 inches × 22 inches).
C. Contain a border, title block and a rectangular box, 2.25 inches wide × 1.75 inches high, in the lower right hand corner for the Department's stamp.
D. Text height and width shall be 0.125 inch.
E. All letter characters shall be uppercase.
F. Shall be searchable.
G. Shall be black and white.

4. Product Data: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver Product Data to the Department for review.

Product Data shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Product Data but the cost thereof shall be considered as included in the general cost of the work.

The Contractor shall submit the Product Data in a single submittal for each element of construction.

The Contractor shall mark each copy of the Product Data submittal to show applicable choices and options. Where Product Data includes information on several products that are not required, copies shall be marked to indicate the applicable information. Product Data shall include the following information and confirmation of conformance with the Contract to the extent applicable: manufacturer's printed recommendations, compliance with recognized trade association standards, compliance with recognized testing agency standards, application of testing agency labels and seals, notation of coordination requirements, Contract item number, and any other information required by the individual Contract provisions.

The Contractor is only required to deliver paper copies that have been stamped with "No Exceptions Noted" or "Exceptions as Noted." Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

Product Data submission documents shall conform to the following requirements:

A. Delivered in a single PDF file
B. Shall be sized ANSI A (8.5 inches × 11 inches).
C. Marked to indicate applicable choices and options.

D. Where non-applicable information and products are included, notations shall be made to clearly delineate applicable from non-applicable information.

5. Submittal Preparation and Processing – Review Timeframes: If the Department deems a submittal incomplete or unacceptable because not all the required documents were attached, documents are incomplete, or are in the incorrect format, the Department will send the submittal back to the Contractor before reviewing. When a submittal is sent back as incomplete, the associated documents have not been reviewed and the review process and any associated timeframe requirements have not begun.

The Contractor shall allow 30 calendar days for submittal review by the Department, from the date receipt is acknowledged by the Department. For any submittals stamped with "Revise and Resubmit" or "Rejected," the Department is allowed an additional 20 calendar days for review of any resubmissions.

An extension of Contract time will not be authorized due to the Contractor's failure to transmit submittals sufficiently in advance of the work to permit processing.

The furnishing of Shop Drawings, Working Drawings or Product Data, or any comments or suggestions by the Designer or Engineer concerning Shop Drawings, Working Drawings or Product Data, shall not relieve the Contractor of any of its responsibility for claims by the State or by third parties, as per 1.07.10.

The furnishing of the Shop Drawings, Working Drawings and Product Data shall not serve to relieve the Contractor of any part of its responsibility for the safety or the successful completion of the Project construction.

6. Department's Action: The Department will review each submittal, mark each with a self-explanatory action stamp, and return the stamped submittal promptly to the Contractor. The Contractor shall not proceed with the part of the Project covered by the submittal until the submittal is marked "No Exceptions Noted" or "Exceptions as Noted" by the Department. The Contractor shall retain sole responsibility for compliance with all Contract requirements. The stamp will be marked as follows to indicate the action taken:

a. If submittals are marked "No Exceptions Noted," the Designer or Engineer has not observed any statement or feature that appears to deviate from the Contract requirements. This disposition is contingent on being able to execute any manufacturer's written warranty in compliance with the Contract provisions.
b. If submittals are marked "Exceptions as Noted," the considerations or changes noted by the Department's Action are necessary for the submittal to comply with Contract requirements. The Contractor shall review the required changes and inform the Department if they feel the changes violate a provision of the Contract or would lessen the warranty coverage.

c. If submittals are marked "Revise and Resubmit," the Contractor shall revise the submittals to address the deficiencies or provide additional information as noted by the Department. The Contractor shall allow an additional review period as specified in 1.05.02-5.
d. If submittals are marked "Rejected," the Contractor shall prepare and submit a new submittal in accordance with the Department's notations. The resubmissions require an additional review and determination by the Department. The Contractor shall allow an additional review period as specified in 1.05.02-5.

Add the following to the beginning of the first paragraph of Article 1.05.12:

1.05.12—Payrolls: Unless otherwise approved by the Engineer, the Contractor and all subcontractors shall use ***AASHTOWare Project®*** software in accordance with Article 1.05.25, with a Department-provided template, or by other means previously accepted by the Department, to electronically upload all Project payrolls, as directed herein.

Add the following to the end of Article 1.05.12:

These requirements shall be included in all subcontracts for this Project.

All costs for these requirements shall be included in the general cost of the work.

Add the following new Article 1.05.25:

1.05.25—Use of *AASHTOWare Project®* Software: Unless otherwise approved by the Engineer, the Contractor and all subcontractor(s) shall use the ***AASHTOWare Project®*** software for electronic submittal of all payrolls as outlined in the Department's AASHTOWare Contractor's User Manual, found at the Department's, Contractor and Subcontractor Training Guides and Videos webpage, and as stated in the specifications.

The Contractor and all subcontractor(s) shall use the ***AASHTOWare Project®*** software for monthly verification of project payments at all tiers, as outlined in the Department's AASHTOWare Contractor's User Manual, found at the Department's, Contractor and Subcontractor Training Guides and Videos webpage, and as stated in the specifications. The Department will inform the Contractor of other deliverables to be similarly submitted, as required.

Within 10 days of execution of the Contract, the Contractor shall submit the name(s) of the ***AASHTOWare Software Project Liaison*** and required staff that will be using the Department's software for this work. Similarly, within 10 days after the Contractor (or a subcontractor) enters

into a subcontractor agreement to sublet any work, they shall submit the name(s) of their ***AASHTOWare Software Project Liaison*** and required staff that will be using the Department's software for this work. The Contractor and subcontractors shall immediately notify the Department of any change in Project staff authorized to access the AASHTOWare system or of a need to revise the Project Liaison.

Training materials, such as videos and written guides are available on the Department website for Contractor use. The Contractor and all subcontractors shall be responsible to train their staff.

This ***AASHTOWare Project®*** software will require that the Contractor and all subcontractor(s) provide their staff with access to the internet, using devices suitable for this work, at their own expense, throughout the duration of the Project. The Department has obtained licensing that allows the Contractor and subcontractors to access (from the internet) and use of the ***AASHTOWare Project®*** software. The Department will provide the Contractor and subcontractors with usernames and passwords to access the ***AASHTOWare Project®*** software, at no cost.

The Department shall not be held responsible for delays, lack of processing, or responses to submittals that do not follow the specified guidelines in the Department's AASHTOWare Contractor's User Manual, found at the Department's, Contractor and Subcontractor Training Guides and Videos webpage.

These requirements shall be included in all subcontracts for this Project.

All costs for these requirements shall be included in the general cost of the work.

SECTION 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES

Article 1.07.13 - Contractor's Responsibility for Adjacent Property, Facilities and Services is supplemented as follows:

The following company and representative shall be contacted by the Contractor to coordinate the protection of their utilities on this project 30 days prior to the start of any work on this project involving their utilities:

Mr. Kevin Tormay
District 1 Utility Coordinator
Department of Transportation
Rocky Hill, CT
(860) 628-1235
Kevin.Tormay@ct.gov

Mr. Mark Elliott
District 2 Utility Coordinator
Department of Transportation
Norwich, CT
(860) 823-3254
Mark.Elliott@ct.gov

SECTION 1.08 - PROSECUTION AND PROGRESS

Add the following to the beginning of the first paragraph of Article 1.08.01:

1.08.01—Transfer of Work or Contract: The Contractor and all subcontractors shall use the *AASHTOWare Project*® software in accordance with Article 1.05.25, for monthly verification of project payments at all tiers, in accordance with the Department's AASHTOWare Contractor's User Manual, found at the Department's, Contractor and Subcontractor Training Guides and Videos webpage, and as stated in the specifications.

Add the following to the end of Article 1.08.01:

All costs for the requirements of this Article shall be included in the general cost of the work.

Article 1.08.03 - Prosecution of Work:

Add the following:
The Contractor shall notify the Traffic Signal Lab at DOT.SIGNALLAB@CT.GOV fourteen (14) days prior to starting work on computer controlled signalized intersections only.

The Contractor shall notify the project engineer on construction projects when all traffic signal work is completed. This will include all work at signalized intersections including loop replacements. The project engineer will notify the Division of Traffic Engineering to coordinate a field inspection of all work. Refer to Section 10.00 – General Clauses For Highway Illumination And Traffic Signal Projects, Article 10.00.10 and corresponding special provision.

The Contractor shall perform the work according to the following sequence of operations. Any modifications to the sequence of operations shall be proposed to the Engineer for review and approval.

- Perform milling & install temporary pavement markings
- Perform surface patching, partial depth patching and joint & crack filling
- Place 2'' PMA S0.5 Traffic Level 3 on 1'' HMA S0.25 Traffic Level 2
- Install final pavement markings
- Replace bridge joints on structures identified on the plans
- Replaced missing/damaged section of bituminous concrete park curbing and place processed aggregate along edge of road for backing, where required.

The project will be constructed in various phases as described herein.

The Contractor is afforded time for the administrative/engineering. function required for the project. This would include such items as performing construction staking, digging test pits.

Actual construction is not permitted during the period. The Contractor is to use this time to fully prepare so that construction can proceed quickly and efficiently. After the construction staking is complete and underground utilities are marked out the Contractor, the designer and the Engineer will walk the project to determine if there are test pits necessary or if there are any apparent conflicts with private property, utilities, or other roadside appurtenances such as obstructions, rocks, large trees, etc.
When all apparent conflicts have been identified and resolved, and written commitments have been received from suppliers that all materials will be received within 30 days, the Contractor may request that construction begin. Once commencement of construction begins, as and when approved by the Engineer, the Contractor will have the remaining contract calendar days to complete the work, including cleanup. That work, once started, must be completed within the time established for the original contract, and liquidated damages, as specified elsewhere in the Contract, will be assessed against the Contractor per calendar day from that day until the date on which the work is complete. If unforeseen situations arise, the Contractor may request an extension of time for an individual location and, if justified, the Engineer may grant an extension of time for that location. Granting an extension of time for one location will not entitle the Contractor to extensions of time for other locations in the project.
If the project will not be completed in the one construction season, the contractor shall complete all work started at the intersection, including cleanup, prior to the winter shutdown.

New Work

Additional work, including work at a separate location, may be added to the contract in accordance with Article 1.04.05 of the Standard Specifications. This work may result in a contract extension, which would require an organization phase and a construction phase for the new location. If a contract extension is granted for the additional work, liquidated damages for this portion of the work will be negotiated with the Contractor. Such an extension of time would not affect the time allowed for the original work in the contract. Original work, once started must be completed within the original construction phase, and liquidated damages will be assessed for any days beyond that phase which the Contractor takes to complete the original work.

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 2

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

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

Additional Restrictions:

A. The Contractor shall be allowed to close ramps and detour traffic:
   i. Monday through Friday between 6:00 p.m. and 6:00 a.m.
B. The Contractor shall not be allowed to close the ramp and detour traffic during a Legal Holiday or Legal Holiday Period.

Limitation of Operations Chart – Maximum Number of Lanes Allowed to be Closed and Hours Allowed for a Rolling Roadblock (RRB)

Route: 2 Eastbound 2 Lanes							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1*	1*	1*	1*	1*	1*	1*
1 AM	1*	1*	1*	1*	1*	1*	1*
2 AM	1*	1*	1*	1*	1*	1*	1*
3 AM	1*	1*	1*	1*	1*	1*	1*
4 AM	1*	1*	1*	1*	1*	1*	1*
5 AM	1*	1*	1*	1*	1*	1*	1*
6 AM	**1**	**1**	**1**	**1**	**1**	1*	1*
7 AM	**0**	**0**	**0**	**0**	**0**	1*	1*
8 AM	**0**	**0**	**0**	**0**	**0**	S	1
9 AM	1	1	1	1	1	S	S
10 AM	1	1	1	1	1	S	S
11 AM	1	1	1	1	1	S	S
Noon	1	1	1	1	1	S	S
1 PM	1	1	1	1	1	S	S
2 PM	1	1	1	1	1	S	S
3 PM	**0**	**0**	**0**	**0**	**0**	S	S
4 PM	**0**	**0**	**0**	**0**	**0**	S	S
5 PM	**0**	**0**	**0**	**0**	**0**	S	S
6 PM	S	S	S	S	0	S	S
7 PM	S	S	S	S	S	1	1
8 PM	1*	1*	1*	1*	1	1	1*
9 PM	1*	1*	1*	1*	1*	1*	1*
10 PM	1*	1*	1*	1*	1*	1*	1*
11 PM	1*	1*	1*	1*	1*	1*	1*

Route: 2 Westbound 2 Lanes							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1*	1*	1*	1*	1*	1*	1*
1 AM	1*	1*	1*	1*	1*	1*	1*
2 AM	1*	1*	1*	1*	1*	1*	1*
3 AM	1*	1*	1*	1*	1*	1*	1*
4 AM	1*	1*	1*	1*	1*	1*	1*
5 AM	1*	1*	1*	1*	1*	1*	1*
6 AM	**1**	**1**	**1**	**1**	**1**	1*	1*
7 AM	**0**	**0**	**0**	**0**	**0**	0	1
8 AM	**0**	**0**	**0**	**0**	**0**	0	1
9 AM	0	0	0	0	0	0	S
10 AM	1	1	1	0	0	0	0
11 AM	1	1	1	0	0	0	0
Noon	0	0	0	0	0	0	0
1 PM	0	0	0	0	0	0	0
2 PM	0	0	0	0	0	0	0
3 PM	**0**	**0**	**0**	**0**	**0**	0	0
4 PM	**0**	**0**	**0**	**0**	**0**	0	0
5 PM	**0**	**0**	**0**	**0**	**0**	S	0
6 PM	0	0	0	0	0	0	0
7 PM	S	S	S	S	S	1	1
8 PM	1*	1*	1*	1*	1	1	1
9 PM	1*	1*	1*	1*	1*	1*	1*
10 PM	1*	1*	1*	1*	1*	1*	1*
11 PM	1*	1*	1*	1*	1*	1*	1*

On Legal Holidays and within Legal Holiday Periods, all hours shall be '0.'
"0" = No closures allowed = all available travel lanes, including exit only lanes, climbing lanes, gore areas, and all available shoulder widths shall be open to traffic during this time period.
"S" = Shoulders are allowed to be closed = all available travel lanes, including exit only lanes, climbing lanes, and gore areas shall be open to traffic during this time period.

"1" = One lane closure is allowed. Adjacent shoulder(s) and/or gore areas may also be closed.
"*" = The hours that a rolling roadblock may be implemented with the approval of the Engineer.

Limitation of Operations Chart – Maximum Number of Lanes Allowed to be Closed and Hours Allowed for a Rolling Roadblock (RRB)

Route: 2 WB Number of Through Lanes: 2							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1*	1*	1*	1*	1*	1*	1*
1 AM	1*	1*	1*	1*	1*	1*	1*
2 AM	1*	1*	1*	1*	1*	1*	1*
3 AM	1*	1*	1*	1*	1*	1*	1*
4 AM	1*	1*	1*	1*	1*	1*	1*
5 AM	1*	1*	1*	1*	1*	1*	1*
6 AM	**0**	**0**	**0**	**0**	**0**	1*	1*
7 AM	**0**	**0**	**0**	**0**	**0**	1	1*
8 AM	**0**	**0**	**0**	**0**	**0**	S	S
9 AM	1	1	1	1	1	S	S
10 AM	1	1	1	1	1	S	S
11 AM	1	1	1	1	1	S	S
Noon	1	1	1	1	S	S	S
1 PM	1	1	1	1	S	S	S
2 PM	S	S	S	S	S	S	S
3 PM	**0**	**0**	**0**	**0**	**0**	S	S
4 PM	**0**	**0**	**0**	**0**	**0**	S	S
5 PM	**0**	**0**	**0**	**0**	**0**	S	S
6 PM	S	S	S	S	S	S	S
7 PM	1	1	1	1	S	S	S
8 PM	1*	1*	1*	1*	1	S	S
9 PM	1*	1*	1*	1*	1	1	1
10 PM	1*	1*	1*	1*	1*	1*	1*
11 PM	1*	1*	1*	1*	1*	1*	1*

Route: 2 EB Number of Through Lanes: 2							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1*	1*	1*	1*	1*	1*	1*
1 AM	1*	1*	1*	1*	1*	1*	1*
2 AM	1*	1*	1*	1*	1*	1*	1*
3 AM	1*	1*	1*	1*	1*	1*	1*
4 AM	1*	1*	1*	1*	1*	1*	1*
5 AM	1*	1*	1*	1*	1*	1*	1*
6 AM	**0**	**0**	**0**	**0**	**0**	1*	1*
7 AM	**0**	**0**	**0**	**0**	**0**	1	1*
8 AM	**0**	**0**	**0**	**0**	**0**	S	S
9 AM	1	1	1	1	1	S	S
10 AM	1	1	1	1	1	S	S
11 AM	1	1	1	1	1	S	S
Noon	1	1	1	1	S	S	S
1 PM	1	1	1	1	S	S	S
2 PM	S	S	S	S	S	S	S
3 PM	**0**	**0**	**0**	**0**	**0**	S	S
4 PM	**0**	**0**	**0**	**0**	**0**	S	S
5 PM	**0**	**0**	**0**	**0**	**0**	S	S
6 PM	S	S	S	S	S	S	S
7 PM	1*	1*	1	1	1	1	1*
8 PM	1*	1*	1*	1*	1*	1	1*
9 PM	1*	1*	1*	1*	1*	1*	1*
10 PM	1*	1*	1*	1*	1*	1*	1*
11 PM	1*	1*	1*	1*	1*	1*	1*

On Legal Holidays and within Legal Holiday Periods, all hours shall be '0.'
"0" = No closures allowed = all available travel lanes, including exit only lanes, climbing lanes, gore areas, and all available shoulder widths shall be open to traffic during this time period.
"S" = Shoulders are allowed to be closed = all available travel lanes, including exit only lanes, climbing lanes, and gore areas shall be open to traffic during this time period.

"1" = One lane closure is allowed. Adjacent shoulder(s) and/or gore areas may also be closed.
"*" = The hours that a rolling roadblock may be implemented with the approval of the Engineer.

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 project 2024 Maintenance Resurfacing Program (MRP) for District 2. Limits of MRP projects are:

- Route 2 Eastbound Termini: MP 6.27 to 14.60
- Route 2 Westbound Termini: MP 6.27 to 14.63

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.

ON-THE-JOB TRAINING (OJT) WORKFORCE DEVELOPMENT PILOT:

Description

To provide construction industry related job opportunities to minorities, women and economically disadvantaged individuals; and to increase the likelihood of a diverse and inclusive workforce on Connecticut Department of Transportation (ConnDOT) projects.

All contractors (existing and newcomers) will be automatically placed in the Workforce Development Pilot. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level for new projects. Instead, these requirements will be applicable on an annual basis for each contractor performing work on ConnDOT projects.

The OJT Workforce Development Pilot will allow a contractor to train employees on Federal, State and privately funded projects located in Connecticut. However, contractors should give priority to training employees on ConnDOT Federal-Aid funded projects.

Funding

The Department will establish an OJT fund annually from which contractors may bill the Department directly for eligible trainee hours. The funds for payment of trainee hours on federal-aid projects will be allocated from the ½ of 1% provided for OJT funding, and will be based on hours trained, not to exceed a maximum of $25,000.00 per year; per contractor.

Minorities and Women

Developing, training and upgrading of minorities, women and economically disadvantaged individuals toward journeyperson level status is the primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority, women and economically disadvantaged individuals as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training whether a member of a minority group or not.

Assigning Training Goals

The Department, through the OJT Program Coordinator, will assign training goals for a calendar year based on the contractor's past two year's activities and the contractor's anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time, the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from one (1) to six (6) per

contractor per calendar year. Each January, a summary of the trainees required and the OJT Workforce Development Pilot package will be sent to participating contractors. The number of trainees assigned to each contractor in the summary will increase proportionately not to exceed 6, as shown in the following table. This package will also be provided to contractors as they become newly eligible for the OJT Workforce Development Pilot throughout the remainder of the year. Projects awarded after September 30 will be included in the following year's Program.

The dollar thresholds for training assignments are as follows:

$4.5 – 8 million=	1 trainee
$ 9 – 15 million=	2 trainees
$16 – 23 million=	3 trainees
$24 – 30 million=	4 trainees
$31 – 40 million=	5 trainees
$41 – and above=	6 trainees

Training Classifications

Preference shall be given to providing training in the following skilled work classifications. However, the classifications established are not all-inclusive:

Equipment Operators	Electricians
Laborers	Painters
Carpenters	Iron / Reinforcing Steel Workers
Concrete Finishers	Mechanics
Pipe Layers	Welders

The Department has on file common training classifications and their respective training requirements; that may be used by the contractors. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

Proposed training classifications are reasonable and realistic based on the job skill classification needs, and the number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

Where feasible, 25% percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

Records and Reports

The Contractor shall maintain enrollment in the program and submit all required reports documenting company compliance under these contract requirements. These documents and any other information shall be submitted to the OJT Program Coordinator as requested.

Upon the trainee's completion and graduation from the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

Trainee Interviews

In order to determine the continued effectiveness of the OJT Program in Connecticut, the department will periodically conduct personal interviews with current trainees and may survey recent graduates of the program. This enables the OJT Program Coordinator to modify and improve the program as necessary. Trainee interviews are generally conducted at the job site to ensure that the trainees' work and training is consistent with the approved training program.

Trainee Wages

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

60 percent	of the journeyman wage for the first half of the training period
75 percent	of the journeyman wage for the third quarter of the training period
90 percent	of the journeyman wage for the last quarter of the training period

In no case, will the trainee be paid less than the prevailing rate for general laborer as shown in the contract wage decision (must be approved by the Department of Labor).

Achieving or Failing to Meet Training Goals

The Contractor will be credited for each trainee currently enrolled or who becomes enrolled in the approved training program and providing they receive the required training under the specific training program. Trainees will be allowed to be transferred between projects if required by the Contractor's schedule and workload. The OJT Program Coordinator must be notified of transfers within five (5) days of the transfer or reassignments by e-mail (Phylisha.Coles@ct.gov).

Where a contractor does not or cannot achieve its annual training goal with female or minority trainees, they must produce adequate Good Faith Efforts documentation. Good Faith Efforts are those designed to achieve equal opportunity through positive, aggressive, and continuous result-oriented measures. 23 CFR § 230.409(g) (4). Contractors should request minorities and females from unions when minorities and females are under-represented in the contractor's workforce.

Whenever a contractor requests ConnDOT approval of someone other than a minority or female, the contractor must submit documented evidence of its Good Faith Efforts to fill that position with a minority or female. When a non-minority male is accepted, a contractor must continue to attempt to meet its remaining annual training goals with females and minorities.

Where a contractor has neither attained its goal nor submitted adequate Good Faith Efforts documentation, ConnDOT will issue a letter of non-compliance. Within thirty (30) days of receiving the letter of non-compliance, the contractor must submit a written Corrective Action Plan (CAP) outlining the steps that it will take to remedy the non-compliance. The CAP must be approved by ConnDOT. Failure to comply with the CAP may result in your firm being found non-responsive for future projects.

Measurement and Payment

Optional reimbursement will be made to the contractor for providing the required training under this special provision on ConnDOT Federal-Aid funded projects only.

Contractor will be reimbursed at $0.80 for each hour of training given to an employee in accordance with an approved training or apprenticeship program. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement.

Reimbursement for training is made annually or upon the trainees completion and not on a monthly basis. No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyperson, is caused by the Contractor.

Program reimbursements will be made directly to the prime contractor on an annual basis. To request reimbursement, prime contractors must complete the Voucher for OJT Workforce Development Pilot Hourly Reimbursement for each trainee in the OJT Program. This form is included in the OJT Workforce Development Pilot package and is available on the Department's web site at:

www.ct.gov/dot

The completed form must be submitted to the Office of Contract Compliance for approval. The form is due on the 15th day of January for each trainee currently enrolled and for hours worked on ConnDOT Federal-Aid funded projects only.

SMALL CONTRACTOR AND SMALL CONTRACTOR MINORITY BUSINESS ENTERPRISES

(SET-ASIDE)

October 12, 2022

NOTE: Certain requirements and procedures stated in this "Special Provision" are applicable prior to the execution of the Contract.

I. GENERAL

A. The Contractor shall cooperate with the Connecticut Department of Transportation (CTDOT) in implementing the required contract obligations concerning "Small Contractor" and "Small Contractor Minority Business Enterprise" use on this Contract in accordance with Section 4a-60g of the Connecticut General Statutes as revised. References, throughout this "Special Provision", to "Small Contractors" are also implied references to "Small Contractor Minority Business Enterprises" as both relate to Section IIA of these provisions. The Contractor shall also cooperate with CTDOT in reviewing the Contractor's activities relating to this provision. This "Special Provision" is in addition to all other equal opportunity employment requirements of this Contract.

B. For the purpose of this "Special Provision", the "Small Contractor(s)" and "Minority Business Enterprise(s)" named to satisfy the set-aside requirement must be certified by the Department of Administrative Services, Business Connections/ Set-Aside Unit [(860) 713-5236Small Minority Business Center (ct.gov). As a "Small Contractor" and "Minority Business Enterprises" as defined by Section 4a-60g Subsections (1) and (4) of the Connecticut General Statutes as revised and is subject to approval by CTDOT to do the work for which it is nominated pursuant to the criteria stipulated in Section IIC-3.

C. Contractors who allow work which they have designated for "Small Contractor" participation in the pre-award submission required under Section IIC to be performed by other than the approved "Small Contractor" organization and prior to concurrence by CTDOT, will not be paid for the value of the work performed by organizations other than the "Small Contractor" designated.

D. If the Contractor is unable to achieve the specified contract goals for "Small Contractor" participation, the Contractor shall submit written documentation to CTDOT's Manager of Construction Operations indicating his/her attempts to satisfy goal requirements. Documentation is to include but not be limited to the following:

1. A detailed statement of the efforts made to select additional subcontract opportunities for work to be performed by each "Small Contractor" in order to increase the likelihood of achieving the stated goal.

2. A detailed statement, including documentation of the efforts made to contact and solicit contracts with each "Small Contractor", including the names, addresses, dates and telephone numbers of each "Small Contractor" contacted, and a description of the information provided to each "Small Contractor" regarding the scope of services and anticipated time schedule of items proposed to be subcontracted and the nature of response from firms contacted.

3. For each "Small Contractor" that placed a subcontract quotation which the Contractor considered not to be acceptable, provide a detailed statement of the reasons for this conclusion.

4. Documents to support contacts made with CTDOT requesting assistance in satisfying the contract specified or adjusted "Small Contractor" dollar requirements.

5. Document other special efforts undertaken by the Contractor to meet the defined goal.

E. Failure of the Contractor to have at least the specified dollar amount of this contract performed by "Small Contractor" as required in Section IIA of this "Special Provision" will result in the reduction in contract payment to the Contractor by an amount equivalent to that determined by subtracting from the specific dollar amount required in Section IIA, the dollar payments for the work actually performed by each "Small Contractor". The deficiency in "Small Contractor" achievement, will therefore, be deducted from the final contract payment. However, in instances where the Contractor can adequately document or substantiate its good faith efforts made to meet the specified or adjusted dollar amount to the satisfaction of CTDOT, no reduction in payments will be imposed.

F. All records must be retained for a period of three (3) years following completion of the contract and shall be available at reasonable times and places for inspection by authorized representatives of CTDOT.

G. Nothing contained herein, is intended to relieve any contractor or subcontractor or material supplier or manufacturer from compliance with all applicable Federal and State legislation or provisions concerning equal employment opportunity, affirmative action, nondiscrimination and related subjects during the term of this Contract.

II. SPECIFIC REQUIREMENTS

In order to increase the participation of "Small Contractors", CTDOT requires the following:

A. Not less than 5 (%) percent of the **final** value of this Contract shall be subcontracted to and performed by, and/or supplied by, manufactured by and paid to "Small Contractors" and/or "Small Contractors Minority Business Enterprises".

If the above percentage is zero (0%) AND an asterisk (*) has been entered in the adjacent brackets [ ], this Contract is 100% solely set-aside for participation by "Small Contractors" and/or "Small Contractors Minority Business Enterprises".

B. The Contractor shall assure that each "Small Contractor" will have an equitable opportunity to compete under this "Special Provision", particularly by arranging solicitations, time for the preparation of Quotes, Scope of Work, and Delivery Schedules so as to facilitate the participation of each "Small Contractor".

C. The Contractor shall provide to CTDOT's Manager of Contracts within Five (5) days after the bid opening the following items:

1. A certification of work to be subcontracted (Exhibit II) signed by both the Contractor and the "Small Contractor" listing the work items and the dollar value of the items that the nominated "Small Contractor" is to perform on the project to achieve the minimum percentage indicated in Section IIA above.

2. A certification of past experience (Exhibit III) indicating the scope of work the nominated "Small Contractor" has performed on all projects, public and private, for the past five (5) years.

3. In instances where a change from the originally approved named "Small Contractor" (see Section IB) is proposed, the Contractor is required to submit, in a reasonable and expeditious manner, a revised submission, comprised of the documentation required in Section IIC, Paragraphs 1, 2 and 3 and Section E together with documentation to substantiate and justify the change, (i.e., documentation to provide a basis for the change) to CTDOT's Manager of Construction Operations for its review and approval prior to the implementation of the change. The Contractor must demonstrate that the originally named "Small Contractor" is unable to perform in conformity to specifications, or unwilling to perform, or is in default of its contract, or is overextended on other jobs. The Contractor's ability to negotiate a more advantageous contract with another "Small Contractor" is not a valid basis for change. Documentation shall include a letter of release from the originally named "Small Contractor" indicating the reason(s) for the release.

D. After the Contractor signs the Contract, the Contractor will be required to meet with CTDOT's Manager of Construction Operations or his/her designee to review the following:

1. What is expected with respect to the "Small Contractor" set aside requirements.

2. Failure to comply with and meet the requirement can and will result in monetary deductions from payment.

3. Each quarter after the start of the "Small Contractor" the Contractor shall submit a report to CTDOT's Manager of Construction Operations indicating the work done by, and the dollars paid to each "Small Contractor" to date.

4. What is required when a request to sublet to a "Small Contractor" is submitted.

E. The Contractor shall submit to CTDOT's Manager of Construction Operations all requests for subcontractor approvals on standard forms provided by the Department.

If the request for approval is for a "Small Contractor" subcontractor for the purpose of meeting the contract required "Small Contractor" percentage stipulated in Section IIA, a copy of the legal contract between the Contractor and the "Small Contractor" subcontractor must also be submitted at the same time. Any subsequent amendments or modifications of the contract between the Contractor and the "Small Contractor" subcontractor must also be submitted to CTDOT's Manager of Construction Operations with an explanation of the change(s). The contract must show items of work to be performed, unit prices and, if a partial item, the work involved by both parties.

In addition, the following documents are to be attached:

(1) A statement explaining any method or arrangement for renting equipment. If rental is from a Contractor, a copy of Rental Agreement must be submitted.

(2) A statement addressing any special arrangements for manpower.

(3) A statement addressing who will purchase material.

F. Contractors subcontracting with a "Small Contractor" to perform work or services as required by this "Special Provision" shall not terminate such firms without advising CTDOT, in writing, and providing adequate documentation to substantiate the reasons for termination if the designated "Small Contractor" firm has not started or completed the work or the services for which it has been contracted to perform.

G. Material Suppliers or Manufacturers

If the Contractor elects to utilize a "Small Contractor" supplier or manufacturer to satisfy a portion or all of the specified dollar requirements, the Contractor must provide the Department with:

1. An executed Affidavit Small Contractor (Set-Aside) Connecticut Department of Transportation Affidavit Supplier or Manufacturer (sample attached), and

2. Substantiation of payments made to the supplier or manufacturer for materials used on the project.

Brokers and packagers shall not be regarded as material Suppliers or manufacturer.

H. Non-Manufacturing or Non-Supplier "Small Contractor" Credit

Contractors may count towards its "Small Contractor" goals the following expenditures with "Small Contractor" firms that are not manufacturers or suppliers:

1. Reasonable fees or commissions charged for providing a bona fide service such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, material or supplies necessary for the performance of the contract provided that the fee or commission is determined by the Department of Transportation to be reasonable and consistent with fees customarily allowed for similar services.

2. The fees charged for delivery of materials and supplies required on a job site (but not the cost of the materials and supplies themselves) when the hauler, trucker, or delivery service is not also the manufacturer of or a regular dealer in the materials and supplies, provided that the fee is determined by the Department of Transportation to be reasonable and not excessive as compared with fees customarily allowed for similar services.

3. The fees or commissions charged for providing any bonds or insurance specifically required for the performance of the Contract, provided that the fee or commission is determined by the Department of Transportation to be reasonable and not excessive as compared with fees customarily allowed for similar services.

III. BROKERING

For the purpose of this "Special Provision", a "Broker" is one who acts as an agent for others in negotiating contracts, purchases, sales, etc., in return for a fee or commission. Brokering of work by a "Small Contractor" is not allowed and is a contract violation.

IV. PRE-AWARD WAIVERS:

If the Contractor's submission of the "Small Contractor" listing, as required by Section IIC indicates that it is unable, by subcontracting to obtain commitments which at least equal the amount required by Section IIA, it may request, in writing, a waiver of up to 50% of the amount required by Section IIA. To obtain such a waiver, the Contractor must submit a completed "Application for Waiver of Small Contractor Minority Business Enterprise Goals" to CTDOT's Manager of Contracts which must also contain the following documentation:

1. Information described in Section ID.

2. For each "Small Contractor" contacted but unavailable, a statement from each "Small Contractor" confirming its unavailability.

Upon receipt of the submission requesting a waiver, the CTDOT's Manager of Contracts shall submit the documentation to the Director of the Office of Contract Compliance who shall review it for completeness. After completion of the Director of Contract Complian-

ce's review, she/he should write a narrative of his/her findings of the application for a waiver, which is to include his/her recommendation. The Director of Contract Compliance shall submit the written narrative to the Chairperson of the DBE Screening Committee at least five (5) working days before the scheduled meeting. The Contractor shall be invited to attend the meeting and present his/her position. The DBE Screening Committee shall render a decision on the waiver request within five (5) working days after the meeting. The DBE Screening Committee's decision shall be final. Waiver applications are available from the CTDOT Manager of Contracts.

Please note that effective with this update, Exhibit 1 is discontinued

Exhibit 2

Rev 7/2015

CONNECTICUT DEPARTMENT OF TRANSPORTATION (CTDOT)

PRE-AWARD SBE COMMITMENT APPROVAL REQUEST

TO BE SUBMITTED WITHIN THE TIME FRAME INDICATED IN THE BID DOCUMENTS

Only certified SBE firms will be approved. The SBE directory is available on the Department of Administrative Service's web site: http://www.biznet.ct.gov/SupplierDiversity/SDSearch.aspx

Sheet of

CDOT Project Number (s):
Town(s) of:
Submitted By:
Original Bid ($):
Dollar amount subcontracted to this SBE firm ($):

SBE Subcontractor:
Address:

Item Number & Description	Is This item Partial Yes No	Firm Type Code *	Units	Quantity bid by the Prime	Contract Unit Price	Quantity Subcontracted	Subcontract Unit Price **	Total Item price subcontracted
	N							0.00
	N							0.00
	N							0.00
	N							0.00
	N							0.00
	N							0.00
	N							0.00

If any of the items above are checked **Yes** as to **Partial**, please provided or use an attachment to offer an explanation of the work involved. Also please identify who is responsible for the remainder of the partial items.

* Firm Type Code: **S** (subcontractor), **M** (manufacturer), **P** (supplier), **T** (trucking), **V** (services)

** In instances where the Prime is paying the Subcontractor a higher unit price than the bid, by submitting this form the Prime agrees to the higher subcontracted price without qadditional costs to the Department.

X _____ Signature of Prime Contractor, Title

Date

X _____ Signature of Subcontractor, Title

Date

After this submittal is approved by the Department, any proposed changes to it must be submitted to the Department for approval.

SBE Exhibit 3 Revised May 2012

Sample of Past Construction Experience

Only include the work within the last 5 years that are relevant to the work performed on this project

CTDOT Project Number: _____

SBE Firm: _____

Project Description and Location	Your Contract Value	The Name of the Owner or the Prime Contractor on the Project/Contact Name and Phone Number	Actual or Estimated Completion Date	overview of items Performed

ITEM #0406124A – BITUMINOUS CONCRETE SURFACE PATCHING

Description: This work shall consist of sweeping and cleaning areas of deteriorated pavement of all loose and delaminated pavement materials, disposing of deteriorated pavement materials, application of tack coat, and placement of Hot-Mix Asphalt (HMA) or an equivalent Polymer Modified Asphalt (PMA) to match the elevation of the surrounding pavement.

For road sections being milled and paved, all patching operations must be completed after milling is complete and before paving begins. All patching operations shall be completed within one working day following milling and shall be completed before traffic is permitted to resume on the exposed roadway.

Materials: Materials for this work shall meet the requirements of Section M.04 and shall consist of the following:

1. HMA S0.25, HMA S0.375, or an equivalent PMA. All HMA or PMA shall be Traffic Level 2 unless indicated otherwise on the plans.
2. Tack coat.

Construction Methods:

Equipment for this work shall include a sweeper capable of remove millings and loose debris, an air compressor capable of producing 100 psi oil free compressed air for cleaning the area to be patched, tools for the placement of bituminous concrete, and pavement compaction equipment to perform patching operations, such as a plate compactor.

1. The Engineer will mark out areas for patching that are broken, damaged, distorted, or delaminated in order to provide a suitable surface for placement of a layer of bituminous concrete. Examples of such areas to be patched include potholes, open longitudinal joints, ruts, and depressions.
2. Sweep and clean the areas to be patched in order to remove all loose and delaminated material to the satisfaction of the Engineer.
3. Clean off any residual dust or small debris using compressed air to the satisfaction of the Engineer, and allow area to fully dry.
4. A uniform application of tack coat meeting the requirements of Section 4.06 shall be applied prior to patching. It shall cover the entire surface area of the patch and be allowed to sufficiently cure or break.
5. Place and compact HMA S0.25, HMA S0.375, or an equivalent PMA by means acceptable to the Engineer and to the elevation meeting the surrounding pavement.

Method of Measurement: This work will be measured by the number of square yards of patched roadway completed and accepted.

Basis of Payment: This work will be paid for at the Contract unit price per square yard of "Bituminous Concrete Surface Patching." The price shall include all tools, materials, labor, equipment, disposing of deteriorated materials, sweeping and cleaning, tack coat application, and placement and compaction of HMA or PMA.

Pay Item	Pay Unit
Bituminous Concrete Surface Patching	s.y.

ITEM #0406125.20A – BITUMINOUS CONCRETE PATCHING – PARTIAL DEPTH

Description:
This work shall consist of milling out deteriorated bituminous concrete pavement to a depth between 1.5 to 2.5 inches, disposing of pavement millings, sweeping and cleaning, application of tack coat on all surfaces within the milled area, and placement of Hot-Mix Asphalt (HMA) or an equivalent Polymer Modified Asphalt (PMA) to match the elevation of the surrounding pavement.

For road sections being milled and paved, all patching operations must be completed after milling is complete and before paving begins. All patching operations shall be completed within one working day following milling and shall be completed before traffic is permitted to resume on the exposed roadway.

Materials:
Materials for this work shall meet the requirements of Section M.04 and shall consist of the following:

1. HMA S0.375 or an equivalent PMA. All HMA or PMA shall be Traffic Level 2 unless indicated otherwise on the plans.
2. Tack coat.

Construction Methods:
Equipment for this work shall include, but is not limited to, the following:

1. Milling machine: A milling machine designed and built for milling flexible pavements. It shall be self-propelled with sufficient power, traction, and stability to maintain depth and slope and shall be capable of removing the existing bituminous concrete pavement.

   The rotary drum of the machine shall use carbide or diamond tip tools spaced not more than 15 mm apart. The forward speed of the milling machine shall be a maximum of 45 feet/minute. The tools on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture.

   The machine shall be equipped with an integral pickup and conveying device to immediately remove milled material from the surface of the roadway and discharge the millings into a truck in one operation. The machine shall also be equipped with a means of effectively limiting the amount of dust escaping from the milling and removal operation. When milling smaller areas or areas where it is impractical to use the above described equipment, the Contractor may be permitted to use a lesser equipped milling machine, if approved by the Engineer.

The minimum milling width shall be 20 inches, making the minimum achievable patch size 20 inches by 20 inches, or 0.30 square yards.

2. 10-foot straight edge.

3. Sweeper: A sweeper, equipped with a water tank, capable of remove millings and loose debris.

4. Air compressor: An air compressor capable of producing 100 psi oil free compressed air for cleaning the milled pavement surface.

5. Hot air lance: A hot air lance that can deliver 100 psi oil free heated air to clean and dry the pavement surface. The compressed air emitted from the tip of the lance shall achieve a temperature of at least 1500°F.

6. Paving and compaction equipment: Paving and compaction equipment meeting the requirements of Section 4.06. It is expected that much of the placement will require hand work or a mixture of equipment and hand tools to achieve the required results. Smaller compaction equipment, including vibratory plate compactors, will be allowed by the Engineer to achieve the required results. At all times the Contractor is required to meet the density and compaction and all other requirements specified in Sections 4.06 and M.04.

7. Portable lighting equipment: If the work is performed at night a truck towed light tower and driver shall be provided for use by the Engineer for all marking, installation, and inspection of the patches.

8. Tack Coat Distributor: A minimum 150-gallon capacity tank that is trailer mounted or self-propelled and capable of applying tack coat meeting the requirements of Section 4.06.

The work shall include, but is not limited to, the following:

1. Demarcating: The Engineer will mark out areas for patching and will determine the appropriate milling depth between 1.5 inches and 2.5 inches. The minimum length and width dimensions of the patch shall be 20 inches. Any area to be patched shall completely encompass the entire distressed pavement area and extend at least 6 inches beyond into the surrounding pavement wherever possible.

2. Milling: Mill marked out areas to the specified depths.

3. Sweeping, Cleaning, and Drying: Sweep the milled surface clean, and allow milled areas to dry. Any moisture in or on the milled areas must be allowed to evaporate or be removed with the assistance of the hot air lance. When the milled area is dry to the

satisfaction of the Engineer, it shall be blown clean of any residual dust or debris using compressed air.

4. Applying Tack Coat: Apply tack coat to the entire clean and dry milled area, including the sides/walls of the area to be patched, in accordance with the requirements of Section 4.06.

5. Placing Patch Material: After the tack coat has had sufficient time to cure or break, HMA S0.375 or equivalent PMA shall be placed and compacted to the requirements above and in Section 4.06. The Contractor shall confirm that the surface elevation of the finished patch matches the elevation of the surrounding pavement surface to within 1/4 inch using the 10-foot straightedge. The Contractor shall confirm that all patch material placed is uniform in appearance without segregation.

Method of Measurement:
This work will be measured by the number of square yards of patched bituminous concrete completed and accepted.

Basis of Payment:
This work will be paid for at the Contract unit price per square yard of "Bituminous Concrete Patching – Partial Depth." The price shall include all tools, materials, labor and equipment; milling, removing, and disposing of pavement millings; sweeping and cleaning of the milled area; drying the milled area; applying tack coat to the milled area; and placement and compaction of HMA or PMA.

Pay Item	Pay Unit
Bituminous Concrete Patching – Partial Depth	s.y.

ITEM #0406195 – FILLING JOINTS AND CRACKS IN BITUMINOUS CONCRETE PAVEMENT (LF)

Description: This work consists of furnishing and applying a hot-applied mixture of Performance Graded (PG) asphalt binder and polyester fibers into bituminous concrete pavement joints and cracks. It shall be constructed in close conformity with the lines, grades, thicknesses, and typical cross sections shown on the plans or established by the Engineer. Filling Joints and Cracks in Bituminous Concrete Pavement may be used in conjunction with other repair treatments including joint and crack sealing or patching, in which case the sequence of treatments will be provided in the Plans or directed by the Engineer.

For the purposes of this document, the word "crack" includes all longitudinal (along the direction of travel) and transverse (perpendicular to the direction of travel) cracks and joints. All work specified for "crack(s)" herein shall apply to all types of cracks and joints unless otherwise specified.

Materials: The hot-applied crack filling material shall be composed of a mixture of Performance Graded Asphalt Binder and polyester fibers blended to provide 3%-5% ± 0.5% fibers by weight. No field mixing of the fibers is allowed. The crack filling material (with fibers) shall be prepackaged, labeled, and arrive on Site ready to be placed in the melter applicator. The component materials shall meet the following requirements:

1. Polyester Fibers: A Materials Certificate shall be provided by the manufacturer for this material. The polyester fibers must meet the following requirements:

Property	Test Method	Requirement
Length	N/A	0.25 inch ± 2 mils (6.4mm ± 0.05mm)
Crimps	ASTM D3937	None
Tensile Strength*	ASTM D2256	69,600 psi (480 MPa), minimum
Denier*	ASTM D1577	3.0 – 6.0
Specific Gravity	N/A	1.32 – 1.40
Melting Temperature	N/A	473ºF (245ºC), minimum
Ignition Temperature	N/A	1000ºF (540ºC), minimum

* This data must be obtained prior to cutting the fibers.

2. Performance Graded (PG) Asphalt Binder: The Performance Graded (PG) Asphalt Binder shall be PG 64E-22 (PG 76-22) and shall meet the requirements of AASHTO M 332 and AASHTO R 29. The Contractor shall submit a Certified Test Report and bill of lading representing each delivery in accordance with AASHTO R 26(M). The Certified Test Report must also indicate the asphalt binder specific gravity at 77°F, rotational viscosity at 275°F and 329°F, and a mixing and compaction viscosity-temperature chart as if the asphalt binder were to be used as binder for the construction of hot mix asphalt. The blending of PG asphalt binder from different suppliers is strictly prohibited. Contractors who blend PG asphalt

binders will be classified as a "Supplier" and will be required to certify the asphalt binder in accordance with AASHTO R 26(M).

3. Optional Barrier Material - Clean, Dry Sand: Sand shall conform to the requirements of Standard Specification Article M.01.03, Fine Aggregates, except that the gradation requirements shall be replaced with the following:

Square Mesh Sieve	Percent Passing by Weight
No. 8	100
No. 50	10 – 40
No. 100	0 – 10
No. 200	0 – 3

The Contractor must submit to the Engineer all Material Safety Data Sheet documents from the material manufacturer(s) prior to the commencement of work. During work progress, the Contractor must submit to the Engineer the manufacturer's Materials Certificate and a Certified Test Report showing conformance to applicable specifications for each batch or lot of material used on the Contract in accordance with Section 1.06.07.

Construction Methods: The crack filling operation shall proceed in accordance with the requirements of the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications.

1. Equipment: The equipment used by the Contractor shall include, but not be limited to, the following:

    a. Melter Applicator: The unit shall consist of a boiler kettle equipped with pressure pump, hose, and applicator wand; the boiler kettle may be a combination melter and pressurized applicator of a double-boiler type with space between the inner and outer shells filled with heat transfer oil. Heat transfer oil shall have a flash point of not less than 600°F. The kettle shall include a temperature control indicator. The kettle shall be capable of maintaining the crack fill material at the manufacturer's specified application temperature range. The kettle shall include an insulated applicator hose and application wand. The hose shall be equipped with a shutoff control. The kettle shall include a mechanical fullsweep agitator to provide continuous blending. The unit shall be equipped with thermometers to monitor the material temperature and the heating oil temperature. The unit shall be equipped with thermostatic controls that allow the operator to regulate material temperature up to at least 425°F.

    b. Application Wand and Squeegee Applicator: The material shall be applied with a wand followed by a squeegee applicator. The squeegee applicator shall be of commercial/industrial quality designed with a "U" shaped configuration. It shall be of a size adequate to strike off, flush with the surrounding pavement surface and without overflow around the sides, all crack fill material placed. This tool shall be either attached to the applicator wand or used separately as its own long handled tool.

c. Hot Air Lance: The unit shall be designed for cleaning and drying the pavement surface cracks. Minimum compressed air capacity shall be 100 psi. The compressed air emitted from the tip of the lance shall be capable of achieving a temperature of at least 1500°F.

d. Vertically Mounted Power Driven Wire Brush: This tool shall be used to remove any dirt, debris, or vegetation to the depths specified that cannot be removed by the hot air lance. It shall be of adequate size and power to remove all material from cracks as specified.

2. Weather Requirements: Work shall not be performed unless the pavement is dry. No frost, snow, ice, or standing water may be present on the roadway surface or within the cracks. The ambient temperature must be 40°F and rising during field application operations for work to proceed.

3. Material Mixing Procedure: The prepackaged material shall be added to the melter applicator in the presence of the Engineer. It shall then be mixed and heated to the recommended application temperature. The crack fill material shall never exceed 400°F.

4. Determination of Cracks to be Filled: The width and depth requirements for cracks to be filled are as follows:

   All crack width determinations shall be made by measuring the crack width flush at the surface of the pavement prior to being filled. A straightedge shall be used whenever necessary to establish the location or limits of the flush surface of the pavement.

   All cracks from ¼ inch up to 1.5 inches wide shall be prepared and filled as stated below. Cracks that are between ¼ inch and 1.5 inches wide, but eventually taper in width below the minimum ¼ inch, shall also be prepared and filled as stated below. Only cracks that are less than ¼ inch wide throughout their entire length shall be excluded.

   Transverse cracks, where a portion of the crack (50% or less) exceeds a width of 1.5 inches, up to 2 inches, shall also be prepared and filled as stated below.

   All joints to be filled that are raveled (loss of the pavement surface material) shall be at least ½ inch in depth at the joint's deepest point. The minimum width of a raveled joint must be ½ inch. The maximum width of a raveled joint to be filled is 3 inches.

   Any cracks exceeding the width and depth requirements specified above shall be repaired using separate items.

5. Crack Preparation: Cracks to be filled shall be treated with a hot air lance prior to application of the crack fill material. Two (2) passes minimum shall be made with the hot air lance. The hot air lance operation shall proceed at a rate no greater than 120 feet per minute. There shall

be no more than 10 minutes between the second hot air lance treatment and the material application. Should this time be exceeded, additional pass(es) shall be made with the hot air lance.

The use of the hot air lance is not intended to heat the crack. It is to be used to blow all debris from the crack to the depths specified below and to remove any latent moisture from the crack until the inside of the crack is completely dry as determined by the Engineer. "Moisture" does not include standing water. The hot air lance is not to be used to boil off or blow standing water from the bottom of a crack. If standing water is present in the bottom of any crack, the filling operation shall be postponed until such time that the standing water evaporates naturally. The Contractor may use compressed, oil-free air (not heated) to blow standing water from a crack to help accelerate the natural evaporation process. If standing water remains after using compressed air, the crack shall be allowed to dry naturally until remaining standing water evaporates. The hot air lance may be used after visible water has evaporated. If a crack is already completely dry as determined by the Engineer, the hot air lance shall be operated at its lowest temperature possible.

The hot air lance shall be used to blow all debris from cracks (not including raveled joints) to a depth of at least ¾ inch for cracks between ¼ inch and ¾ inch wide, and to a depth of 1.25 inches for cracks between ¾ inch and 2 inches wide. The hot air lance shall be used to blow all debris from raveled joints to a depth of 1 inch or the full depth of the joint, whichever is smaller.

In the event that cracks are packed tightly with debris, dirt, vegetation, or other material, except previously placed sealant or filler, the Contractor shall use a vertically mounted power driven wire brush to remove all material and burnish the sides of the crack to the depths specified above. Cracks treated with the power driven wire brush shall subsequently be treated with a hot air lance as described in this section. The use of both the power driven wire brush and the hot air lance shall result in the complete removal of all material in the crack (except previously placed sealant or filler) to the depths specified above such that the sides of the crack are completely free and clean of any debris and moisture.

In the event that cracks have depths greater than 2 inches below the pavement surface, the Contractor may place a barrier composed of clean, dry sand as specified herein. The barrier material shall be placed in a manner leaving 1.25 inches below the elevation of the pavement surface for crack filling material. A barrier will not be allowed for cracks wider than 1.5 inches or less than ½ inch wide.

6. Crack Filling: As soon as cracks have been prepared, they shall be filled to refusal along their entire length. The treatment material shall be maintained at the manufacturer's specified/recommended application temperature range at all times. The filling operation shall be suspended if the temperature of the crack filling material falls outside the specified temperature range and shall remain suspended until the crack filling material is brought within the specified temperature range. Filled cracks are to be squeegeed immediately following application of the crack filling material, striking excess filler flat to the adjacent

pavement surface. There shall be no build-up of treatment material above or adjacent to the crack at any time. If the initial application of crack fill material fails to fill the crack or shrinks upon cooling such that there is a depression formed of at least ¼ inch or greater, a second application of filler shall be placed over the first application.

7. Protection of Filled Cracks: Traffic shall not be permitted on the pavement until the crack fill material is set so that the material does not track and is not deformed or pulled out by tires. If the work under this item is being performed prior to placing a hot mix overlay or other surface treatment, a detackifier or blotting agent will not be allowed. If work under this item is not followed by placement of an overlay of any kind, a detackifier or blotting agent may be used. If a detackifier or blotting agent is used, it shall be one recommended by the supplier of the crack filling material and shall be used as recommended by the supplier, except that no paper, cotton, or other organic materials shall be allowed. Information on the type and usage of a detackifier or blotting agent shall be presented to the Engineer for their written acceptance prior to use.

8. Removal and Disposal of Material: All debris generated from the operations described above shall be removed from the roadway by the Contractor.

   Treatment material remaining in the Contractor's kettle at the close of the daily work session shall be discarded. At no time shall treatment material be re-heated for use in subsequent crack filling applications unless permitted by the Engineer following a review of specific circumstances.

   All debris and surplus treatment material shall be properly disposed in accordance with Article 1.10.03 and State of Connecticut law.

9. Acceptance of Work: When the work is complete, an inspection shall be scheduled with the Engineer. The Engineer will note all deficiencies including, but not limited to, areas exhibiting adhesion failure, cohesion failure, tracking of filler material, and missed cracks. Work identified by the Engineer as not acceptable shall be repaired at the Contractor's expense. The Contractor shall notify the Engineer upon completion of any corrective work performed.

Method of Measurement: This work will be measured by the total number of linear feet of cracks filled, or by the Project area in square yards of bituminous concrete roadway surface, as indicated in the Contract plans and as measured, verified, and accepted by the Engineer.

Basis of Payment: This work will be paid for at the Contract unit price per linear foot for "Filling Joints and Cracks in Bituminous Concrete Pavement" or per square yard for "Joint and Crack Filling of Bituminous Concrete Pavement" complete and accepted in place. The price shall include all submittals, materials, equipment, tools, and labor incidental thereto. No payment will be made to the Contractor prior to submittal of required documents.

Pay Item	Pay Unit
Filling Joints and Cracks in Bituminous Concrete Pavement	l.f

ITEM #0406238A – NON-TRACKING ASPHALT TACK COAT

Description: This item shall consist of furnishing and applying Non-Tracking Asphalt Tack Coat.

Non-Tracking Asphalt Tack Coat shall not adhere to tires, tracks, or other parts of paving equipment or vehicles. The Non-Tracking Asphalt Tack Coat shall meet the relevant provisions of the Standard Specifications, including Materials Section M.04.01-5 where applicable, and supplemented as follows.

Materials: The emulsified asphalt used for the Non-Tracking Asphalt Tack Coat shall meet the following requirements:

Table 1: Asphalt Emulsion for Non-Tracking Asphalt Tack Coat

Property	Specification	Test Procedure
Viscosity, SFS, 77°F	20-100	AASHTO T 72
Sieve, %	0.3 maximum	AASHTO T 59
Asphalt Residue, %	50 minimum	AASHTO T 59
Oil Distillate, %	1.0 maximum	AASHTO T 59
Residue Penetration, at 77°F	10-40	AASHTO T 49
Original Dynamic Shear (G*/sin δ), kPa at 70°C (Base Asphalt)	1.0 minimum	AASHTO T 315
Solubility, %	97.5 minimum	AASHTO T 44

General:

i. The Non-Tracking Asphalt Tack Coat shall be undiluted and free of contaminants such as fuel oils and other solvents.
ii. The blending of Non-Tracking Asphalt Tack Coats from different suppliers at the mixing Plant is prohibited.

Basis of Approval:

i. The request for approval of the source of supply shall list the location where the material is manufactured, the handling and storage methods, and certifications in accordance with AASHTO R 77. Only suppliers that have an approved "Quality Control Plan for Non-Tracking Asphalt Tack Coat" formatted in accordance with AASHTO R 77 and that submit monthly split samples per grade to the Engineer may supply Non-Tracking Asphalt Tack Coat to Department projects.
ii. Each shipment of Non-Tracking Asphalt Tack Coat delivered to the Project site shall be accompanied with the corresponding Certified Test Report listing all properties shown in Table 1, weight per gallon at 77°F, recommended application temperature range, and a Materials Certificate in accordance with 1.06.07.

Project Site Sampling and Testing: The Contractor shall obtain two (2) 1-quart samples of the heated material for the Engineer. The sample shall be obtained while the material is within the

manufacturer's recommended application temperature range. The sample shall be delivered to the Division of Materials Testing central office within 7 days. Project site sampling frequency shall be in accordance with the Minimum Schedule for Acceptance Testing for emulsified asphalt.

Construction Methods:

Surface Preparation: Prior to the application of the Non-Tracking Asphalt Tack Coat, the Contractor shall ensure that the pavement surface is thoroughly dry and free from dust, standing water, or any other foreign material that would inhibit adhesion. The Contractor shall clean the surface by scraping, sweeping, and the use of compressed air and ensure this preparation process occurs shortly before application to prevent the return of debris on the pavement. The Contractor shall not apply tack coat if rain is expected within one hour after application.

Equipment: The Contractor shall provide a distributor truck capable of heating, circulating, and spraying the tack coat at the required application temperature range per the manufacturer's recommendations. The temperature of the tack coat shall not exceed 180°F and shall be circulated while heating. If the particle charge of the Non-Tracking Asphalt Tack Coat is different from the particle charge of the emulsion that was previously used, the tank shall be thoroughly cleaned prior to use.

The spray bar shall maintain a constant height above the pavement under variable load conditions. The distributor shall include a tachometer, pressure gauges, and an accurate volume measuring device or a calibrated tank. All applicator trucks shall have calibrations certified in accordance with ASTM D2995.

The Contractor shall submit delivery tickets at the end of each production day for all Non-Tracking Asphalt Tack Coat material used. The quantity and temperature of the material shall be recorded at the beginning and end of each production day from the distributor truck. Tack coat material shall not be removed from the distributor truck until the initial quantity and temperature measurements have been recorded. The tack coat supplier shall provide the weight per gallon of the material.

Tack Coat Application: The roadway temperature shall be a minimum of 40°F and rising during the application of the Non-Tracking Asphalt Tack Coat. The material shall not be applied if the existing surface is wet or frozen or it will not "break" within 30 minutes. Do not place any asphalt mixture until the tack coat has sufficiently cured. Prior to applying the tack coat, demonstrate competence in applying the tack coat to the satisfaction of the Engineer. The tack coat shall be heated in the distributor to within the recommended application temperature range provided by the manufacturer. Any material applied outside the manufacturer's recommended temperature range is subject to rejection.

The distributor spray bars shall be adjusted to uniformly coat the entire surface at the directed application rate. A hand hose attachment shall be used only on irregular areas and areas inaccessible to the spray bar and shall be coated uniformly and completely.

Tack coat shall be applied as directed by and in the presence of the Engineer to all exposed transverse and longitudinal edges of each course before mixture is placed against such surfaces. The tack coat shall be applied to contact surfaces of curbs, gutters, manholes, and vertical faces of existing pavements.

The Contractor shall protect bridge decks, curb reveals, handrails of structures, and all other appurtenances from tracking or splattering of tack coat material.

Full Production Application Rate: Full coverage of this material on the pavement surface is critical. If full coverage is not achieved, the material application rate shall be increased as required by the Engineer (see Table 2 below for in-place residual application rates) to ensure full coverage. The paving shall proceed only after the Non-Tracking Asphalt Tack Coat has cured (broken and set) to the satisfaction of the Engineer.

Table 2: Residual Application Rates for Non-Tracking Asphalt Tack Coat Emulsions

Non-Tracking Asphalt Tack Coat Uses	Minimum Residual (gal/s.y.)	Maximum Residual (gal/s.y.)
New AC Pavement to New AC Pavement or Thin Lift Leveling	0.04	0.06
New AC Pavement (≤ 20 % RAP) to Aged Existing Pavement or Milled Surface	0.05	0.08
New AC Pavement (> 25 % RAP) to Aged Existing Pavement or Milled Surface	0.06	0.10
New AC Pavement to PCC or Milled PCC Surface	0.04	0.08

Method of Measurement: The quantity of Non-Tracking Asphalt Tack Coat will be measured by the number of gallons furnished and applied on the Project and accepted by the Engineer. The application rate shall be established to meet the minimum residual asphalt application rate in Table 2.

The Engineer shall calculate the residual application rate of the in-place Non-Tracking Asphalt Tack Coat based on the applied emulsion quantity and the percent dilution at 77°F (i.e. 100 gallons of emulsion at 55% asphalt content applied on 900 s.y. therefore, the Residual Asphalt Application Rate = (0.55 x 100)/900 = 0.061 gallons/s.y.). Any amount of material more than 10% over the application rate specified, will not be included. Measured quantities in gallons of Non-Tracking Asphalt Tack Coat at 77°F can be determined using one of the following methods.

i. Measured by Weight: The number of gallons furnished will be determined by weighing the material on calibrated scales furnished by the Contractor. To convert weight to gallons, one of the following formulas will be used:
   Tack Coat (gallons at 77°F) = Measured Weight (pounds) / Weight per gallon at 77°F
ii. Measured by automated metering system on the delivery vehicle:
   Tack Coat (gallons at 77°F) = 0.976 x Measured Volume (gallons).

Basis of Payment: This work will be paid for at the Contract unit price per gallon for "Non-Tracking Asphalt Tack Coat," complete and accepted in place, which price shall include furnishing and applying materials, surface preparation, equipment, tools, labor and work incidental thereto.

Pay Item	Pay Unit
Non-Tracking Asphalt Tack Coat	gal.

ITEM #0406314A – 80 MIL PAVEMENT MARKING GROOVE 5" WIDE
ITEM #0406315A – 80 MIL PAVEMENT MARKING GROOVE 7" WIDE
ITEM #0406316A – 80 MIL PAVEMENT MARKING GROOVE 9" WIDE

Description:

Work under this item shall consist of grooving the pavement surface in continuous or regularly spaced skip lines for the placement of recessed pavement markings. Unless otherwise noted, the groove shall be 1 inch wider than the anticipated pavement marking. The groove for double-yellow centerline markings shall consist of two grooves, each 5 inches wide.

Groove Width: 5 inches wide for 4-inch markings
7 inches wide for 6-inch markings
9 inches wide for 8-inch markings

Groove Depth: 0.080 inches ± 0.010 inches

The groove shall not be installed continuously for intermittent (Dotted Lines and Broken Lane Lines) pavement markings, but only where markings are to be applied. The groove shall not be installed on metal bridge decks, on bridge joints, at drainage structures, at loop detector sawcut locations, or in other areas identified by the Engineer.

Construction Methods:

Equipment:

The grooving equipment shall be equipped with a free-floating, depth-controlled head which provides a consistent groove depth over irregular pavement surfaces. The grooving head shall only be equipped with diamond saw blades. Any ridges in the bottom of the groove shall have a maximum height of 0.015 inches. The grooving equipment shall be capable of installing a groove 6 inches away from any vertical or horizontal obstruction.

Installation: The pavement marking groove shall be installed in accordance with the current CTDOT pavement marking standard drawings.

The Contractor shall establish control points for measuring offsets and pre-marks along the entire distance of pavement being grooved. Prior to installation of the groove, the Contractor shall verify that the equipment is capable of installing the correct width and spacing of the groove. The control points, pre-marks, and equipment will be reviewed by the Engineer prior to commencement of the work.

The groove will be considered defective if any edge of the groove varies more than 0.25 inch in a 10-foot length, or if the alignment of the groove visibly deviates from the normal alignment of the road.

Final Cleaning: The Contractor shall immediately collect all debris and dust resulting from the grooving operation by vacuuming the pavement groove and adjacent pavement surface. Collected debris and any waste material shall be properly disposed of by the Contractor.

The work area shall be returned to a debris-free state prior to re-opening to traffic.

Repair of Unacceptable Groove:
The Contractor shall repair any defective groove(s) to the satisfaction of the Engineer. All work in conjunction with this repair shall be performed at no additional cost to the State.

Pavement Marking Requirements:
The Contractor is required to install permanent epoxy resin pavement markings in the grooves before the lane or roadway is opened to live traffic. If the permanent epoxy resin pavement markings cannot be installed before the lane or roadway is opened to live traffic, the Contractor will need to obtain approval from the Engineer to open the lane or roadway. Liquidated Damages based on Limitation of Operations restrictions will be enforced. If approved by the Engineer, the Contractor will be allowed to open the lane or roadway to live traffic and the Contractor will be required to install temporary hot-applied waterborne pavement markings without glass beads, at their own expense, within 24 hours of opening the lane or roadway. Temporary hot-applied waterborne pavement markings shall meet the requirements of Section 12.09, with the exception that glass beads shall not be applied. Within 5 calendar days after the installation of the groove, permanent epoxy resin pavement markings shall be applied in the groove over the temporary hot-applied waterborne pavement markings.

Groove Depth Gauge:
The Contractor shall supply the Engineer with two accurate, easily readable gauges with which to verify groove depth for the duration of the Project. The gauges shall be delivered at least one week prior to the anticipated beginning of grooving operations. Gauges shall be accompanied by the manufacturer's instructions for their use. The gauges will be returned to the Contractor at the conclusion of the Project.

Method of Measurement:
This work will be measured for payment by the number of linear feet of grooves installed in the pavement as ordered and accepted by the Engineer. There will be no deduction for spaces between Dotted Line and Broken Lane Line pavement markings.

Basis of Payment:
This work will be paid for at the Contract unit price per linear foot of "Pavement Marking Groove" installed in the pavement and accepted. This price shall include cleaning of the pavement, all materials, equipment, tools, depth gauges, and labor incidental thereto, and disposal of any waste material resulting from the grooving operation.

Pay Item	Pay Unit
80 Mil Pavement Marking Groove 5" Wide	l.f.
80 Mil Pavement Marking Groove 7" Wide	l.f.
80 Mil Pavement Marking Groove 9" Wide	l.f.

ITEM #0406999A – ASPHALT ADJUSTMENT COST

Description: The Asphalt Adjustment Cost will be based on the variance in price for the performance-graded binder component of the following:

I. Hot Mix Asphalt (HMA) and Polymer Modified Asphalt (PMA),
II. Ultra-Thin Bonded HMA (UTB-HMA) and Ultra-Thin Bonded PMA (UTB-PMA),
III. Thin Friction Wearing Course (TFWC),
IV. Binder Rich Intermediate Courses (BRIC) and Stone Matrix Asphalt (SMA), and
V. Asphalt Rubber Chip Seal (ARCS) treatments completed and accepted during the Contract.

The Asphalt Price is available on the Department of Transportation website at:
http://www.ct.gov/dot/asphaltadjustment

Construction Methods:

An asphalt adjustment will be applied only if all the following conditions are met per mixture:

I. For HMA, PMA, TFWC, BRIC, and SMA mixtures:
   a. The HMA, PMA, TFWC, BRIC, or SMA mixture for which the adjustment would be applied is listed as a Contract item with a pay unit of tons.
   b. ***The total quantity for all HMA, PMA, TFWC, BRIC, and SMA mixtures in the Contract or individual purchase order (Department of Administrative Service contract awards) exceeds 1000 tons or the Project duration is greater than 6 months.***
   c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than $5.00 per ton.

II. For UTB-HMA and UTB-PMA mixtures:
   a. The UTB-HMA or UTB-PMA mixture for which the adjustment would be applied is listed as a Contract item.
   b. ***The total quantity for the UTB-HMA or UTB-PMA mixture in the Contract exceeds:***
      i. 800 tons if the UTB-HMA or UTB-PMA item has a pay unit of tons,
      ii. 30,000 square yards if the UTB-HMA or UTB-PMA item has a pay unit of square yards, or
      iii. the Project duration is greater than 6 months.

      Note: The quantity of UTB-HMA or UTB-PMA measured in tons shall be determined from the material documentation requirements set forth in the UTB-HMA or UTB-PMA item specification.
   c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than $5.00 per ton.
   d. No Asphalt Adjustment Cost will be applied to the liquid emulsion that is specified as part of the UTB-HMA or UTB-PMA mixture system.

III. For Asphalt Rubber Chip Seal (ARCS) treatments:
   a. The ARCS treatment for which the adjustment would be applied is listed as a Contract item.

b. ***The total quantity for the ARCS treatment in the Contract exceeds 30,000 square yards or the Project duration is greater than 6 months.***

Note: The quantity of asphalt binder measured in tons used for the Asphalt Rubber Chip Seal treatment shall be determined from the material documentation requirements set forth in the ARCS item specification. The Asphalt Adjustment Cost will also be applied to the asphalt binder used to pre-coat the cover aggregate as part of the ARCS and will be considered as a portion of the total tons of binder for the treatment. The additional quantity of binder measured in tons will be determined based on a percentage of the cover aggregate weight per the requirements set forth in the ARCS item specification.

c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than $5.00 per ton.

Regardless of the binder used in all mixtures or treatments, the Asphalt Adjustment Cost will be based on PG 64-22.

The Connecticut Department of Transportation (CTDOT) will post on its website, the average per ton selling price (asphalt price) of the performance-graded binder. The average is based on the high and low selling price published in the most recent available issue of the **Asphalt Weekly Monitor®** furnished by Poten & Partners, Inc. under the "East Coast Market – New England, New Haven, Connecticut area," F.O.B. manufacturer's terminal.

The selling price furnished from the Asphalt Weekly Monitor ® is based on United States dollars per standard ton (US$/ST).

Method of Measurement:

A. **Formula A: HMA x [PG%/100] x [(*Period Price - Base Price*)] = $ ____**

Where:

- **HMA:**
  1. For HMA, PMA, UTB-HMA, UTB-PMA, TFWC, BRIC, and SMA mixtures with pay units of tons:
     The quantity in tons of accepted HMA, PMA, UTB-HMA, UTB-PMA, TFWC, BRIC, or SMA mixture measured and accepted for payment.
  2. For UTB-HMA and UTB-PMA mixtures with pay units of square yards:
     The quantity of UTB-HMA and UTB-PMA mixture delivered, placed, and accepted for payment, calculated in tons as reported according to the Material Documentation provision of the UTB-HMA and UTB-PMA specification.
- ***Asphalt Base Price***: The asphalt price posted on the CTDOT website 28 days before the actual bid opening posted.
- ***Asphalt Period Price***: The asphalt price posted on the CTDOT website during the period the HMA, PMA, UTB-HMA, UTB-PMA, TFWC, BRIC, or SMA mixture was placed.
- **PG%** (Performance-Graded Binder percentage):
  1. For HMA or PMA mixes:
     - PG% = 4.5 for HMA S1 and PMA S1

- PG% = 5.0 for HMA S0.5 and PMA S0.5
- PG% = 6.0 for HMA S0.375, PMA S0.375, HMA S0.25 and PMA S0.25

2. For UTB-HMA, UTB-PMA, TFWC, BRIC, and SMA mixes:
   - PG% = Design % PGB (Performance Graded Binder) in the approved job mix formula, expressed as a percentage to the tenth place (e.g. 5.1%)

B. For Asphalt Rubber Chip Seal:

Formula B: Total Tons x [(*Period Price - Base Price*)] = $ ____

Where:

- ***Total tons:*** The tons of asphalt binder for each lot of asphalt rubber produced, as reported according to the Testing and Certification article of the specification for Asphalt Rubber Chip Seal, and the tonnage of binder used to coat the cover aggregate calculated as follows: 0.6% x tons of cover aggregate.
- ***Asphalt Base Price***: The asphalt price posted on the CTDOT website 28 days before the actual bid opening posted.
- ***Asphalt Period Price***: The asphalt price posted on the CTDOT website during the period the Asphalt Rubber Chip Seal mixture was placed.

The Asphalt Adjustment Cost shall not be considered as a changed condition in the Contract as result of this provision since all bidders are notified before submission of bids.

Basis of Payment: The "Asphalt Adjustment Cost" will be calculated using the applicable formula(s) indicated above. A payment will be made for an increase in costs. A deduction from monies due the Contractor will be made for a decrease in costs.

The sum of money shown on the Estimate and in the itemized proposal as "Estimated Cost" for this item will be considered the bid price although the adjustment will be made as described above. The estimated cost figure is not to be altered in any manner by the bidder. If the bidder should alter the amount shown, the altered figure will be disregarded and the original cost figure will be used to determine the amount of the bid for the Contract.

Pay Item	Pay Unit
Asphalt Adjustment Cost	est.

ITEM #0520036A - ASPHALTIC PLUG EXPANSION JOINT SYSTEM

Description: Work under this item shall consist of furnishing and installing an asphaltic plug expansion joint system (APJ) in conformance with ASTM D6297, as shown on the plans, and as specified herein.

Work under this item shall also consist of the removal and disposal of bituminous concrete, membrane waterproofing, existing joint components and sealing elements, cleaning and sealing median barrier joints, parapet joints, and sidewalk joints.

Work under this item excludes the removal of Portland cement concrete headers.

Materials: The APJ component materials shall conform to ASTM D6297 and the following:

Aggregate: The aggregate shall meet the following requirements:

a) Loss on abrasion: The material shall show a loss on abrasion of not more than 25% using AASHTO Method T96.
b) Soundness: The material shall not have a loss of more than 10% at the end of five cycles when tested with a magnesium sulfate solution for soundness using AASHTO Method T 104.
c) Gradation: The aggregate shall meet the requirements of Table A below:
d) Dust: aggregate shall not exceed 0.5% of dust passing the #200 sieve when tested in accordance with AASHTO T-11.

Table A

Square Mesh Sieves	1" (25.0 mm)	¾" (19.0 mm)	½" (12.5 mm)	⅜" (9.5 mm)	No. 4 (4.75 mm)
% passing	100	90 - 100	20 - 55	0 - 15	0 - 5

A sample of the aggregate shall be submitted to the Department with a Certified Test Report in accordance with Article 1.06.07 for each 20 tons of loose material or its equivalent number of bags delivered to the job site. The Certified Test report must include a gradation analysis resulting from a physical test performed on the actual material that accompanies the report.

Anti-Tacking Material: This material shall be a fine graded granular material with 100% passing the $^{3}/_{16}$" sieve and no more than 5% passing the #200 when tested in accordance with AASHTO T-27.

Backer Rod: All backer rods shall satisfy the requirements of ASTM D5249, Type 1.

Bridging Plate: The bridging plates shall be steel conforming to the requirements of ASTM A36 and be a minimum ¼" thick and 8" wide. For joint openings in excess of 3" the minimum plate dimensions shall be ⅜" thick by 12" wide. Individual sections of plate shall not exceed

4’ in length. Steel locating pins for securing the plates shall be size 16d minimum, hot-dip galvanized, and spaced no more than 12” apart.

Concrete Leveling Material: Shall be a cementitious-based material that conforms to ASTM C928 Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repair, for R3 performance requirements in Table 1 and achieve the following:

a. Final set in 45 Minutes
b. 2500 psi compressive strength in 24 hours
c. 5000 psi compressive strength in 7 days

Parapet Sealant: The sealant used in parapet joint openings shall be a single component non-sag silicone sealant that conforms to the requirements of ASTM D5893.

Sidewalk Sealant: The sealant used in sidewalk joint openings shall be a rapid cure, self-leveling, cold applied, two-component silicone sealant. The silicone sealant shall conform to the requirements listed in Table B:

Table B

Properties - As Supplied	**Test Method**	**Requirement**
Extrusion Rate	ASTM C1183	200-600 grams/min
Leveling	ASTM C639	Self-Leveling
Specific Gravity	ASTM D792	1.20 to 1.40
Properties - Mixed	**Test Method**	**Requirement**
Tack Free Time	ASTM C679	60 min. max.
Joint Elongation – Adhesion to concrete	ASTM D5329 [1,2,3]	600% min
Joint Modulus @ 100% elongation	ASTM D5329 [1,2,3]	15 psi max
Cure Evaluation	ASTM D5893	Pass @ 5 hours

1. Specimens cured at 77±3^{0}F and 50±5% relative humidity for 7 days
2. Specimens size: ½”wide by ½”thick by 2” long
3. Tensile Adhesion test only

The date of manufacture shall be provided with each lot. No sealant shall be used beyond its maximum shelf-life date.

The two–part silicone sealants shown in Table C are known to have met the specified requirements:

Table C

Product	Supplier
Dow Corning 902RCS	Dow Corning Corporation 2200 W Salzburg Road Auburn, Michigan 48611
Wabo SiliconeSeal	BASF/Watson Bowman Acme Corporation 95 Pineview Drive Amherst, New York 14228

Other two-component silicone joint sealants expressly manufactured for use with concrete that conform to the aforementioned ASTM requirements will be considered for use provided they are submitted in advance for approval to the Engineer. Other joint sealants will be considered for use only if a complete product description is submitted, as well as documentation describing at least five installations of the product. These documented installations must demonstrate that the product has performed successfully for at least three years on similar bridge expansion joint applications.

A Materials Certificate and Certified Test Report for the asphaltic binder shall be submitted by the Contractor in accordance with the requirements of Article 1.06.07 certifying that the asphaltic binder satisfies the requirements of the most current version of ASTM D6297.

A Materials Certificate for all other components of the APJ, leveling material, backer rod and sealant used in sealing parapet and sidewalk joint openings, shall be submitted by the Contractor in accordance with the requirements of Article 1.06.07

Construction Methods: The APJ shall be installed at the locations shown on the plans and in stages in accordance with the traffic requirements in the special provisions "Maintenance and Protection of Traffic" and "Prosecution and Progress".

At least 30 days prior to start of the work, the Contractor shall submit to the Engineer for approval a detailed Quality Control Plan for the installation of the APJ. The submittal shall include:

a) A list of all manufactured materials and their properties to be incorporated in the joint system, including, but not limited to the asphaltic binder, anti-tack material, backer rod, sealant, leveling material, as well as the aggregate's source.
b) A detailed step by step installation procedure and a list of the specific equipment to be used for the installation. The Quality Control Plan must fully comply with the specifications and address all anticipated field conditions, including periods of inclement weather.

The APJ shall not be installed when bituminous concrete overlay or joint cutout is wet. The APJ shall only be installed when the bridge superstructure surface temperature is within the limits specified in Table D and when the ambient air temperature is within the range of 45^0F to 95^0F. The bridge superstructure surface temperature range is determined using the thermal movement

range provided on the contract plans for the proposed APJ deck installation location and the selected APJ product.

Table D

Installation Restrictions	
Designed Deck Joint Thermal Movement Range[2]	**Bridge Superstructure Surface Temperature[1]**
0" to 1"	45° F to 95° F
1-1/8"	45° F to 90° F
1-1/4"	45° F to 80° F
1-3/8"	45° F to 70° F
1-1/2"	45° F to 65° F

1. *The superstructure surface temperature shall be determined from the average of three or more surface temperature readings taken at different locations on the interior girder surfaces by the Contractor as directed by the Engineer. Temperature measurements of the superstructure shall be taken by the contractor with a calibrated hand held digital infrared laser-sighted thermometer on the surfaces of an interior steel girder, or interior concrete girder protected from direct sunlight. The infrared thermometer to be supplied by the Contractor for this purpose shall meet certification requirements of EN61326-1, EN61010-1, and EN60825-1 maintained by the European Committee for Electrotechnical Standardization (CENELEC). The thermometer shall have a minimum distance-to-spot ratio of 50:1 and shall have adjustable emissivity control. The thermometer shall have a minimum accuracy value of ±1% of reading or ±2°F, whichever is greater. The thermometer shall be used in strict accordance with the manufacturer's written directions. An additional infrared thermometer satisfying the same standards to be used in this application shall also be provided to the Engineer for quality assurance purposes.*
2. *Linear interpolation may be used to determine an allowable surface temperature range for thermal movement ranges in between values shown in the table, as approved by the Engineer.*

Prior to installing the APJ, the Contractor shall determine the exact location of the deck joint beneath the bituminous concrete overly.

The APJ shall be installed symmetrically about the deck joint opening to the dimensions shown on the plans or as directed by the Engineer; not to exceed 24 inches measured perpendicular to the deck joint. The proposed saw cut lines shall be marked on the bituminous concrete overlay by the Contractor and approved by the Engineer, prior to saw-cutting. The saw-cuts delineating the edges of the APJ shall extend full depth of the bituminous concrete overlay.

The existing bituminous concrete overlay, waterproofing membrane and/or existing expansion joint material, within the saw cut limits shall be removed and disposed of by the Contractor to create the joint cutout.

Concrete surfaces that will support the bridging plates shall be smooth and form a plane along and across the deck joint. Rough or damaged concrete surfaces shall be repaired with a leveling compound meeting the requirements of this specification. Deteriorated concrete areas within the joint limits shall be repaired as directed by the Engineer: such repairs, when deemed necessary by the Engineer, shall be compensated for under the applicable concrete deck repair items in the Contract. The existing and repaired concrete surfaces shall provide continuous uniform support for the bridging plate and prevent the plate from rocking and deflecting.

Prior to the installation of the backer rod, all horizontal and vertical surfaces of the joint cutout shall be abrasive blast cleaned using an oil-free, compressed air supply. The entire cutout shall then be cleared of all loose blast media, dust, debris and moisture using an oil-free, hot air lance capable of producing an air stream at 3,000ºF with a velocity of 3,000 feet per second.

A single backer rod, with a diameter at least 25% greater than the existing joint opening at the time of installation, shall be installed at an inch below the bridging plate in the existing deck joint opening between the concrete edges.

Asphaltic binder shall be heated to a temperature within the manufacturer's recommended application temperature range which shall be provided in the Quality Control Plan. During application, the temperature of the binder shall be maintained within this range. In no case shall the temperature of the binder go below 350º F nor exceed the manufacturer's recommended maximum heating temperature.

Asphaltic binder shall then be poured into the joint opening until it completely fills the gap above the backer rod. A thin layer of binder shall next be applied to the all horizontal and vertical surfaces of the joint cutout.

Bridging plates shall be abrasive blast-cleaned on-site prior to installation and then placed over the deck joint opening in the joint cutout. The plates shall be centered over the joint opening and secured with locating pins along its centerline. The plates shall be placed end to end, without overlap, such that the gap between plates does not exceed ¼". The plates shall extend to the gutter line and be cut to match the joint's skew angle, where concrete support exists on both sides of the joint. Within APJ installation limits, where concrete support does not exist at both sides of the joint opening (such as where a bridge deck end abuts a bituminous concrete roadway shoulder), bridging plates shall not be installed. Installed bridging plates shall not rock or deflect in any way.

After installation of bridging plates, a thin layer of asphaltic binder shall be applied to all exposed surfaces of the plates.

The remainder of the joint cutout shall then be filled with a mixture of hot asphaltic binder and aggregate prepared in accordance with the submitted Quality Control Plan and the following requirements:

- The aggregate shall be heated in a vented, rotating drum mixer by the use of a hot-compressed air lance to a temperature of between 370° F. to 380° F. This drum mixer shall be dedicated solely for the heating and, if necessary, supplemental cleaning of the aggregate. Venting of the gas and loose dust particles shall be accomplished through ¼" drilled holes spaced no more than 3" on center in any direction along the entire outside surface of the drum
- Once the aggregate has been heated, it shall then be transferred to a secondary drum mixer where it shall be fully coated with asphaltic binder. A minimum of two gallons of binder per 100lbs of stone is required.
- The temperature of the aggregate and binder shall be monitored by the contractor with a calibrated digital infrared thermometer.
- The coated aggregate shall be loosely placed in the joint cutout in lifts not to exceed 2 inches.
- Each lift shall be leveled, compacted and then flooded with hot asphaltic binder to the level of the aggregate to fill all voids in the coated aggregate layer. The surface of each lift shall be flooded until only the tips of the aggregate protrude out of the surface.
- The final lift shall be placed such that no stones shall project above the level of the adjacent overlay surface following compaction of the coated aggregate.
- Following installation of the final lift, sufficient time and material shall be provided to allow all voids in the mixture to fill. This step may be repeated as needed.
- The joint shall then be top-dressed by heating the entire area with a hot-compressed air lance and applying binder. The final joint surface must be smooth with no protruding stones and be absent of voids.
- Once top-dressed, the joint shall have an anti-tack material spread evenly over the entire surface to prevent tracking.

The Contractor shall be responsible for removing all binder material that leaks through the joint and is deposited on any bridge component, including underside of decks, headers, beams, diaphragms, bearings, abutments and piers.

Traffic shall not be permitted over the joint until it has cooled to 130º F when measured with a digital infrared thermometer. Use of water to cool the completed joint is permitted.

Sidewalk, parapet, and/or curb joint openings

Before placement of any sealing materials in parapets, curbs, or sidewalks, the joints shall be thoroughly cleaned of all scale, loose concrete, dirt, dust, or other foreign matter by abrasive blast cleaning. Residual dust and moisture shall then be removed by blasting with oil free compressed

air using a hot air lance. Projections of concrete into the joint space shall also be removed. The backer rod shall be installed in the joint as shown on the plans. The joint shall be clean and dry before the joint sealant is applied. Under no circumstances is the binder material to be used as a substitute for the joint sealant.

Whenever abrasive blast cleaning is performed under this specification, the Contractor shall take adequate measures to ensure that the abrasive blast cleaning will not cause damage to adjacent traffic or other facilities.

The joint sealant shall be prepared and placed in accordance with the manufacturer's instructions and with the equipment prescribed by the manufacturer. Extreme care shall be taken to ensure that the sealant is placed in accordance with the manufacturer's recommended thickness requirements.

The joint sealant shall be tooled, if required, in accordance with the manufacturer's instructions.

Primer, if required, shall be supplied by the sealant manufacturer and applied in accordance with the manufacturer's instructions.

When the sealing operations are completed, the joints shall be effectively sealed against infiltration of water. Any sealant which does not effectively seal against water shall be removed and replaced at the Contractor's expense.

Any installed joint that exhibits evidence of failure, as determined by the Engineer, such as debonding, cracking, rutting, or shoving of the APJ mixture shall be removed and replaced full-width and full–depth to a length determined by the Engineer at no additional cost to the State.

Method of Measurement: This work will be measured for payment by the number of cubic feet of "Asphaltic Plug Expansion Joint System" installed and accepted within approved horizontal limits. No additional measurement will be made for furnishing and installing backer rod and joint sealant in the parapets, concrete medians, curbs and/or sidewalks.

Basis of Payment: This work will be paid for at the contract unit price per cubic foot for "Asphaltic Plug Expansion Joint System," complete in place, which price shall include the saw-cutting, removal and disposal of bituminous concrete, membrane waterproofing, existing joint components and sealing elements, the furnishing and placement of the leveling compound, cleaning of the joint surfaces, furnishing and installing bridging plates, the furnishing and installing of the asphaltic plug joint mixture, the cost of furnishing and installing joint sealant in the parapets, concrete medians, curbs and sidewalks, and all other materials, equipment including, but not limited to, portable lighting, tools, and labor incidental thereto. No additional payment shall be made for the 12" wide bridging plates that are required for deck joint openings with widths in excess of 3". **If directed by the Engineer, additional deck repairs will be addressed and paid for under the applicable concrete deck repair items in the Contract.**

Pay Item	Unit
Asphaltic Plug Expansion Joint System	c.f.

ITEM #0707009A - MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)

Description: Work under this item consists of furnishing and installing a seamless elastomeric waterproofing membrane system applied to a concrete or steel surface as shown on the plans, in accordance with this specification and as directed by the Engineer. Work shall also include conditioning of the surface to be coated and all quality-control testing noted herein.

The completed membrane system shall be comprised of a primer coat, two layers of the membrane coating (minimum total thickness of 80 mil and maximum total thickness not to exceed 120 mil), an additional 40 mil membrane layer with aggregate broadcast into the material while still wet, reinforcing material at deck panel joints and two applications of asphalt emulsion (tack coat) at a rate of 0.05-0.07 gal/s.y. each, allowing the first application to break prior to applying the second.

Materials: The Contractor shall select a waterproofing membrane system from the Department's current Qualified Product List (QPL) for Spray-Applied Membrane Waterproofing System. All materials incorporated in the works shall meet the Manufacturer's specification for the chosen system. The Engineer will reject any system that is not on the QPL.

Reinforcing material shall be as recommended by the manufacturer.

Materials Certificate: The Contractor shall submit to the Engineer a Materials Certificate for the primer, membrane and aggregate in accordance with the requirements of Article 1.06.07.

Construction Methods: At least 30 days prior to installation of the membrane system, the Contractor shall submit to the Engineer a Site-specific Installation Plan that includes the manufacturer's recommended procedure for preparing the deck surface, pre-treatment or preparing at cracks and gaps, treatment at curbs, vertical surfaces or discontinuities, applying the primer and membrane, placing of aggregated coat and all Quality Control (QC Plan) testing operations to be performed during the membrane system's installation. Procedures shall also include recommended repairs of system non-compliant issues identified during application. The system shall be applied to the prepared area(s) as defined or shown in the plans, strictly in accordance with the Installation Plan.

A technical representative, in the direct employ of the manufacturer, shall be present on-Site immediately prior to and during application of the membrane. The representative shall inspect and approve the surface prior to priming, and provide guidance on the handling, mixing and addition of components and observe application of the primer and membrane. The technical representative shall perform all required QC testing and remain on the Project site until the membrane has fully cured.
All QC testing, including verbal direction or observations at the time of installation, shall be recorded and submitted to the Engineer for inclusion in the Project records. The QC testing data

shall be received by the Department's project personnel prior to any paving over the finished membrane, or within 24 hours following completion of any staged portion of the work.

1. Applicator Approval: The Contractor's membrane Applicator shall be fully trained and licensed by the membrane manufacturer and shall have successfully completed at least three spray membrane projects in the past five years. The Contractor shall furnish references from those projects, including names of contact persons and the names, addresses and phone numbers of persons who supervised the projects. This information shall be submitted to the Engineer prior to the submittal of the Installation Plan. The Engineer shall have sole authority to determine the adequacy and compliance of the submitted information. Inadequate proof of ability to perform the work will be grounds to reject proposed applicators.

2. Job Conditions:

   (a) Environmental Requirements: Air and substrate temperatures shall be between 32°F and 104°F and the substrate shall be above the dew point. Outside of this range, the Manufacturer shall be consulted.

   The Applicator shall be provided with adequate disposal facilities for nonhazardous waste generated during installation of the membrane system. The applicator shall follow safety instructions regarding respirators and safety equipment.

   (b) Safety Requirements: All open flames and spark producing equipment shall be removed from the work area prior to commencement of application.

   "No Smoking" signs shall be visibly posted at the Site during application of the membrane waterproofing.

   Personnel not involved in membrane application shall be kept out of the work area.

3. Delivery, Storage and Handling:

   (a) Packaging and Shipping: All components of the membrane system shall be delivered to the Site in the Manufacturer's packaging, clearly identified with the product type and batch number.

   (b) Storage and Protection: The Applicator shall be provided with a storage area for all components. The area shall be cool, dry and out of direct sunlight and shall be in accordance with the Manufacturer's recommendations and relevant health and safety regulations.

   Copies of Material Safety Data Sheets (MSDS) for all components shall be kept on Site for review by the Engineer or other personnel.

(c) Shelf Life - Membrane Components: Packaging of all membrane components shall include a shelf life date sealed by the Manufacturer. No membrane components whose shelf life has expired shall be used.

4. Surface Preparation:

(a) Protection: The Applicator shall be responsible for the protection of equipment and adjacent areas from over spray or other contamination. Parapets and bridge joints shall be masked prior to application of the materials.

(b) Surface Preparation: Sharp peaks and discontinuities shall be ground smooth. Any peak greater than ¼ inch above the surface profile of the prepared substrate shall be ground to the surrounding elevation. Any valley or minor surface deterioration of ½ inch or greater shall also be repaired. The extent and location of surface patches require the approval of the Engineer before the membrane system is applied.

Surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae, growth, laitance, friable matter, dirt, bituminous products, and previous waterproofing materials. If required, degreasing shall be done by detergent washing in accordance with ASTM D4258.

The surface shall be abrasively cleaned, in accordance with ASTM D4259, to provide a sound substrate free from laitance.

Voids, honeycombed areas, and blow holes on vertical surfaces shall be repaired as indicated in the Installation Plan.

All steel components to receive membrane waterproofing shall be blast cleaned in accordance with SSPC SP6 and shall be coated with the membrane waterproofing system within the same work shift.

5. Inspection and Testing: Prior to priming of the surface, the Engineer, Applicator and Manufacturer's technical representative shall inspect and approve the prepared substrate.

(a) Random tests for deck moisture content shall be conducted on the substrate by the Contractor at the Site using a "Sovereign Portable Electronic Moisture Master Meter," a "Tramex CMEXpertII Concrete Moisture Meter" or approved equal. The minimum frequency shall be one test per 1000 s.f. but not less than three tests per shift for each contiguous section worked on during that shift. Additional tests may be required if atmospheric conditions change and retesting of the substrate moisture content is warranted.

The membrane system shall not be installed on substrate with a moisture content greater than 6%, or at a moisture content above the amount recommended by the system's Manufacturer, whichever is less.

(b) Random tests for adequate tensile bond strength shall be conducted by the Contractor on the substrate using an adhesion tester in accordance with the requirements of ASTM D4541. The minimum frequency shall be one test per 5,000 s.f. but not less than three adhesion tests per shift for each contiguous section worked on during that shift. The locations of the pull tests shall be at least a distance from each other equal to or greater than 1/3 of the width or length (whichever is greater) of the area being worked in that section. The location of the pull tests shall be located in accordance with ASTM D3665 or a statistically-based procedure of stratified random sampling approved by the Engineer.

Adequate surface preparation will be indicated by tensile bond strengths of primer to the substrate greater than or equal to 150 psi or failure in a concrete surface and greater than or equal to 300 psi for steel surfaces.

If the tensile bond strength is lower than the minimum specified, the Engineer may request additional substrate preparation. Any primer not adequately applied shall be removed and new primer applied at the Contractor's expense, as directed by Engineer.

(c) Grouted joints, materials that the membrane cannot bond to, and cracks or discontinuities that cannot be bridged over by the membrane material shall be covered by a reinforcing material recommended by the membrane system's Manufacturer prior to application of membrane layers as approved or directed by the Engineer.

6. Application:

(a) The System shall be applied in the following distinct steps as follows:
   1) Substrate preparation
   2) Priming
   3) Reinforcing material application over grouted joints, cracks, etc.
   4) Membrane application (minimum 2 layers)
   5) Membrane with aggregate

(b) Immediately prior to the application of any components of the System, the surface shall be adequately dry (see Section 5(a) of this specification) and any remaining dust or loose particles shall be removed using clean, dry, oil-free compressed air or industrial vacuum.

(c) Where the area to be treated is bound by a vertical surface (e.g. curb or wall), the membrane system shall be continued up the vertical, if shown on the plans or directed by the Engineer.

(d) The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results, in accordance with the Manufacturer's recommendations or as approved or directed by the Engineer.

(e) A neat finish with well defined boundaries and straight edges shall be provided by the Applicator.

(f) Primer: The primer shall consist of one coat with an overall coverage rate of 125 to 175 s.f./gal unless otherwise recommended in the Manufacturer's written instructions.

All components shall be measured and mixed in accordance with the Manufacturer's recommendations.

The primer shall be spray applied using a single component spray system approved for use by the Manufacturer. If required by Site conditions and allowed by the manufacturer brush, squeegee or roller application will be allowed.

The primer shall be allowed to cure tack-free for a minimum of 30 minutes or as required by the Manufacturer's instructions, whichever time is greater, prior to application of the first lift of waterproofing membrane.

Porous concrete (brick) may require a second coat of primer should the first coat be absorbed.

(g) Membrane and Reinforcing Material: Application of the membrane on the primed surface shall not commence until the primer is cured as described in Section 6(f) of this specification and the adhesion pull tests are completed in accordance with Section 5(b) of this specification.

The waterproofing membrane shall consist of two coats for a total dry film thickness of a minimum 80 mils but not to exceed 120 mils. Adjacent coats shall be of a contrasting color to aid in Quality Assurance and inspection. Any reinforcing material shall be applied immediately before the first coat of membrane in accordance with the Manufacturer's recommendations.

The membrane shall be comprised of Components A and B and a hardener powder which is to be added to Component B in accordance with the Manufacturer's recommendations.

The substrate shall be coated in a methodical manner.

Thickness checks: For each layer, checks for wet film thickness using a gauge pin or standard comb-type thickness gauge shall be carried out once every 100 s.f. Where rapid set time of the membrane does not allow for wet film thickness checks, ultrasonic testing (steel surfaces only), calibrated point-penetrating (destructive) testing, in-situ sampling (cutout of small sections for measuring thicknesses), or other methods approved by the Engineer shall be employed for determination of dry film

thickness. The measured thickness of each and every individual test of the membrane shall be greater than or equal to the required thickness.

Bond Strength: Random tests for adequate tensile bond strength shall be conducted on the membrane in accordance with the requirements of ASTM D4541. The minimum test frequency shall be one test per 5,000 s.f. but no less than three adhesion tests per bridge. Adequate adhesion will be indicated by tensile bond strengths of the membrane to the substrate of greater than or equal to 150 psi or failure in a concrete surface, and greater than or equal to 300 psi for steel surfaces.

Repair the membrane system following destructive testing and correct any deficiencies in the membrane system or substrate noted during QC testing in accordance with the Manufacturer's recommendations to the satisfaction of the Engineer at no additional cost to the State.

(h) Repairs: If an area is left untreated or the membrane becomes damaged, a patch repair shall be carried out to restore the integrity of the system. The damaged areas shall be cut back to sound materials and wiped with solvent (e.g. acetone) up to a width of at least four inches on the periphery, removing any contaminants unless otherwise recommended by the Manufacturer. The substrate shall be primed as necessary, followed by the membrane layers. A continuous layer shall be obtained over the substrate with a four-inch overlap onto existing membrane.

Where the membrane is to be joined to existing cured material, the new application shall overlap the existing by at least four inches. Cleaning and surface preparation on areas to be lapped shall be as recommended in the Manufacturer's written instructions.

(i) Aggregated Finish:
1) Apply an additional 40 mil thick layer of the membrane material immediately followed by an aggregate coating, before the membrane cures, at a rate to fully cover the coated area to a point where no membrane material is visible. The membrane and aggregate shall be fully integrated after the aggregate has been applied and the membrane cured.
2) Localized areas not fully coated shall be touched-up with additional membrane and aggregate as needed.
3) Using motorized mechanical sweepers or a vacuum sweeper apparatus, remove all loose and excess aggregate from the surface to the satisfaction of the Engineer and dispose of properly after application prior to allowing traffic onto finished surface or application of tack coat. Any areas not fully coated after sweeping shall be touched up with additional membrane and aggregate as needed.

7. Final Review: The Engineer and the Applicator shall jointly review the area(s) over which the completed system has been installed. Any irregularities or other criteria that do not meet the requirements of the Engineer shall be addressed at this time.

Method of Measurement: This item shall be measured by the number of square yards of waterproofed surface completed and accepted.

Basis of Payment: This item will be paid for at the Contract unit price per square yard of "Membrane Waterproofing (Cold Liquid Elastomeric)," complete and accepted in place, which price shall include all surface preparation, furnishing, storing and applying the system, technical representative and Quality Control testing, and any necessary repairs and remediation work as well as all materials, equipment, tools, labor incidental to this work.

Pay Item	Pay Unit
Membrane Waterproofing (Cold Liquid Elastomeric)	s.y.

ITEM #0969062A – CONSTRUCTION FIELD OFFICE, MEDIUM

Description: Under the item included in the bid document, adequate weatherproof office quarters with related furnishings, materials, equipment, and other services, shall be provided by the Contractor for the duration of the work, and if necessary, for a close-out period determined by the Engineer. The office, furnishings, materials, equipment, and services are for the exclusive use of CTDOT forces and others who may be engaged to augment CTDOT forces with relation to the Contract. The office quarters shall be located convenient to the work site and installed in accordance with Article 1.08.02. This office shall be separated from any office occupied by the Contractor. Ownership and liability of the office quarters shall remain with the Contractor.

Furnishings/Materials/Supplies/Equipment: All furnishings, materials, equipment, and supplies shall be in like new condition for the purpose intended and require approval of the Engineer.

Office Requirements: The Contractor shall furnish the office quarters and equipment as described below:

Description \ Office Size	Small	Med.	Large	Extra Large
Minimum Sq. Ft. of floor space with a minimum ceiling height of 7 ft.	400	720	1400	2800
Minimum number of exterior entrances.	2	2	2	2
Minimum number of parking spaces.	7	7	10	15

Office Layout: The office shall have a minimum square footage as indicated in the table above and shall be partitioned as shown on the building floor plan as provided by the Engineer.

Unless otherwise approved by the Engineer, office space shall be partitioned into segregated work areas for each user as follows:

- Each work area (or cubicle) shall be a minimum of 8 feet × 8 feet, with full height walls or tall cubicle partitions (minimum 6 feet high), placed to provide a minimum of 6 feet walking space around and between each user work area (for social distancing).
- Only one user (workstation/desk) per work area.
- Desks, tables, and other work surfaces shall be arranged so that adjacent users do not face each other.

Tie-downs and Skirting: Modular offices shall be tied-down and fully skirted to ground level.

Lavatory Facilities: For field offices sizes Small and Medium the Contractor shall furnish a toilet facility at a location convenient to the field office for use by CTDOT personnel and such assistants as they may engage; and for field offices sizes Large and Extra Large the Contractor shall furnish two (2) separate lavatories with toilet (men and women), in separately enclosed rooms that are properly ventilated and comply with applicable sanitary codes. Each lavatory shall have hot and

cold running water and flush-type toilets. For all facilities the Contractor shall supply lavatory and sanitary supplies as required.

Windows and Entrances: The windows shall be of a type that will open and close conveniently, shall be sufficient in number and size to provide adequate light and ventilation, and shall be fitted with locking devices, blinds, and screens. The entrances shall be secure, screened, and fitted with a lock for which four keys shall be furnished. All keys to the construction field office shall be furnished to the CTDOT and will be kept in their possession while State personnel are using the office. Any access to the entrance ways shall meet applicable building codes, with appropriate handrails. Stairways shall be ADA/ABA compliant and have non-skid tread surfaces. An ADA/ABA compliant ramp with non-skid surface shall be provided with the Extra-Large field office.

Lighting: The Contractor shall equip the office interior with electric lighting that provides a minimum illumination level of 100 foot-candles at desk level height, and electric outlets for each desk and drafting table. The Contractor shall also provide exterior lighting that provides a minimum illumination level of 2 foot-candles throughout the parking area and for a minimum distance of 10 ft. on each side of the field office.

Parking Facility: The Contractor shall provide a parking area, adjacent to the field office, of sufficient size to accommodate the number of vehicles indicated in the table above. If a paved parking area is not readily available, the Contractor shall construct a parking area and driveway consisting of a minimum of 6 inches of processed aggregate base graded to drain. The base material will be extended to the office entrance.

Field Office Security: Physical Barrier Devices - This shall consist of physical means to prevent entry, such as: 1) All windows shall be barred, or security screens installed; 2) All field office doors shall be equipped with dead bolt locks and regular day operated door locks; and 3) Other devices as directed by the Engineer to suit existing conditions.

Electric Service: The field office shall be equipped with an electric service panel, wiring, outlets, etc., to serve the electrical requirements of the field office, including lighting, general outlets, computer outlets, electronics, etc., and meet the following minimum specifications:

A. 120/240 volt, 1 phase, 3 wire
B. Ampacity necessary to serve all equipment. Service shall be a minimum 100 amp dedicated to the construction field office.
C. The electrical panel shall include a main circuit breaker and branch circuit breakers of the size and quantity required.
D. Additional 120-volt, single phase, 20-amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed at each desk and personal computer table (workstation) location.
E. Additional 120-volt, single phase, 20-amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed, for use by the Telephone Company.

F. Additional 120-volt circuits and duplex outlets as required meeting National Electric Code requirements.
G. One exterior (outside) wall mounted GFI receptacle, duplex, isolated ground, 120-volt, straight blade.
H. After work is complete and prior to energizing, the State's CTDOT electrical inspector, must be contacted at 860-594-2240. (Do Not Call Local Town Officials)
I. Prior to field office removal, the CTDOT Office of Information Systems (CTDOT OIS) must be notified to deactivate the communications equipment.

Heating, Ventilation and Air Conditioning (HVAC): The field office shall be equipped with sufficient and properly operating, heating, air conditioning, and ventilation equipment to maintain a temperature range of 68º-80º Fahrenheit within the field office. The Contractor shall increase ventilation rates and increase the percentage of outdoor air that circulates into the system where possible.

Telephone Service: The Contractor shall provide telephone service with unlimited nation-wide calling plan. For a Small, Medium, and Large field office this shall consist of the installation of one (1) telephone line for phone/voice service. For an Extra-Large field office this shall consist of three (3) telephone lines for phone/voice service. The Contractor shall pay all charges.

Data Communications Facility Wiring: Contractor shall install a Category 6 568B patch panel in a central wiring location and Cat 6 cable from the patch panel to each PC station, Smart Board location, Multifunction Laser Printer/Copier/Scanner, terminating in a (Category 6 568B) wall or surface mount data jack. The central wiring location shall also house either the data circuit with appropriate power requirements or a Category 6 cable run to the location of the installed data circuit. The central wiring location will be determined by the CTDOT OIS staff in coordination with the designated field office personnel for CTDOT employee staffed field offices as soon as the facility is in place and requested by the Contractor. The central wiring location will be determined with designated CTDOT District staff as soon as the facility is in place and requested by the Contractor.

The Contractor shall provide LAN switches and patch panels as needed to provide the data speeds and connections specified. The contractor shall run a CAT 6 LAN cable from each workstation and networked device (including Multi-Function Laser Printer/Copier/Scanner, printers, and docking stations) to the contractor supplied patch panel/LAN switch area leaving an additional 10 feet of cable length on each side with terminated RJ45 connectors. The Contractor shall install patch panel and LAN switch in data circuit area. Each run / jack shall be clearly labeled with an identifying Jack Number.

The Contractor shall supply cables to connect all devices to the Contractor supplied internet router, switches, and RJ45 connections as needed. These cables shall be separate from the LAN cables and data Jacks detailed above for the CTDOT network.

The number of networked devices anticipated shall be at least equal to the number of personal computer tables, Multi-Function Laser Printer/Copier/Scanner, contractor supplied devices, and smartboards listed below.

In addition to the contractor supplied internet service, the additional installation of a data communication circuit between the field office and the CTDOT OIS in Newington (will only apply to projects staffed with CTDOT employees) will be coordinated between the CTDOT District staff, CTDOT OIS staff and the local utility company once the Contractor supplies the field office phone numbers and anticipated installation date. The Contractor shall provide the field office telephone number(s) to the CTDOT Project Engineer within 10 calendar days after the signing of the Contract as required by Article 1.08.02. This is required to facilitate data line and computer installations.

Additional Equipment, Facilities and Services: The Contractor shall provide at the field Office at least the following to the satisfaction of the Engineer:

Furnishing Description	Office Size			
	Small	Med.	Large	Extra Large
	Quantity			
Office desk (2.5 ft. x 5 ft.) with drawers, locks, and matching desk chair that have pneumatic seat height adjustment and dual wheel casters on the base.	1	3	5	8
Standard secretarial type desk and matching desk chair that has pneumatic seat height adjustment and dual wheel casters on the base.	-	-	-	1
Personal computer tables (4 ft. x 2.5 ft.).	2	3	5	8
Drafting type tables (3 ft. x 6 ft.) and supported by wall brackets and legs; and matching drafter's stool that have pneumatic seat height adjustment, seat back and dual wheel casters on the base.	1	1	1	2
Conference table, 3 ft. x 12 ft.	-	-	-	1
Table – 3 ft. x 6 ft.	-	-	-	1
Office Chairs.	2	4	8	20
Mail slot bin – legal size.	-	-	1	1
Non-fire-resistant cabinet.	-	-	2	4
Fire resistant cabinet (legal size/4 drawer), locking.	1	1	2	3
Storage racks to hold 3 ft. x 5 ft. display charts.	-	-	1	2
Vertical plan racks for 2 sets of 2 ft. x 3 ft. plans for each rack.	1	1	2	2
Double door supply cabinet with 4 shelves and a lock – 6 ft. x 4 ft.	-	-	1	2
Case of cardboard banker boxes (Min 10 boxes/case)	1	1	2	3

Furnishing Description	Office Size			
	Small	Med.	Large	Extra Large
	Quantity			
Open bookcase – 3 shelves – 3 ft. long.	-	-	2	2
White Dry-Erase Board, 36” x 48” min. with markers and eraser.	1	1	1	1
Interior partitions – 6 ft. x 6 ft., soundproof type, portable and freestanding.	-	-	6	6
Coat rack with 20 coat capacity.	-	-	-	1
Wastebaskets - 30 gal., including plastic waste bags.	1	1	1	2
Wastebaskets - 5 gal., including plastic waste bags.	1	3	6	10
Electric wall clock.	-	-	-	2
Electronic Level	1	1	1	2
Telephone.	1	2	3	-
Full size stapler 20 (sheet capacity, with staples)	1	2	5	8
Desktop tape dispensers (with Tape)	1	2	5	8
8 Outlet Power Strip with Surge Protection	3	4	6	9
Rain Gauge	1	1	1	1
Business telephone system for three lines with ten handsets, intercom capability, and one speaker phone for conference table.	-	-	-	1
Mini refrigerator - 3.2 c.f. min.	1	1	1	1
Hot and cold-water dispensing unit. Disposable cups and bottled water shall be supplied by the Contractor for the duration of the project.	1	1	1	1
Microwave, 1.2 c.f., 1000W min.	1	1	1	1
Fire extinguishers - provide and install type and *number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire.	*	*	*	*
Electric pencil sharpeners.	1	2	2	2
Multi-Function Laser Printer/Copier/Scanner combination unit, network capable, as specified below under Field Office Technology	1	1	1	1
Field Office Wi-Fi Connection as specified below under Field Office Technology	1	1	1	1
Wi-Fi Printer as specified below under Field Office Technology	1	1	1	1
Digital Camera as specified below under Field Office Technology	1	1	3	3
Teleconferencing Equipment as specified below under Field Office Technology	-	-	-	-
Infrared Thermometer, including annual third-party certified calibration, case, and cleaning wipes.	1	1	1	2
Concrete Curing Box as specified below under Concrete Testing Equipment.	1	1	1	1

Concrete Air Meter and accessories as specified below under Concrete Testing Equipment as specified below. Contractor shall provide third party calibration on a quarterly basis.	1	1	1	1
Concrete Slump Cone and accessories as specified below under Concrete Testing Equipment.	1	1	1	1
First Aid Kit	1	1	1	1
T-handle concrete cylinder mold splitter as specified below under Concrete Testing Equipment	1	1	1	1
Smart Phones as specified under Computer Related Hardware and Software.	-	-	-	-

The furnishings and equipment required herein shall remain the property of the Contractor. Any supplies required to maintain or operate the above listed equipment or furnishings shall be provided by the Contractor for the duration of the project.

Field Office Technology:

The Contractor shall supply the Field Office Wi-Fi Connection, Wi-Fi Printer, Digital Camera(s), Smart Phones, Multifunction Laser Printer/Copier/Scanner, Conference Room Teleconferencing Equipment, as well as associated hardware and software, meeting the requirements of this specification as well as the latest minimum specifications posted, as of the project advertising date, at CTDOTs web site https://portal.ct.gov/dot/office-of-construction/construction-field-office-technology

Within 10 calendar days after the signing of the Contract but before ordering/purchasing the Wi-Fi Printer (separate from the Multifunction Laser Printer/Copier/Scanner), Field Office Wi-Fi, Digital Camera(s), Smart Phones, Multifunction Laser Printer/Copier/Scanner, Teleconferencing Equipment, as well as associated hardware, the Contractor must submit a copy of their proposed order(s) with catalog cuts and specifications to the Administering CTDOT District for review and approval. The Wi-Fi Printer, Wi-Fi Router, digital cameras, smart phones, and Teleconferencing Equipment will be reviewed by CTDOT District personnel. The Multifunction Laser Printer/Copier/Scanner will be reviewed by the CTDOT OIS. The Contractor shall not purchase the hardware, software, or services until the Administering CTDOT District informs them that the proposed equipment, software, and services are approved. The Contractor will be solely responsible for the costs of any hardware, software, or services purchased without approval.

The Contractor and/or their internet service provider shall be responsible for the installation and setup of the field office Wi-Fi/internet service, Wi-Fi printer, and the configuration of the wireless router as directed by the CTDOT. Installation will be coordinated with CTDOT District and Project personnel.

After the approval of the hardware and software, the Contractor shall contact the designated representatives of the CTDOT administering District, a minimum of 2 working days in advance of the proposed delivery or installation of the Field Office Wi-Fi Connection, Wi-Fi Printer, Digital Camera(s), Smart Phones, Multifunction Laser Printer/Copier/Scanner, Teleconferencing Equipment, as well as associated hardware, software, supplies, and support documentation.

The Contractor shall provide all supplies, paper, maintenance, service, and repairs (including labor and parts) for the Wi-Fi printers, copiers, field office Wi-Fi/internet service, and other equipment and facilities required by this specification for the duration of the Contract. All repairs must be performed with-in 48 hours. If the repairs require more than 48 hours, then an equal or better replacement must be provided.

Once the Contract has been completed, the hardware and software will remain the property of the Contractor.

First Aid Kit: The Contractor shall supply a first aid kit adequate for the number of personnel expected based on the size of the field office specified and shall keep the first aid kit stocked for the duration that the field office is in service.

Rain Gauge: The Contractor shall supply install and maintain a rain gauge for the duration of the project, meeting these minimum requirements. The rain gauge shall be installed on the top of a post such that the opening of the rain gauge is above the top of the post an adequate distance to avoid splashing of rainwater from the top of the post into the rain gauge. The location of the rain gauge and post shall be approved by the Engineer. The rain gauge shall be made of a durable material and have graduations of 0.1 inches or less with a minimum total column height of 5 inches. If the rain gauge is damaged the Contractor shall replace it prior to the next forecasted storm event at no additional cost.

Electronic Level: The Contractor shall supply and maintain in working order, for the duration of the Contract, the number of electronic levels, identified in the Additional Equipment, Facilities and Services table of this specification. The electronic levels shall meet the following requirements:

A. 48-inch length, box beam type
B. IP65 water and dust proof
C. 0.1-degree accuracy
D. Backlit display
E. Carrying case included
F. New or like new condition

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for Sampling Materials for Test, the Contractor shall provide the following equipment.

A. Concrete Cylinder Curing Box – meeting the requirements of Section 6.12 of the Standard Specifications.
B. Air Meter – The air meter provided shall be in good working order and meet the requirements of AASHTO T 152.

C. Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T119, Standard Test Method for Slump of Hydraulic-Cement Concrete.
D. T-handle concrete cylinder mold splitter.

All testing equipment will remain the property of the Contractor at the completion of the project.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the minimum amount of five thousand dollars ($5,000) to insure all State-owned data equipment and supplies used in the office against all losses. The Contractor shall be named insured on that policy, and the CTDOT shall be an additional named insured on the policy. These losses shall include, but not be limited to theft, fire, and physical damage. The CTDOT will be responsible for all maintenance costs of CTDOT owned computer hardware. In the event of loss, the Contractor shall provide replacement equipment in accordance with current CTDOT equipment specifications, within seven days of notice of the loss. If the Contractor is unable to provide the required replacement equipment within seven days, the CTDOT may provide replacement equipment and deduct the cost of the equipment from monies due or which may become due the Contractor under the Contract or under any other contract. The Contractor's financial liability under this paragraph shall be limited to the amount of the insurance coverage required by this paragraph. If the cost of equipment replacement required by this paragraph should exceed the required amount of the insurance coverage, the CTDOT will reimburse the Contractor for replacement costs exceeding the amount of the required coverage.

Maintenance: During the occupancy by the CTDOT, the Contractor shall maintain all facilities and furnishings provided under the above requirements, and shall maintain and keep the office quarters clean through the use of professional cleaning including vacuuming carpet, washing & waxing floors, cleaning restrooms, removal of trash, general cleaning, etc.

Exterior areas shall be mowed and clean of debris. A trash receptacle (dumpster) with weekly pickup (trash removal) shall be provided. Snow removal, sanding and salting of all parking, walkway, and entrance ways areas shall be accomplished during a storm if on a workday during work hours, immediately after a storm and prior to the start of a workday. If snow removal, salting and sanding are not completed by the specified time, the State will provide the service and all costs incurred will be deducted from the next payment estimate.

Method of Measurement: The furnishing and maintenance of the construction field office will be measured for payment by the number of calendar months that the office is in place and in operation, rounded up to the nearest month.

There will not be any price adjustment due to any change in the minimum computer related hardware and software requirements.

Basis of Payment: The furnishing and maintenance of the Construction Field Office will be paid for at the Contract unit price per month for "Construction Field Office, (Medium)," which price shall include all material, equipment, labor, service contracts, licenses, software, repair or

replacement of hardware and software, related supplies, utility services, parking area, external illumination, trash removal, snow and ice removal, and work incidental thereto, as well as any other costs to provide requirements specified herein.

Pay Item	Pay Unit
Construction Field Office, (Medium)	Month

ITEM #0969030A - PROJECT COORDINATOR (MINIMUM BID)

Description: Under this item the Contractor shall furnish software, the services of an administrative employee as the Project Coordinator for this Project, and other deliverables, to coordinate and expedite all phases of the work required for the Project and to ensure that the construction schedule required by Article 1.05.08 (as modified herein) is submitted and maintained.

The minimum lump sum bid for this item shall be equal to 0.5% of the Contractor's total bid. Failure of the Contractor to bid at least the minimum amount will result in the Department adjusting the Contractor's bid to include the minimum bid amount for this item.

The Project Coordinator's resume shall be submitted for acceptance, in writing, within seven (7) calendar days of the award of the Contract, and shall not be changed without prior written notice to the Department.

The resume must demonstrate that the Project Coordinator is experienced and versatile in the preparation, interpretation and modification of Critical Path Method (CPM) construction schedules. This must include successful completion of at least three (3) construction projects of similar complexity, where they served in a lead scheduling capacity. If the Contractor does not have an employee that has these skills, they shall engage the services of a Consultant, subject to the approval of the Engineer, for the scheduling work required. If a Consultant is engaged, they shall be present at the first meeting, along with the Project Contractor, prepared to discuss, in detail, the methods and techniques they propose to use. Thereafter, the Project Coordinator or the Consultant responsible for updating the CPM Schedule shall attend all meetings between the Contractor, its Subcontractors, and any other meetings, which will affect the CPM schedule.

When the Contract is administered under Section 1.20 (Facilities Construction), the following requirement shall also apply:

> The Project Coordinator's resume shall demonstrate, in addition to the above noted requirements, a minimum of eight (8) years' experience related to commercial/industrial building construction as a Project Coordinator, and shall have knowledge of all trades involved in the construction, including civil/site work, environmental work, concrete work, masonry work, steel work, carpentry, electrical work, and mechanical work. Other combinations of experience and education totaling ten (10) years in commercial building construction will be considered subject to the approval of the Engineer.

Computer Software: The Contractor shall provide the following software with all the required maintenance throughout the Contract. The Engineer reserves the right to expand or relax this specification to adapt to the software limitations and availability.

> Software: The Contractor shall use latest version of the Oracle Primavera P6 scheduling software to produce the required schedules. The Contractor shall provide the Engineer

with a licensed copy registered in the Department's name of the same version of the Oracle Primavera P6 scheduling software, and maintain Oracle Primavera customer support services offered by the software producer for the duration of the Contract.

The Contractor shall deliver to the Engineer all supporting documentation for the software including any instruction manuals. The Contractor shall coordinate delivery of the software through the Department Project Engineer.

Construction Methods: The Project Coordinator shall attend all meetings between the Contractor and the Department, the Contractor and its Subcontractors, and any other meetings that affect the progress of the work. The Project Coordinator shall be knowledgeable of the status of all parts of the work throughout the duration of the Contract.

Submittals: In Article 1.05.08 (Schedules and Reports) references to Bar Chart schedules shall be replaced with the following:

Critical Path Method (CPM) Scheduling:

Proper relationship between all major activities shall be indicated. Node numbers shall be coded such that the major activities shown on the Critical Path Schedule shall be easily referenced to the Detailed Project Schedule when it is developed. Break down the work covered under each Special Provision, or Division and Section of Article 1.20 of the Standard Specifications, into individual activities required and logically group related activities together within the CPM.

All documents which require review by the Department shall be clearly identified within the schedule. The Department and any outside agency shall be allocated a minimum number of calendar days for review in accordance with Article 1.20-1.05.02. If Article 1.20 does not apply, the Department shall be allocated a minimum of thirty (30) calendar days (exclusive of weekends and holidays) for review and comment on each submittal. Any submittals requiring review by an outside Agency (DEEP, Coast Guard, Army Corps of Engineers, etc.) shall be allocated a minimum of sixty (60) calendar days. The Department shall not be held responsible for any delay associated with any substitution or other revisions proposed by the Contractor that are subject to review.

The schedule shall indicate the logic of the work for the major elements and components of work under the Contract, such as the planned mobilization of plant and equipment, sequences of operations, procurement of materials and equipment, duration of activities, type of relationship, lag time (if any), and such other information necessary to present a clear statement of the intended activities.

The schedule shall consist of a network technique of planning, scheduling and control, shall be a clear statement of the logical sequence of work to be done, and shall be prepared in such a manner that the Contractor's work sequence shall be optimized between early start and late start restraints. The Contractor shall use the same criteria in a consistent manner throughout the term of the Contract. If, at any time, the Contractor alters logic, original durations, and descriptions, adds activities or activity codes or in any way modifies the Baseline Schedule, they must notify the

Engineer of the change, in writing, presenting in detail the reasons for the change. The Engineer reserves the right to accept or reject any such change.

The critical path of the Project must be identified on the CPM schedule. The critical path is the longest-duration path through the network. The significance of the critical path is that the activities on it cannot be delayed without delaying the Project. Because of its potential impact on the entire schedule, critical path analysis is an important aspect of Project planning.

The critical path can be identified by determining the following four parameters for each activity:

1. ES - Earliest Start Time: the earliest time at which the activity can start given that its precedent activities must be completed first.
2. EF - Earliest Finish Time: equal to the earliest start time for the activity plus the time required to complete the activity.
3. LF - Latest Finish Time: the latest time at which the activity can be completed without delaying the Project.
4. LS - Latest Start Time: equal to the latest finish time minus the time required to complete the activity.

The *float time* for an activity is the time between its earliest and latest start time, or between its earliest and latest finish time. Float is the amount of time that an activity can be delayed past its earliest start or earliest finish without delaying the Project. Delays to activities on the critical path through the project network in which no float exists, that is where ES=LS and EF=LF, will delay the Project.

Float available in the schedule, at any time shall not be considered for the exclusive use of either the Department or the Contractor. During the Contract, any float generated due to the efficiencies of either party is not for the sole use of the party generating the float; rather it is a shared commodity to be reasonably used by either party. Project float will be a resource available to both the Department and the Contractor.

Each CPM Schedule submittal shall be in the form of an activity on node diagram (precedence diagramming method) and shall include at a minimum,

- Early Start computer sort
- Total Float computer sort
- Activity Number computer sort
- Schedule Diagram in Time Scaled Logic format
- Claim digger report or approved equal
- Other reports as required by the Engineer
- Digital backup data which includes all Project schedule files in the program format

If the diagrams are requested to be printed out by the Department, they shall be on 22 inch x 34 inch sheets. Additional, more detailed diagrams for important aspects or phases of the work may be required as requested by the Department.

Activity I.D. numbers shall be keyed to the item numbers assigned in the Contract. The first three or four digits of the activity I.D. number shall be identical to the first three or four digits of the pay item number in the Contract. The remaining digits may be used to provide unique, orderly and sequential I.D. numbers for each activity.

Activity codes shall be listed in a schedule dictionary provided by the Project Coordinator and maintained as directed by the Engineer. At a minimum, activity codes for responsibility (prime, subcontractor by name), location of work (bridge #, span #, sta. #, site, building, type of work, etc.) and stage or phase number should be included.

1. Recovery Schedules: If, in the opinion of the Engineer, the updated schedule indicates that the Project has fallen behind, or that a revision in sequence of operations may be necessary for any other reason, absent a justifiable time extension, the Contractor shall immediately institute all necessary steps to improve the Project's progress and shall submit such revised network diagrams, tabulations and operational plans, as may be deemed necessary by the Engineer, to demonstrate the manner in which an acceptable rate of progress will be regained.

2. Should the Contractor not demonstrate an ability to regain an acceptable rate of progress, the Engineer will require the schedule to be resource loaded in the next monthly update. No additional compensation will be allowed for resource loading the schedule.

3. As-Built Schedule: Within thirty (30) days of completion of the Project, including all corrective work, the Contractor shall submit an "As-Built Schedule" showing the actual progress of work. The Contractor shall submit three prints of this final CPM Schedule and digital project backup data which includes all Project schedule files for the Engineer's exclusive use.

4. Daily Construction Reports: For Contracts administered under Section 1.20 (Facilities Construction), the Project Coordinator shall assist the Engineer in the preparation of a daily construction report, by ensuring that each of the Contractor's employees and subcontractors working on the Project Site on a given day signs the Engineer's sign-in sheet for that day. They shall keep and provide to the Engineer their daily list of employees and subcontractors who worked on the Project Site each day.

Method of Measurement: Within ten (10) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for review and comment a breakdown of its lump sum bid price for this item detailing:

1. The development cost to prepare the Baseline Schedule in accordance with Article 1.05.08 or 1.20-1.05.08 as modified by these specifications. Development costs shall not exceed

25% of the total cost of the Project Coordinator item and shall include costs to furnish and install all specified hardware.

2. The cost to provide the services of the Project Coordinator, including costs to prepare and submit the Monthly Updates and Narrative, to furnish and submit any Recovery Schedules, to furnish and submit Two Week Look Ahead Schedules and to maintain and provide supplies for the specified hardware. A per month cost will be derived by taking this cost divided by the number of Contract months remaining from the date of acceptance of the Baseline Schedule.

3. The cost of submission and certification of the As-Built Schedule in accordance with these specifications. The submission and certification costs shall be no less than 2% of the total cost of the item.

4. Substantiation showing that the costs submitted are reasonable based on the Contractor's lump sum bid.

Upon acceptance of the payment schedule of values by the Engineer, payments for work performed will be made as follows:

1. Upon acceptance of the "Baseline" Schedule by the Engineer, the lump sum development cost will be certified for payment.

2. Upon receipt of each monthly narrative and update Schedule (the first being an update of the approved Baseline Schedule noted above), the per month cost for the services of the Project Coordinator will be certified for payment.

3. Upon acceptance of the As-Built Schedule by the Engineer, the lump sum submission and certification cost will be certified for payment.

Basis of Payment: This item will be paid for at the Contract lump sum price for "Project Coordinator" complete, which price shall include the preparation and submission of all schedules, narratives, updates, reports and submittals, including an electronic copy of the schedule unprotected.

The lump sum price will be certified for payment as described in "Method of Measurement" subject to the following conditions:

1. Any month where the monthly update of the CPM schedule is submitted late, as specified in Article 1.05.08, without authorization from the Engineer, will result in the following actions:

    a. The monthly payment for the Project Coordinator item will be deferred to the next monthly payment estimate. If any monthly submittal is more than thirty (30)

calendar days late, there will be no monthly payment for the services of the Project Coordinator.

b. The greater of 5% of the monthly payment estimate or $25,000 will be retained from the monthly payment estimate until such time as the Contractor submits all required reports.

c. If, in the Engineer's judgment, the Contractor is not in compliance with this specification, the Engineer may withhold all Contract payments.

2. In the event the Contract time extends beyond the original completion date by more than thirty (30) calendar days, and a time extension is granted, the Department may require additional CPM schedule updates which will be paid for at the per month cost for the services of the Project Coordinator.

3. If the Contractor is not in compliance with this specification or has failed to submit a monthly update, or a Recovery Schedule for any portion of the work, the Engineer will withhold all Contract payments until the schedule is submitted to and accepted by the Engineer.

Pay Item	Pay Unit
Project Coordinator	l.s.

ITEM #0969054A – CONTRACTOR QUALITY CONTROL PROGRAM LEVEL 1

Description: The Contractor shall establish, maintain, and implement a written Project-specific Quality Control (QC) Program tailored to the complexity and scope of the work. This Program shall detail the programmatic documentation of the Contractor's processes for delivering the level of construction quality required by the Contract.

The written QC Program shall provide a comprehensive description of the planning, monitoring and reporting program the Contractor shall implement to ensure and document the quality of the work as it progresses.

The QC Program shall address, as a minimum, the following elements: Organization; Design Control; Procurement Control; Control of Subcontractors, Fabricators and Suppliers; Inspection; Special Process Control; Non-Conformance Resolution; Records; and Reporting.

The QC Program shall identify and list critical and routine work categories, which shall be used to differentiate the level of reporting, inspection and attention throughout the process.

The QC Program shall include a method to identify and resolve any deviations from the Contract while maintaining the Project schedule. The QC Program shall include a method to prevent recurring deviations once identified and resolved.

The Contractor shall modify the QC Program as needed to meet the requirements of this specification. The QC Program shall be recognized as a dynamic document, subject to revisions and amendments, as required, in response to actual Site conditions, work methods, and to address deviations encountered and corrected throughout the Project.

The Contractor shall furnish the services of a dedicated (sole responsibility), full-time, on-Site Quality Control Manager (QCM) for the Project. The QCM shall report directly to upper management and shall have the authority to issue stop work orders.

When the Contractor's schedule dictates simultaneous work operations, the Contractor is responsible for supplementing the QCM with additional QC personnel (independent of trade staff) to meet the requirements of this specification.

The additional Contractor Quality Control requirements described herein shall be used in conjunction with the Department's Standard Specifications. The QC Program is neither intended to relieve the Contractor from its responsibility under the Contract, nor to replace the external inspections of the work carried out by the Engineer.

The minimum lump sum bid for this item shall be **$100,000**. Failure of the Contractor to bid at least the minimum amount will result in the Department adjusting the Contractor's bid to the minimum bid amount for this item.

Construction Methods:

Submittals

(1) QCM: Within thirty (30) days of Contract award, the Contractor shall submit, in writing, the name of their proposed QCM with a resume of their qualifications, submitted in accordance with the requirements listed below, for concurrence by the Department. The QCM shall not be changed without prior written notification to the Department.

The submittal shall outline the credentials of the proposed QCM, who shall be an individual with demonstrated construction experience. This shall include at least 7 years of experience in any combination of the following areas:

- Field inspection experience
- Construction experience relevant to the type of work and the scope of the Project
- Previous experience as a Quality Control professional

The submittal shall also list any certifications or training in quality control principles (NETTCP Quality Assurance Technologist or approved equal) of the proposed QCM and two (2) letters of recommendation from previous clients.

(2) QC Program: Within forty-five (45) days of Contract award, the Contractor, with direct input from the QCM, shall prepare and submit to the Department, for review and approval, a written QC Program, including the Elements listed below, and in accordance with all requirements of this specification.

Sample forms and reports intended to be used to assure compliance with this specification shall be included in the initial submittal of the QC Program. Sample forms and reports shall include:

- Sample document control tracking form
- Sample design control tracking form (for Contractor design-build items)
- Sample Shop Drawing/Working Drawing review
- Sample material receiving inspection report
- Sample inspection forms for critical work categories
- Sample special process control forms
- Sample non-conformance report
- Sample daily and monthly reports

The Contractor's QCM, Project Manager and a representative of their upper management shall sign the final QC Program submission and any revisions or amendments thereto. Any revisions or amendments made to the QC Program shall be submitted in writing to the Engineer for acceptance.

Subcontractors, fabricators and suppliers involved in critical work categories, as defined in the QC Program, shall have their own work-item specific QC Plan which shall be included as an addendum to the Contractor's QC Program, and shall comply with all conditions of this item.

(3) Additional QC Personnel: When additional QC personnel are required due to simultaneous work operations, the Contractor shall provide resume(s) of qualifications of the proposed personnel at least thirty (30) days in advance of the work. All additional QC personnel utilized for inspecting, sampling, and testing of materials shall be certified by NETTCP (or another entity acceptable to the Department) in the appropriate designation for the work or materials being inspected, sampled, or tested. These individual(s) shall also have demonstrated construction experience of at least 5 years in any combination of the following areas:

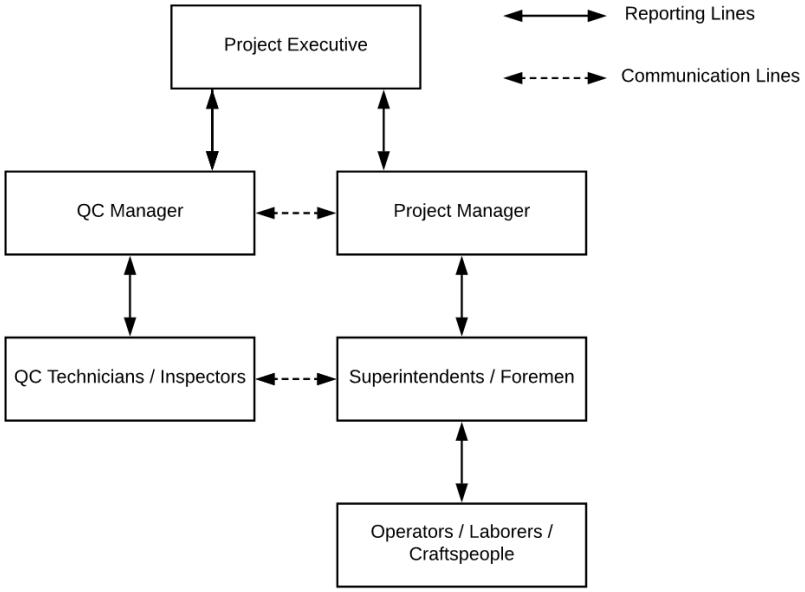
- Field inspection experience
- Construction experience relevant to the type of work and the scope of the Project
- Previous experience as a Quality Control professional

(4) Laboratories: All laboratories performing QC testing of Project Produced Materials shall be qualified through either the AASHTO Accreditation Program (AAP) or the NETTCP Laboratory Qualification Program. The Contractor shall provide laboratory proof of qualification at least thirty (30) days in advance of the work.

(5) Reports: The Contractor shall be required to produce and submit to the Engineer daily and monthly inspection reports as described in the Reporting Element of this specification.

Elements of the Contractor Quality Control Program:

1. Organization: This Element shall describe the Contractor's organization, including reporting relationships within and external to the Contractor's organization. The name of the QCM shall be clearly stated and this individual shall be responsible to upper management and have the authority to stop work. An organizational chart shall be included to graphically depict the Contractor's organizational structure and major reporting lines and relationships. The organizational chart shall clearly show the hierarchy between the QCM, upper management and additional QC personnel; and a narrative shall follow which shall define the roles, duties and responsibilities of each person in the implementation of the QC Program and in the resolution of QC issues. This Element shall also include the resumes of all QC personnel.



2. Design Control: This Element shall describe how the Contractor and the QCM control any design process (i.e. Working and Shop Drawings) for which it is responsible. This shall include the selection of design input data, checking for correctness, completeness, compatibility and format, and reviewing and approving design output documents prior to submission to the Department. This Element shall provide guidance as to how the QCM or other personnel shall indicate that documents have been reviewed by the Contractor prior to submission, and that Department comments have been adequately addressed prior to any required resubmissions.

3. Procurement Control: This Element shall describe the methods used by the Contractor and the QCM to assure that all materials and specialized equipment provided for the work are as specified. Included shall be guidelines for documenting that purchase documents have been reviewed to assure that correct details have been ordered, including specification, grade, type, color, Buy America or other aspects as required by the Contract.

This Element shall describe receiving inspection activities to be performed, and documentation required to confirm that the correct material or equipment has been delivered. A list of items requiring Materials Certificates and/or Certified Test Reports shall be developed by the Contractor and included in this Element. The Contractor shall prepare a "Material Receiving Inspection Report" which shall include records of inspections performed and reviews of material test reports or other documentation required by the Contract. It shall also include copies of Materials Certificates and/or Certified Test Reports for all these items.

As a minimum, receiving inspections shall be performed on the following materials:

- Materials requiring a Materials Certificate or Certified Test Report
- Source-Controlled Materials (not inspected at the manufacturing plant)
- Job-Controlled Materials (other than concrete, bituminous and soils)

Following a receiving inspection, a copy of the "Material Receiving Inspection Report," along with associated documents, shall be submitted to the Engineer.

4. Control of Subcontractors, Fabricators and Suppliers: Subcontractors, fabricators and suppliers involved in critical work categories, as defined in 5(a) herein, shall develop their own QC Plan to be added as an addendum to the Contractor's QC Program, which shall comply with all conditions of this item. The Contractor shall be responsible for reporting on QC activities performed by or for subcontractors, fabricators and suppliers.

It is the Contractor's responsibility to notify all subcontractors, fabricators, and suppliers of the requirements of the Contract. This Element shall describe the methods used by the Contractor and the QCM to assure that all the applicable requirements of the Contract are passed on to the subcontractors, fabricators and suppliers. This Element shall include the methods used by the Contractor and the QCM to monitor and control the quality of the work performed by subcontractors, fabricators and suppliers, and to obtain the required quality records.

This Element shall also describe how the Contractor will ensure that:

- The Engineer receives advance notice of:
  - The source of supply
  - The location of fabrication, including component parts
  - The schedule of fabrication, including the date of beginning of fabrication and the date the material is to be delivered to the Project
- Material fabricated specifically for the Project will be inspected and approved prior to being shipped or incorporated into the work
- Properly documented mill test reports are furnished by suppliers
- Subcontractors are approved prior to performing any work for or on the Project

5. Inspection: This Element shall describe how the Contractor and the QCM will assure that the specified quality of materials and workmanship will be achieved. The Contractor's QC Program is not related to any inspection carried out by the Engineer. Inspection will include the identification and tracking of the quality characteristics (metrics) used to verify that the level of quality of materials and workmanship conforms to the requirements of the Contract.

The QC Program shall identify the reporting requirements for each item based on its work category, and these reporting requirements will be approved by the Engineer. The work categories will be identified as **critical** or **routine**.

(a) Critical Work Categories: For this Project, critical work categories shall include, but are not limited to the following:

- Construction Surveying

- Maintenance & Protection of Traffic
- Subbase and Base Material
- Hot Mix Asphalt

The QCM shall be familiar with all aspects of work related to critical work categories and no work shall be performed on these categories without the prior knowledge of the QCM. The QC Program shall define specific means and methods that shall be employed to minimize, identify, resolve and prevent recurrence of deviations from the Contract in regards to materials or workmanship for each of the critical work categories listed.

The QC Program shall identify hold points in the critical work categories beyond which work operations cannot proceed until the QCM and the Engineer have inspected the work in place and releases the hold.

When simultaneous critical work categories are required by the Contractor's schedule, additional QC personnel shall be required.

This Element shall describe the system(s) used to assure that all materials and workmanship for critical work categories are in conformance with the Contract, including:

- visual inspection of the work, including frequency and hold points
- materials to be tested
- tests to be conducted
- frequency of testing
- locations of sampling
- checks
- intermittent or continuous inspections
- inspections of completed work
- or a combination of above methods

Quality control reporting forms shall be developed to document the work performed by the QCM and QC personnel, on each of these critical work categories. The forms shall be signed by Contractor supervisory field personnel, the QCM and QC personnel (if applicable), to document conformance of the work being performed. All work performed by the QCM and QC personnel on these critical work categories shall be documented and included in the QCM's daily and monthly reports.

(b) Routine Work Categories: All other work categories not covered by 6(a) will be defined as routine work categories and the general provisions of this specification shall apply.

6. Special Process Control: This Element shall describe the measures to be used to assure that any special processes (such as, welding, high-strength bolting, nondestructive examination, critical coatings, surveys, and control of critical tolerances) shall be controlled by procedures that are described in and comply with the Contractor's approved QC Program. The recording of results shall properly document that processes are in conformance with the Contract. In addition, this Element shall describe the methods used to verify, document and track any pre-qualification of the processes, personnel and equipment where required by the Contract.

7. Non-Conformance Resolution: This Element shall describe the protocol(s) for correcting any material or workmanship found not to be in compliance with the Contract, the reporting requirements for documenting any non-compliance, subsequent corrective measures and issue resolution.

(a) Contractor-Issued Non-Conformance Reports: This Element shall outline the Contractor's use of self-issued non-conformance reports to document actions taken to identify, resolve and prevent recurring deviations. The non-conformance reports shall include signatures of the responsible persons for each process of the corrective action taken. Upon resolution of a non-conformance issue, the QC Program shall be revised to identify preventive measures that shall be taken to prevent similar deviations. Contractor supervisory field personnel involved in the work shall be informed of any changes implemented to avoid recurrence of deviations.

(b) Engineer-Issued Non-Compliance Notices (NCN): Non-compliance notices (NCNs) issued by the Engineer shall also be an indication of non-conformance and shall be addressed according to 1.05.11 and resolved to the satisfaction of the Engineer. Upon resolution, the QC Program shall be revised to identify preventive measures that shall be taken to prevent similar deviations. Contractor supervisory field personnel involved in the work shall be informed of any changes implemented to avoid recurrence of deviations.

8. Records: This Element shall describe how various records generated by the Contractor are originated, maintained, received, filed, protected and authenticated. Quality Control records required for submittal to the Engineer shall be described. This Element shall outline the Contractor's procedure for retaining records for a period of 3 years after acceptance of the Contract.

9. Reporting: QC Inspection Reports: The Contractor shall be required to produce and submit to the Engineer daily and monthly inspection reports in accordance with all requirements of this specification. The QC Program shall clearly define the information that shall be provided as part of the daily and monthly reports.

(a) Daily Reports: Daily reports shall include documentation of all activities, including inspection, material testing, and any work associated with the Elements of this specification, performed by the QCM and other QC personnel. The location of any forms relative to this specification shall be referenced in the daily reports.

For any week that a non-conformance report is issued, either by the Contractor or the Engineer, actions taken to resolve the non-conformance report shall be summarized and included with the submission of the daily reports. Updates on the status of the non-conformance shall continue in each submission of daily reports until the non-conformance issue is resolved. Once resolved, the next submission of daily reports shall document that supervisory field personnel involved in the work have been informed of any changes to be implemented to avoid recurrence of deviations. Any revisions or amendments made to the QC Program, once submitted and accepted by the Engineer, shall be documented in the next submission of daily reports.

Daily reports shall be submitted (as a package) to the Engineer by 12 PM on the Tuesday following the week of the inspection reports, or as agreed to by the Engineer. Except as otherwise authorized by the Engineer, submissions after that time will be considered late.

(b) Monthly Reports: Monthly reports shall include a summary of the work performed, including QC activities, in the previous month and also a one (1) month "look ahead" schedule with expected QC efforts and procedures for critical and routine work categories. Monthly reports shall also include a submittal status update spreadsheet.

Monthly reports shall be submitted to the Engineer by the fifth (5th) business day each month. Except as otherwise authorized by the Engineer, monthly submissions after that time will be considered late.

(c) Quality Assurance/Quality Control (QA/QC) Meetings: Meetings shall be held specific to the QC Program. The Contractor shall, at minimum, be represented by the QCM and shall meet with the Engineer every other week, or more frequently at the Engineer's request, to review reporting and all work related to this specification.

Method of Measurement: Within forty-five (45) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for approval a schedule of values of its lump sum bid price for this item detailing the following:

1. The development costs to prepare the written QC Program. Development costs shall be ten percent (10%) of the total cost of the item.
2. The cost per-month to provide the services of the QC Program, including the QCM, QC activities, necessary QC personnel, preparing and submitting daily and monthly reports, and all other requirements of this specification. A per-month cost will be derived by taking the lump sum bid price, subtracting the development cost to prepare the written QC Program, and dividing the remainder by the number of Contract months remaining from the date of submission of the written QC Program.

Basis of Payment: This item will be paid for at the Contract lump sum price for "Contractor Quality Control Program Level 1" complete, which price shall include all submittals, QC Program revisions and amendments, inspections, monitoring, daily logs, reports, meetings, records, and all materials, equipment, labor and work incidental thereto.

Upon approval of the schedule of values by the Engineer, payments for work performed will be made as follows:

1. Upon acceptance of the written QC Program, the lump sum development cost from the payment schedule will be approved for payment.
2. Upon acceptable completion of the services of the QC Program for the month, the per-month cost will be approved for payment.

The Engineer reserves the right to apply the following reductions to the monthly payment portion, which cannot be recovered and will result in a reduction in the lump sum amount, should the Contractor fail to meet the requirements of this specification:

1. QC staff: A five percent (5%) reduction to the monthly payment will be applied for each day that acceptable QC services are not provided. The total reduction for any calendar month will not exceed the monthly payment for the item.
2. Reports: A five percent (5%) reduction to the monthly payment will be applied for each day that the required reports have been submitted late, up to a maximum of fifty percent (50%) of the monthly payment per report. This five percent (5%) reduction will apply to each independent report (each package of daily reports, described in 9(a) above, submitted on a weekly basis is considered one independent report). The total reduction for any calendar month will not exceed the monthly payment for the item.
3. QA/QC Meetings: A twenty-five percent (25%) reduction to the monthly payment will be applied for each bi-weekly QA/QC meeting not attended by the QCM. The total reduction for any calendar month will not exceed the monthly payment for the item.

Should the Contractor fail to continuously provide an acceptable QC Program, as required by this specification, the Engineer may withhold the entire monthly estimate until such time as all requirements are met.

Should the Contractor fail to comply with the QCM requirements of this specification, the QCM shall be replaced at the Engineer's request.

Only one monthly payment will be made for each calendar month regardless of the number of personnel required to complete the specified work.

Pay Item	Pay Unit
Contractor Quality Control Program Level 1	l.s.

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 "Prosecution and Progress":

Secondary Roads

Route 2

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.

Limited-Access Highway Ramps

Route 2

The Contractor shall maintain and protect existing traffic operations, 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 a minimum of 1 lane of traffic on a paved travel path not less than 12 feet in width.
2. During the allowable periods and when the Contractor is actively performing milling and paving, the Contractor will be permitted to close any ramp where the available pavement width is less than 28 feet

All Other Roadways

The Contractor shall maintain and protect a minimum of one lane of traffic in each direction, each lane on a paved travel path not less than 11 feet in width.

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 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.

Article 9.71.03 - Construction Method is supplemented as follows:

General

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 any roadway work shall be completed full width across a roadway (bridge) section by the end of a workday (work night), or as directed by 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.

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.

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.

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 the existing pavement surface after epoxy markings have been removed and shall be installed on the pavement 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.

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 shall consist of temporary painted pavement markings and shall be installed in accordance with the NTC – Temporary Markings. The markings shall include centerlines, edge lines, lane lines (solid and broken), lane-use arrows, and stop bars. Edge lines and lane-use arrows are not required if the permanent pavement markings 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

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 Traffic person(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 spacing 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.

8.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.

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

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.

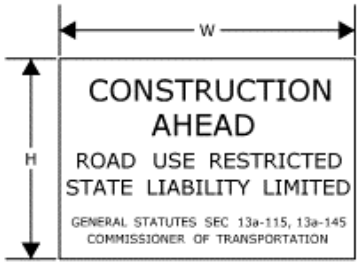
10.b) If a State Police presence is provided, once the pattern is in place, the State Police Officer should be positioned in a non- hazardous location in advance of the pattern to provide advance warning to the motorist. If traffic backs up beyond the beginning of the pattern, then the State Police Officer 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:

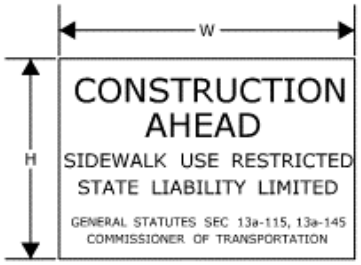
i. Assisting construction vehicles entering and exiting the work area.
ii. Enforcement of motor vehicle laws within the work area, if specifically requested by the Engineer.

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

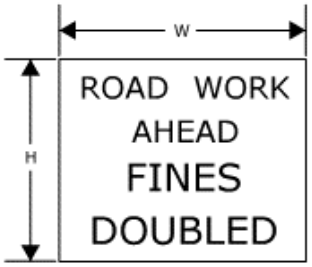
APPROVED Tracy L Fogarty Tracy L. Fogarty, P.E. 2013.10.09 16:30:32-04'00'
PRINCIPAL ENGINEER

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.

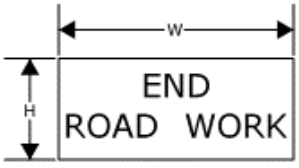
	W	H
31-1906	48"	42"
31-1907	60"	54"



"END ROAD WORK" SIGN

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

	W	H
80-9606	36"	18"
80-9612	48"	24"



CONSTRUCTION TRAFFIC CONTROL PLAN

ROAD WORK AHEAD SIGNS

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

Tracy L. Fogarty, P.E.
2019.09.12 15:54:44 -04'00'

PRINCIPAL ENGINEER

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 $\leqslant$ 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

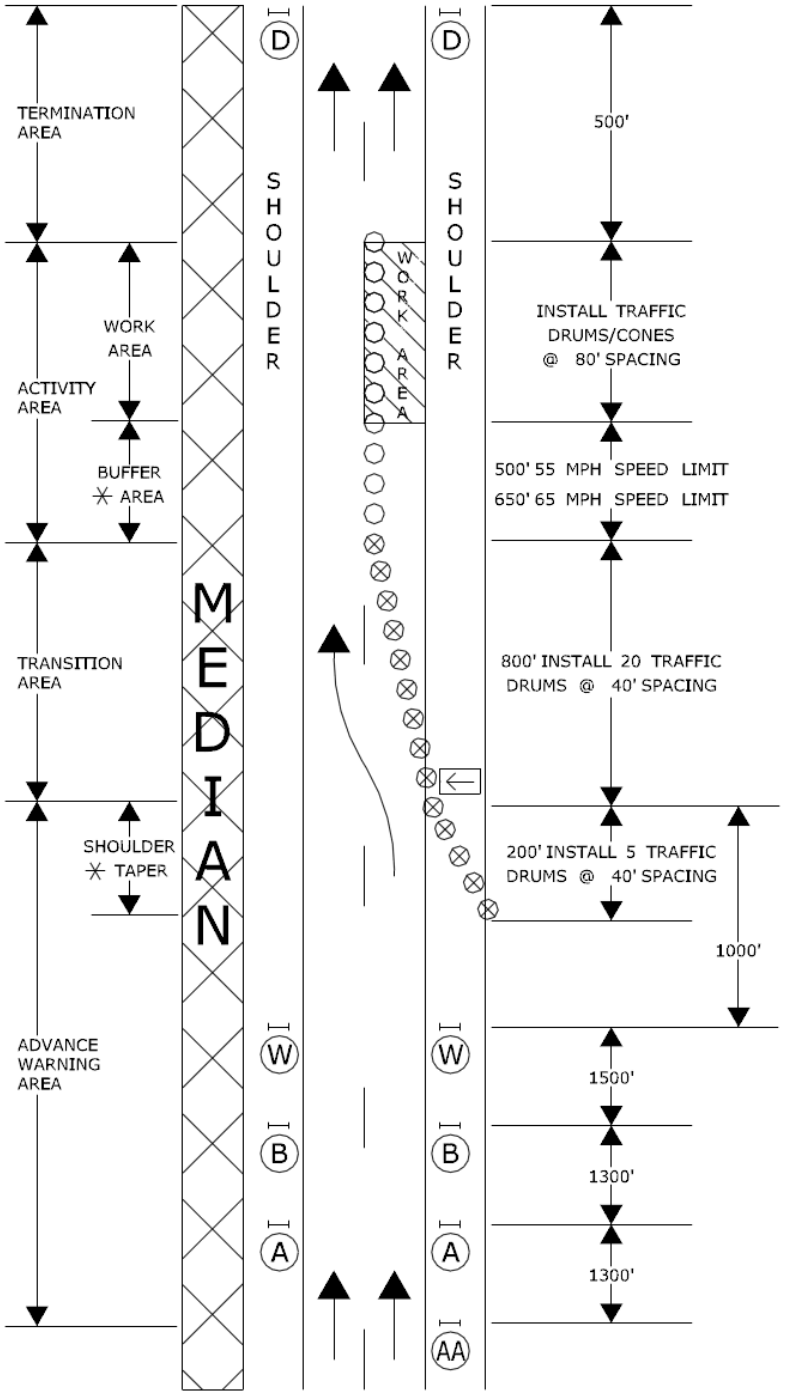
SCALE: NONE

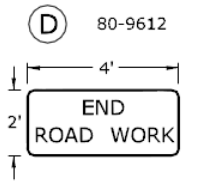
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

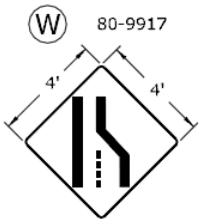
APPROVED Tracy L. Fogarty, P.E. 2019.09.13 08:47:47-04'00'
PRINCIPAL ENGINEER

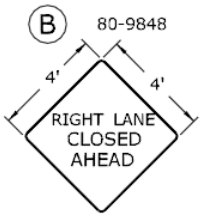
WORK IN RIGHT LANE - MULTILANE HIGHWAY

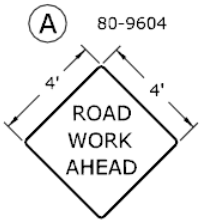
SIGN FACE
126 SQ. FT (MIN.)

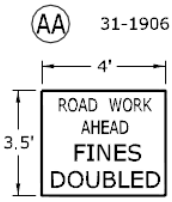












TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 1

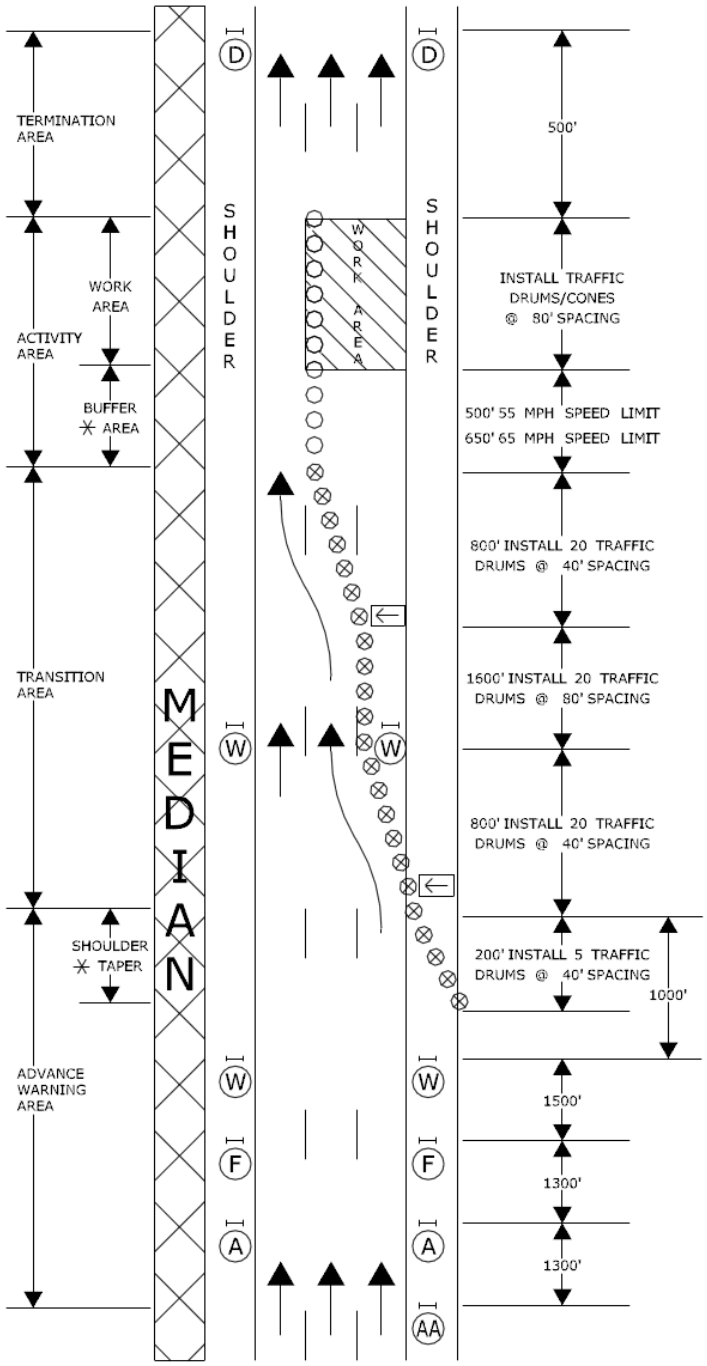
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9

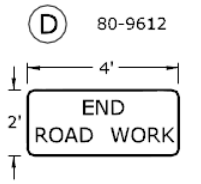
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

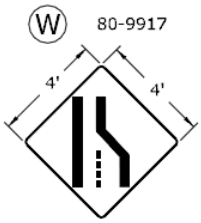
APPROVED Charles S. Harlow 2012.06.05 15:51:00-04'00'
PRINCIPAL ENGINEER

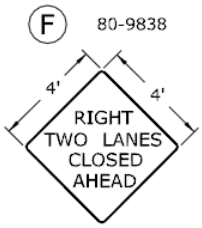
WORK IN RIGHT TWO LANES - MULTILANE HIGHWAY

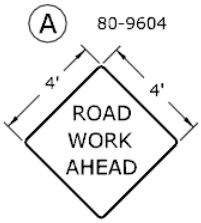
SIGN FACE
158 SQ. FT (MIN.)

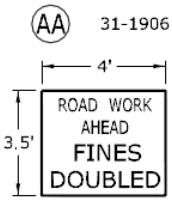












TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL ⊗ TRAFFIC DRUM ⊢ PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 2

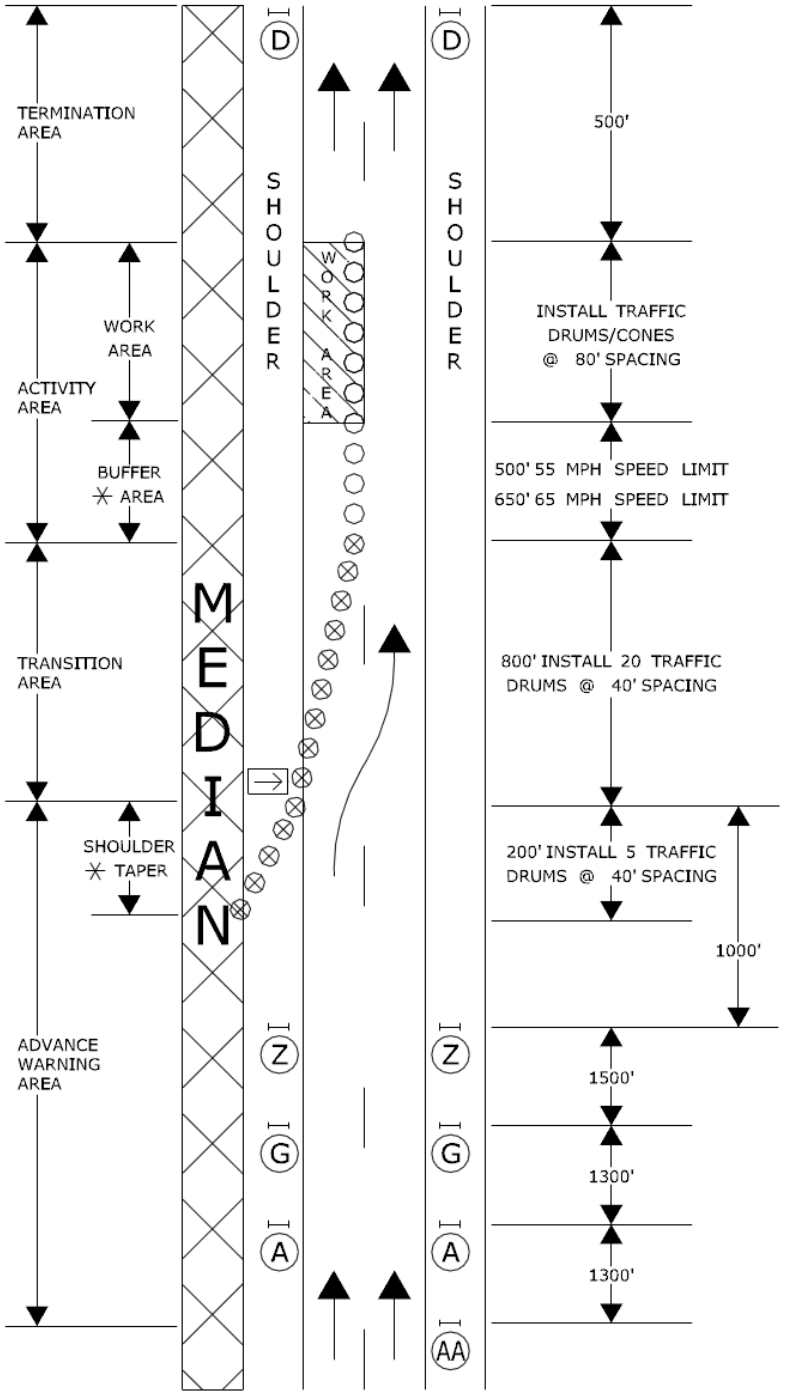
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9

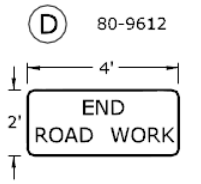
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

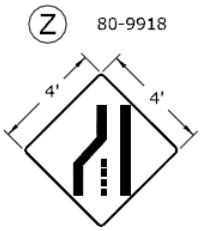
APPROVED Charles S. Harlow 2012.06.05 15:51:23-04'00'
PRINCIPAL ENGINEER

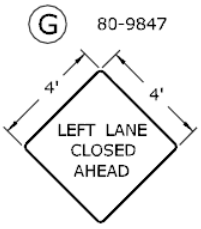
WORK IN LEFT LANE - MULTILANE HIGHWAY

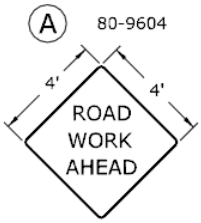
SIGN FACE
126 SQ. FT (MIN.)

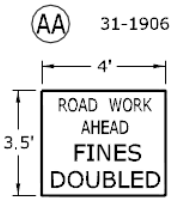












TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 3

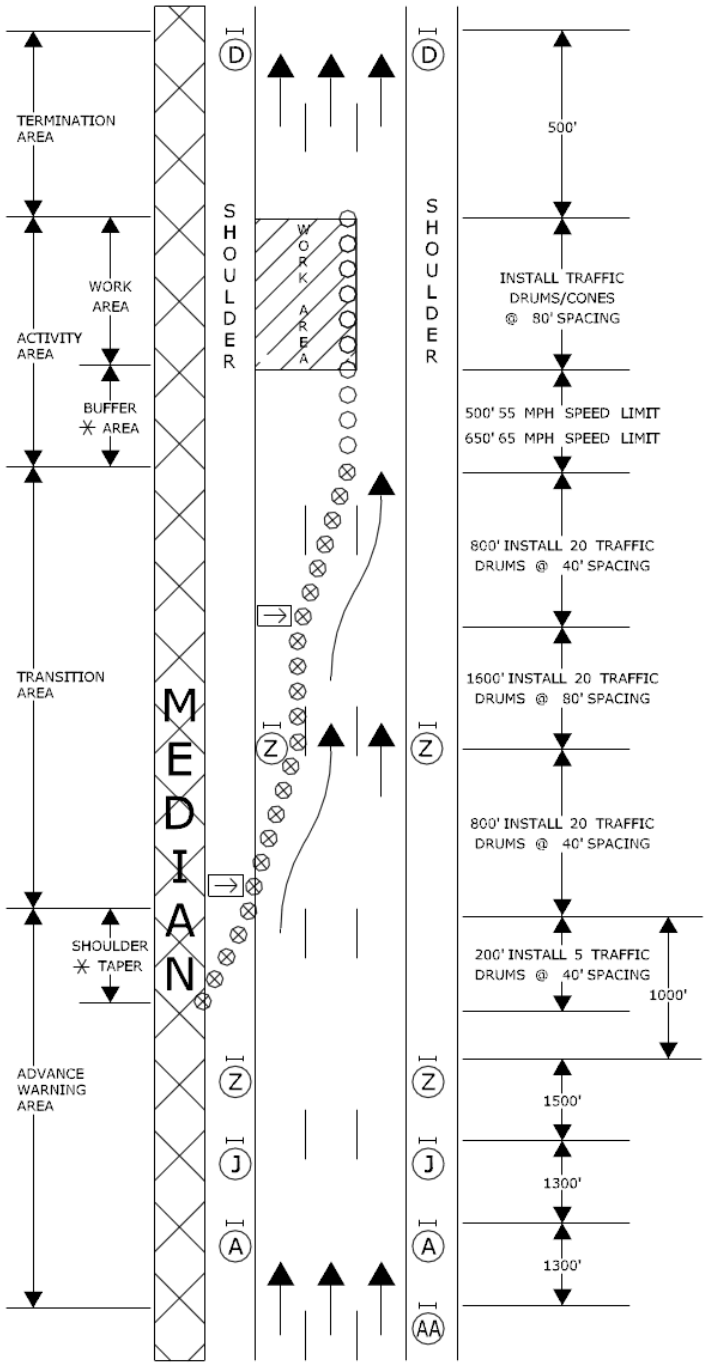
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9

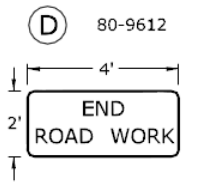
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

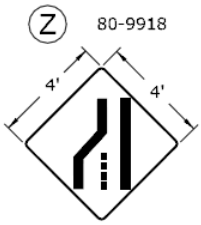
APPROVED Charles S. Harlow 2012.06.05 15:51:46-04'00'
PRINCIPAL ENGINEER

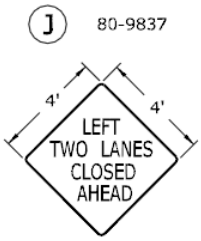
WORK IN LEFT TWO LANES - MULTILANE HIGHWAY

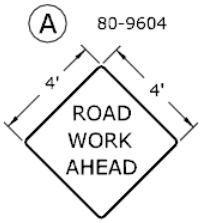
SIGN FACE
158 SQ. FT (MIN.)

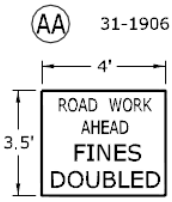












TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 4

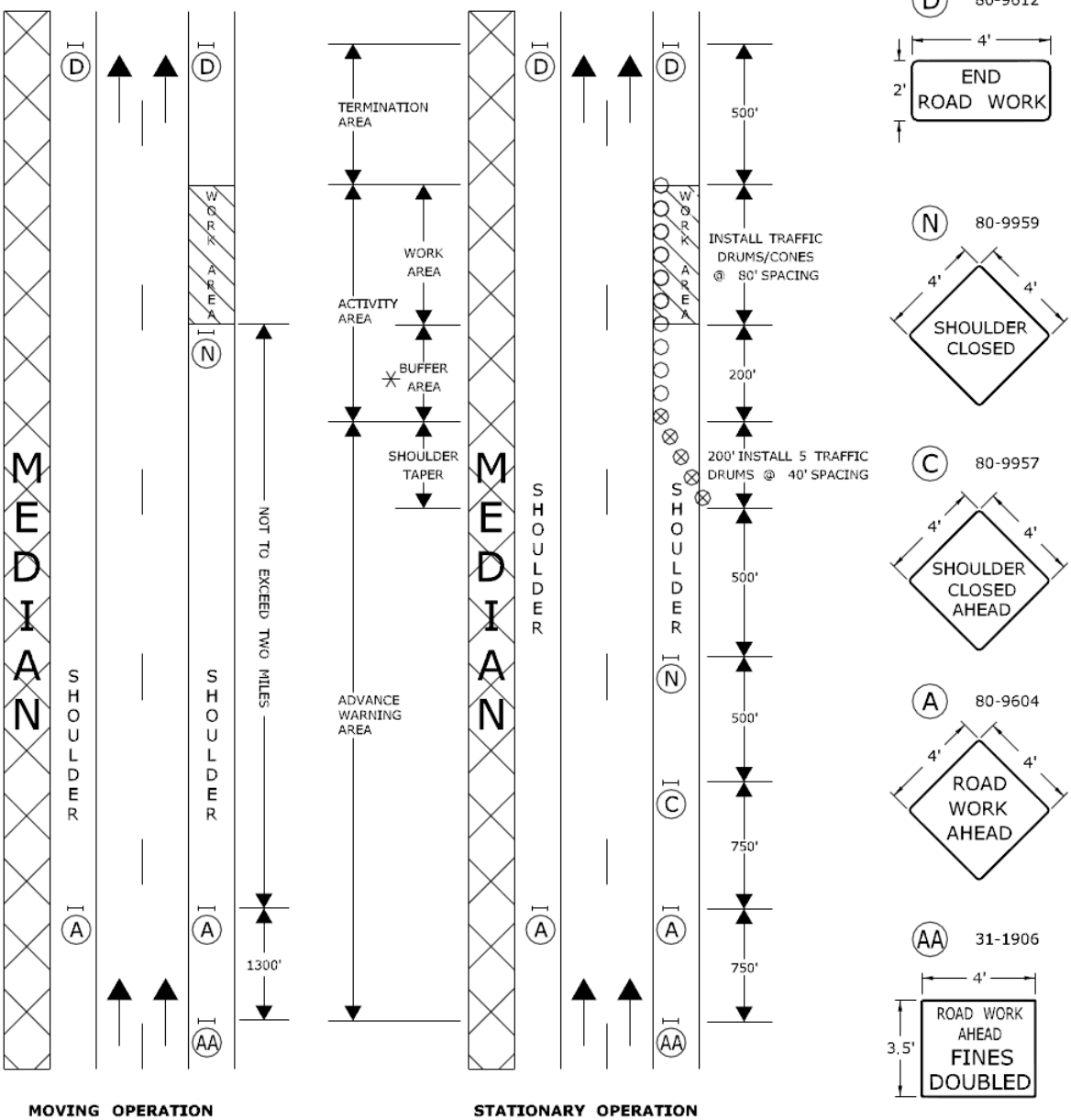
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:52:10-04'00'
PRINCIPAL ENGINEER

WORK IN SHOULDER AREA - MULTILANE HIGHWAY

SIGN FACE
94 SQ. FT (MIN.)



D 80-9612

N 80-9959

C 80-9957

A 80-9604

AA 31-1906

TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 6

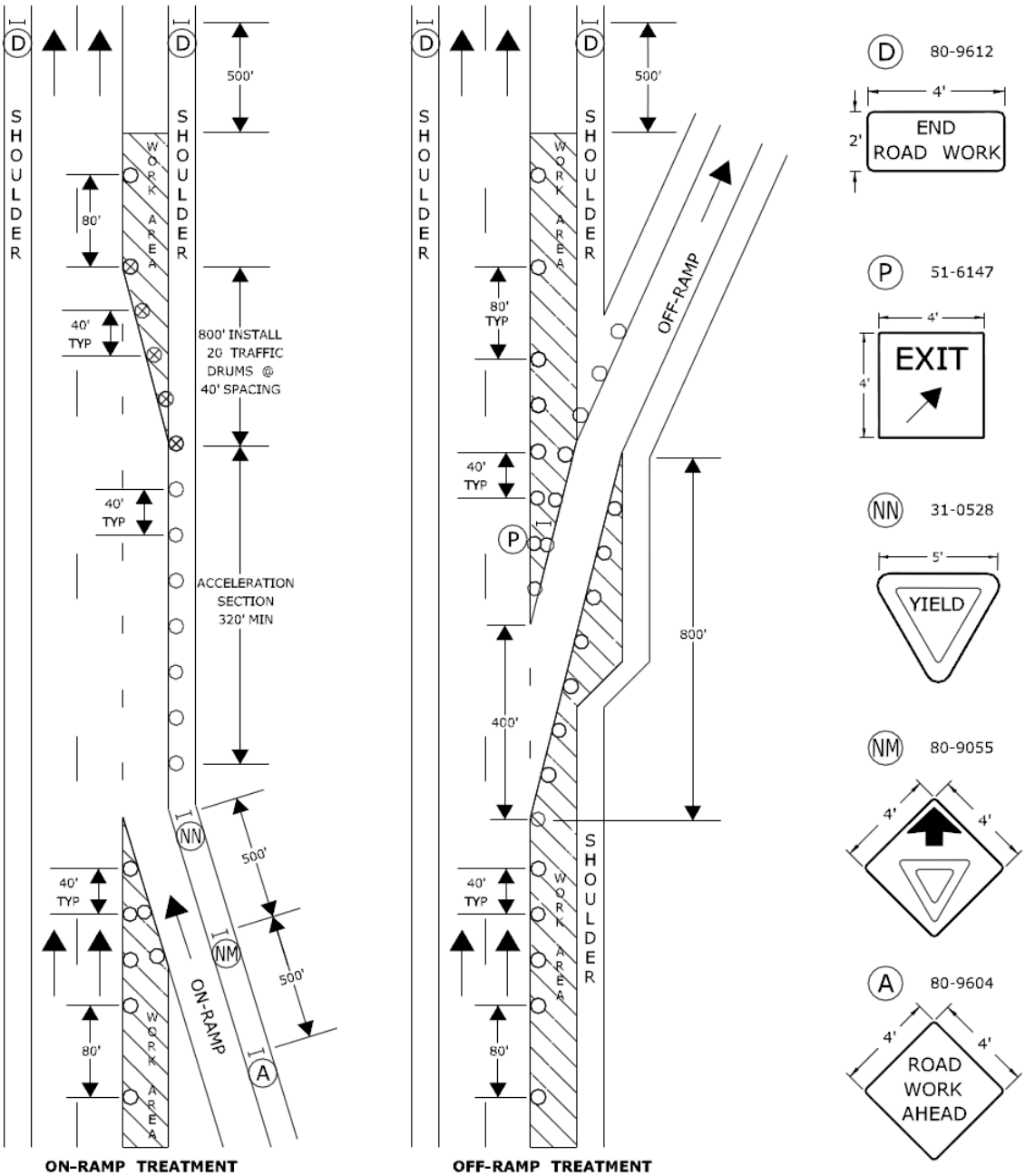
SEE NOTES 1, 2, 4, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:52:38-04'00'
PRINCIPAL ENGINEER

TYPICAL RAMP TREATMENTS FOR MAINLINE LANE CLOSURE - MULTILANE HIGHWAY

SIGN FACE
SQ. FT VARIES



ON-RAMP TREATMENT **OFF-RAMP TREATMENT**

USE TRAFFIC CONTROL PLAN 1 TO CLOSE THE RIGHT LANE

TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 8

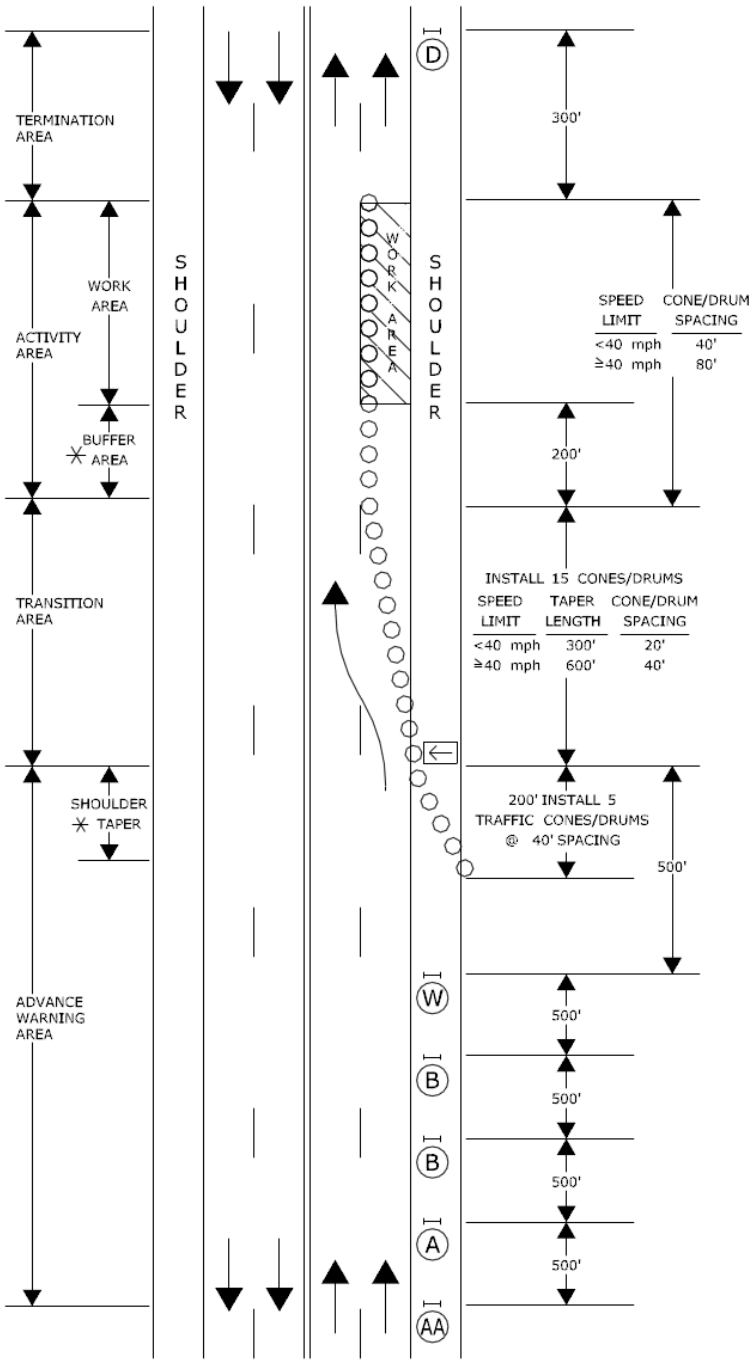
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9, 10

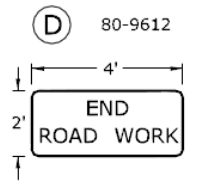
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

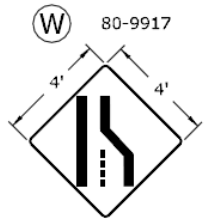
APPROVED Charles S. Harlow 2012.06.05 15:53:31-04'00'
PRINCIPAL ENGINEER

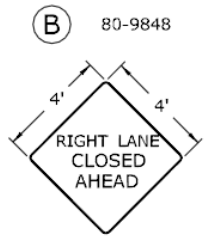
WORK IN RIGHT LANE - 4 LANE UNDIVIDED HIGHWAY

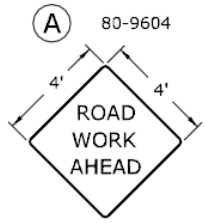
SIGN FACE
86 SQ. FT (MIN.)

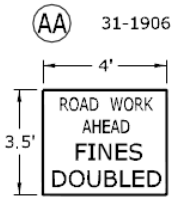












◯ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢ PORTABLE SIGN SUPPORT
⇦ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 10

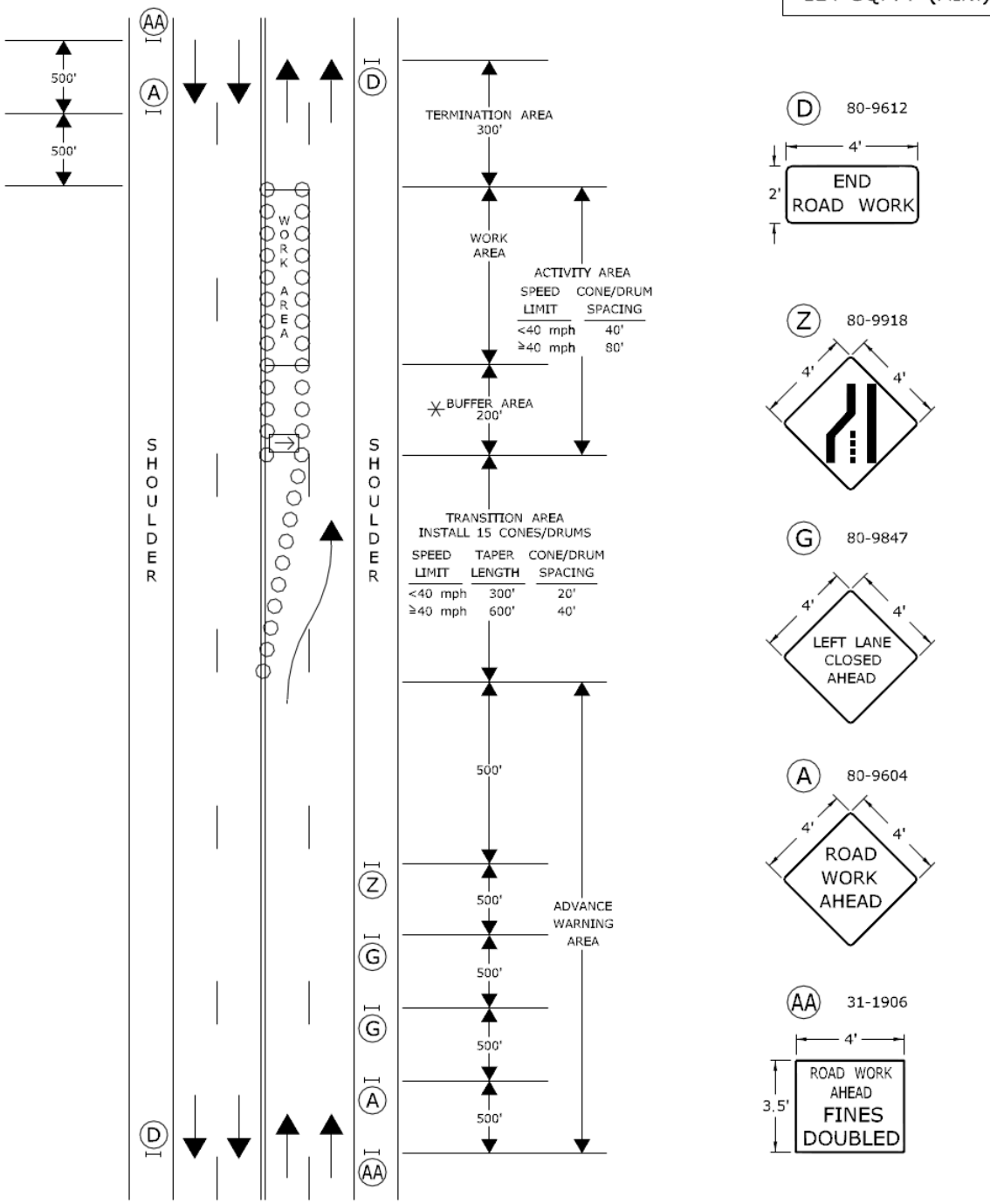
SEE NOTES 1, 2, 3, 4, 5, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:54:15-04'00'
PRINCIPAL ENGINEER

WORK IN LEFT LANE - 4 LANE UNDIVIDED HIGHWAY

SIGN FACE
124 SQ. FT (MIN.)



TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 11

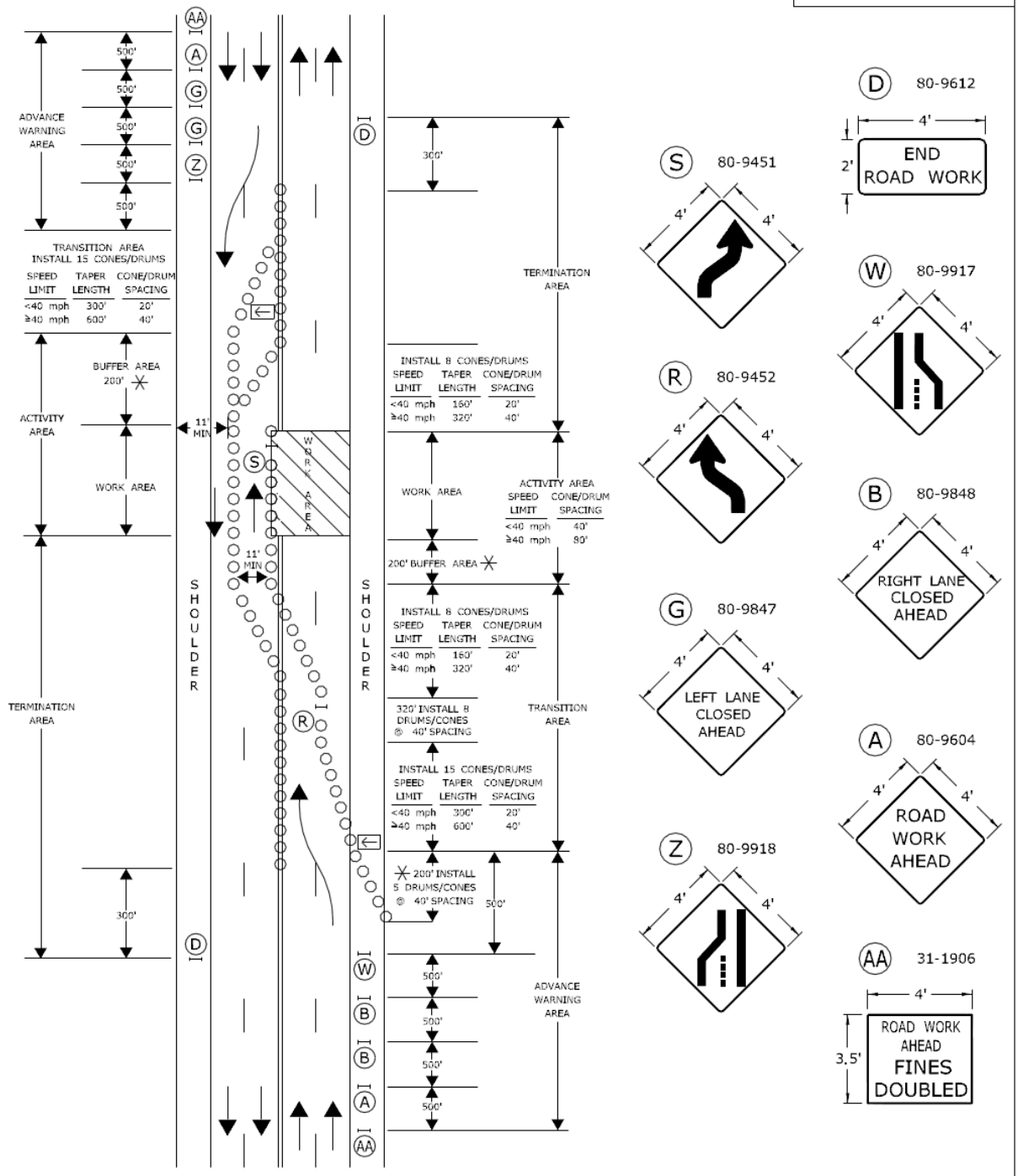
SEE NOTES 1, 2, 3, 4, 5, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:54:36-04'00'
PRINCIPAL ENGINEER

WORK IN BOTH LANES - 4 LANE UNDIVIDED HIGHWAY

SIGN FACE
204 SQ. FT (MIN.)



TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 12

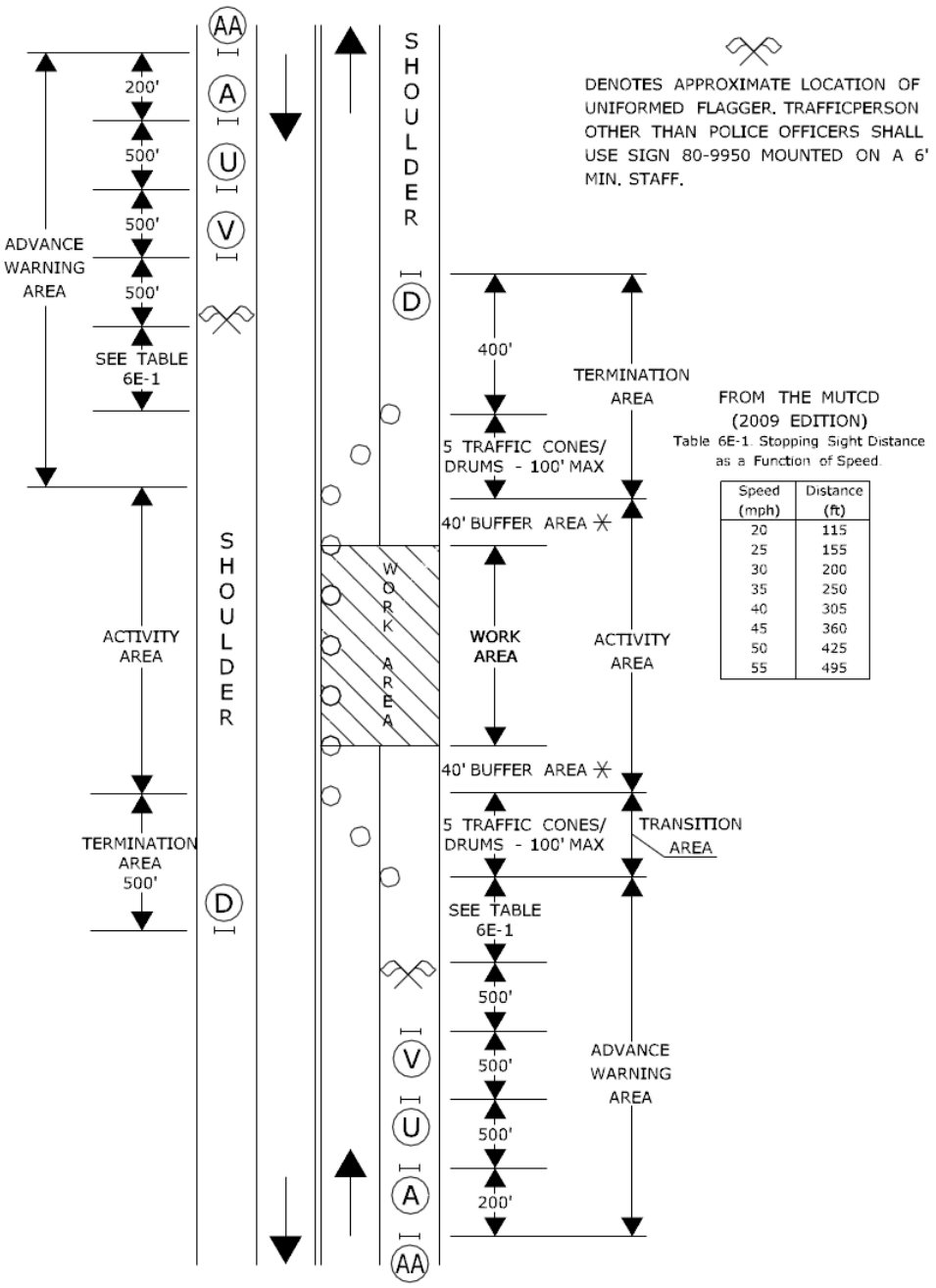
SEE NOTES 1, 2, 3, 4, 5, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:55:01-04'00'
PRINCIPAL ENGINEER

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

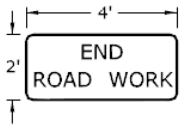
SIGN FACE
108 SQ. FT (MIN.)



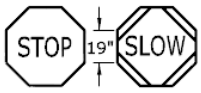
FROM THE MUTCD (2009 EDITION)
Table 6E-1. Stopping Sight Distance as a Function of Speed

Speed (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495

D 80-9612



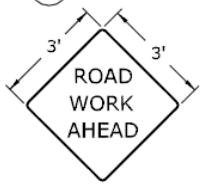
80-9950
SIDE A SIDE B



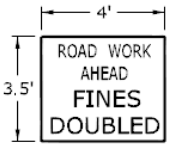
V 80-9803

U 80-9834

A 80-9603



AA 31-1906



TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

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

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

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

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

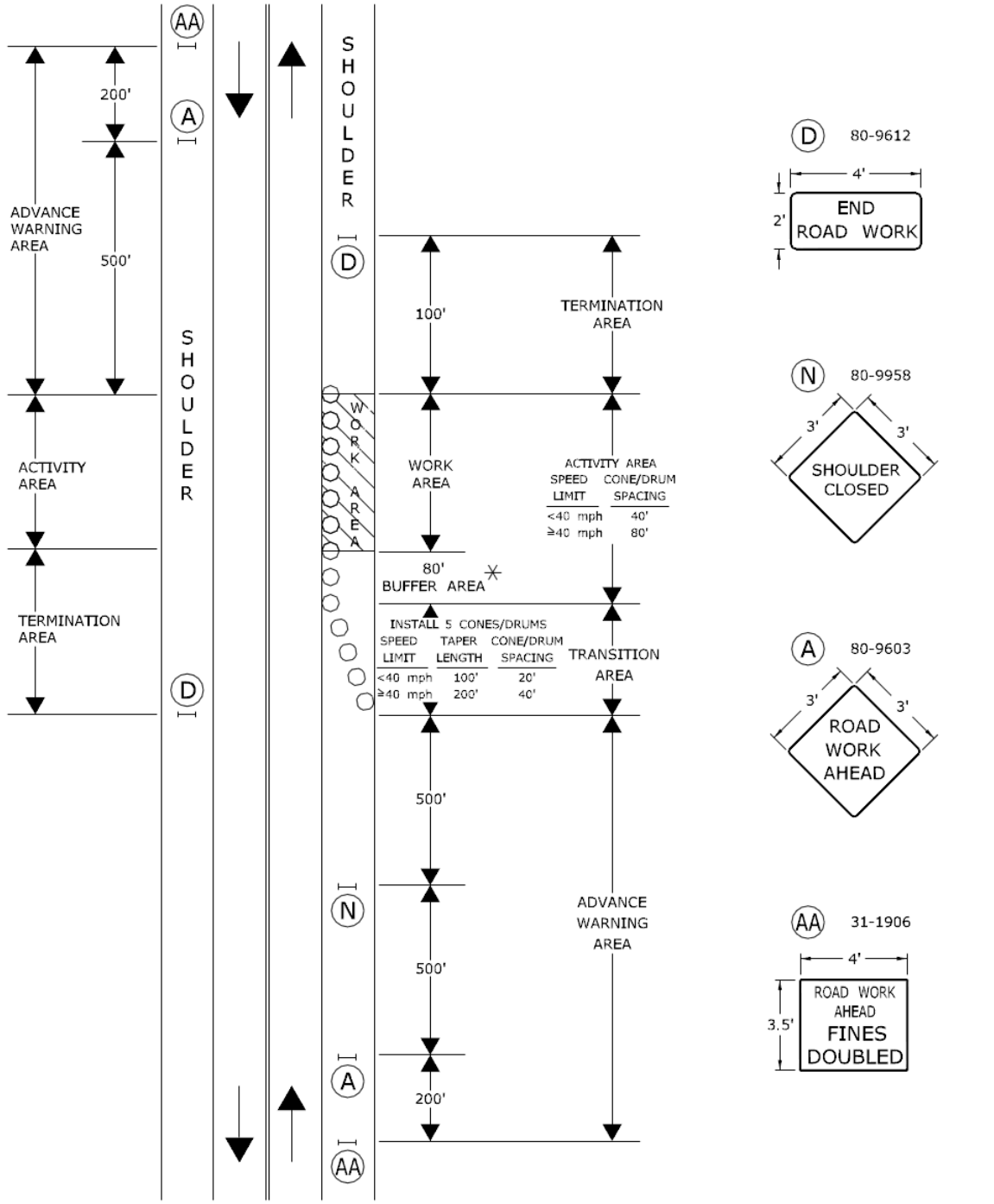
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

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

WORK IN SHOULDER - TWO LANE HIGHWAY

SIGN FACE
71 SQ. FT (MIN.)



TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 14

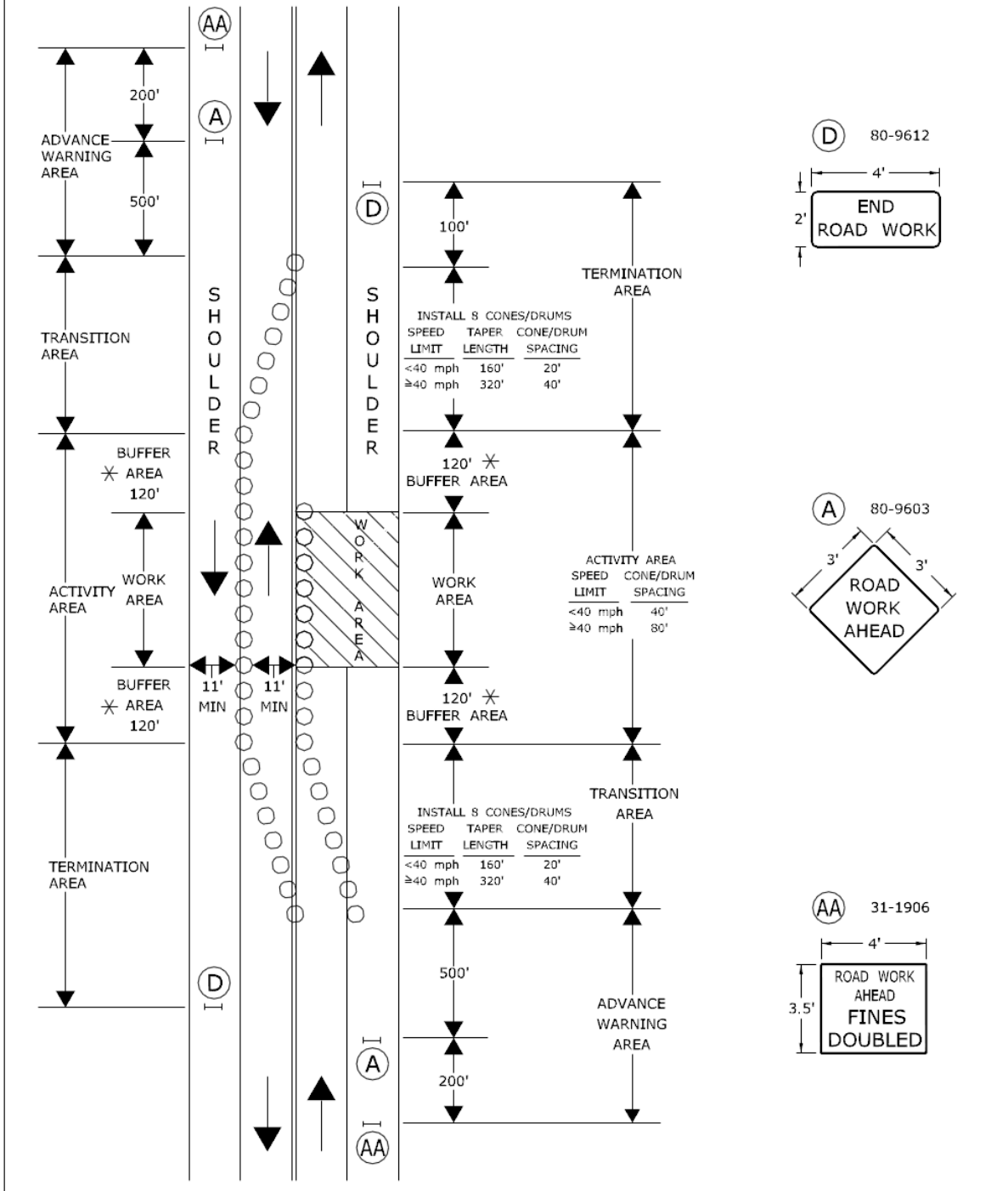
SEE NOTES 1, 2, 4, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:56:09-04'00'
PRINCIPAL ENGINEER

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY

SIGN FACE
62 SQ. FT (MIN.)



TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

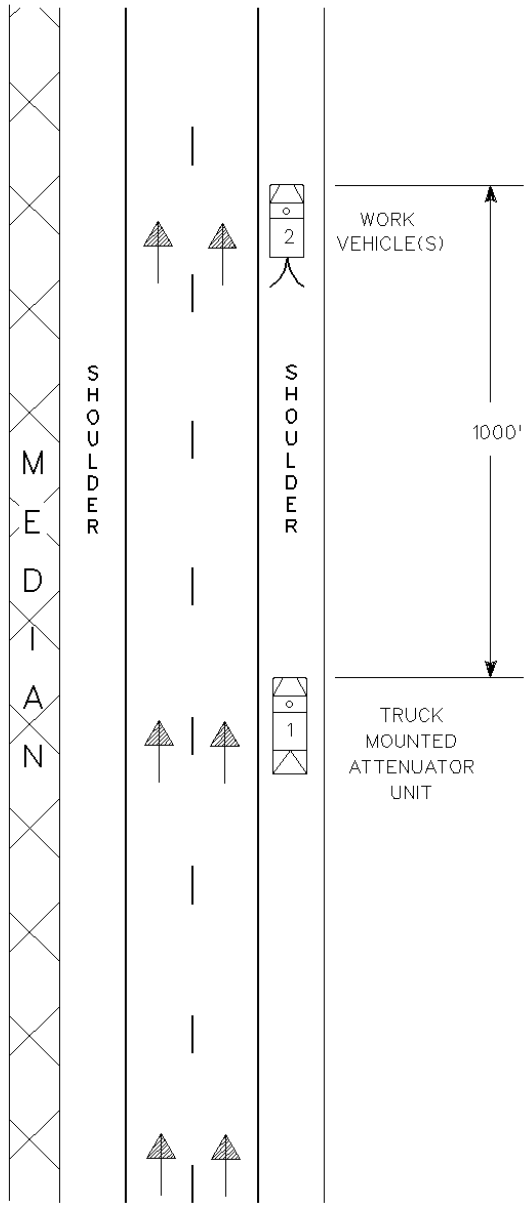
SCALE: NONE

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

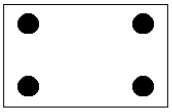
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

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

MOVING OPERATION ON RIGHT SHOULDER
MULTILANE HIGHWAY & SECONDARY ROADWAYS



SIGN MOUNTED ON TRUCK 1



DEPARTMENT APPROVED
ARROW BOARD
(FLASHING YELLOW MODE)

REV'D 1-02

CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING &
HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN

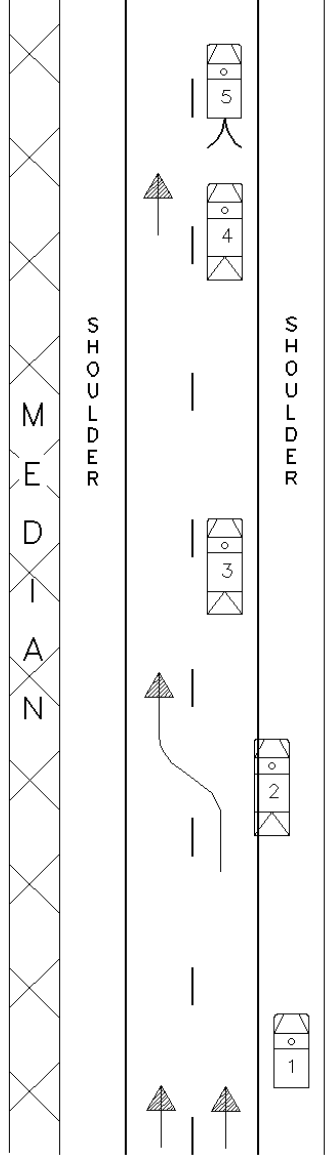
PLAN 19

SCALE NONE

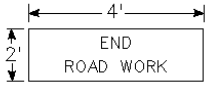
APPROVED J. Mccall
PRINCIPAL ENGINEER

DATE 1-30-02

MOVING OPERATION IN RIGHT LANE AND OUTSIDE SHOULDER AT THE SAME TIME MULTILANE HIGHWAY

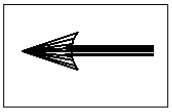


SIGN MOUNTED ON VEHICLE 5



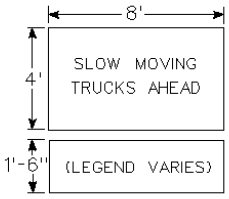
80-9612

SIGN MOUNTED ON TRUCKS 2, 3, & 4



DEPARTMENT APPROVED ARROW BOARD

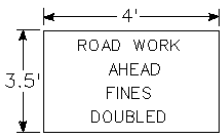
SIGNS MOUNTED ON VEHICLE 1



80-9815
THIS SIGN SHOULD BE COVERED WHEN NOT IN USE.

80-9914
USE APPROPRIATE MESSAGE FOR OPERATION.

SIGN MOUNTED ON VEHICLE 2



31-1906

REV'D 1-02

CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

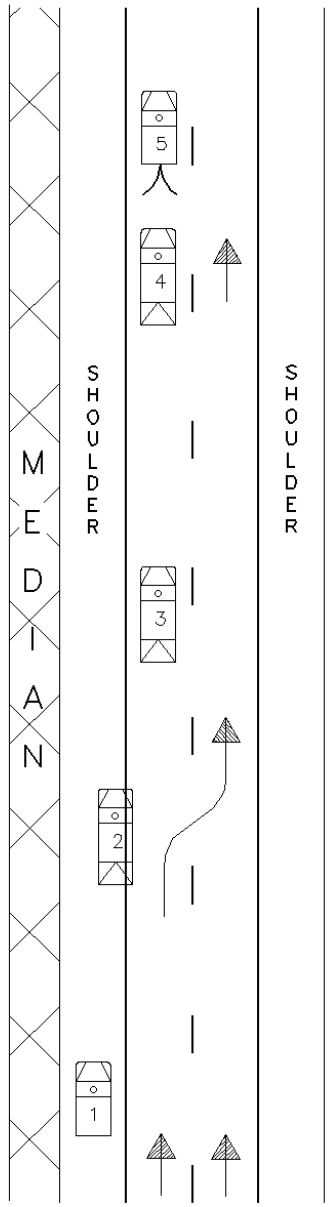
CONSTRUCTION
TRAFFIC CONTROL PLAN

PLAN 20

SCALE NONE

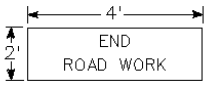
APPROVED John D. Micall
PRINCIPAL ENGINEER
DATE 1-30-02

MOVING OPERATION IN LEFT LANE AND INSIDE SHOULDER AT THE SAME TIME MULTILANE HIGHWAY



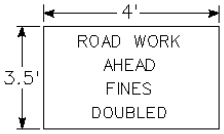
WORK VEHICLE(S)
150'
TRUCK MOUNTED ATTENUATOR UNIT
DISTANCE VARIES ACCORDING TO OPERATION
TRUCK MOUNTED ATTENUATOR UNIT
800'
TRUCK MOUNTED ATTENUATOR UNIT
1000'
ADVANCE WARNING VEHICLE

SIGN MOUNTED ON VEHICLE 5



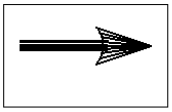
80-9612

SIGN MOUNTED ON VEHICLE 2



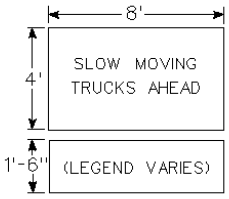
31-1906

SIGN MOUNTED ON TRUCKS 2, 3, & 4



DEPARTMENT APPROVED ARROW BOARD

SIGNS MOUNTED ON VEHICLE 1



80-9815
THIS SIGN SHOULD BE COVERED WHEN NOT IN USE.

80-9914
USE APPROPRIATE MESSAGE FOR OPERATION.

WHEN THE LEFT SHOULDER WIDTH CANNNOT ACCOMMODATE A VEHICLE, THEN ADVANCE WARNING VEHICLE 1 MAY DRIVE PARTIALLY IN THE LANE.

REV'D 1-02

CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 21
SCALE NONE

APPROVED John D. Micali
PRINCIPAL ENGINEER
DATE 1-30-02

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".

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."

ITEM #0980020A – CONSTRUCTION SURVEYING

Section 9.80 Construction Surveying *is supplemented as follows:*

Article 9.80.03 – **Construction Methods**

In Subarticle **IV Specific Requirements,** *add the following:*

13. Traffic Signals: The Contractor shall survey and stake proposed traffic signal mast arm, span pole, and cabinet foundations as called on the Contract Plans. Proposed foundation locations are given with GPS coordinates on the plans. The Contractor shall request the Engineer to contact CT DOT District Surveys Supervising Engineer of the relevant district, two weeks prior to surveying and staking the foundations in order to schedule verification of staked equipment locations. The Contractor shall maintain or replace these stakes until the Engineer approves their removal. No excavation of mast arm, span pole, or cabinet foundations shall take place until the foundation locations have been verified by District Surveys and approved by the Engineer.

For Projects that only consist of removal/replacement of pavement markings and/or traffic signals, the requirement for a licensed surveyor to supervise the staking is waived.

In the same Subarticle, *add the following to* **Table 9.80-1 Construction Survey Staking Tolerances.**

Traffic Signals	±0.50 feet	N/A

ITEM #1210110A – 4" (WHITE) TYPE I EPOXY RESIN PAVEMENT MARKINGS
ITEM #1210111A – 4" (YELLOW) TYPE I EPOXY RESIN PAVEMENT MARKINGS
ITEM #1210113A – 6" (WHITE) TYPE I EPOXY RESIN PAVEMENT MARKINGS
ITEM #1210115A – 8" (WHITE) TYPE I EPOXY RESIN PAVEMENT MARKINGS

Section 12.10 is supplemented and amended as follows:

Description:

Replace the entire Article with the following:

This item shall consist of furnishing and installing retroreflective Yellow and White Type I Epoxy Resin Pavement Markings of the width and color specified at the locations indicated on the plans, in conformance with the plans, this specification, and as directed by the Engineer .

Type I Epoxy Resin Pavement Markings include center lines, lane lines, and shoulder lines.

Type I Epoxy Resin Pavement Markings shall be installed in a pavement marking groove. Installation methods for pavement marking grooves are specified elsewhere in the Contract.

Materials:

Replace the entire Article with the following:

Type I Epoxy Resin Pavement Markings shall meet the requirements of M.07.22 as amended below:

Article M.07.22 – Epoxy Resin Pavement Markings:

Delete the last sentence and add the following:

(j) Type I Epoxy Resin Pavement Markings shall consist of the following retroreflective beads:

- Either a Potter's retroreflective bead or a 3M retroreflective bead, in addition to a clear glass bead that meets the requirements of AASHTO M 247, Type 4.
    - Potter's VISIMAX glass bead
    - 3M's tinted microcrystalline ceramic bead with minimum indexes of refraction of 1.89 (dry) and 2.4 (wet) when tested using the ASTM E1967method. Yellow tinted beads shall be installed on yellow pavement

markings and white tinted beads shall be installed on white pavement markings.

Construction Methods:

1. **Equipment:**

Delete paragraph 1 and add the following:

Equipment furnished shall include an applicator truck of adequate size and power, together with:

(a) remote application equipment designed to apply an epoxy resin material in a continuous pattern, and

(b) portable retroreflective bead applicators, one for each size bead, designed to provide uniform and complete coverage of the epoxy binder by a controlled free-fall method. Pressurized retroreflective bead application shall not be used.

2. **Procedures:**

Delete paragraphs 3, 7, and 8 and add the following:

All surfaces that are power washed shall be allowed to dry sufficiently prior to the application of the epoxy markings. The areas to be marked shall be broom cleaned immediately prior to the application of the epoxy markings. Retroreflective beads shall be applied immediately after application of the epoxy resin marking to provide an immediate no-track system.

The epoxy for Type I Epoxy Resin Pavement Markings shall be uniformly applied to the surface to be marked to ensure a wet film thickness, without retroreflective beads, of 20 mils ± 1 mil.

For Potter's VISIMAX glass bead Type I Epoxy Resin Pavement Markings, a first drop consisting of Potter's VISIMAX glass bead shall be applied at the rate of 8 lb./gal. of epoxy pavement marking material, immediately followed by a second drop consisting of glass beads meeting the requirements of AASHTO M 247, Type 4 at the rate of 8 lb./gal. of epoxy pavement marking material. Traffic cones or other acceptable methods shall be used to protect the Type I Epoxy Resin Pavement Markings until cured.

For 3M's tinted microcrystalline ceramic bead Type I Epoxy Resin Pavement Markings, a first drop consisting of tinted microcrystalline ceramic beads shall be applied at the rate of 5 lbs./gal. of epoxy pavement marking material, immediately followed by a second drop consisting of glass beads meeting the requirements of AASHTO M 247, Type 4 at the rate of 10 lbs./gal. of epoxy pavement marking material. Traffic cones or other acceptable method shall be used to protect the Type I Epoxy Resin Pavement Markings until cured.

3. Initial Performance:

Replace the entire Article with the following:

The retroreflectivity of the markings applied shall be measured by the Contractor using the procedure and equipment detailed below for the Initial Test Period, Review Period, and Observation Period.

Test Lots: The following test lots will be randomly selected by the Engineer to represent the line markings applied:

Table 12.10.03-3.1: Line Test Lots

Length of line	Number of Lots	Length of Test Lot
< 1000 feet	1	Length of Line
< 1.0 mile	1	1000 feet
≥ 1.0 mile	1 per 1.0 mile	1000 feet

Measurement Equipment and Procedure: Retroreflectometer equipment shall be calibrated using the instructions from the instrument manufacturer within 24 hours prior to use.

Skip line measurement shall be obtained for every other stripe, taking no more than 2 readings per stripe with readings no closer than 20 inches from either end of the marking.

Solid line test lots shall be divided into 10 sub-lots of 100 foot length and measurements obtained at 1 randomly select location within each sub-lot.

The Contractor shall perform retroreflectivity readings on the Type I Epoxy Resin Pavement Markings between 30 and 37 days after installation per the measurement and sampling procedures contained in ASTM D7585 (Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments). Portable Retroreflectometer and Mobile Retroreflectometer testing is allowed using using the following methods.

- ASTM E1710 *(Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer)*;
- ASTM E2177 *(Standard Test Method for Measuring the Coefficient of Retroreflected Luminance (R_L) of Pavement Markings in a Standard Condition of Wetness).*

Additional Content of CTR and Materials Certificates: The CTR shall also list:

- Project, Route number, and Route direction.
- Geographical location of the test site(s), including distance from the nearest reference point.
- Manufacturer and model of retroreflectometer used.
- Most recent calibration date for equipment used.

- Time of Day the readings are taken.

Recordings shall be certified by the Contractor, reviewed by the Engineer, and provided to the CTDOT Division of Traffic Engineering.

A CTR, in accordance with 1.06.07, shall be submitted to the Engineer no later than 10 days after the measurements are taken.

The Materials Certificates shall also list:

- Liquid binder application rate.
- Retroreflective bead type(s) and drop rate.

Recordings shall be certified by the Contractor, reviewed by the Engineer, and provided to the CTDOT Division of Traffic Engineering.

Materials Certificates, in accordance with 1.06.07, shall be submitted to the Engineer no later than 10 days after the measurements are taken.

Initial Test Period: The minimum initial retroreflectivity readings shall meet or exceed the following minimum values using an observation angle of 1.05^0 and an entrance angle of 88.8^0:

	*Type I White Markings	*Type I Yellow Markings
ASTM E1710 (Dry)	350 mcd/lux/m^2	225 mcd/lux/m^2
ASTM E2177 (Wet Recovery)	300 mcd/lux/m^2	200 mcd/lux/m^2

Review Period: A 90-day Review Period shall be implemented for Type I Epoxy Resin Pavement Markings. The Contractor shall be responsible for any defects in materials and workmanship of the Type I Epoxy Resin Pavement Markings for a period of 90 days from the date the Type I Epoxy Resin Pavement Markings are installed and experiencing live traffic conditions.

At the end of the Review Period, the Engineer shall inspect the Type I Epoxy Resin Pavement Markings for durability, color, and retroreflectivity, and inform the Contractor of all pavement markings that have failed and require replacement. The Type I Epoxy Resin Pavement Markings will be considered failed for any of the following conditions:

- Insufficient thickness or line width, uneven cross-section.
- Poor adhesion or delamination.
- Insufficient groove depth.

The Contractor shall be responsible for replacing all locations consisting of failed Type I Epoxy Resin Pavement Markings at no cost to the State. All failed Type I Epoxy Resin Pavement Markings shall be replaced within 14 days of notification to the Contractor of the failed Review Period test. All Type I Epoxy Resin Pavement Markings installed as the result of a failed Review Period test shall meet all testing requirements of the initial performance testing procedures, as well as an additional Review Period.

Method of Measurement:

Replace the entire Article with the following:

Type I Epoxy Resin Pavement Markings will be measured for payment by the actual number of linear feet of Type I Epoxy Resin Pavement Markings installed on the pavement and accepted by the Engineer.

The cost of all measuring and testing of the retroreflectivity of the Type I Epoxy Resin Pavement Markings by the Contractor will be considered incidental to the cost of the item.

Basis of Payment:

Replace the entire Article with the following:

This work will be paid for at the Contract unit price per linear foot for "Type I Epoxy Resin Pavement Markings" of the width and color specified, installed on the pavement and accepted. These prices shall be for all the work required by this Section and all materials, equipment, tools and labor incidental thereto. Payment will not be made for pavement markings affected by Contractor error and ordered removed.

Pay Item	Pay Unit
4" White Type I Epoxy Resin Pavement Markings	l.f.
4" Yellow Type I Epoxy Resin Pavement Markings	l.f.
6" White Type I Epoxy Resin Pavement Markings	l.f.
8" White Type I Epoxy Resin Pavement Markings	l.f.

ITEM #1806226A – PRE-WARNING VEHICLE

Description: Work under this item shall include furnishing, deploying and maintaining a Truck-Mounted Impact Attenuator equipped with a changeable message sign (CMS) for use as a Pre-Warning Vehicle (PWV) in a rolling road block operation on limited access highways. Impact attenuators shall only be truck-mounted. The message on the sign shall warn motorists of slow or stopped traffic conditions. The Pre-Warning Vehicle will only be paid as such when used as specified herein.

Materials: The Truck-Mounted Impact Attenuator shall meet the requirements of Article 18.06.02, except replace all instances of "flashing arrow," "arrow sign," and "arrow" with "CMS".

The CMS shall meet the requirements of Article 11.31.02, with the following amendments:

1. **Physical Characteristics of the CMS**
   a) Mounting – The CMS shall be truck mounted only
   b) Sign Display Dimensions – Variable sign size to meet legend requirements as specified below
2. **Visual Characteristics of the CMS Display**
   a) Sign Type – CMS shall have a LED display only
   b) Color – CMS shall have black background with orange, yellow, or amber legend
   c) Characters – Letter height shall be at least 10 inches; Single stroke
   d) Visibility– CMS brightness must provide for visibility at 1/2 mile
   e) Message – The message shall read as follows, or shall be as directed by the Engineer:

Frame 1: SLOW TRAFFIC AHEAD
Frame 2: PREPARE TO STOP
Or
Frame 1: STOPPED TRAFFIC AHEAD
Frame 2: PREPARE TO STOP

Construction Methods: The PWV shall be initially positioned in the right shoulder ½ mile prior to the rolling road block operation.

If a traffic queue reaches the PWV's initial location, the Contractor shall slowly reverse the PWV along the shoulder to position itself prior to the new back of queue.

The Contractor shall meet the requirements of Article 18.06.03.

Method of Measurement: This work will be measured for payment by the actual number of hours that the Pre-Warning Vehicle is used in a rolling road block operation during traffic pattern setup and removal. The vehicle may be left in place while not in a rolling road block operation but will be paid for under the item "Truck-Mounted or Trailer-Mounted Impact Attenuator" or under the item "Arrow Board" provided it meets the Contract requirements.

Basis of Payment: This work will be paid for at the Contract unit price per hour for "Pre-Warning Vehicle," which shall include the furnishing and use of the pre-warning vehicle and a driver, attenuator reflector, flashing lights, changeable message sign, and all equipment,

materials, tools, labor, disposal of damaged Truck-Mounted Impact Attenuator components and work incidental thereto.

Pay Item	Pay Unit
Pre-Warning Vehicle	hr

PLANS, DETAILS, AND REQUIRED PROVISIONS:

The following Permits and/or and Required Provisions follow this page are hereby made part of this Contract.

- **PERMITS AND/OR PERMIT APPLICATIONS**

	Approval Date
Flood Management General Certification	October 12, 2023

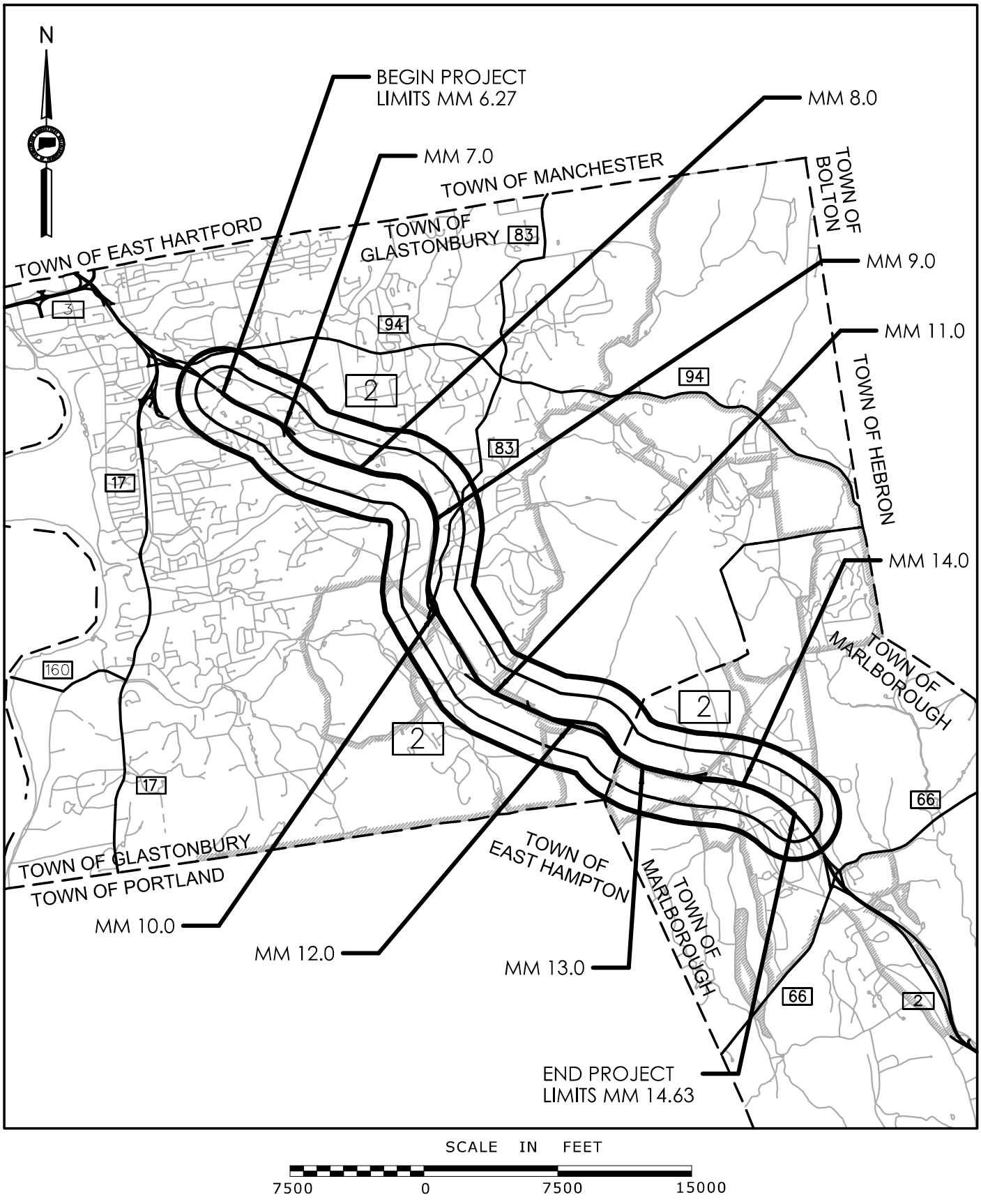
- **DETAILED ESTIMATE**
- **PROJECT LOCATION PLAN**
- **TYPICAL SECTIONS, DETAILS, AND PLANS**
- **Construction Contracts - Required Contract Provisions (State Funded Only Contracts)**

	HIGHWAY ITEMS																							
				A				A	A	A	A	A							A	A	A	A		
ITEM NUMBER	0202000	0202529	0305000	0406124	0406125.2[A	0406159	0406173	0406195	0406238	0406314	0406315	0406316	0406600	0407001	0407002	0409001	0653001	0815200	0969030	0969054	0971001	0975004		
ITEM	EARTH EXCAVATION	CUT BITUMINOUS CONCRETE PAVEMENT	PROCESSED AGGREGATE	BITUMINOUS CONCRETE SURFACE PATCHING	BITUMINOUS CONCRETE PATCHING - PARTIAL DEPTH	PMA S0.5	HMA S0.25	FILLING JOINTS AND CRACKS IN BITUMINOUS CONCRETE PAVEMENT	NON-TRACKING ASPHALT TACK COAT	80 MIL PAVEMENT MARKING GROOVE 5" WIDE	80 MIL PAVEMENT MARKING GROOVE 7" WIDE	80 MIL PAVEMENT MARKING GROOVE 9" WIDE	MATERIAL TRANSFER VEHICLE	RUMBLE STRIPS-AUTOMATED	RUMBLE STRIPS-MANUAL	FINE MILLING OF BITUMINOUS CONCRETE (0" TO 4")	CLEAN EXISTING CATCH BASIN	BITUMINOUS CONCRETE PARK CURBING	PROJECT COORDINATOR (MINIMUM BID)	CONTRACTOR QUALITY CONTROL PROGRAM LEVEL 1	MAINTENANCE AND PROTECTION OF TRAFFIC	MOBILIZATION AND PROJECT CLOSEOUT		
UNIT	C.Y.	L.F.	TON	S.Y.	S.Y.	TON	TON	L.F.	GAL	L.F.	L.F.	L.F.	TON	L.F.	L.F.	S.Y.	EA.	L.F.	LS	LS	LS	LS		
Route 2	1	1228	302	1158	4594	53978	24526	292645	62015	194174	28807	5555	54061	88123	88123	463089	70	50	LS	LS	LS	LS		
Project wide	1	1228	302	1158	4594	53978	24526	292645	62015	194174	28807	5555	54061	88123	88123	463089	70	50	LS	LS	LS	LS		
SUBTOTAL	101	1228	302	1158	4594	53978	24555	292645	62015	194174	28807	5555	54061	88123	88123	463089	70	50	LS	LS	LS	LS		
UNASSIGNED	0	62	18	92	256	0	0	14655	3101	9826	1493	345	2739	4477	4477	23211	0	10	LS	LS	LS	LS		
TOTAL	101	1290	320	1250	4850	53978	24555	307300	65116	204000	30300	5900	56800	92600	92600	486300	70	60	LS	LS	LS	LS		

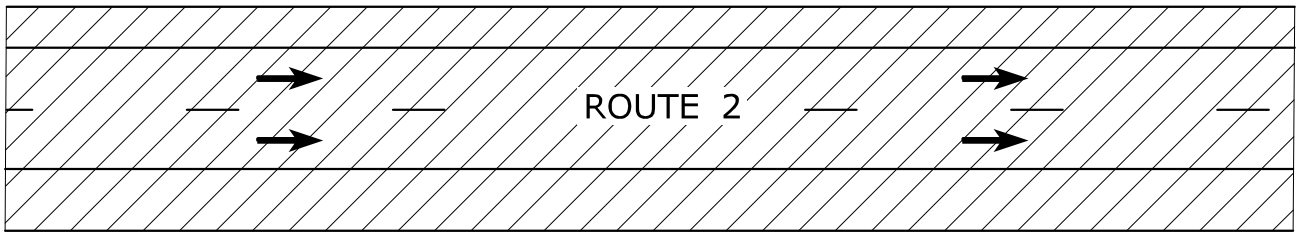
	GENERAL TRAFFIC ITEMS																			STRUCTURAL ITEMS				
			A									A	A	A	A				A		A	A		
ITEM NUMBER	0976002	0978002	0980020	0981100	1130010	1131002	1209114	1209124	1209126	1209128	1209131	1210110	1210111	1210113	1210115	1210118	1220027	1806202	1806226		0406171	0520036	0707009	
ITEM	BARRICADE WARNING LIGHTS - HIGH INTENSITY	TRAFFIC DRUM	CONSTRUCTION SURVEYING	42" TRAFFIC CONE	ARROW BOARD	REMOTE CONTROL CHANGEABLE MESSAGE SIGN	HOT-APPLIED PAINTED PAVEMENT MARKINGS 4" YELLOW	HOT-APPLIED PAINTED PAVEMENT MARKINGS 4" WHITE	HOT-APPLIED PAINTED PAVEMENT MARKINGS 6" WHITE	HOT-APPLIED PAINTED PAVEMENT MARKINGS 8" WHITE	HOT-APPLIED PAINTED LEGEND, ARROWS AND MARKINGS	4" WHITE TYPE I EPOXY RESIN PAVEMENT MARKINGS	4" YELLOW TYPE I EPOXY RESIN PAVEMENT MARKINGS	6" WHITE TYPE I EPOXY RESIN PAVEMENT MARKINGS	8" WHITE TYPE I EPOXY RESIN PAVEMENT MARKINGS	EPOXY RESIN PAVEMENT MARKINGS SYMBOLS AND LEGEND	CONSTRUCTION SIGNS	TRUCK-MOUNTED OR TRAILER-MOUNTED IMPACT ATTENUATOR	PRE-WARNING VEHICLE		HMA S0.5	ASPHALTIC PLUG EXPANSION JOINT SYSTEM	MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)	
UNIT	DAY	EA.	LS	EA.	DAY	DAY	L.F.	L.F.	L.F.	L.F.	S.F.	L.F.	L.F.	L.F.	L.F.	S.F.	S.F.	HR	HR		TON	C.F.	S.Y.	
Route 2	180	200	LS	200	222	222	194174	194174	57614	11110	1503	97087	97087	28807	5555	1503	300	4608	1536		83	230	341	
Project wide	180	200	LS	200	222	222	194174	194174	57614	11110	1503	97087	97087	28807	5555	1503	300	4608	1536		83	230	341	
SUBTOTAL	180	200	LS	200	222	222	194174	194174	57614	11110	1503	97087	97087	28807	5555	1503	300	4608	1536		83	230	341	
UNASSIGNED	10	0	LS	0	0	0	9826	9826	2986	590	97	4913	4913	1493	345	97	0	0	0		0	0	0	
TOTAL	190	200	LS	200	222	222	204000	204000	60600	11700	1600	102000	102000	30300	5900	1600	300	4608	1536		83	230	341	

State Project No:
0053-0201
City:
Glastonbury and Marlborough

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2



STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MARLBOROUGH	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION LOCATION PLAN 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	DATE: OCTOBER 2023

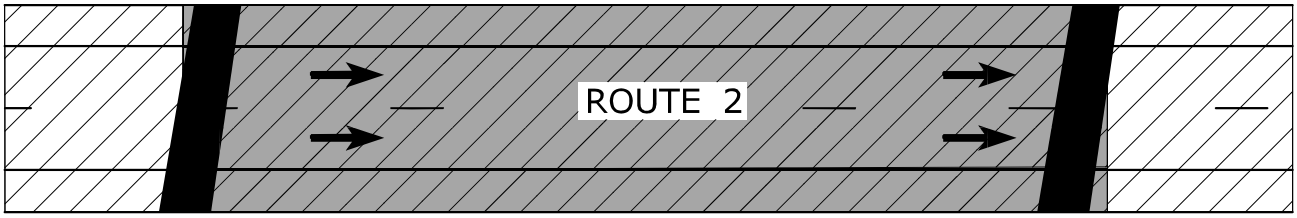


3" FINE MILLING OF BITUMINOUS CONCRETE PAVEMENT (0 TO 4)
AND 2" PMA S0.5 TRAFFIC LEVEL 3, ON 1" HMA S0.25 TRAFFIC LEVEL 2

NOTES:

1. LIMITS OF BITUMINOUS CONCRETE MIXES EXTEND FROM EDGE OF ROAD TO EDGE ROAD.
2. RUMBLE STRIPS SHALL BE INSTALLED PER THE CONTRACT SPECIAL PROVISIONS.

TYPICAL TREATMENT FOR ROUTE 2 (MP 6.27 - 14.60 EB, 14.63 WB)



2" FINE MILLING OF BITUMINOUS CONCRETE PAVEMENT (0 TO 4)
AND 2" PMA S0.5 TRAFFIC LEVEL 3

NOTES:

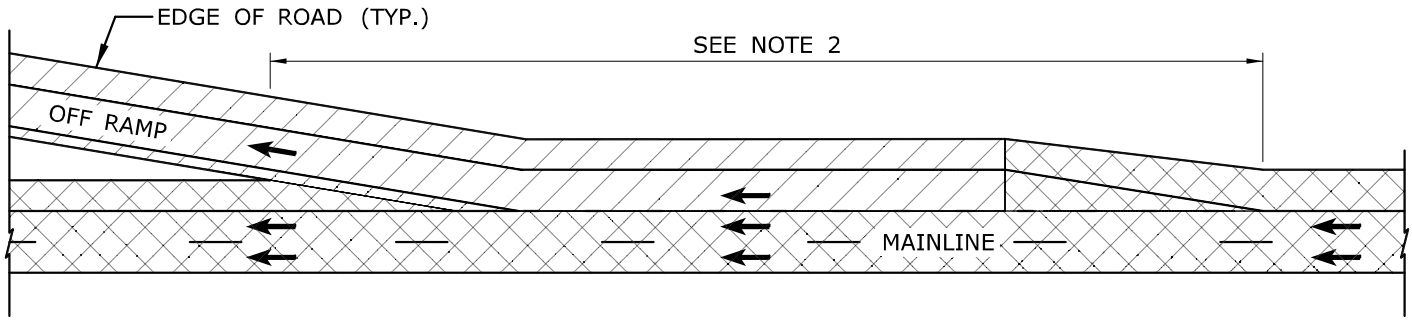
1. LIMITS OF BITUMINOUS CONCRETE MIXES EXTEND FROM EDGE OF ROAD TO EDGE ROAD.
2. NO PARTIAL DEPTH PATCHING WILL BE DONE ON BRIDGE OVERPASSES.

TYPICAL TREATMENT FOR ROUTE 2 OVERPASSES

NOT TO SCALE

MDS-01

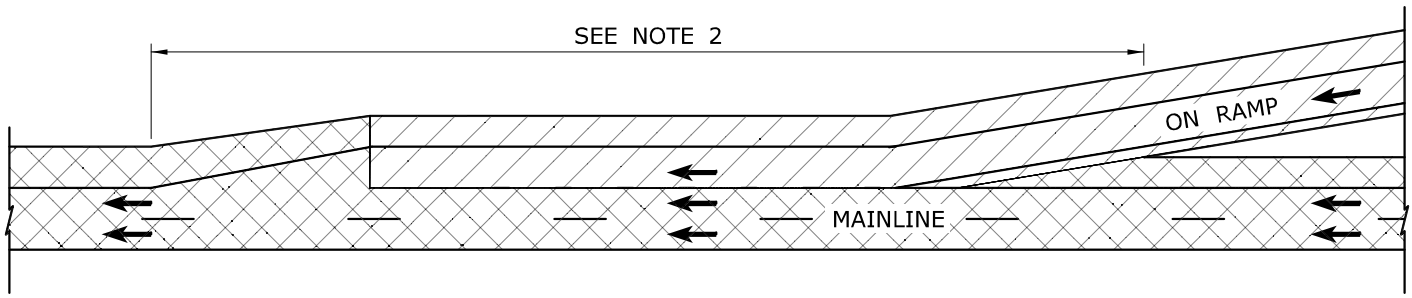
STATE PROJECT NO.: 0053-0201 CITY/TOWN: 0053-0201 GLASTONBURY, MALBOROUGH	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	CDM Smith	DATE: OCTOBER 2023



2" FINE MILLING OF BITUMINOUS CONCRETE PAVEMENT (0" TO 4") AND PAVE 2" PMA S0.5 TRAFFIC LEVEL 3

MAINLINE TREATMENT

TYPICAL EXIT RAMP TREATMENT



2" FINE MILLING OF BITUMINOUS CONCRETE PAVEMENT (0" TO 4") AND PAVE 2" PMA S0.5 TRAFFIC LEVEL 3

MAINLINE TREATMENT

TYPICAL ENTRANCE RAMP TREATMENT

NOTES:

1. LIMITS OF PMA APPLICATION EXTEND FROM EDGE OF ROAD TO EDGE OF ROAD ON ENTRANCE AND EXIT RAMPS AND INCLUDE GORE AREAS.
2. THICKNESS OF PMA SHALL NOT EXCEED 2" AT EDGE OF TREATMENT AT ANY LOCATION.

TYPICAL RAMP AND GORE AREA TREATMENTS

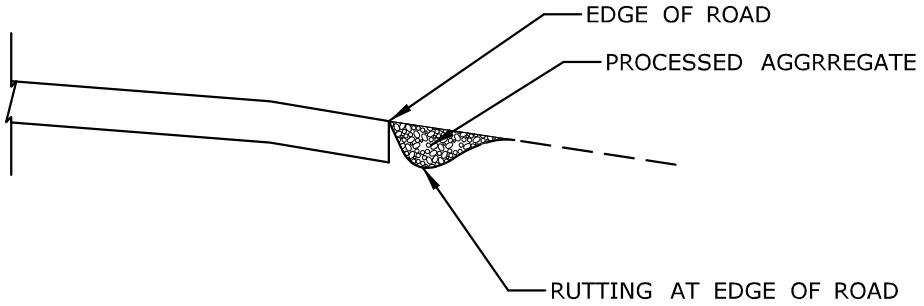
NOT TO SCALE

MDS-02

STATE PROJECT NO.: 0053-0201 CITY/TOWN: 0053-0201 GLASTONBURY, MALBOROUGH	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	DATE: OCTOBER 2023

NOTES:

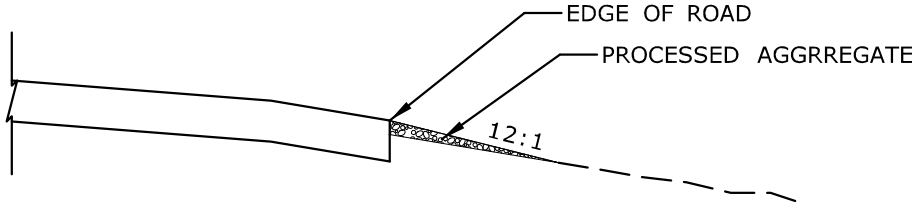
1. PLACE AND COMPACT PROCESSED AGGREGATE IN ANY RUTTED OR ERODED AREAS ADJACENT TO THE EDGE OF ROAD.



EDGE OF ROAD
RUTTED/ERODED TREATMENT

NOTES:

1. PLACE AND COMPACT PROCESSED AGGREGATE ADJACENT TO EDGE OF ROAD WHERE EXISTING VERTICAL DROP-OFF IS 2 INCHES OR GREATER.

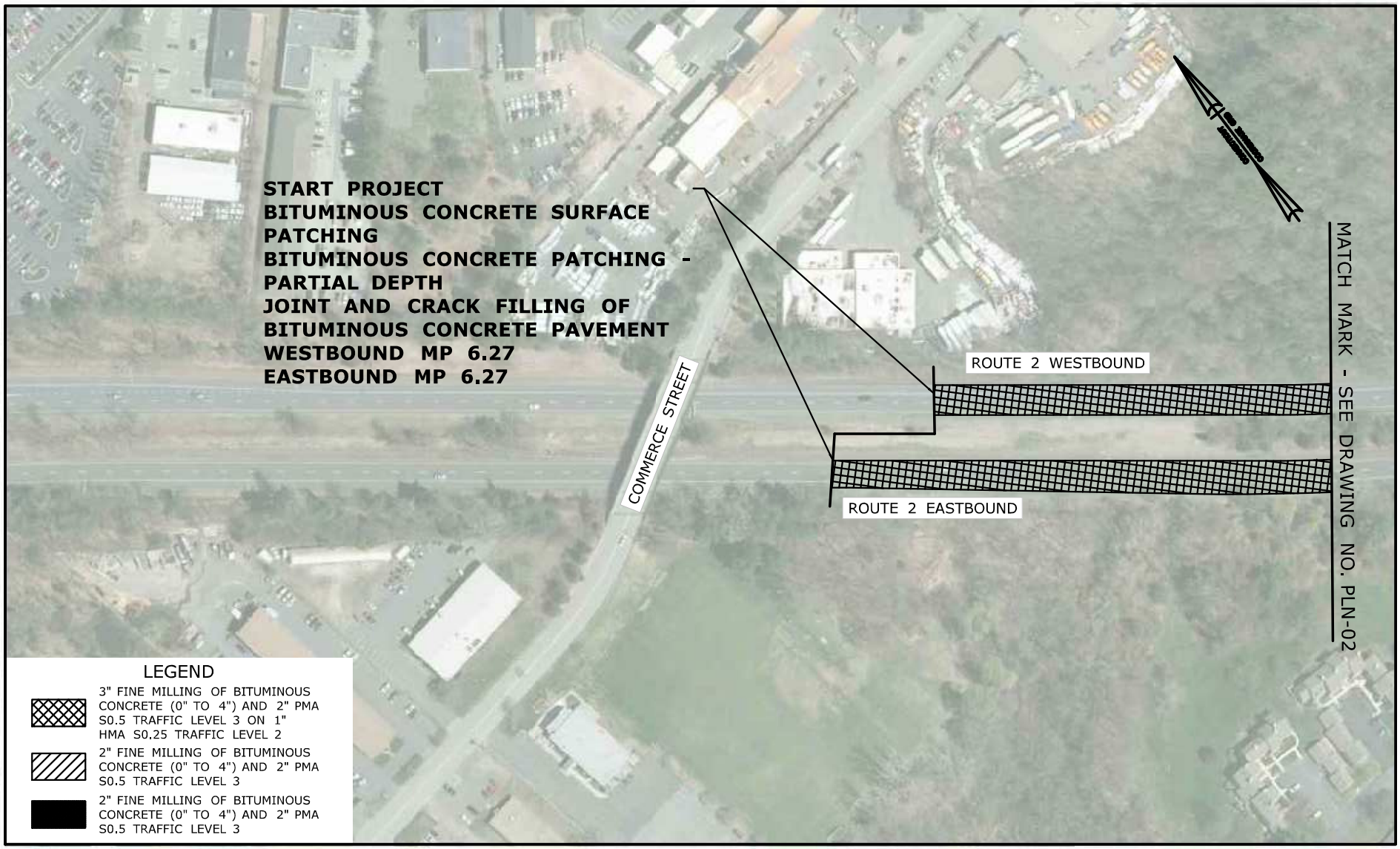


EDGE OF ROAD
SHOULDER DROP-OFF TREATMENT

NOT TO SCALE

MDS-03

STATE PROJECT NO.: 0053-0201 CITY/TOWN: 0053-0201 GLASTONBURY, MALBOROUGH	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	CDM Smith	DATE: OCTOBER 2023



MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-01

STATE PROJECT NO.:
0053-0201

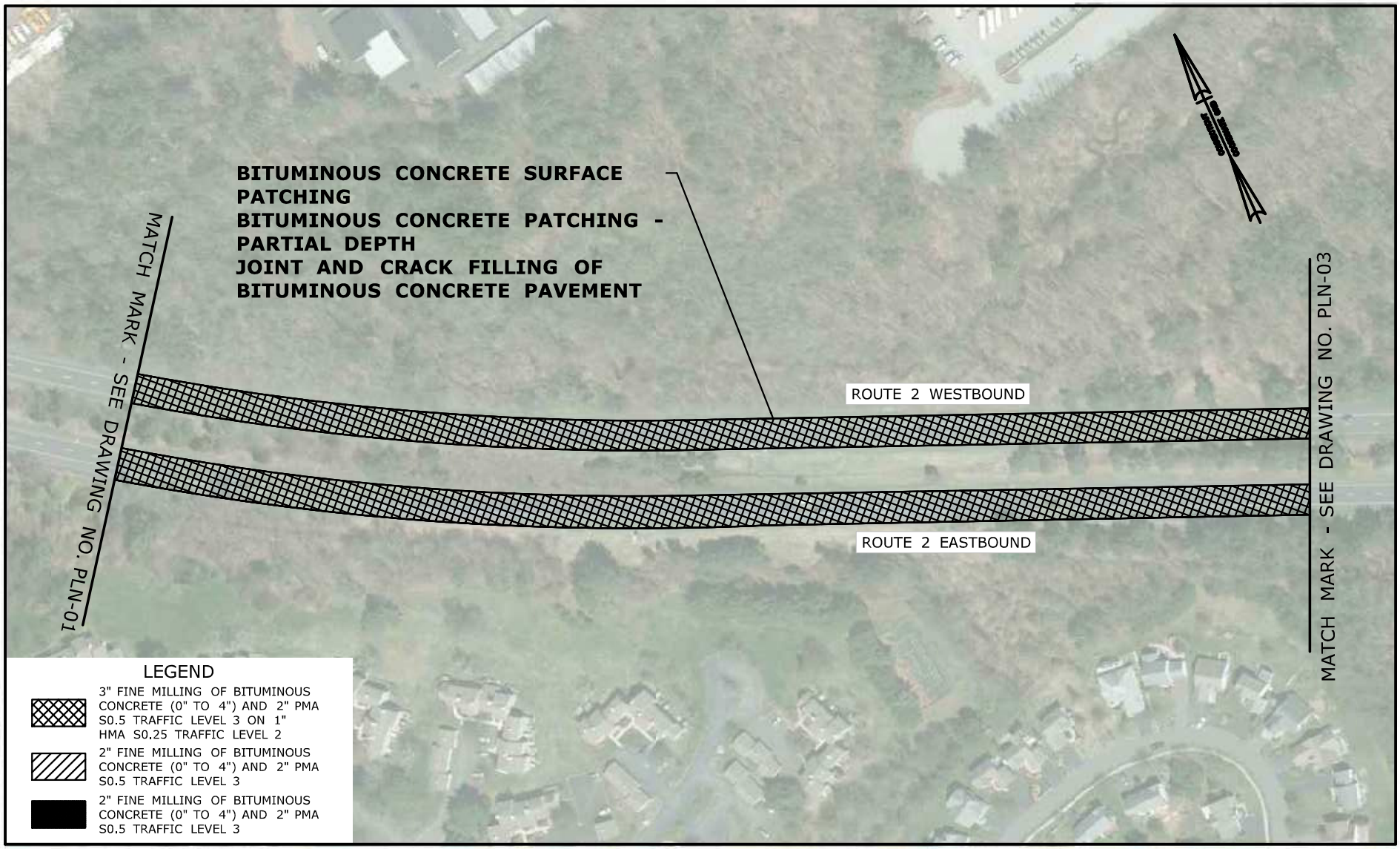
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



SCALE IN FEET

200 0 200 400

MAINLINE TREATMENT LIMITS

PLN-02

STATE PROJECT NO.:
0053-0201

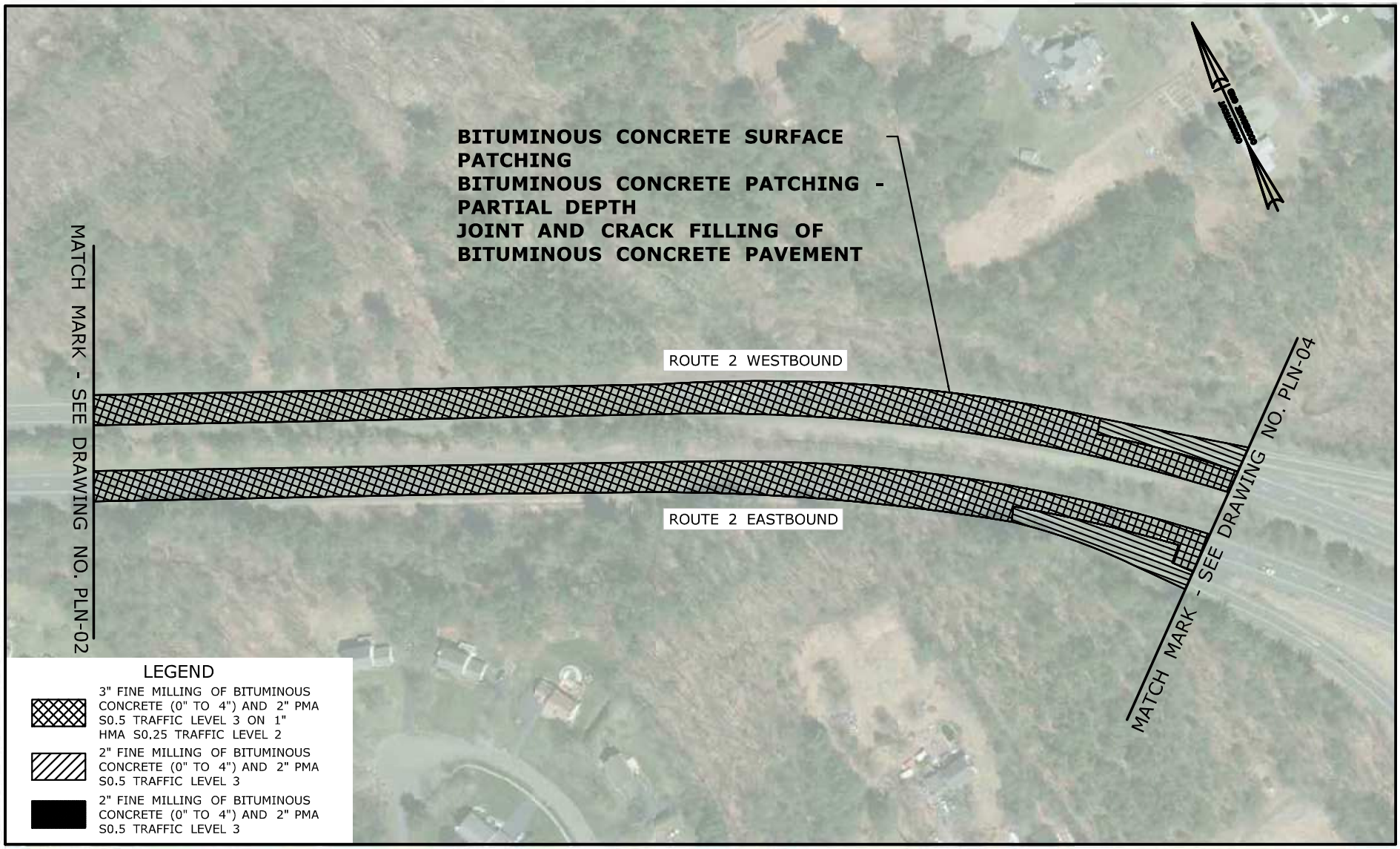
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-03

STATE PROJECT NO.:
0053-0201

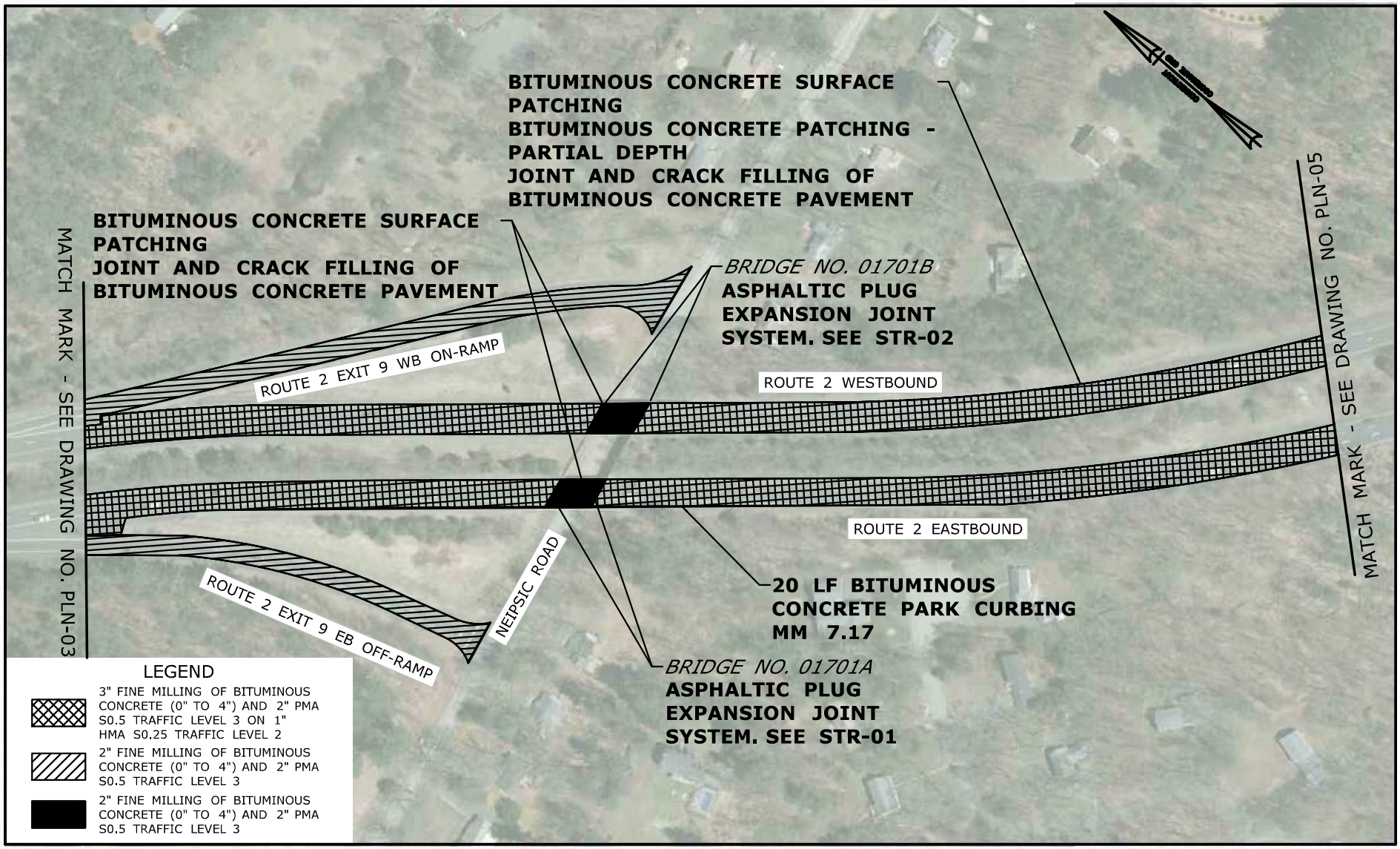
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-04

STATE PROJECT NO.:
0053-0201

CITY/TOWN:
GLASTONBURY, MALBOROUGH

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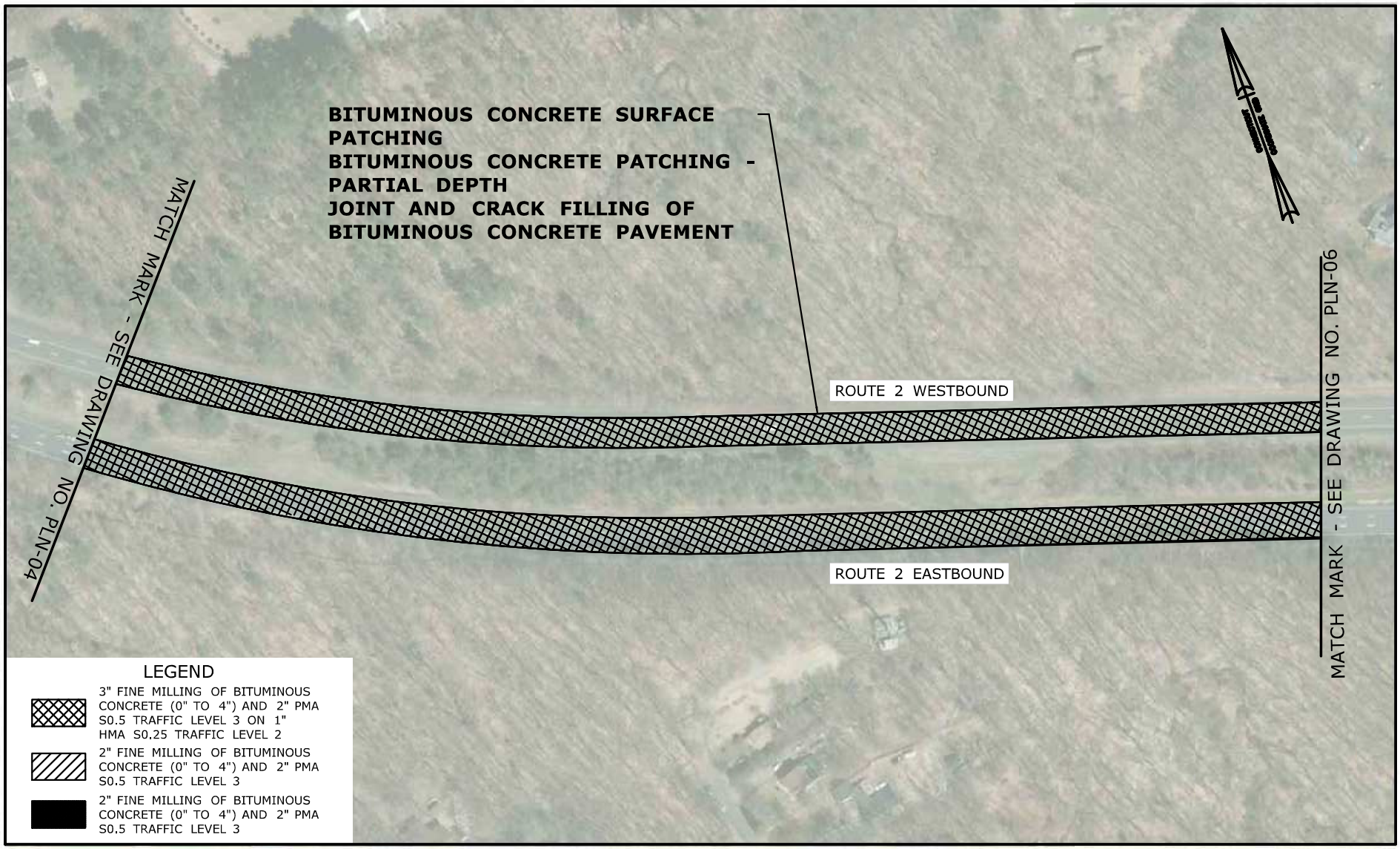
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



SCALE IN FEET

200 0 200 400

MAINLINE TREATMENT LIMITS

PLN-05

STATE PROJECT NO.:
0053-0201

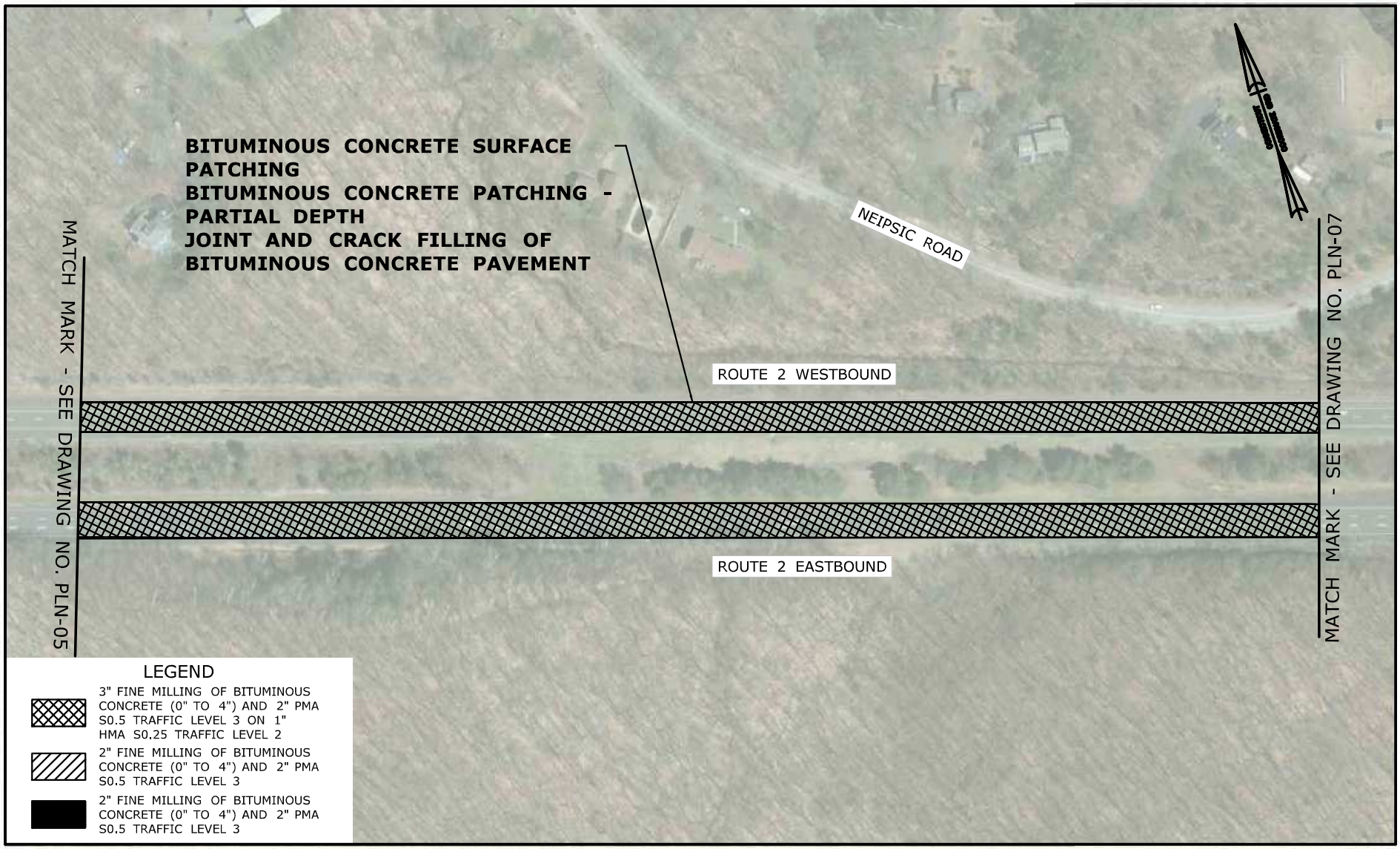
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-06

STATE PROJECT NO.:
0053-0201

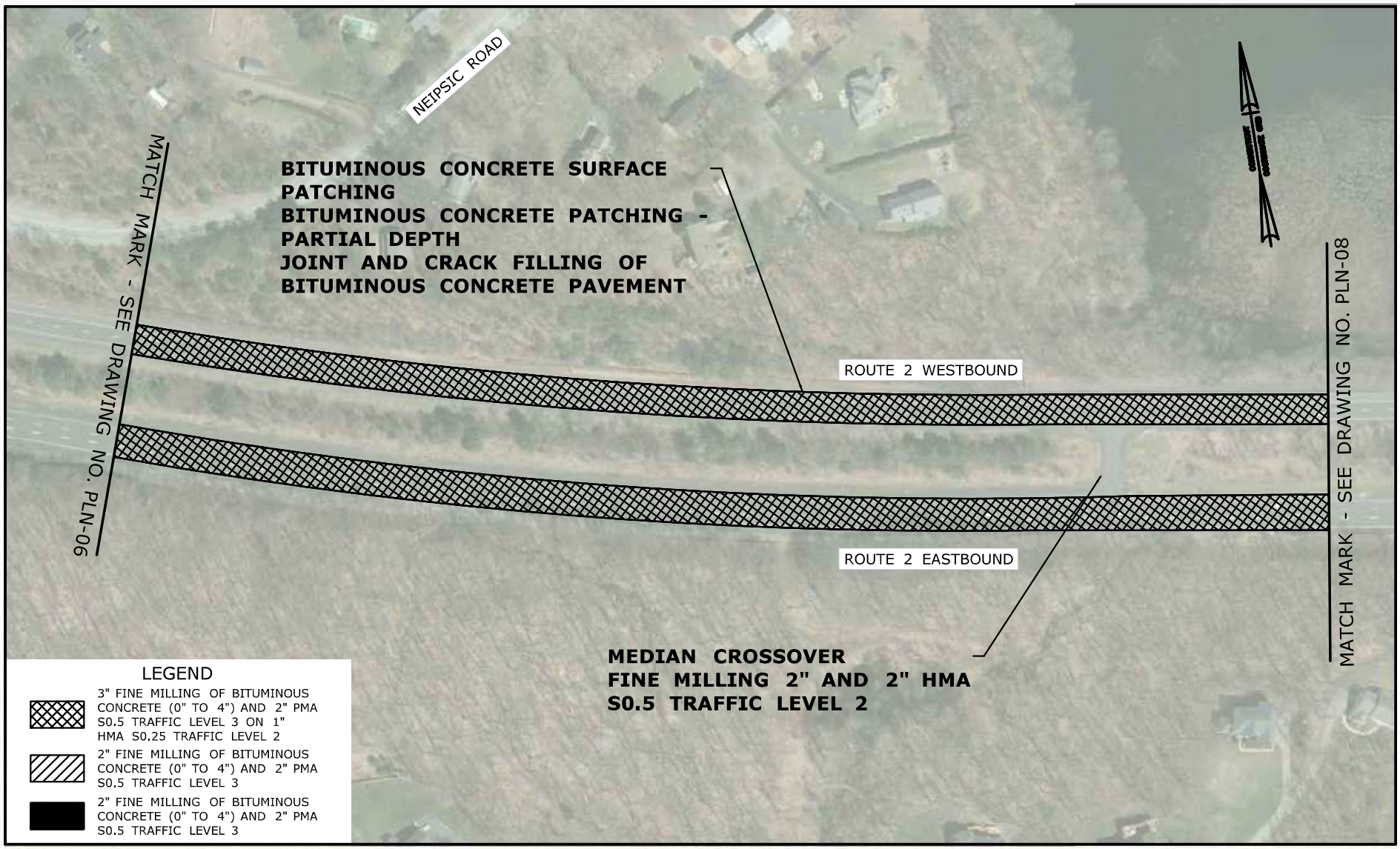
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



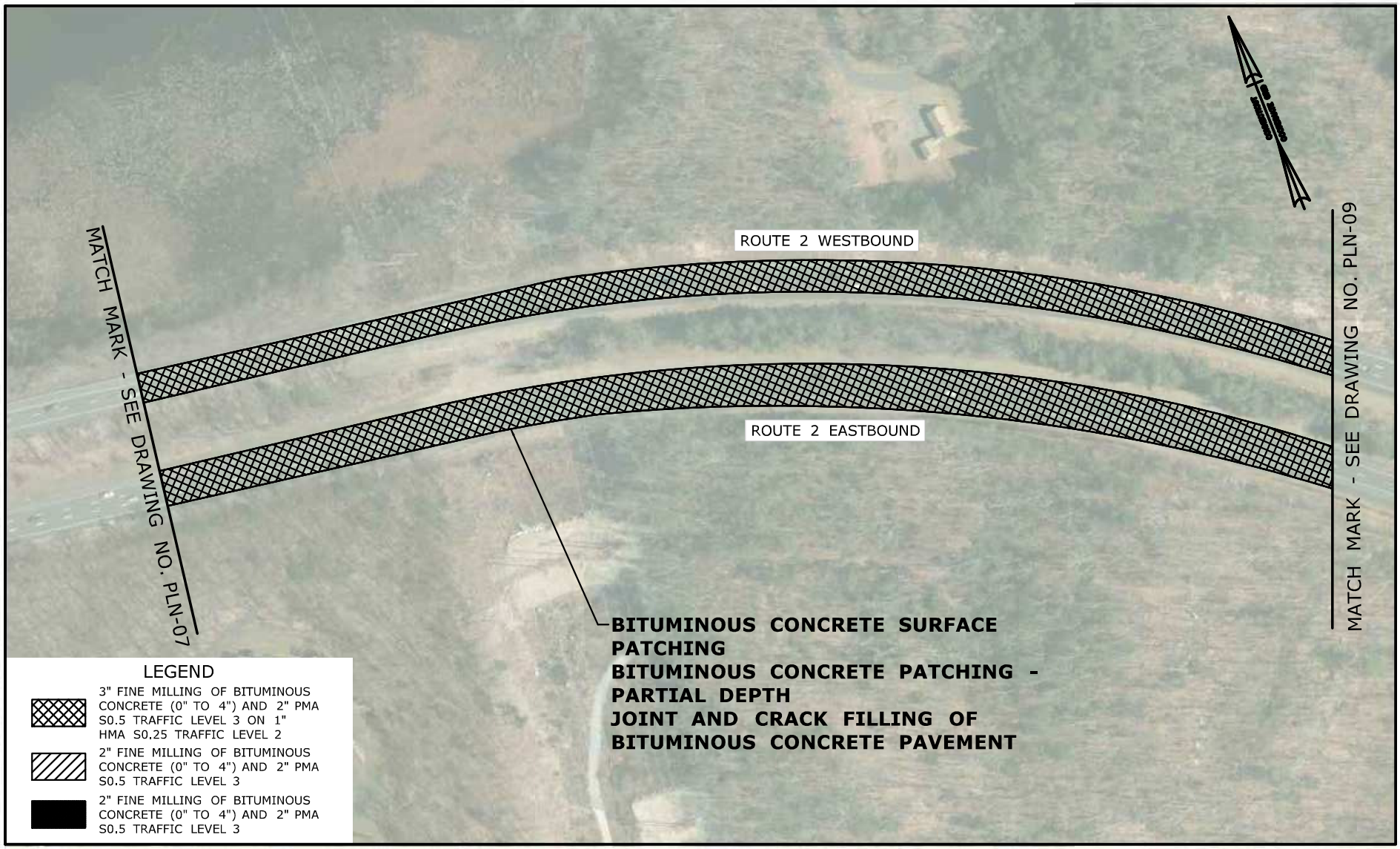
MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-07

	STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	DATE: OCTOBER 2023



SCALE IN FEET

200 0 200 400

MAINLINE TREATMENT LIMITS

PLN-08

STATE PROJECT NO.:
0053-0201

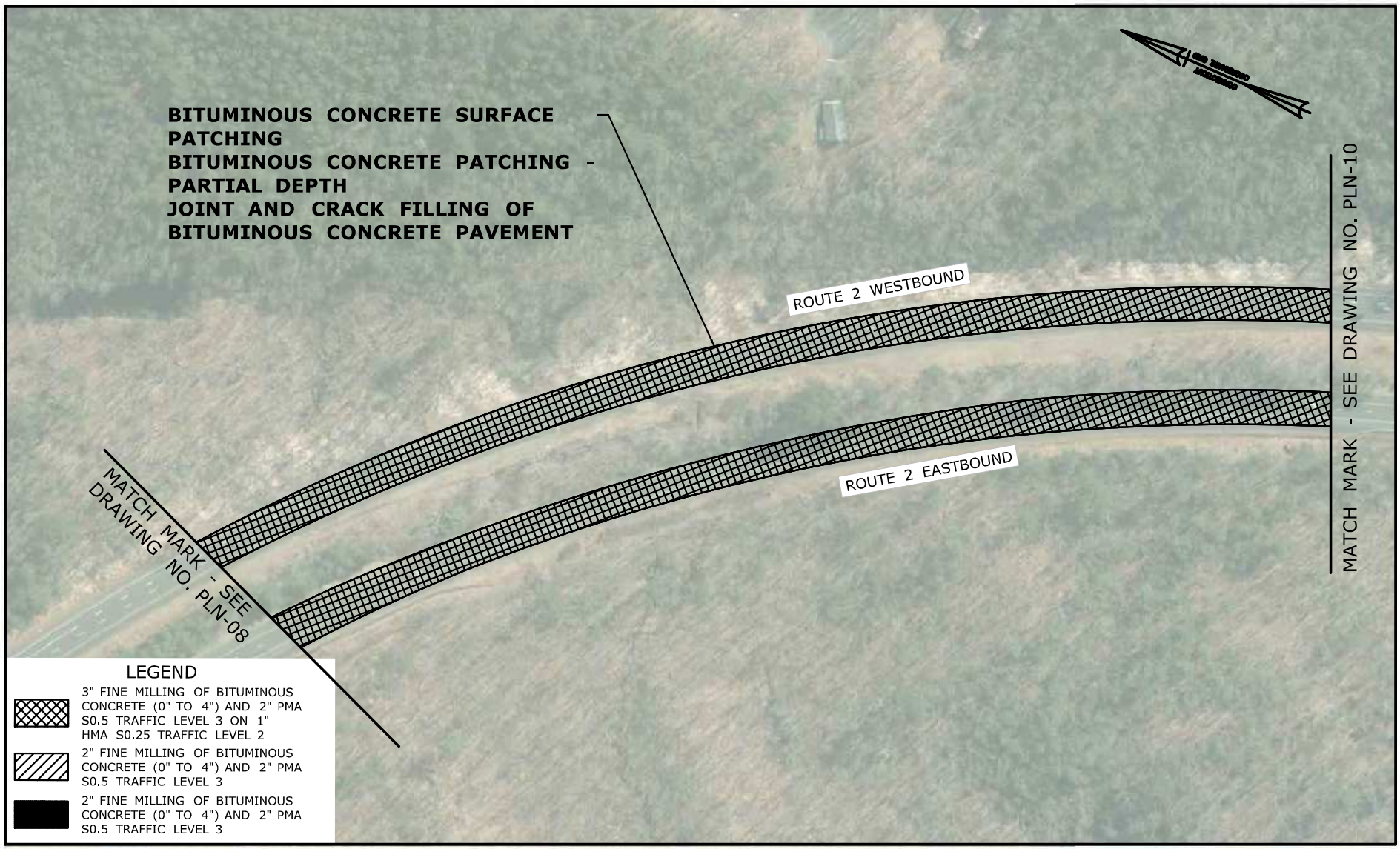
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



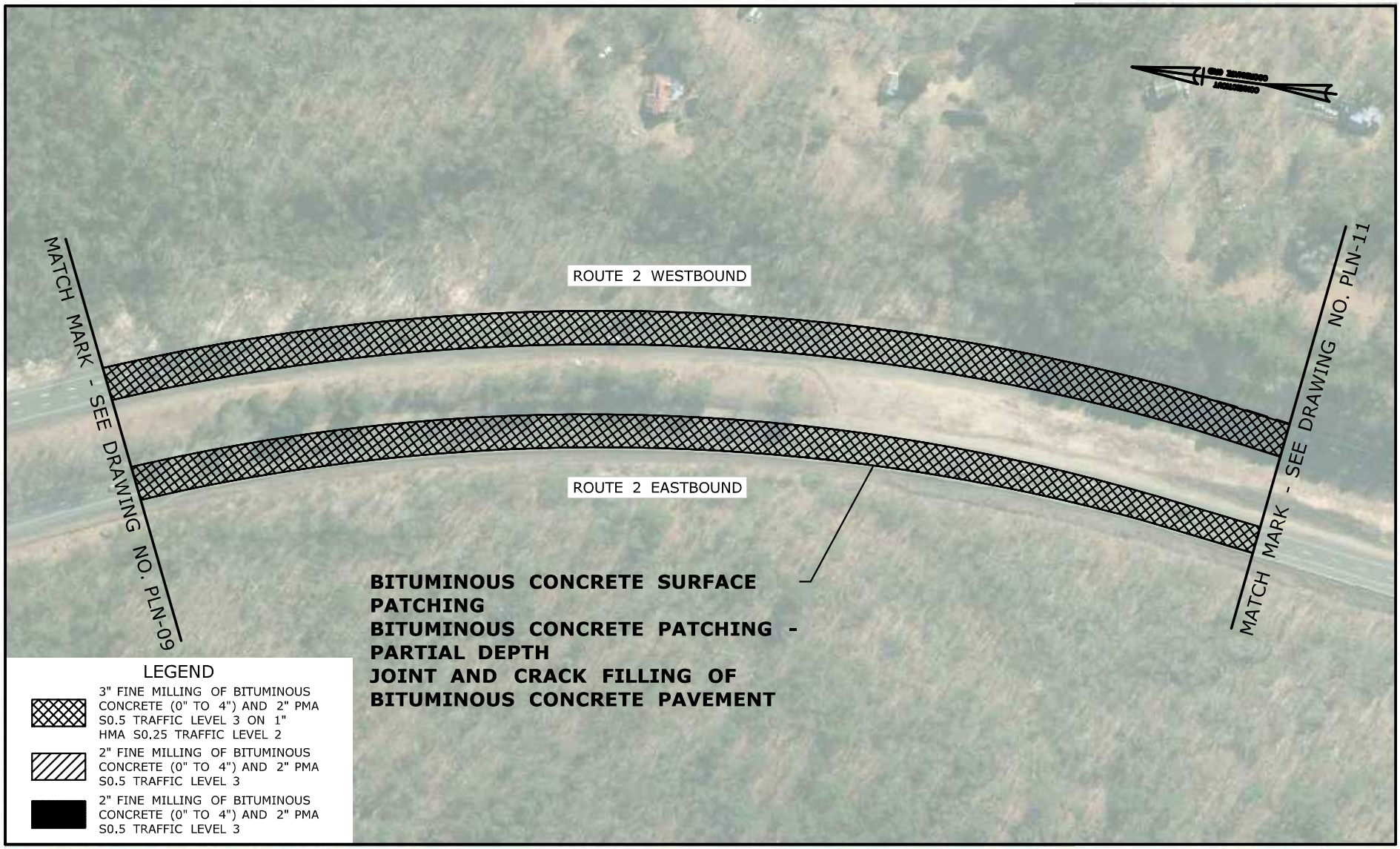
MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-09

	STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	DATE: OCTOBER 2023



MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-10

STATE PROJECT NO.:
0053-0201

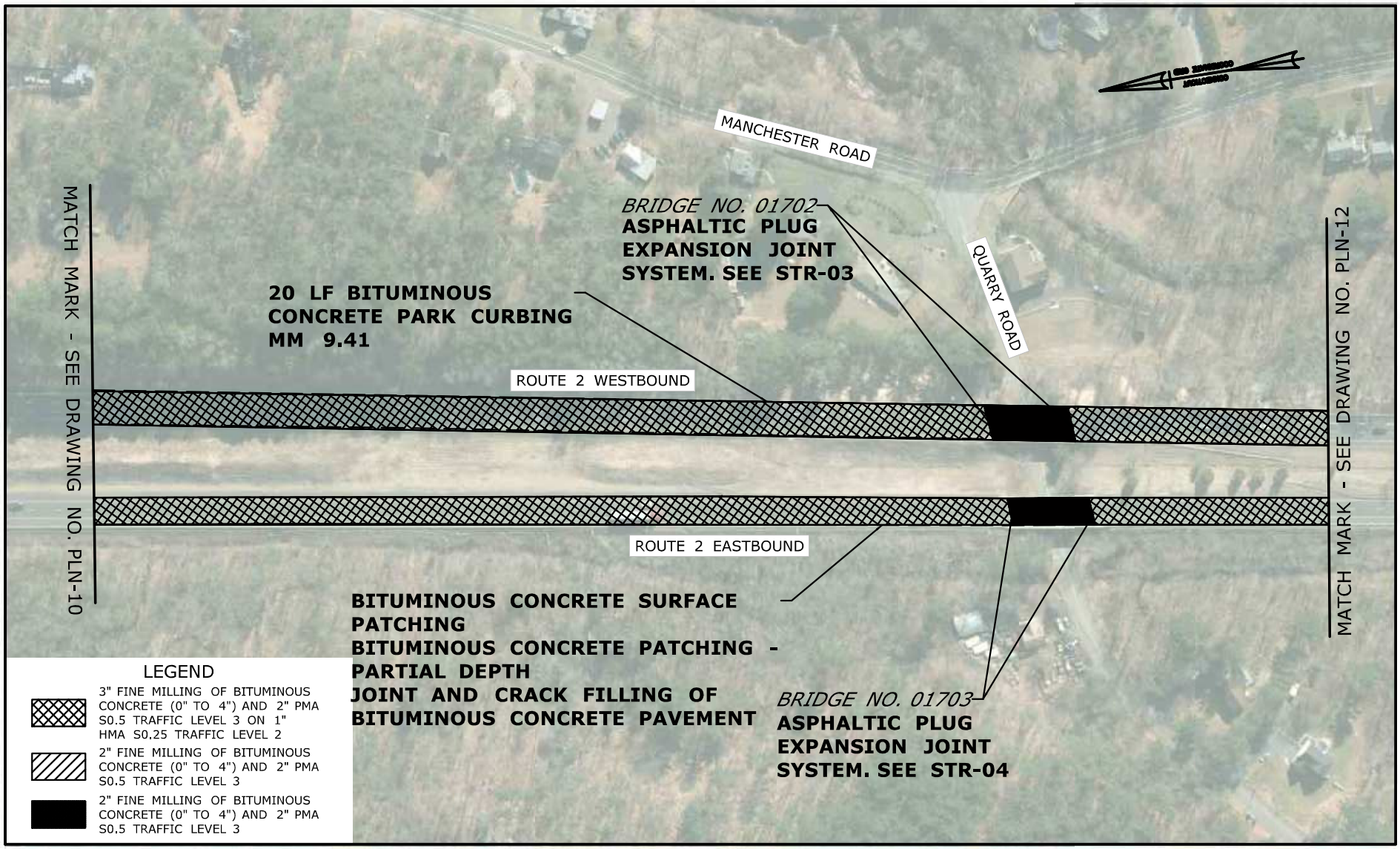
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-11

STATE PROJECT NO.:
0053-0201

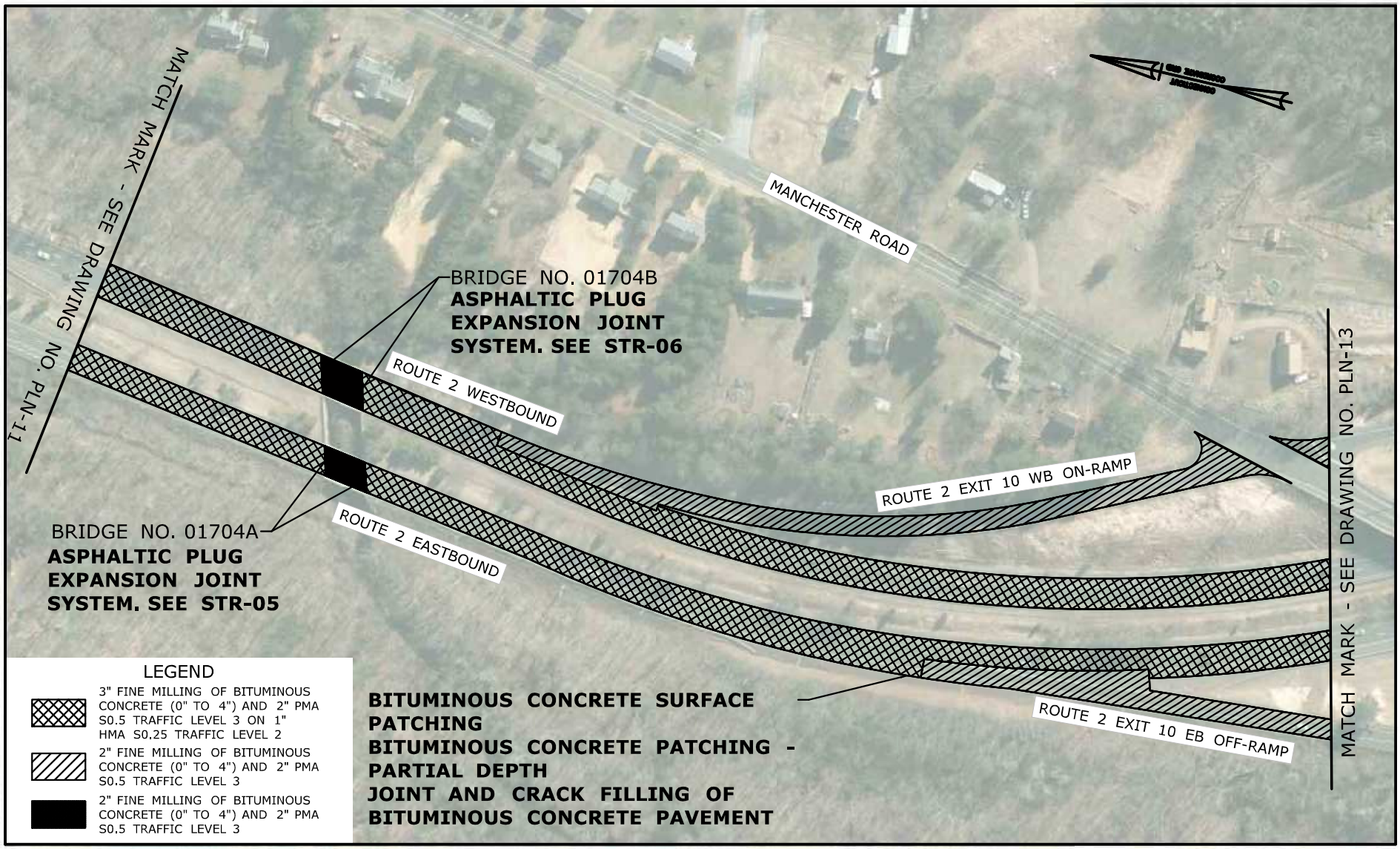
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



SCALE IN FEET

200 0 200 400

MAINLINE TREATMENT LIMITS

PLN-12

STATE PROJECT NO.:
0053-0201

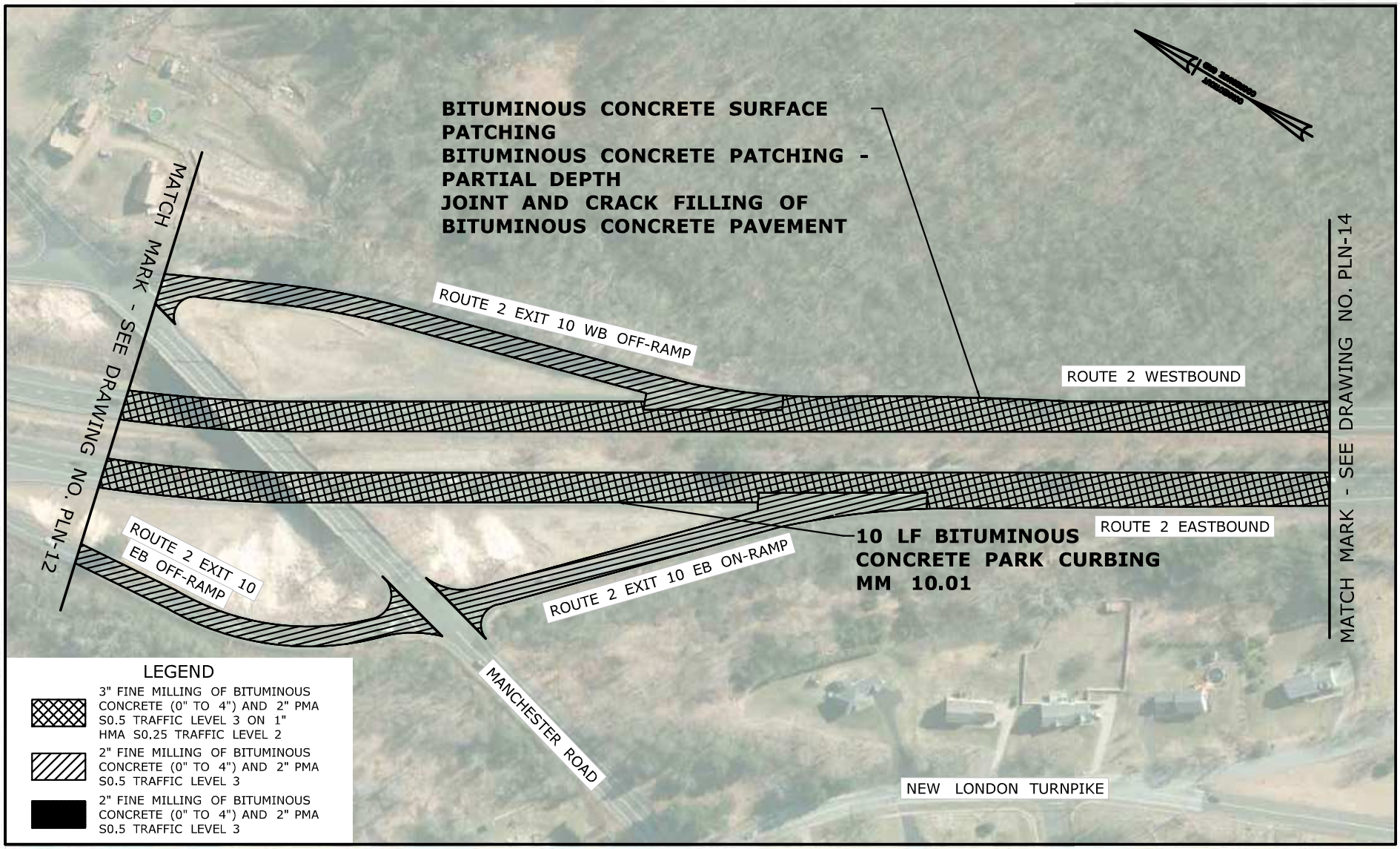
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



SCALE IN FEET

200 0 200 400

MAINLINE TREATMENT LIMITS

PLN-13

STATE PROJECT NO.:
0053-0201

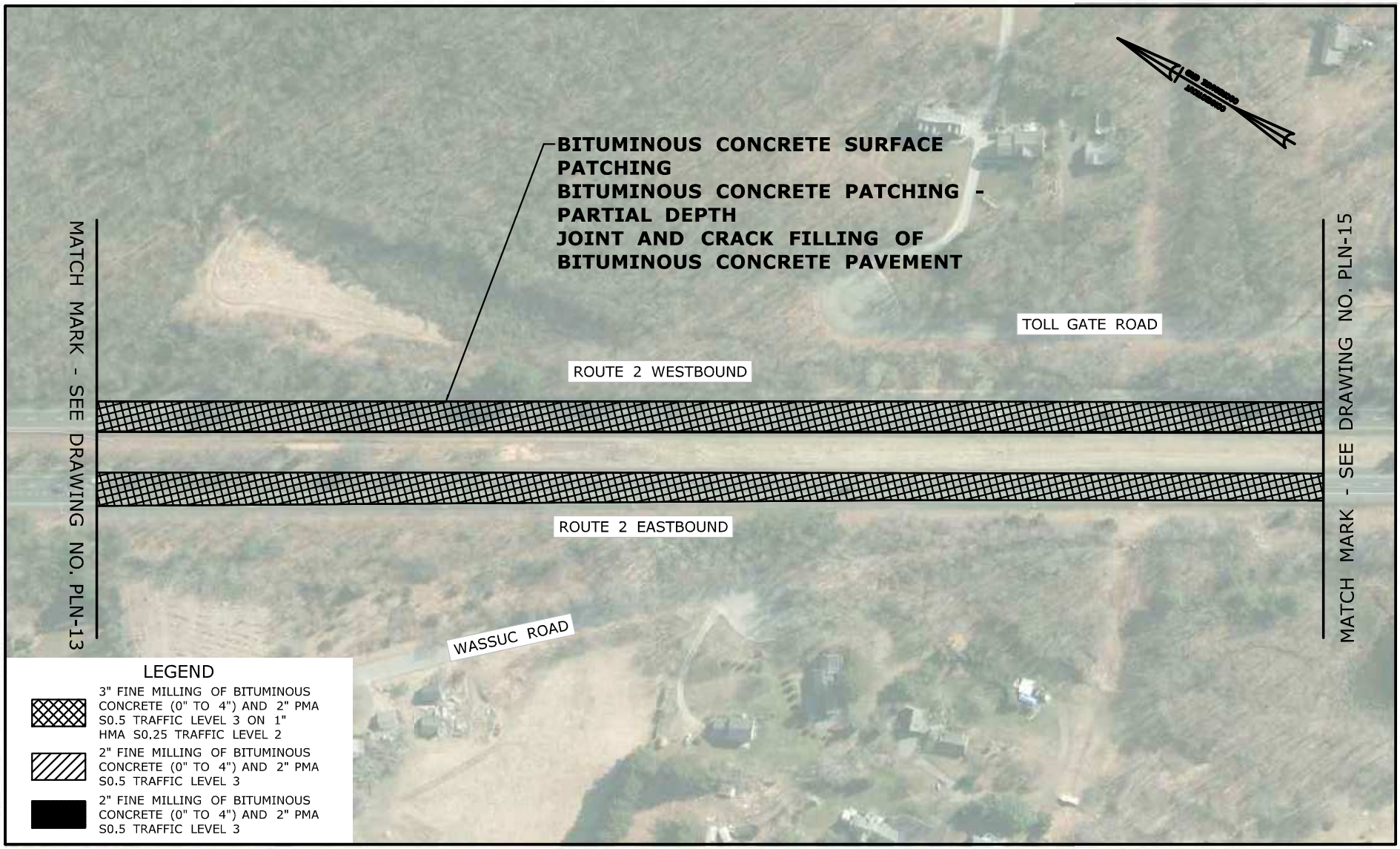
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



SCALE IN FEET

200 0 200 400

MAINLINE TREATMENT LIMITS

PLN-14

STATE PROJECT NO.:
0053-0201

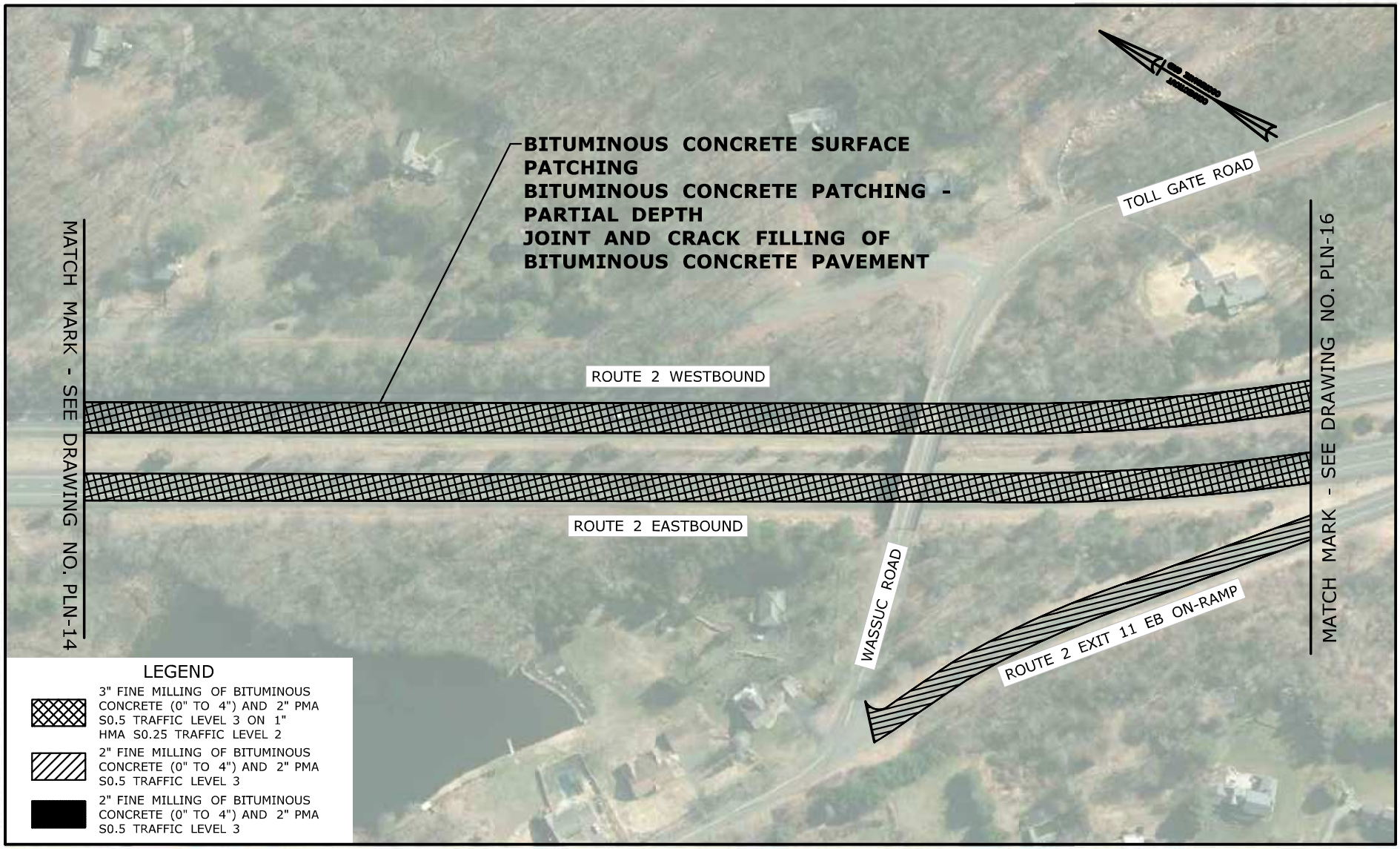
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



SCALE IN FEET

200 0 200 400

MAINLINE TREATMENT LIMITS

PLN-15

STATE PROJECT NO.:
0053-0201

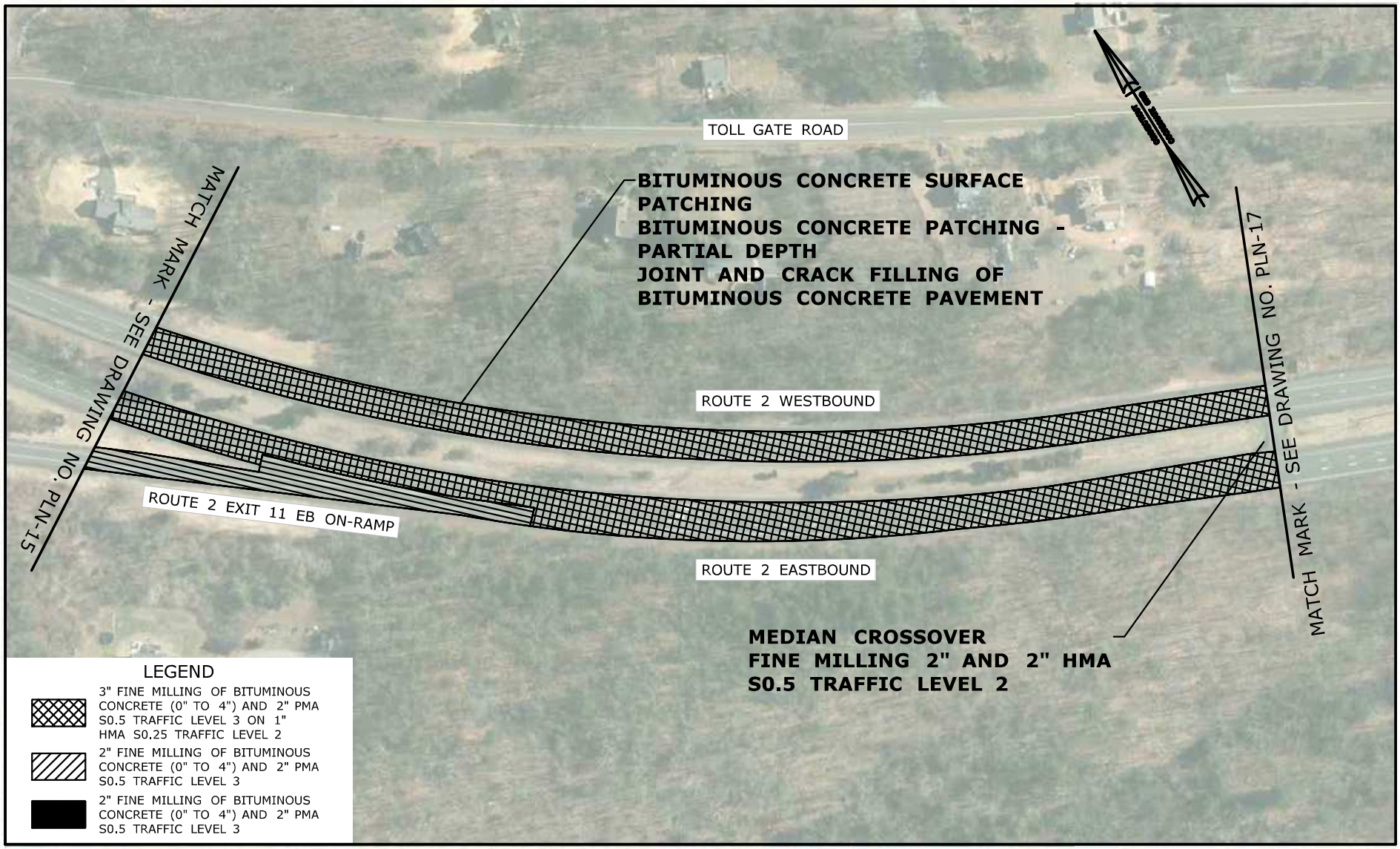
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



SCALE IN FEET

200 0 200 400

MAINLINE TREATMENT LIMITS

PLN-16

STATE PROJECT NO.:
0053-0201

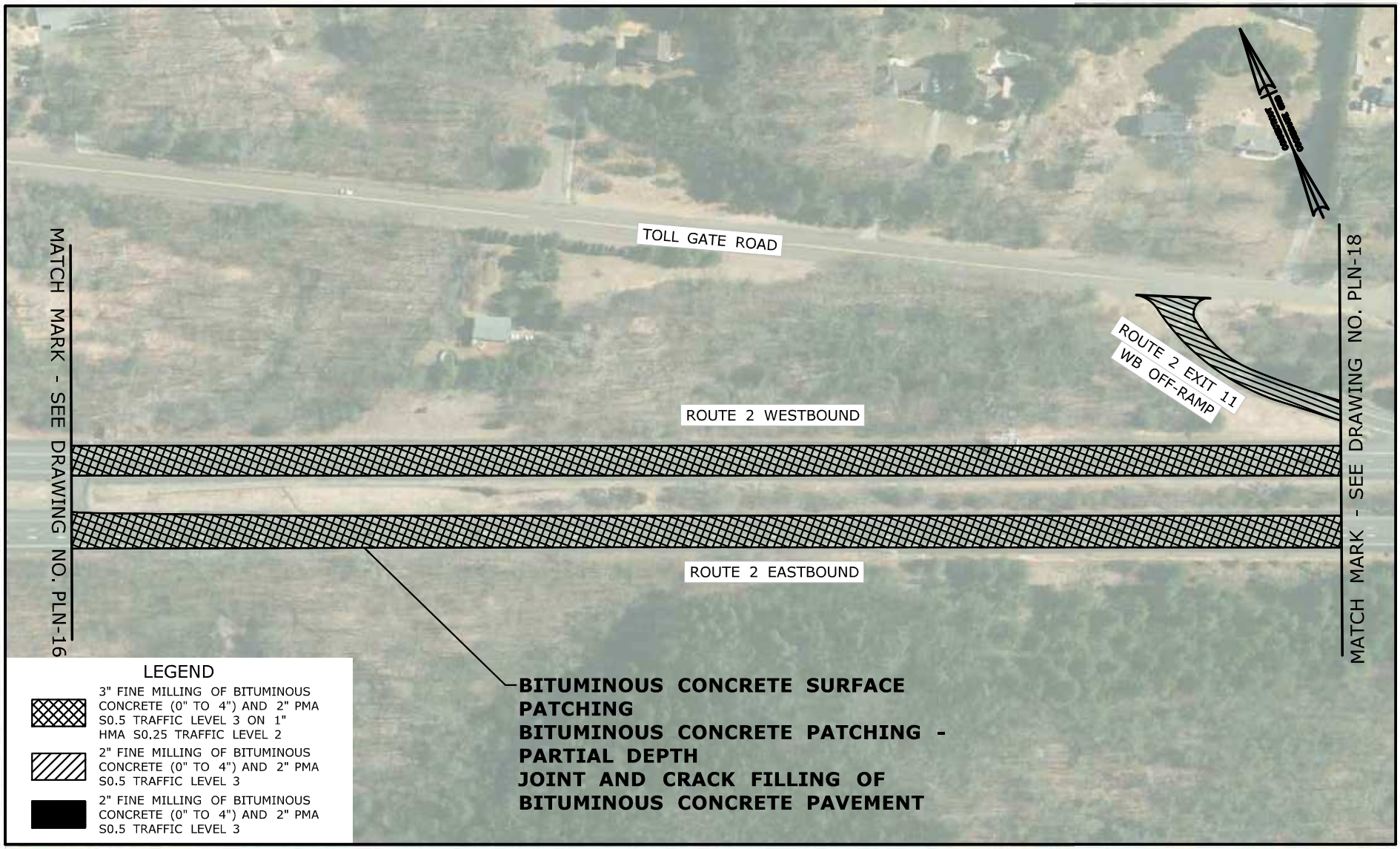
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-17

STATE PROJECT NO.:
0053-0201

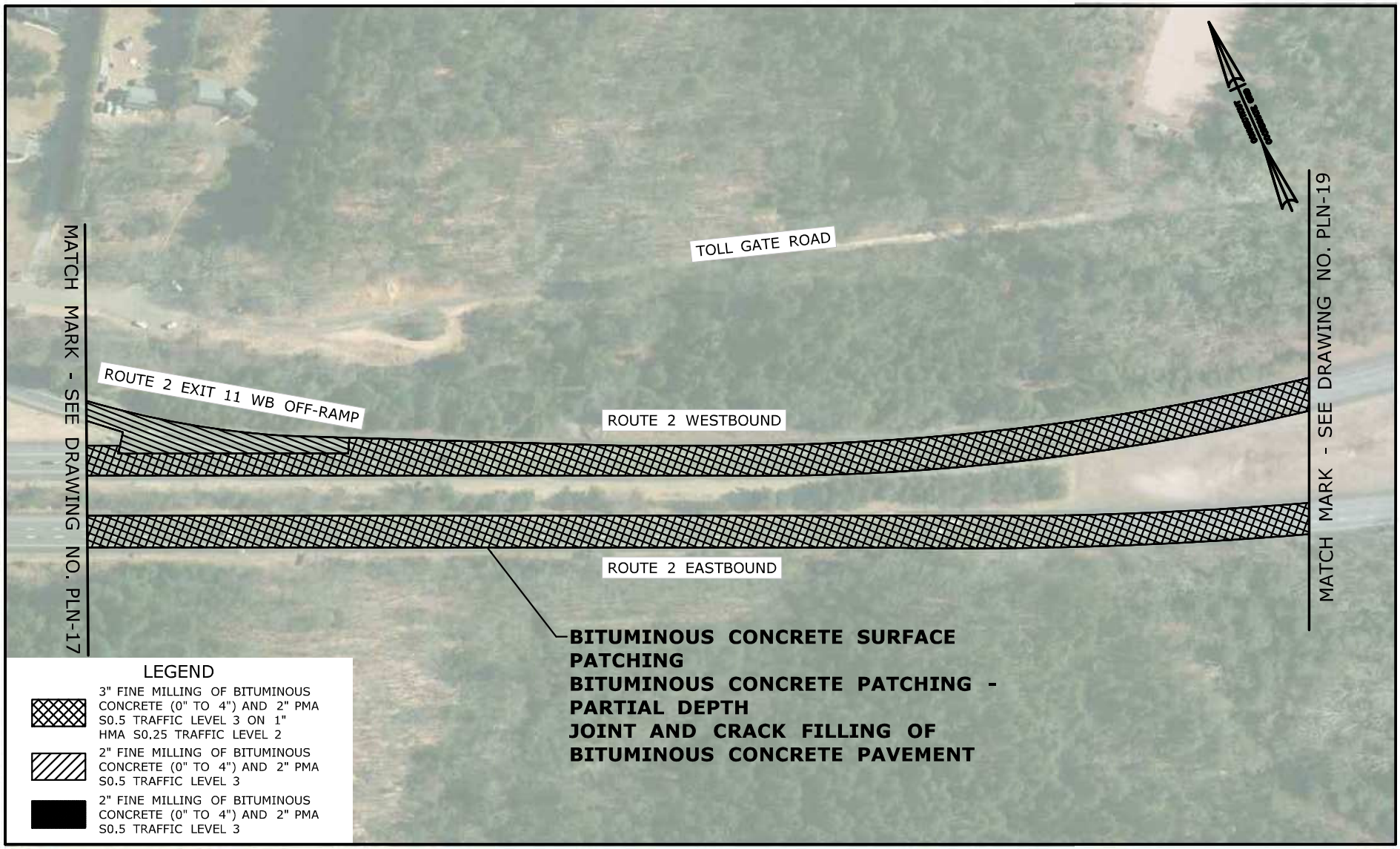
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-18

STATE PROJECT NO.:
0053-0201

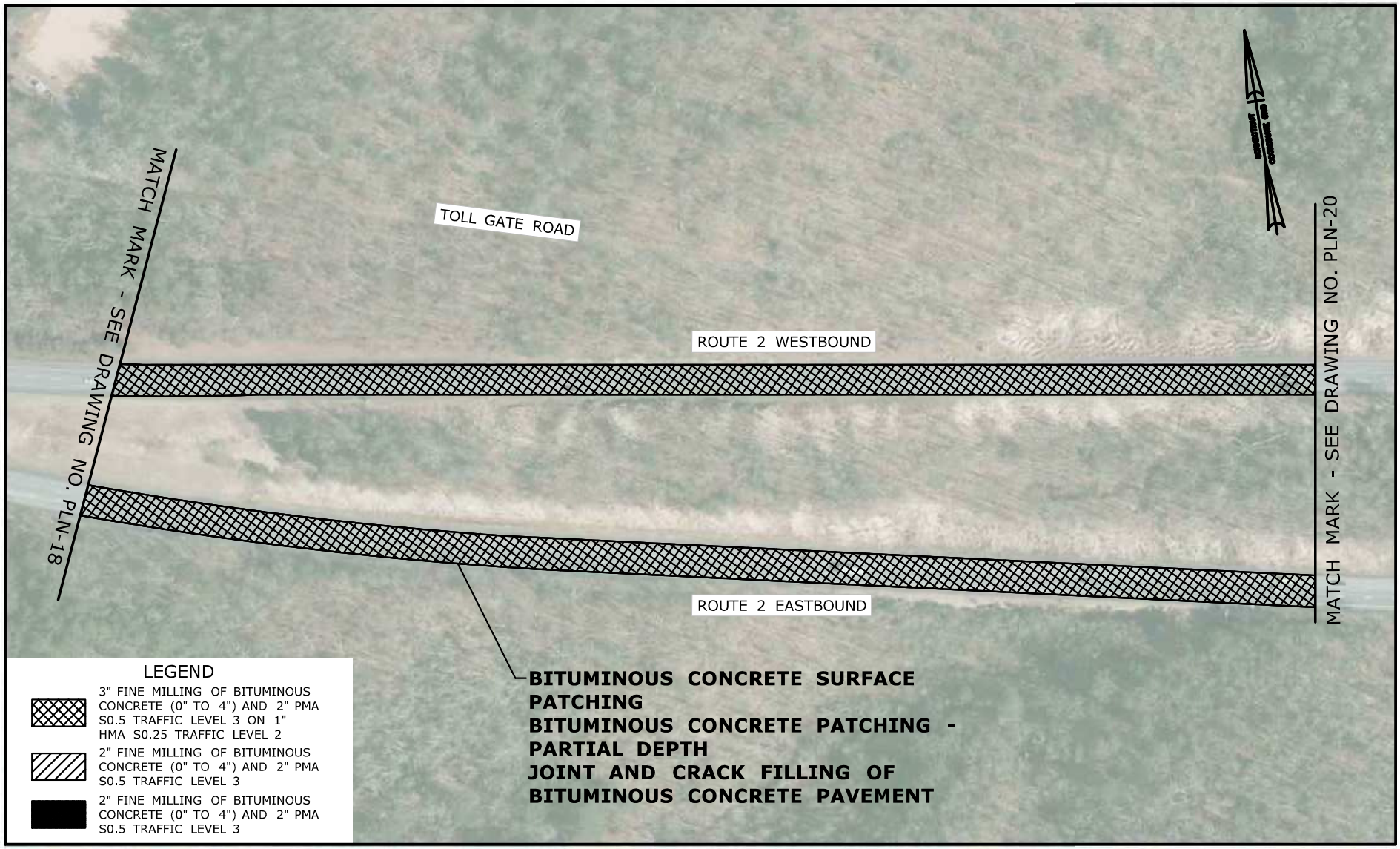
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-19

STATE PROJECT NO.:
0053-0201

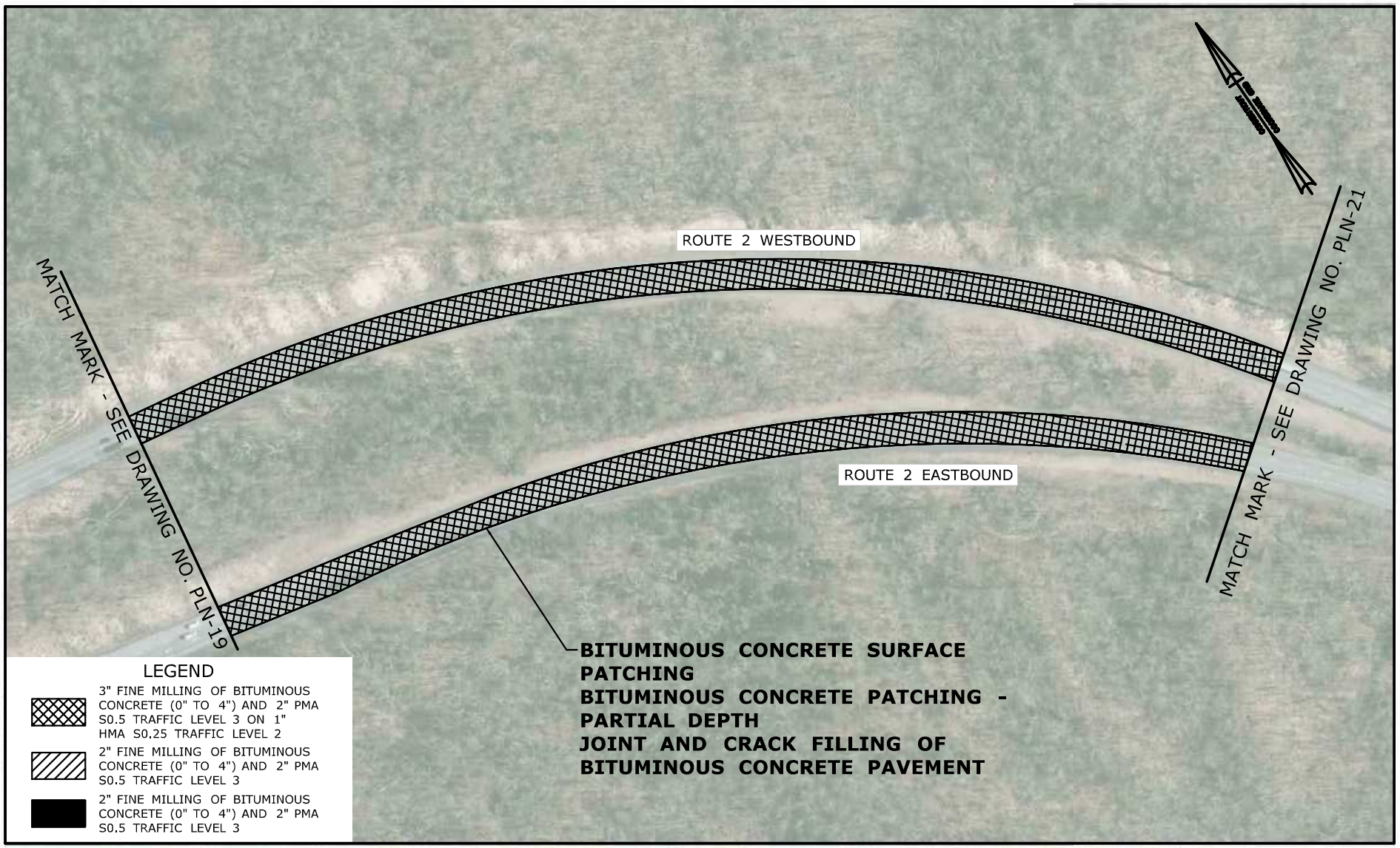
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



SCALE IN FEET

200 0 200 400

MAINLINE TREATMENT LIMITS

PLN-20

STATE PROJECT NO.:
0053-0201

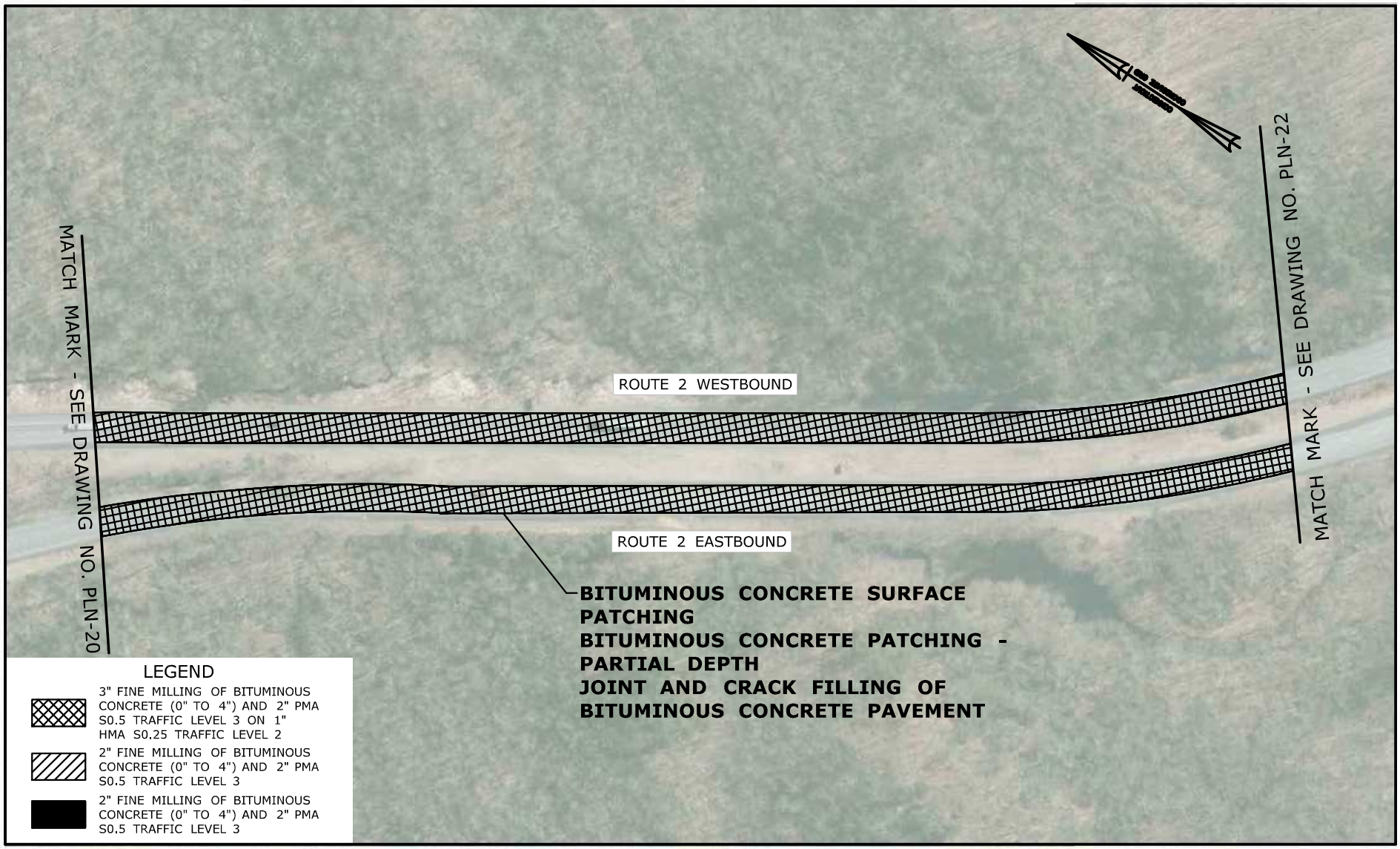
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



SCALE IN FEET

200 0 200 400

MAINLINE TREATMENT LIMITS

PLN-21

STATE PROJECT NO.:
0053-0201

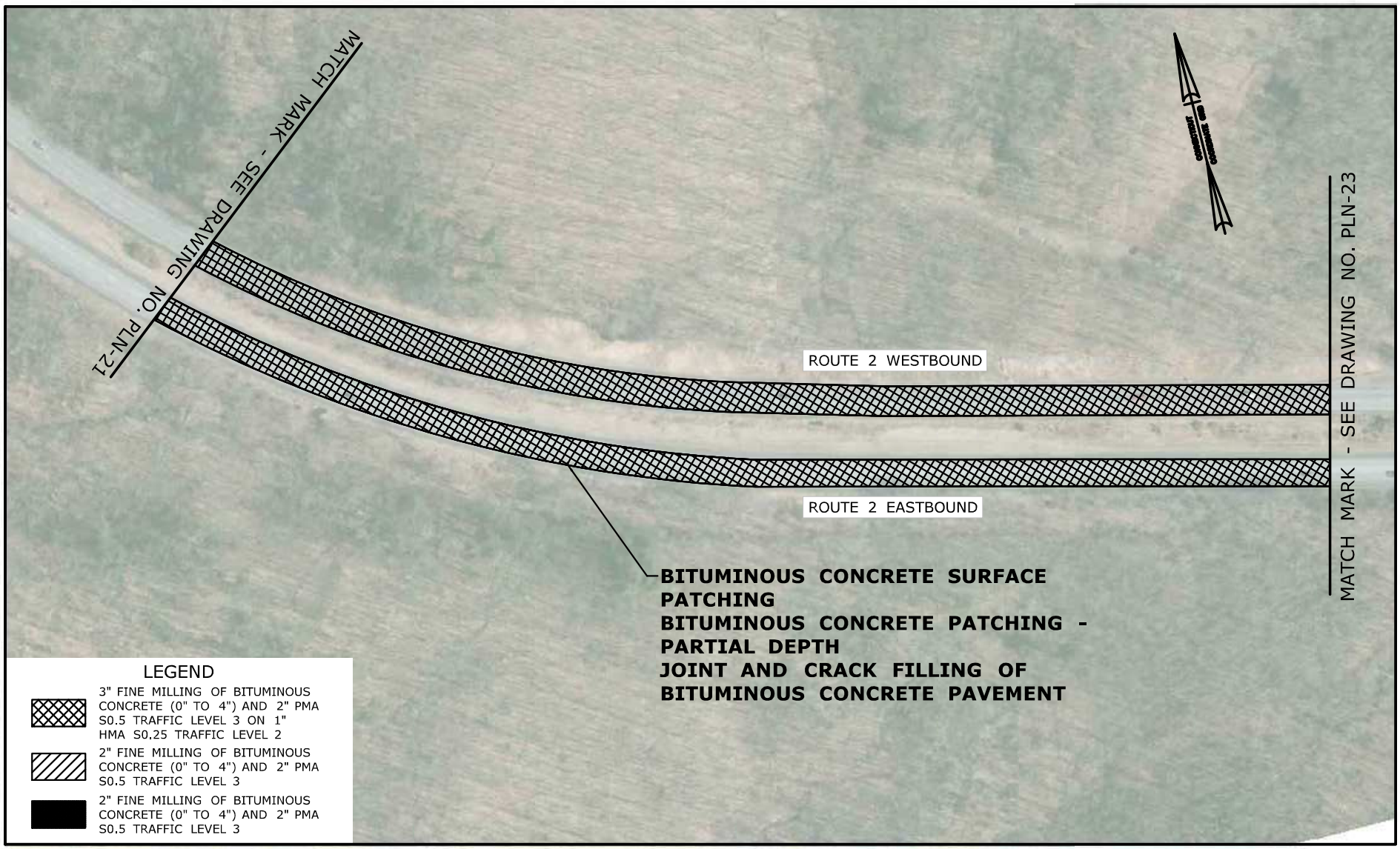
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



SCALE IN FEET

200 0 200 400

MAINLINE TREATMENT LIMITS

PLN-22

STATE PROJECT NO.:
0053-0201

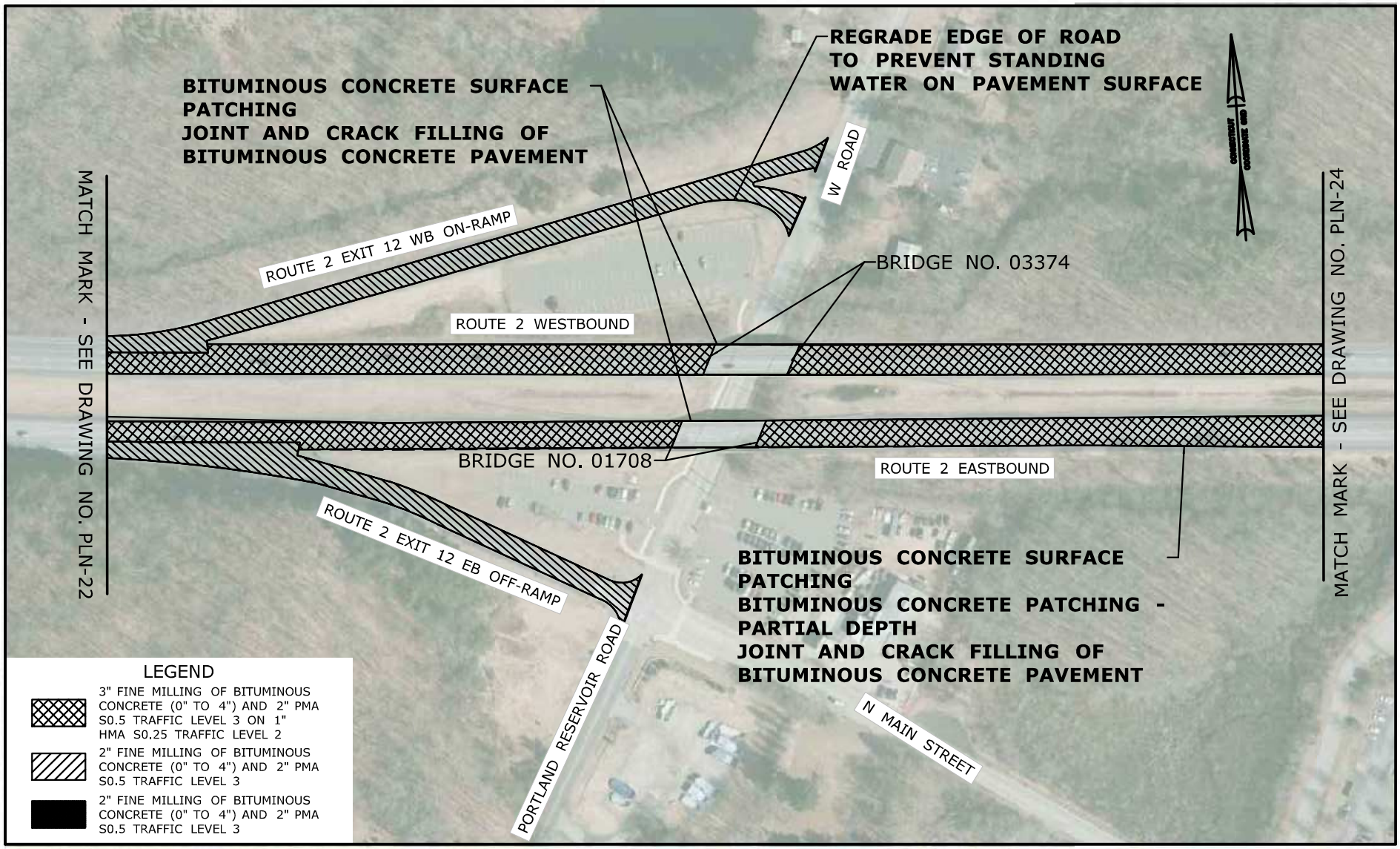
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



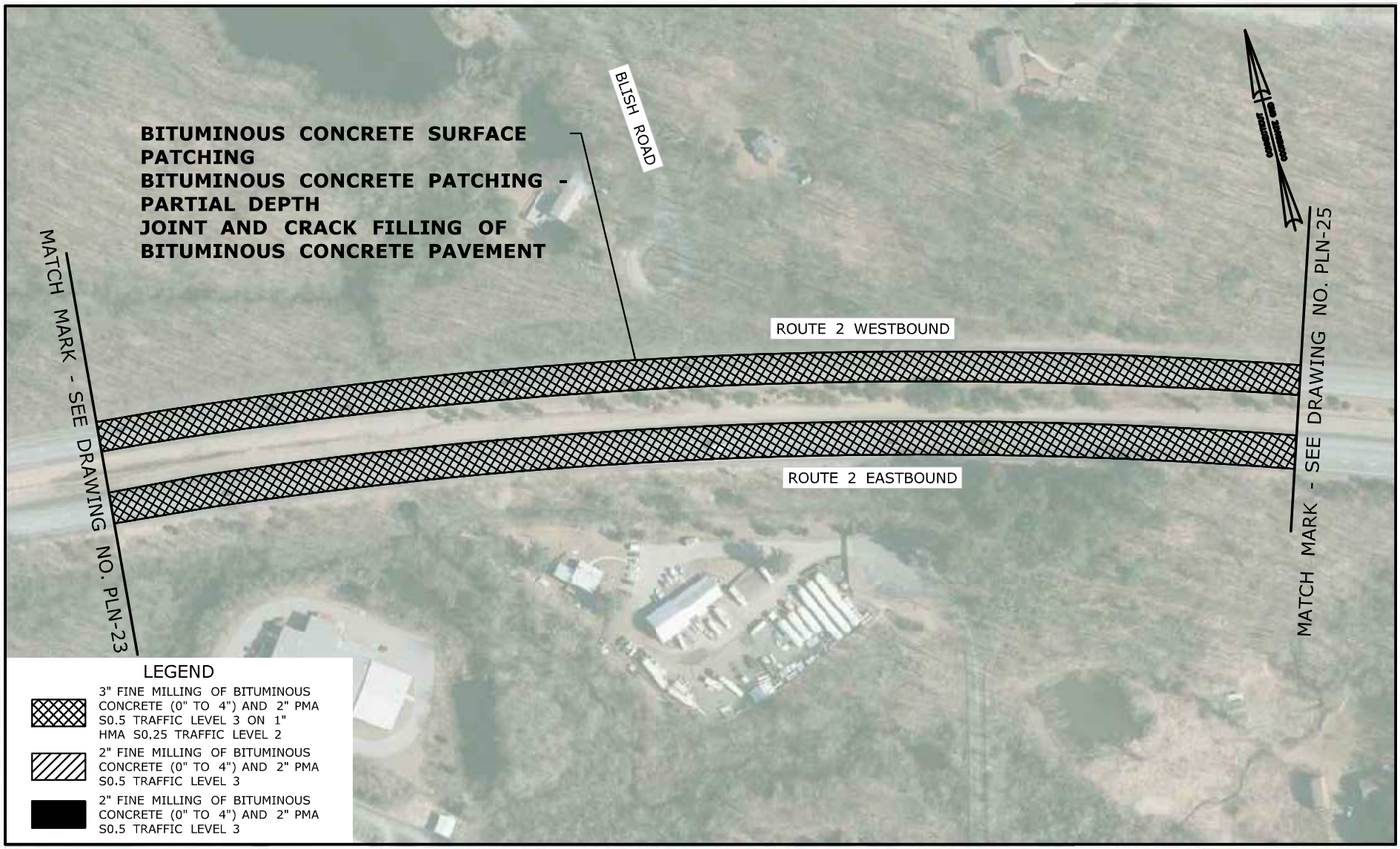
MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-23

	STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	DATE: OCTOBER 2023



MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-24

STATE PROJECT NO.:
0053-0201

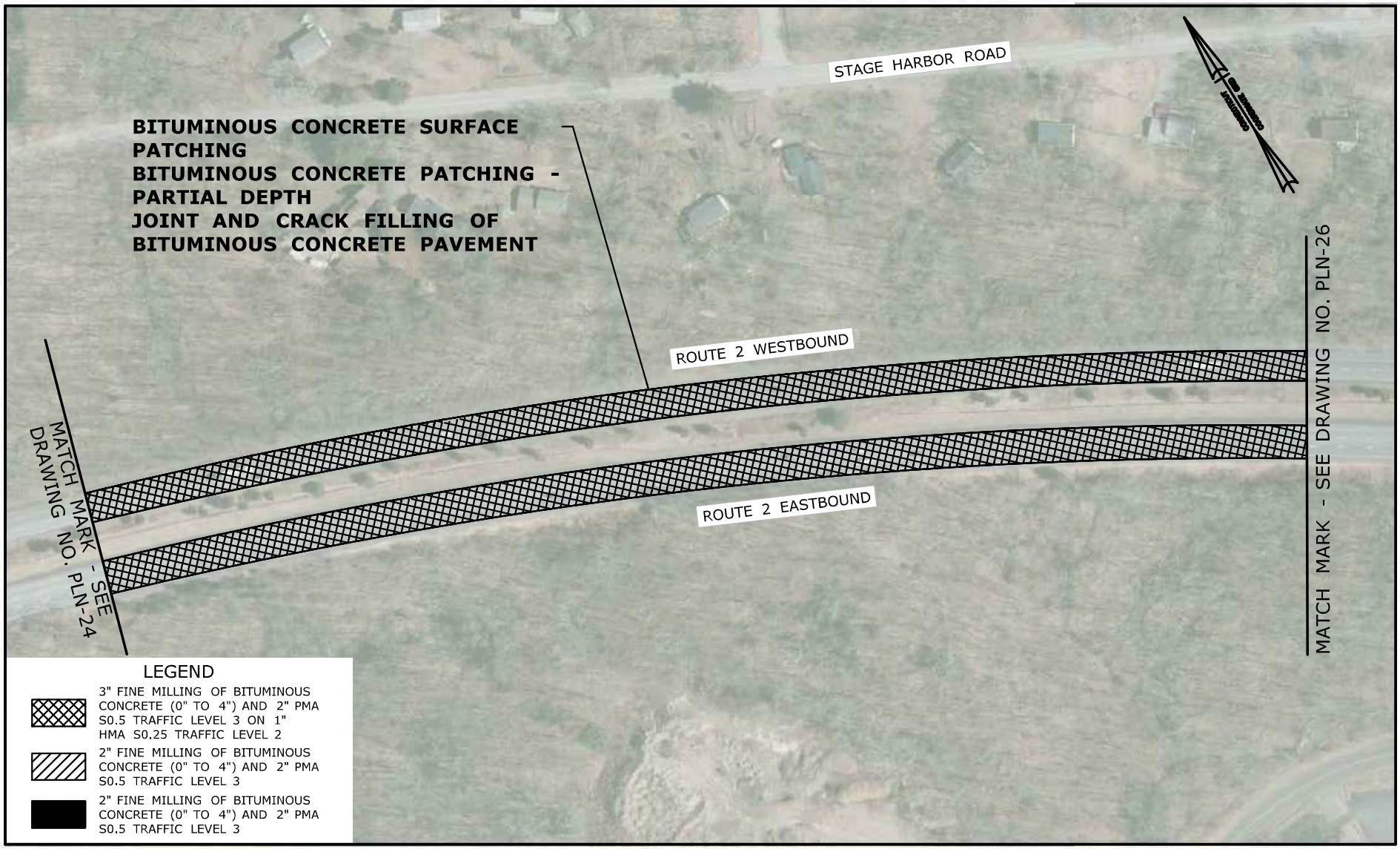
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-25

STATE PROJECT NO.:
0053-0201

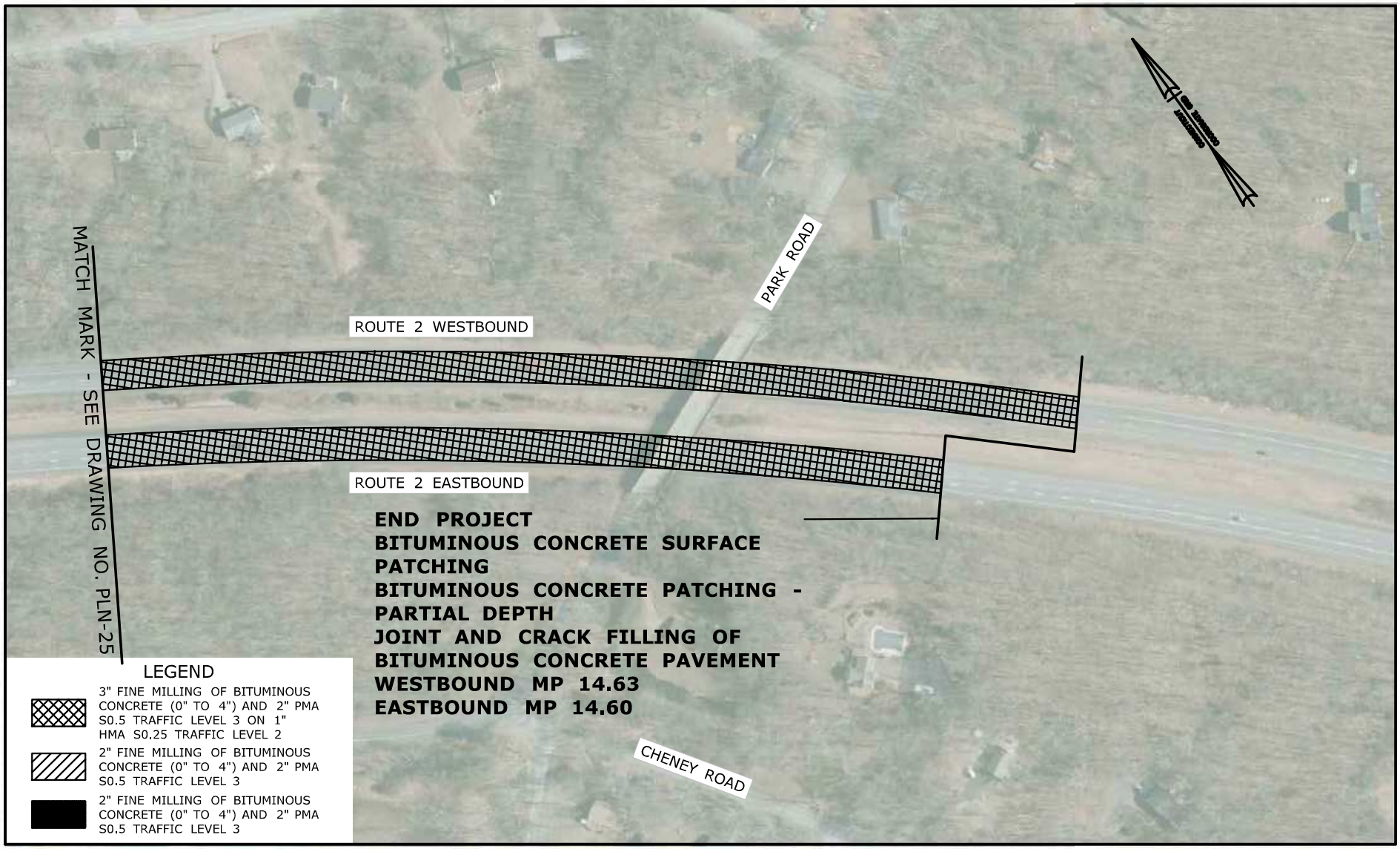
CITY/TOWN:
GLASTONBURY, MALBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



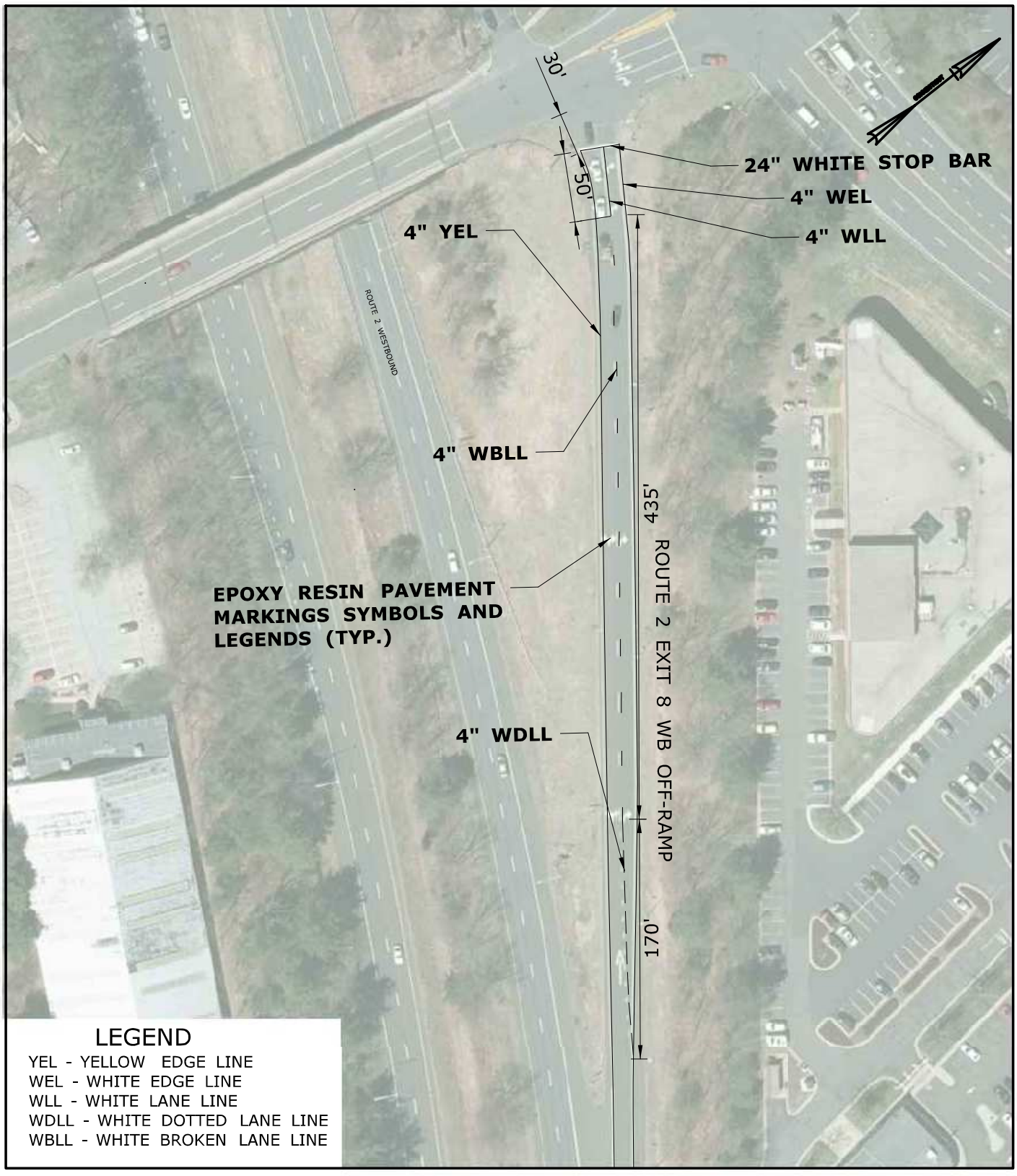
MAINLINE TREATMENT LIMITS

SCALE IN FEET

200 0 200 400

PLN-26

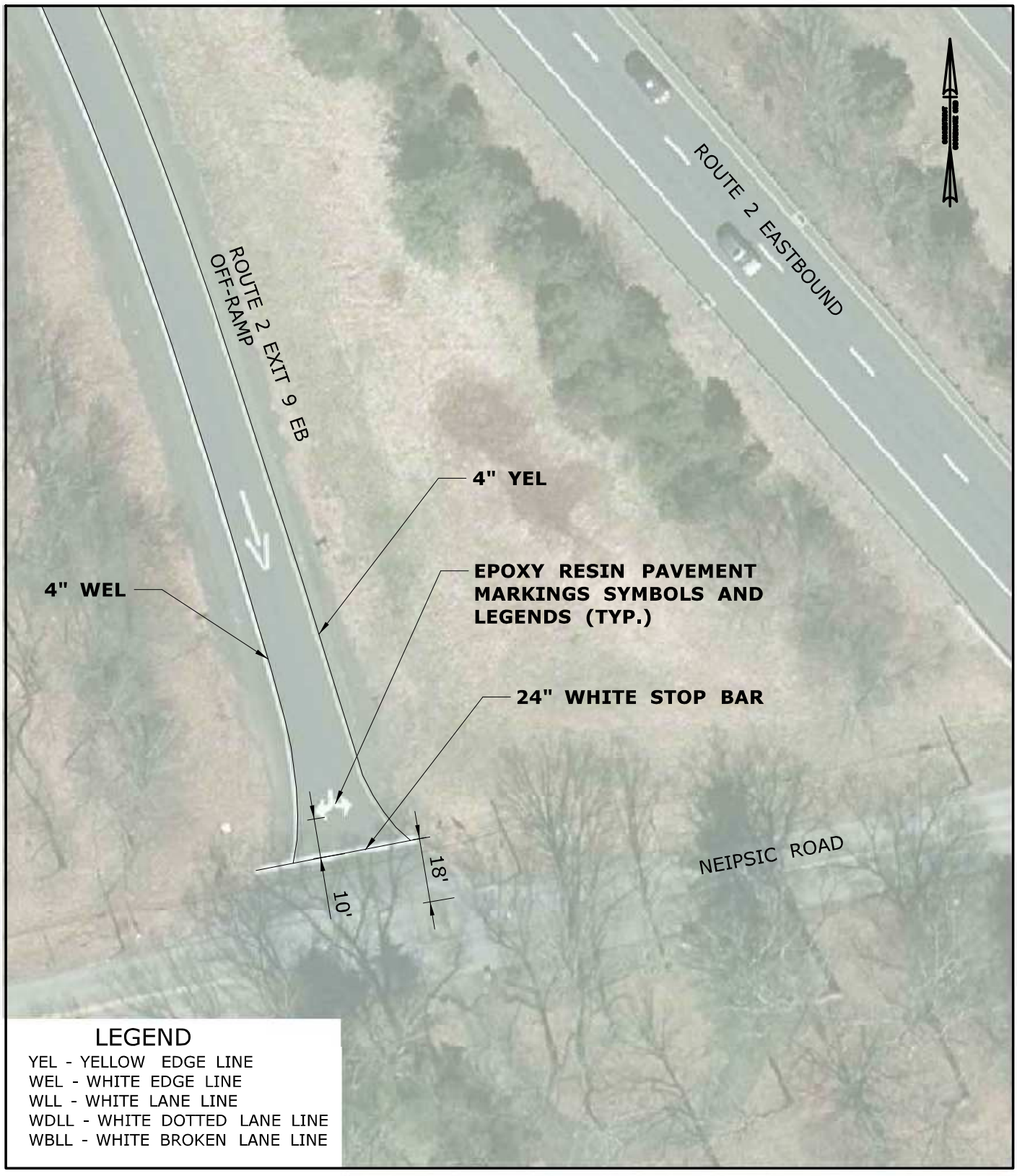
	STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	DATE: OCTOBER 2023



NOT TO SCALE

PM-01

STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH 0053-0201	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	DATE: OCTOBER 2023



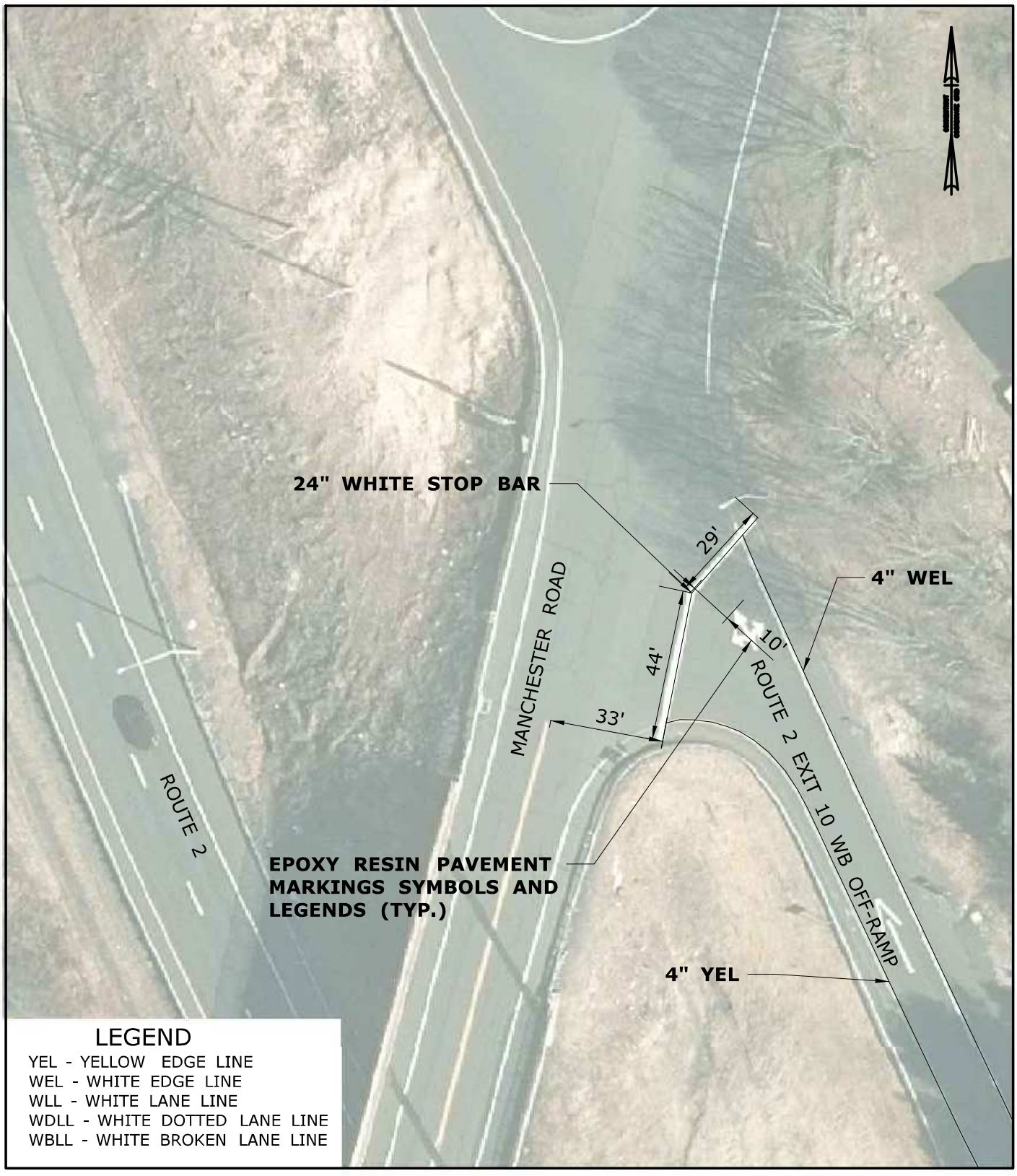
LEGEND

YEL - YELLOW EDGE LINE
WEL - WHITE EDGE LINE
WLL - WHITE LANE LINE
WDLL - WHITE DOTTED LANE LINE
WBLL - WHITE BROKEN LANE LINE

NOT TO SCALE

PM-02

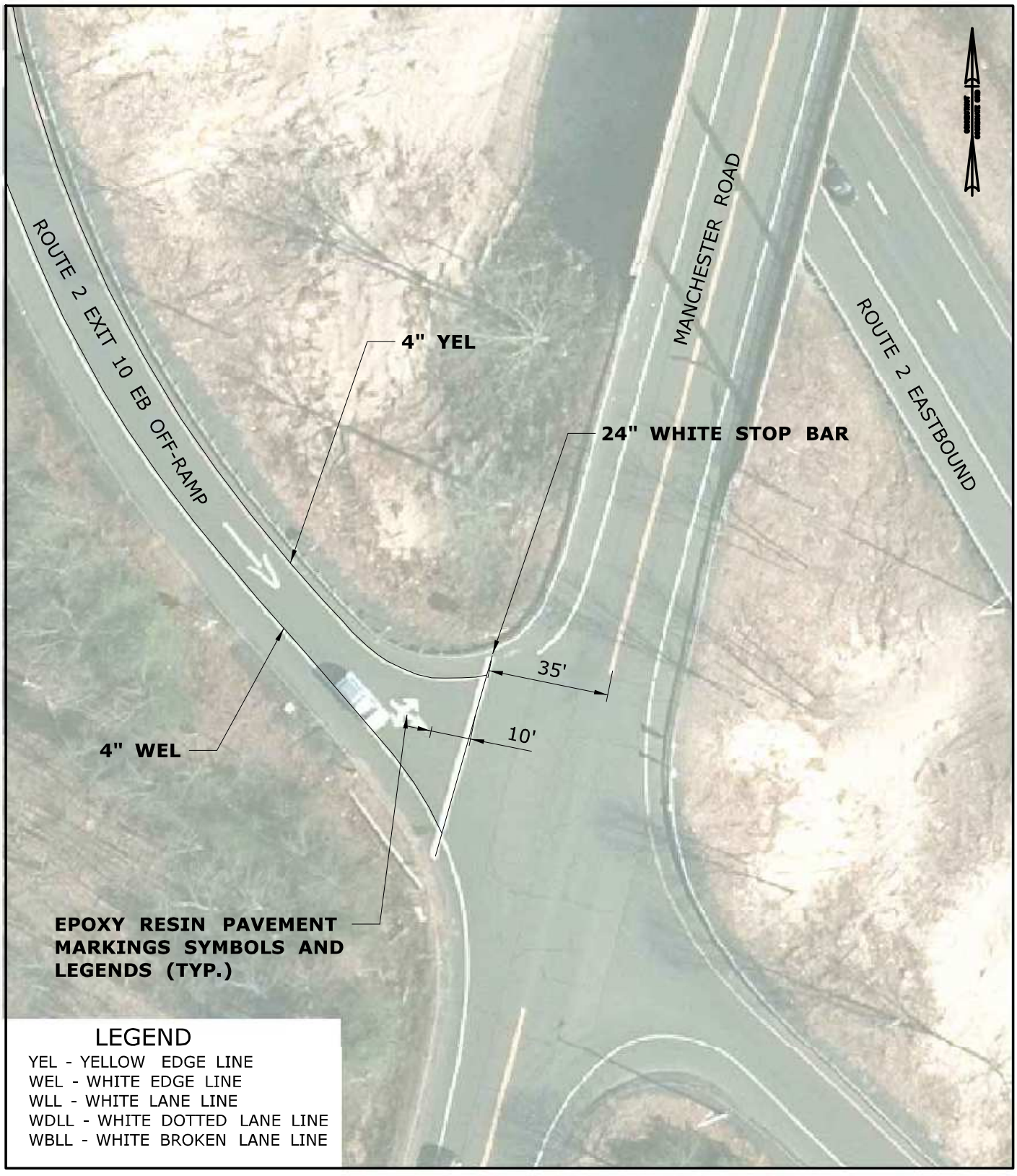
STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH 0053-0201	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	DATE: OCTOBER 2023



NOT TO SCALE

PM-03

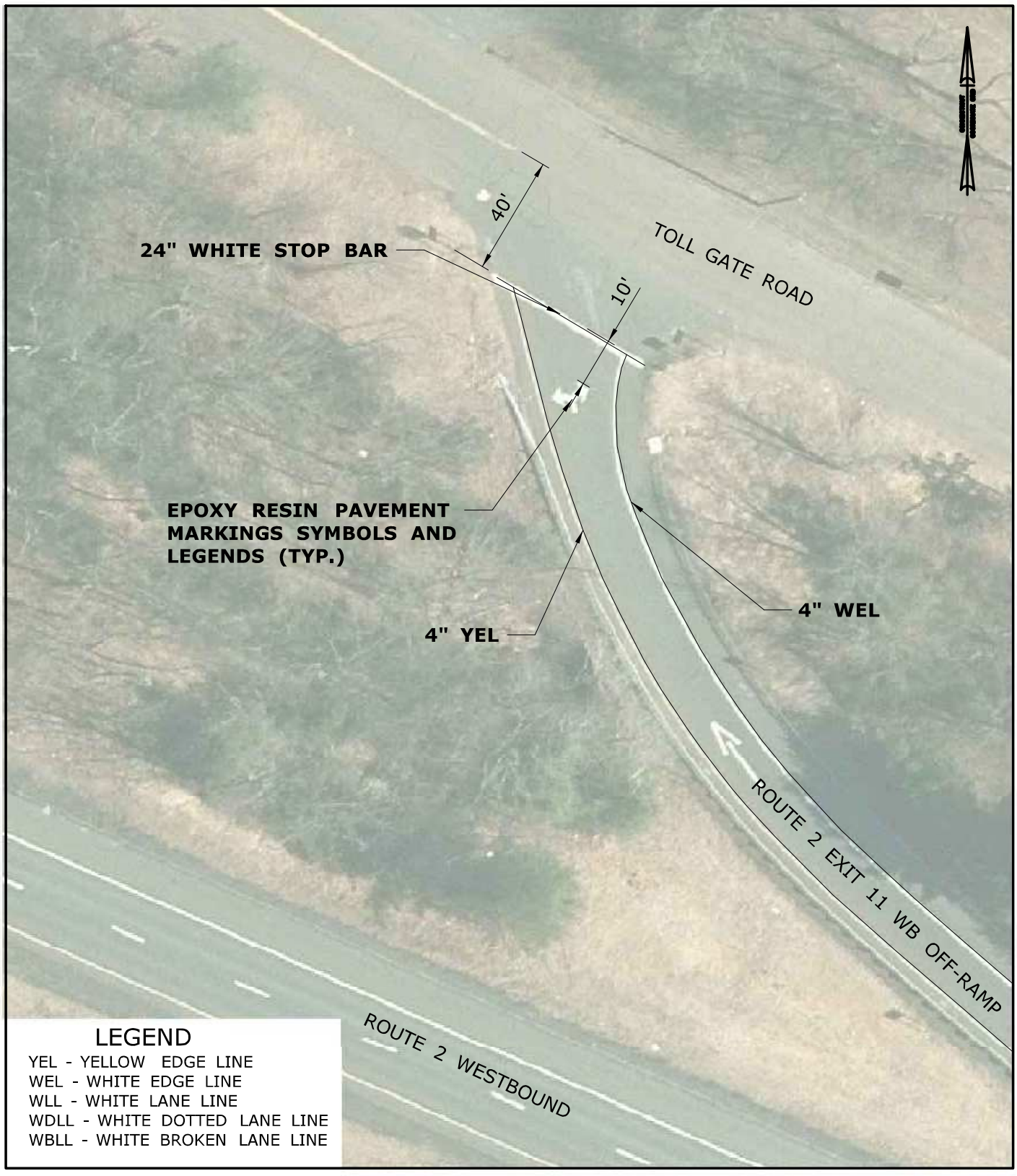
STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH 0053-0201	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	DATE: OCTOBER 2023



NOT TO SCALE

PM-04

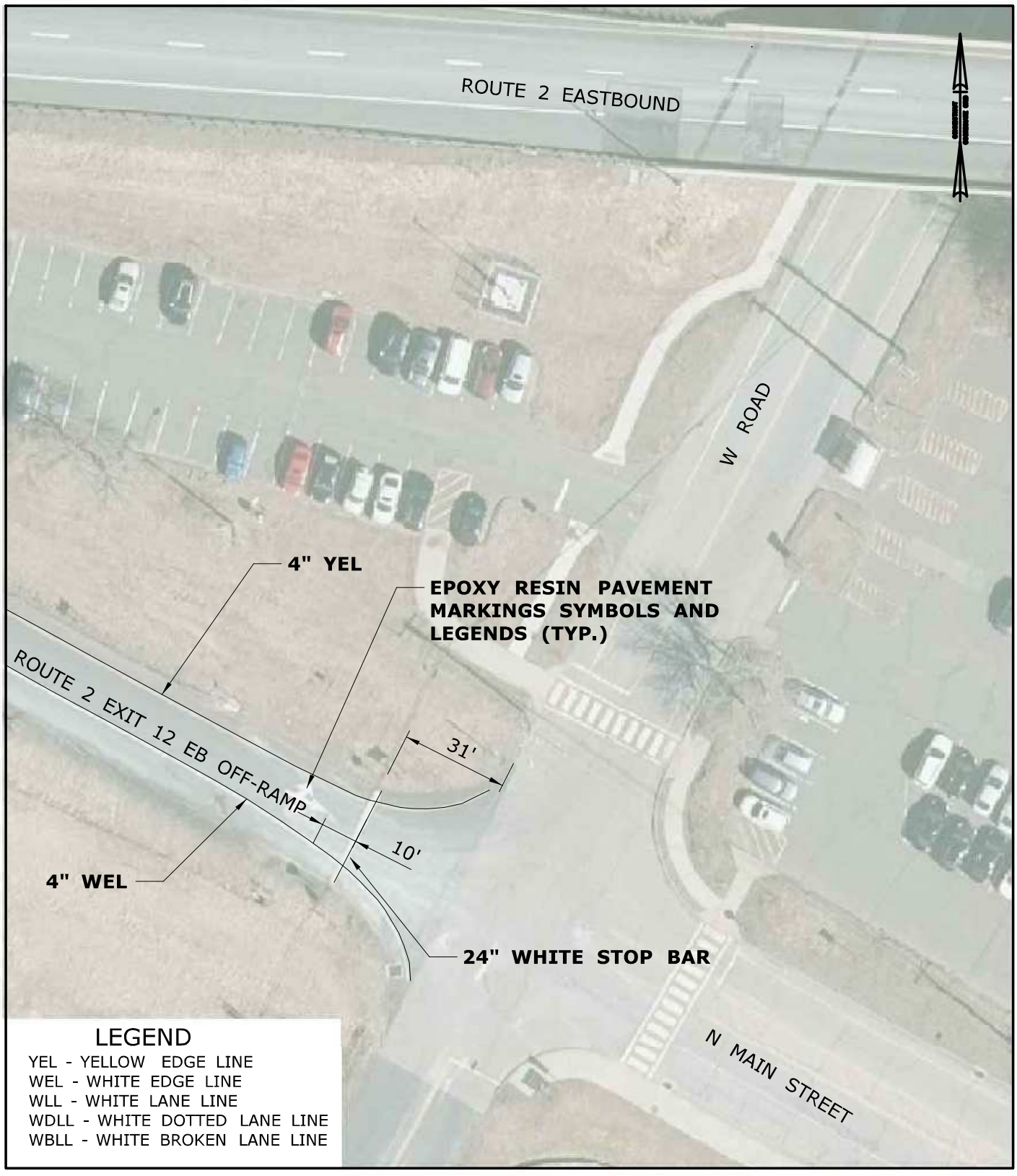
STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH 0053-0201	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	DATE: OCTOBER 2023



NOT TO SCALE

PM-05

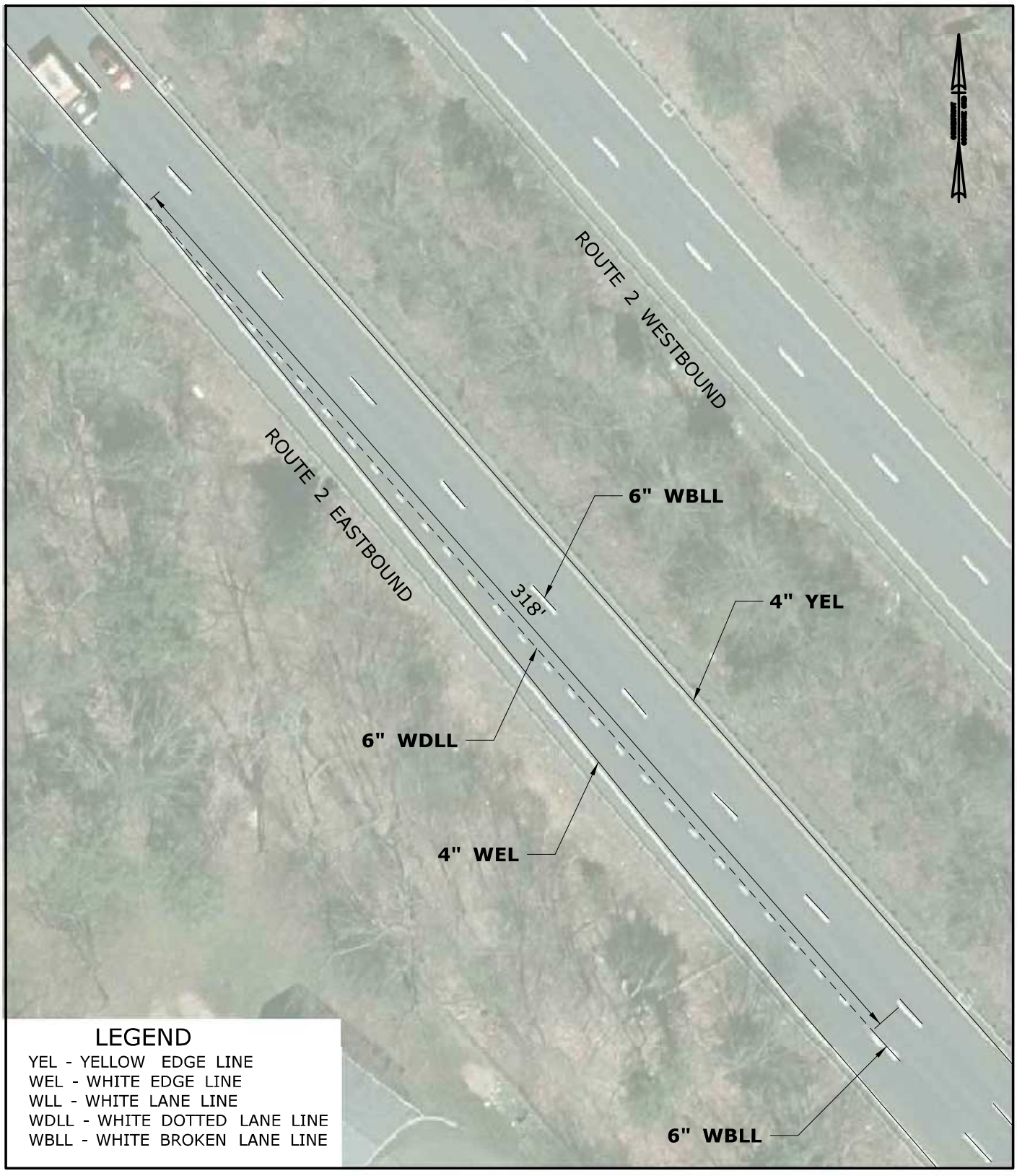
STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH 0053-0201	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 2 - ROUTE 2	DATE: AUGUST 2023



NOT TO SCALE

PM-06

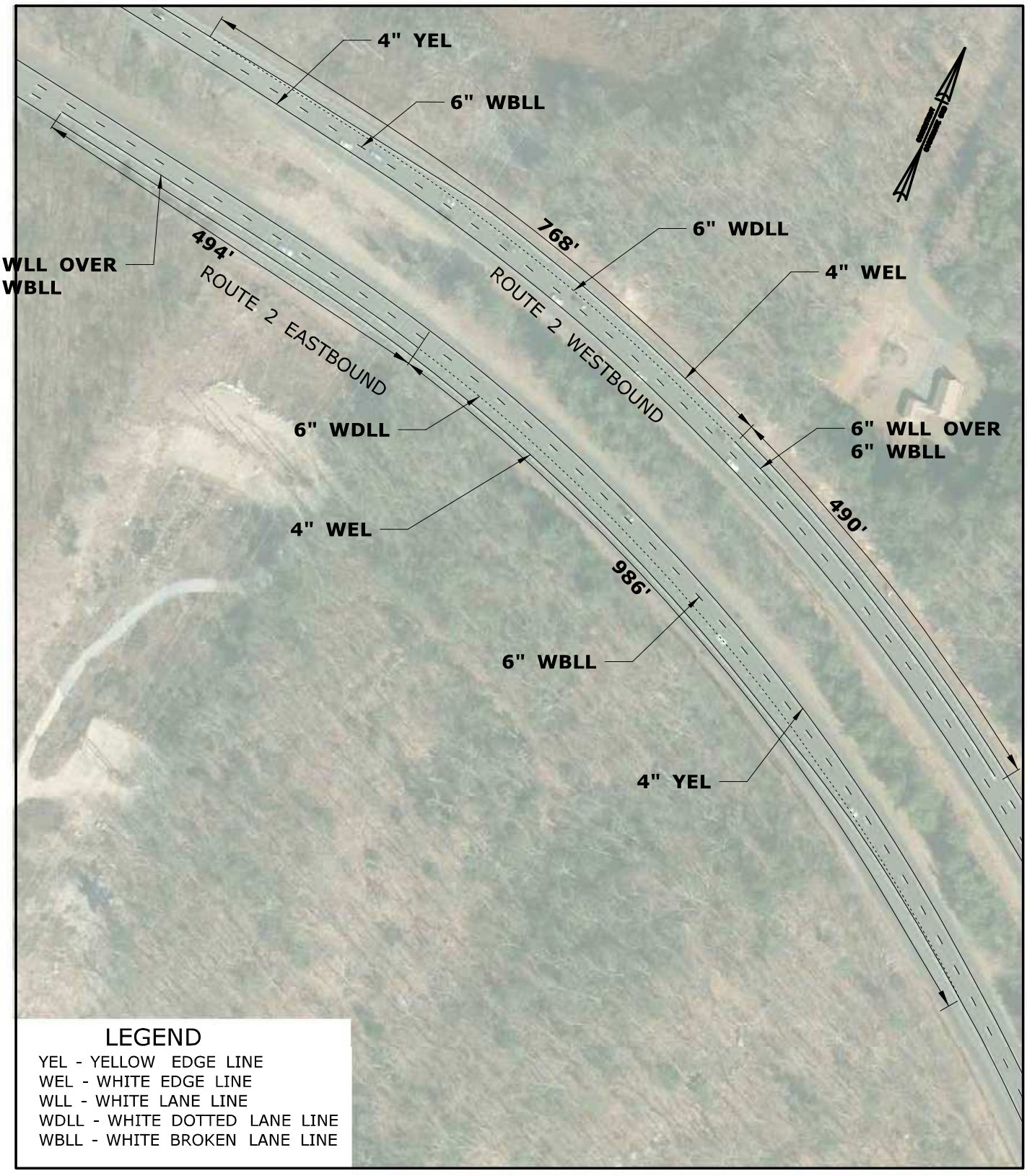
STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH 0053-0201	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	CDM Smith	DATE: OCTOBER 2023



NOT TO SCALE

PM-07

STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH 0053-0201	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 2 - ROUTE 2	DATE: OCTOBER 2023



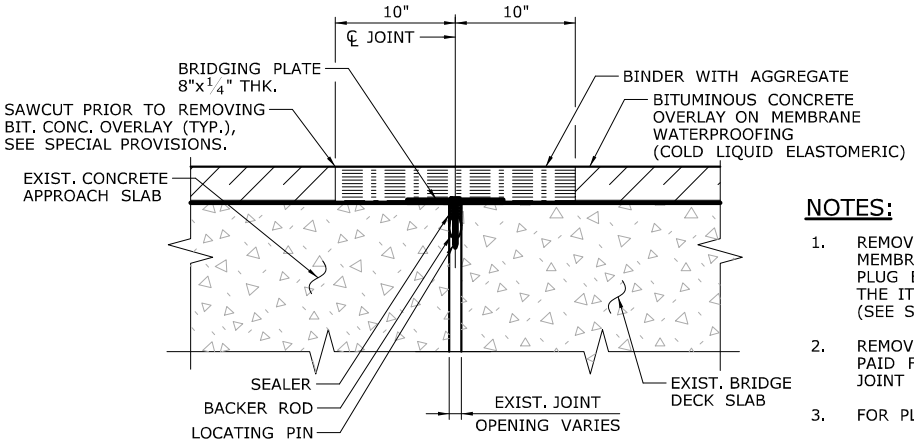
LEGEND

YEL - YELLOW EDGE LINE
WEL - WHITE EDGE LINE
WLL - WHITE LANE LINE
WDLL - WHITE DOTTED LANE LINE
WBLL - WHITE BROKEN LANE LINE

NOT TO SCALE

PM-08

STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH 0053-0201	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	CDM Smith	DATE: OCTOBER 2023

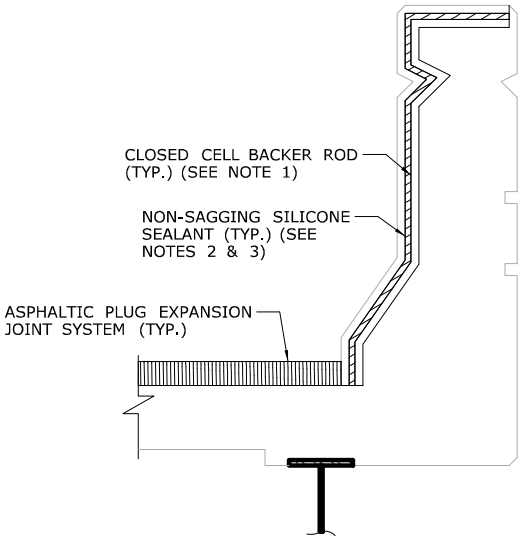


PROPOSED REPAIR

ASPHALTIC PLUG EXPANSION JOINT SYSTEM SECTION AT ABUTMENTS

NOTES:

1. REMOVE NEW BITUMINOUS CONCRETE OVERLAY AND MEMBRANE WATERPROOFING. REPLACE WITH ASPHALTIC PLUG EXPANSION JOINT SYSTEM. TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM". (SEE SPECIAL PROVISIONS.)
2. REMOVAL OF EXISTING ASPHALTIC PLUG JOINT TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM".
3. FOR PLUG CONSTRUCTION SEQUENCE, SEE STR-07



NOTES:

1. THE CLOSED CELL BACKER ROD SHALL BE PLACED A MINIMUM OF 2" FROM THE OUTSIDE FACE OF MEDIAN BARRIERS.
2. THE NON-SAGGING SILICONE SEALANT SHALL BE PLACED ON THE BACKER ROD 1/2" THICK. AT THE GUTTER, THE SILICONE SEALANT SHALL BE PLACED FLUSH WITH THE OUTSIDE FACE OF CONCRETE.
3. PRIOR TO INSTALLING THE SILICONE SEALANT, CLEAN JOINT SIDES BY SANDBLASTING. DUST SHALL BE REMOVED BY THE METHOD APPROVED BY THE ENGINEER. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM." (SEE SPECIAL PROVISIONS)

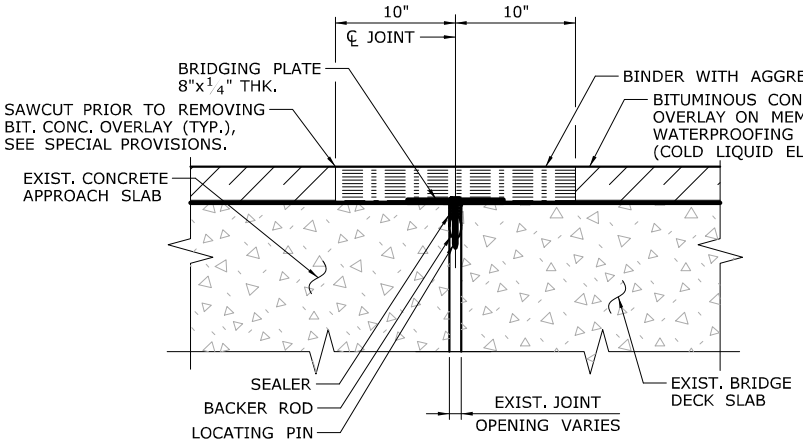
ASPHALTIC PLUG EXPANSION JOINT TREATMENT AT BARRIERS

BRIDGE 01701A QUANTITIES		
ITEM DESCRIPTION	UNITS	QUANTITY
ASPHALTIC PLUG EXPANSION JOINT SYSTEM	C.F.	30
HMA S0.25	TON	4
HMA S0.50	TON	7
MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)	S.Y.	44

THERMAL MOVEMENT RANGE FOR ASPHALTIC PLUG JOINT INSTALLATION		
JOINT LOCATION	THERMAL MOVEMENT	RANGES AS PER SPECIFICATION
NORTH ABUTMENT	0"	0" - 1"
SOUTH ABUTMENT	5/8"	0" - 1"

BRIDGE 01701A
NOT TO SCALE

STR-01

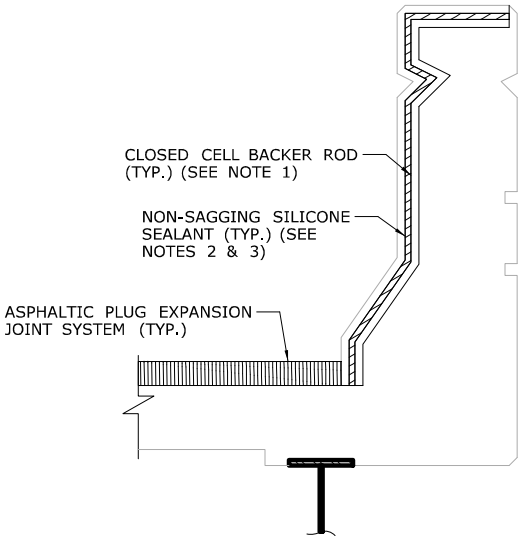


PROPOSED REPAIR

ASPHALTIC PLUG EXPANSION JOINT SYSTEM SECTION AT ABUTMENTS

NOTES:

1. REMOVE NEW BITUMINOUS CONCRETE OVERLAY AND MEMBRANE WATERPROOFING. REPLACE WITH ASPHALTIC PLUG EXPANSION JOINT SYSTEM. TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM". (SEE SPECIAL PROVISIONS.)
2. REMOVAL OF EXISTING ASPHALTIC PLUG JOINT TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM".
3. FOR PLUG CONSTRUCTION SEQUENCE, SEE STR-07



NOTES:

1. THE CLOSED CELL BACKER ROD SHALL BE PLACED A MINIMUM OF 2" FROM THE OUTSIDE FACE OF MEDIAN BARRIERS.
2. THE NON-SAGGING SILICONE SEALANT SHALL BE PLACED ON THE BACKER ROD 1/2" THICK. AT THE GUTTER, THE SILICONE SEALANT SHALL BE PLACED FLUSH WITH THE OUTSIDE FACE OF CONCRETE.
3. PRIOR TO INSTALLING THE SILICONE SEALANT, CLEAN JOINT SIDES BY SANDBLASTING. DUST SHALL BE REMOVED BY THE METHOD APPROVED BY THE ENGINEER. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM." (SEE SPECIAL PROVISIONS)

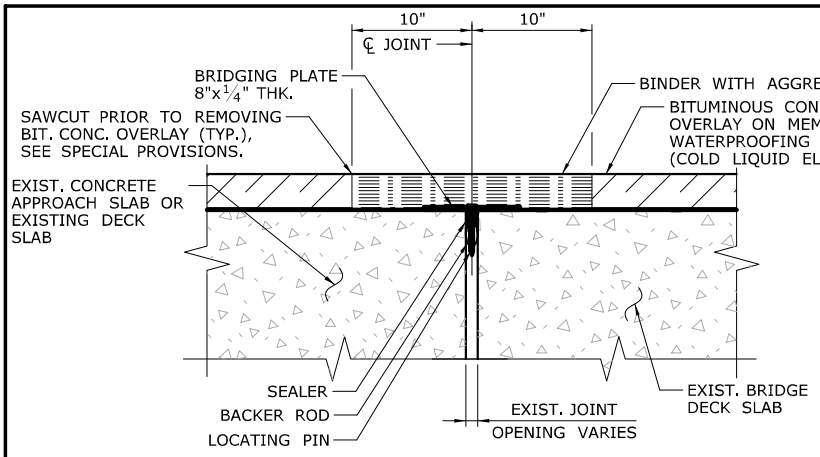
ASPHALTIC PLUG EXPANSION JOINT TREATMENT AT BARRIERS

THERMAL MOVEMENT RANGE FOR ASPHALTIC PLUG JOINT INSTALLATION		
JOINT LOCATION	THERMAL MOVEMENT	RANGES AS PER SPECIFICATION
NORTH ABUTMENT	0"	0" - 1"
SOUTH ABUTMENT	5/8"	0" - 1"

BRIDGE 01701B QUANTITIES		
ITEM DESCRIPTION	UNITS	QUANTITY
ASPHALTIC PLUG EXPANSION JOINT SYSTEM	C.F.	30
HMA S0.25	TON	4
HMA S0.50	TON	7
MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)	S.Y.	44

BRIDGE 01701B
NOT TO SCALE

STR-02

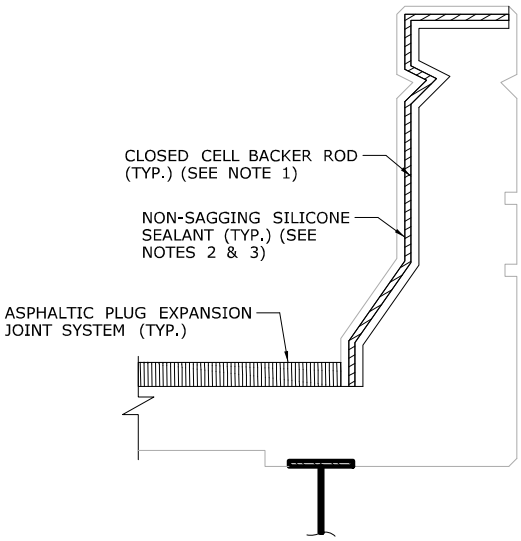


PROPOSED REPAIR

ASPHALTIC PLUG EXPANSION JOINT SYSTEM SECTION AT ABUTMENTS AND PIERS

NOTES:

1. REMOVE NEW BITUMINOUS CONCRETE OVERLAY AND MEMBRANE WATERPROOFING. REPLACE WITH ASPHALTIC PLUG EXPANSION JOINT SYSTEM. TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM". (SEE SPECIAL PROVISIONS.)
2. REMOVAL OF EXISTING ASPHALTIC PLUG JOINT TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM".
3. FOR PLUG CONSTRUCTION SEQUENCE, SEE STR-07



NOTES:

1. THE CLOSED CELL BACKER ROD SHALL BE PLACED A MINIMUM OF 2" FROM THE OUTSIDE FACE OF MEDIAN BARRIERS.
2. THE NON-SAGGING SILICONE SEALANT SHALL BE PLACED ON THE BACKER ROD 1/2" THICK. AT THE GUTTER, THE SILICONE SEALANT SHALL BE PLACED FLUSH WITH THE OUTSIDE FACE OF CONCRETE.
3. PRIOR TO INSTALLING THE SILICONE SEALANT, CLEAN JOINT SIDES BY SANDBLASTING. DUST SHALL BE REMOVED BY THE METHOD APPROVED BY THE ENGINEER. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM." (SEE SPECIAL PROVISIONS)

ASPHALTIC PLUG EXPANSION JOINT TREATMENT AT BARRIERS

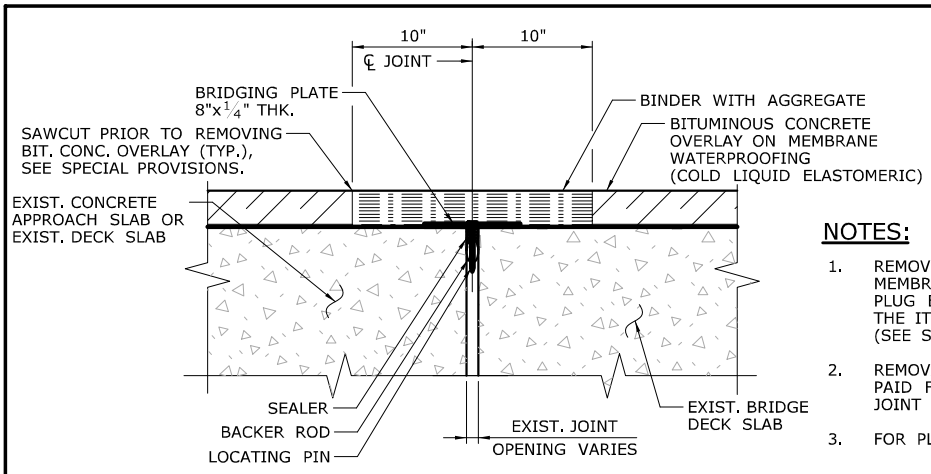
BRIDGE 01702 QUANTITIES		
ITEM DESCRIPTION	UNITS	QUANTITY
ASPHALTIC PLUG EXPANSION JOINT SYSTEM	C.F.	53
HMA S0.25	TON	6
HMA S0.50	TON	12
MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)	S.Y.	79

THERMAL MOVEMENT RANGE FOR ASPHALTIC PLUG JOINT INSTALLATION		
JOINT LOCATION	THERMAL MOVEMENT	RANGES AS PER SPECIFICATION
NORTH ABUTMENT	1/4"	0" - 1"
NORTH PIER	1/2"	0" - 1"
SOUTH PIER	1/4"	0" - 1"
SOUTH ABUTMENT	0"	0" - 1"

BRIDGE 01702
NOT TO SCALE

STR-03

STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH 0053-0201	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	DATE: OCTOBER 2023

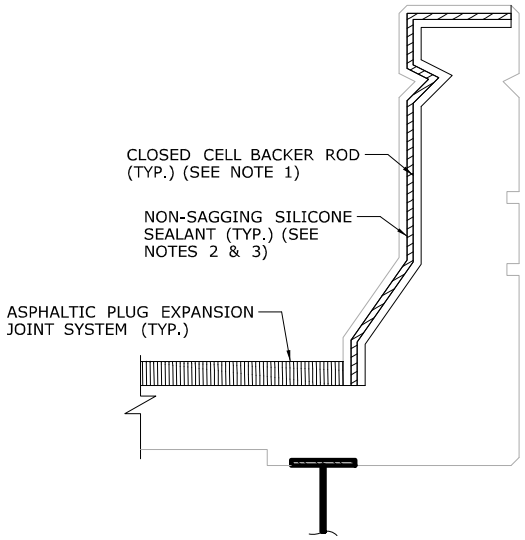


PROPOSED REPAIR

ASPHALTIC PLUG EXPANSION JOINT SYSTEM SECTION AT ABUTMENTS AND PIERS

NOTES:

1. REMOVE NEW BITUMINOUS CONCRETE OVERLAY AND MEMBRANE WATERPROOFING. REPLACE WITH ASPHALTIC PLUG EXPANSION JOINT SYSTEM. TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM". (SEE SPECIAL PROVISIONS.)
2. REMOVAL OF EXISTING ASPHALTIC PLUG JOINT TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM".
3. FOR PLUG CONSTRUCTION SEQUENCE, SEE STR-07



NOTES:

1. THE CLOSED CELL BACKER ROD SHALL BE PLACED A MINIMUM OF 2" FROM THE OUTSIDE FACE OF MEDIAN BARRIERS.
2. THE NON-SAGGING SILICONE SEALANT SHALL BE PLACED ON THE BACKER ROD 1/2" THICK. AT THE GUTTER, THE SILICONE SEALANT SHALL BE PLACED FLUSH WITH THE OUTSIDE FACE OF CONCRETE.
3. PRIOR TO INSTALLING THE SILICONE SEALANT, CLEAN JOINT SIDES BY SANDBLASTING. DUST SHALL BE REMOVED BY THE METHOD APPROVED BY THE ENGINEER. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM." (SEE SPECIAL PROVISIONS)

ASPHALTIC PLUG EXPANSION JOINT TREATMENT AT BARRIERS

BRIDGE 01703 QUANTITIES		
ITEM DESCRIPTION	UNITS	QUANTITY
ASPHALTIC PLUG EXPANSION JOINT SYSTEM	C.F.	59
HMA S0.25	TON	7
HMA S0.50	TON	13
MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)	S.Y.	88

THERMAL MOVEMENT RANGE FOR ASPHALTIC PLUG JOINT INSTALLATION		
JOINT LOCATION	THERMAL MOVEMENT	RANGES AS PER SPECIFICATION
NORTH ABUTMENT	1/4"	0" - 1"
NORTH PIER	1/2"	0" - 1"
SOUTH PIER	1/4"	0" - 1"
SOUTH ABUTMENT	0"	0" - 1"

BRIDGE 01703
NOT TO SCALE

STR-04

STATE PROJECT NO.: 0053-0201

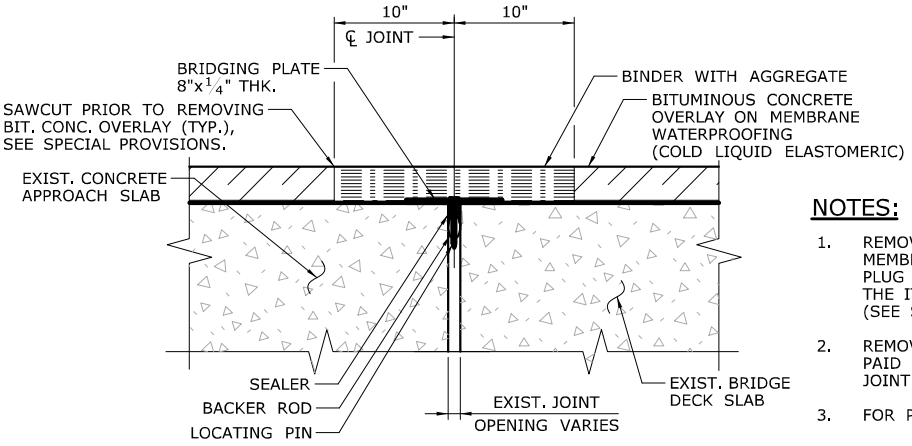
CITY/TOWN: GLASTONBURY, MALBOROUGH 0053-0201

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
MILL & OVERLAY
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE: OCTOBER 2023

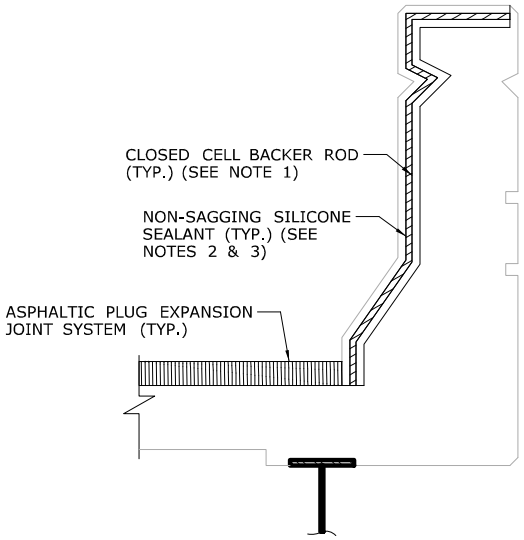


PROPOSED REPAIR

ASPHALTIC PLUG EXPANSION JOINT SYSTEM SECTION AT ABUTMENTS

NOTES:

1. REMOVE NEW BITUMINOUS CONCRETE OVERLAY AND MEMBRANE WATERPROOFING. REPLACE WITH ASPHALTIC PLUG EXPANSION JOINT SYSTEM. TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM". (SEE SPECIAL PROVISIONS.)
2. REMOVAL OF EXISTING ASPHALTIC PLUG JOINT TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM".
3. FOR PLUG CONSTRUCTION SEQUENCE, SEE STR-07



ASPHALTIC PLUG EXPANSION JOINT TREATMENT AT BARRIERS

NOTES:

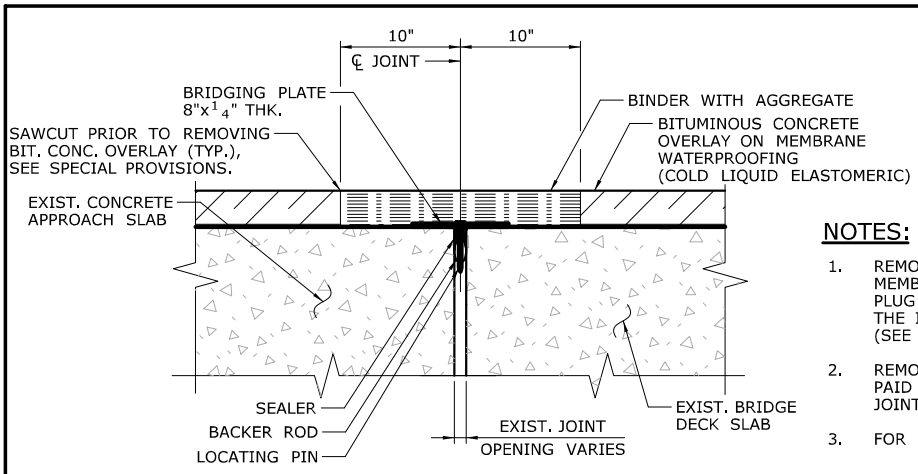
1. THE CLOSED CELL BACKER ROD SHALL BE PLACED A MINIMUM OF 2" FROM THE OUTSIDE FACE OF MEDIAN BARRIERS.
2. THE NON-SAGGING SILICONE SEALANT SHALL BE PLACED ON THE BACKER ROD 1/2" THICK. AT THE GUTTER, THE SILICONE SEALANT SHALL BE PLACED FLUSH WITH THE OUTSIDE FACE OF CONCRETE.
3. PRIOR TO INSTALLING THE SILICONE SEALANT, CLEAN JOINT SIDES BY SANDBLASTING. DUST SHALL BE REMOVED BY THE METHOD APPROVED BY THE ENGINEER. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM." (SEE SPECIAL PROVISIONS)

THERMAL MOVEMENT RANGE FOR ASPHALTIC PLUG JOINT INSTALLATION		
JOINT LOCATION	THERMAL MOVEMENT	RANGES AS PER SPECIFICATION
NORTH ABUTMENT	9/16"	0" - 1"
SOUTH ABUTMENT	0"	0" - 1"

BRIDGE 01704A QUANTITIES		
ITEM DESCRIPTION	UNITS	QUANTITY
ASPHALTIC PLUG EXPANSION JOINT SYSTEM	C.F.	29
HMA S0.25	TON	4
HMA S0.50	TON	7
MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)	S.Y.	43

BRIDGE 01704A
NOT TO SCALE

STR-05

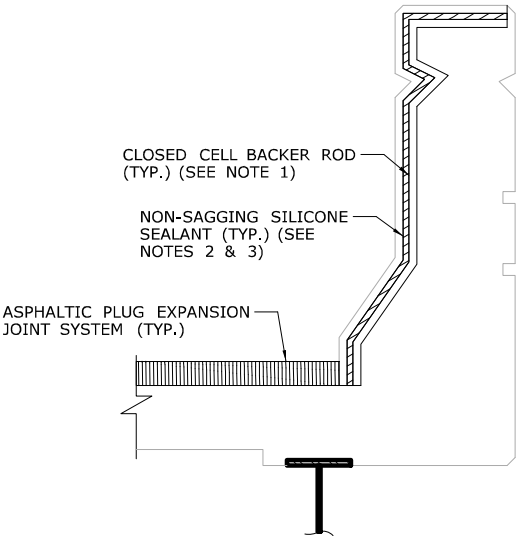


PROPOSED REPAIR

ASPHALTIC PLUG EXPANSION JOINT SYSTEM SECTION AT ABUTMENTS

NOTES:

1. REMOVE NEW BITUMINOUS CONCRETE OVERLAY AND MEMBRANE WATERPROOFING. REPLACE WITH ASPHALTIC PLUG EXPANSION JOINT SYSTEM. TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM". (SEE SPECIAL PROVISIONS.)
2. REMOVAL OF EXISTING ASPHALTIC PLUG JOINT TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM".
3. FOR PLUG CONSTRUCTION SEQUENCE, SEE STR-07



ASPHALTIC PLUG EXPANSION JOINT TREATMENT AT BARRIERS

NOTES:

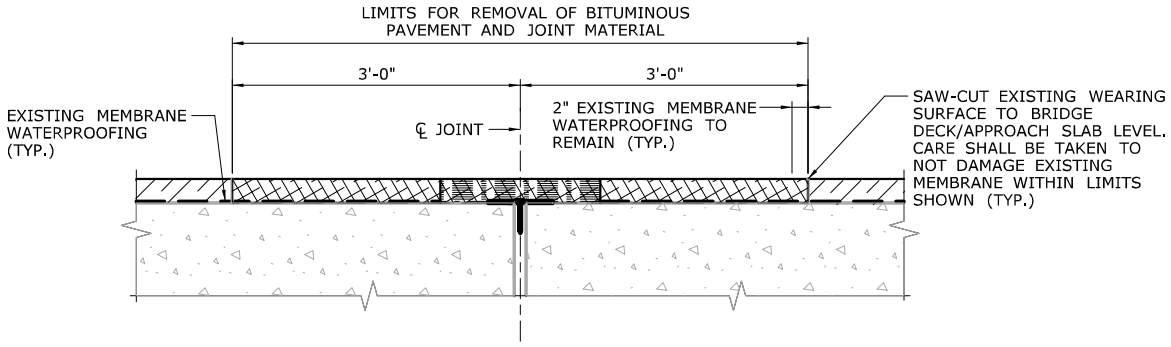
1. THE CLOSED CELL BACKER ROD SHALL BE PLACED A MINIMUM OF 2" FROM THE OUTSIDE FACE OF MEDIAN BARRIERS.
2. THE NON-SAGGING SILICONE SEALANT SHALL BE PLACED ON THE BACKER ROD 1/2" THICK. AT THE GUTTER, THE SILICONE SEALANT SHALL BE PLACED FLUSH WITH THE OUTSIDE FACE OF CONCRETE.
3. PRIOR TO INSTALLING THE SILICONE SEALANT, CLEAN JOINT SIDES BY SANDBLASTING. DUST SHALL BE REMOVED BY THE METHOD APPROVED BY THE ENGINEER. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM." (SEE SPECIAL PROVISIONS)

THERMAL MOVEMENT RANGE FOR ASPHALTIC PLUG JOINT INSTALLATION		
JOINT LOCATION	THERMAL MOVEMENT	RANGES AS PER SPECIFICATION
NORTH ABUTMENT	9/16"	0" - 1"
SOUTH ABUTMENT	9/16"	0" - 1"

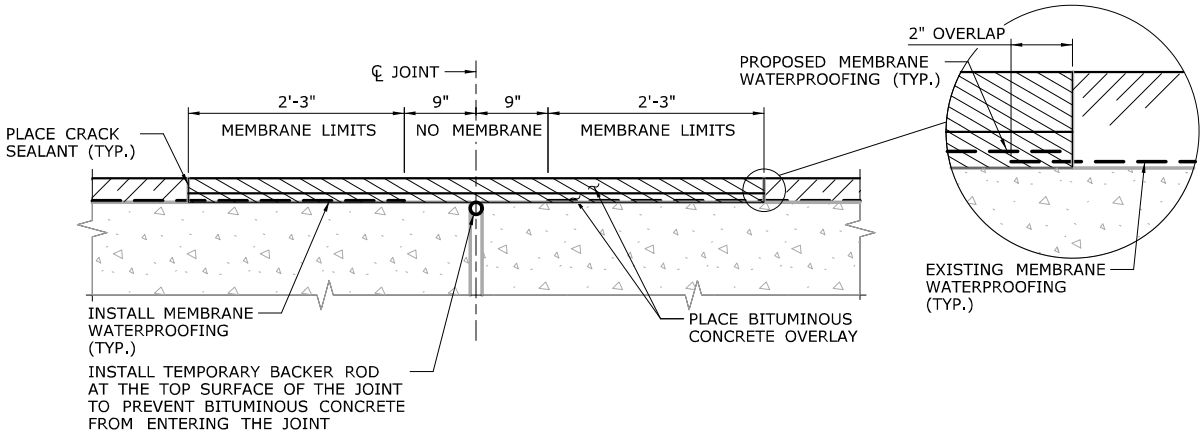
BRIDGE 01704B QUANTITIES		
ITEM DESCRIPTION	UNITS	QUANTITY
ASPHALTIC PLUG EXPANSION JOINT SYSTEM	C.F.	29
HMA S0.25	TON	4
HMA S0.50	TON	7
MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)	S.Y.	43

BRIDGE 01704B
NOT TO SCALE

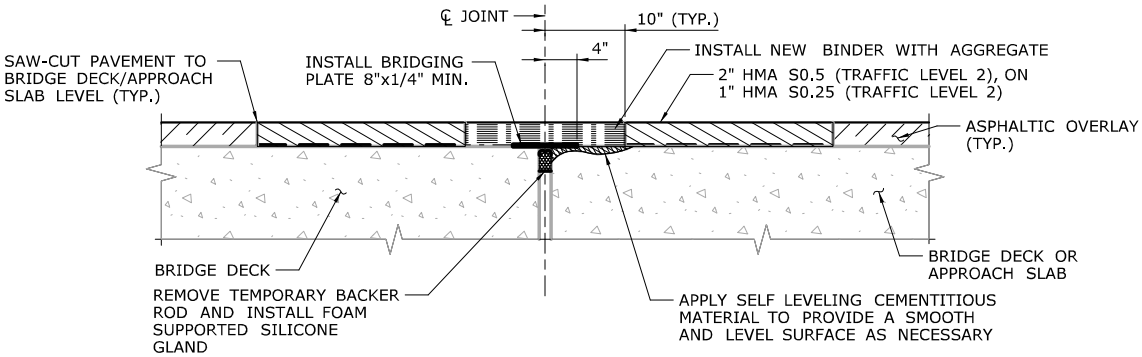
STR-06



JOINT AND PAVEMENT REMOVAL



PLACEMENT OF PAVEMENT IN JOINT CUTOUT



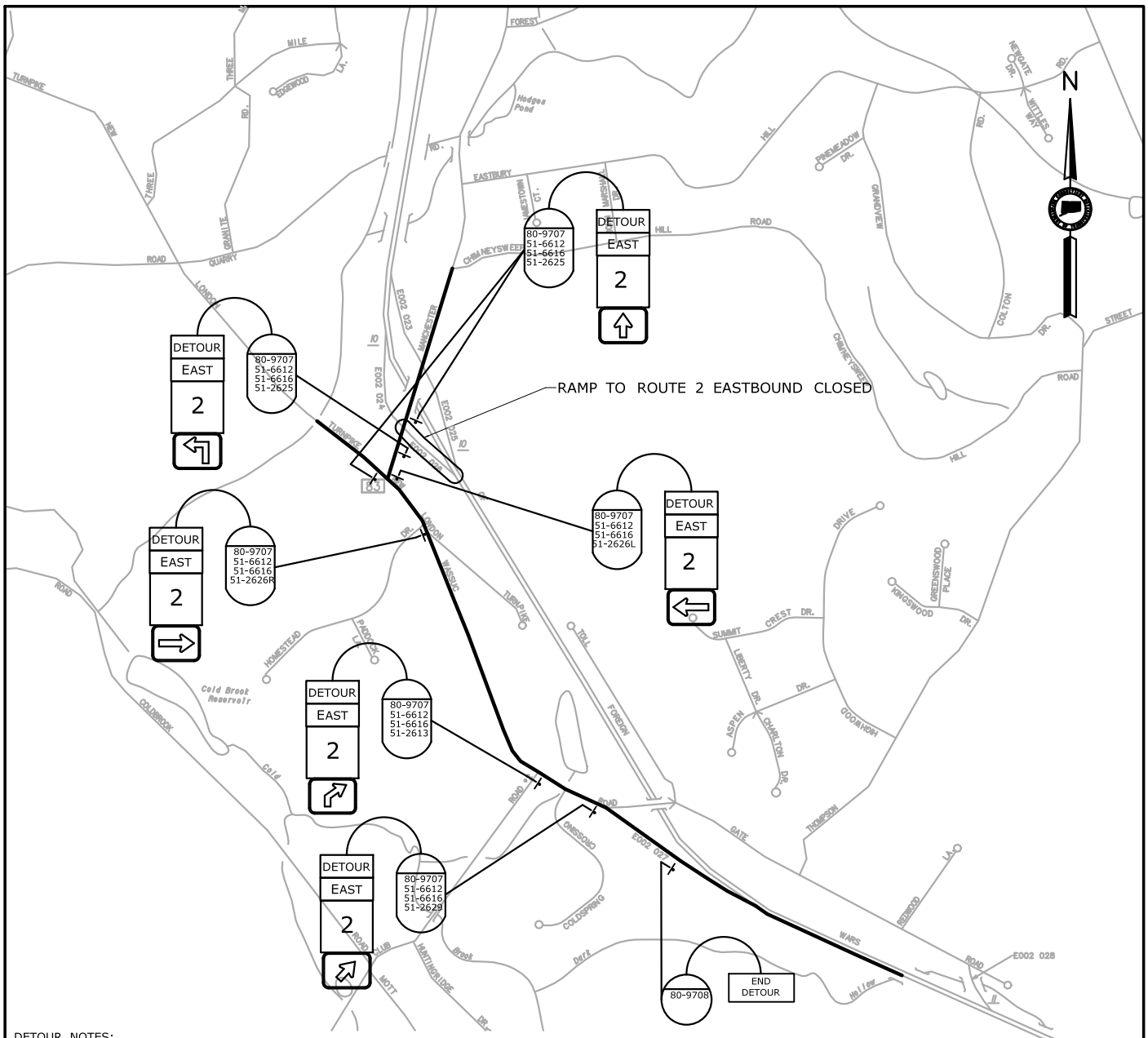
INSTALL ASPHALTIC PLUG EXPANSION JOINT SYSTEM

INSTALLATION OF ASPHALTIC PLUG JOINT WITH BRIDGING PLATE

NOT TO SCALE

STR-07

STATE PROJECT NO.: 0053-0201 CITY/TOWN: GLASTONBURY, MALBOROUGH 0053-0201	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION 2024 PAVEMENT PRESERVATION PROGRAM MILL & OVERLAY DISTRICT 1 & 2 - ROUTE 2	CDM Smith	DATE: OCTOBER 2023



DETOUR NOTES:

1. CONTRACTOR MAY CLOSE THE RAMP AND INITIATE THE DETOUR DURING ALLOWABLE TIME PERIODS AS SPECIFIED IN THE SPECIAL PROVISIONS UNDER ARTICLE 1.08.04 AND ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC.

2. ALL DETOUR SIGNS SHALL BE INSTALLED AND UNCOVERED PRIOR TO RAMP CLOSURE. LOCATIONS OF DETOUR SIGNS AND REMOTE CONTROL CHANGEABLE MESSAGE SIGNS SHALL BE ADJUSTED PER FIELD CONDITIONS SO THEY DO NOT BLOCK OR ARE NOT BLOCKED BY EXISTING SIGNS. ALL EXISTING SIGNS IN CONFLICT WITH DETOUR SIGNS SHALL BE COVERED DURING THE DETOUR. WHEN THE RAMP IS REOPENED TO TRAFFIC, ALL DETOUR SIGNS SHALL BE REMOVED AND ALL EXISTING SIGNS SHALL BE RESTORED TO PRE -DETOUR ARRANGEMENT.

3. DETOUR SIGNS SHALL BE INSTALLED ON BREAKAWAY POSTS PER TRAFFIC STANDARD SHEETS TR-1208-01, TR-1208-02, AND TR-1220-02 WITH THE EXCEPTION OF PORTABLE SIGNS AND SUPPORTS.

4. DETOUR SIGNS SHALL BE PAID UNDER ITEM NO. 1220027 - CONSTRUCTION SIGNS.

5. BARRICADE WARNING LIGHTS - HIGH INTENSITY SHALL BE MOUNTED ON ALL DIAMOND SHAPED POST-MOUNTED CONSTRUCTION SIGNS AND SHALL BE PAID UNDER ITEM NO. 0976002.

6. THE CONTRACTOR SHALL NOTIFY DISTRICT 2 CONSTRUCTION, THE TOWN OF GLASTONBURY AND MARLBOROUGH AND ALL EMERGENCY SERVICES AT LEAST TWO WEEKS PRIOR TO INITIATING THE DETOUR.

DETOUR ROUTE:
CONTINUE ON ROUTE 83, PAST ROUTE 2 EB ACCESS FROM ROUTE 83, TURN LEFT ONTO NEW LONDON TURNPIKE, CONTINUE ON WASSUC ROAD, TURN RIGHT ONTO ROUTE 2 EB ACCESS FROM WASSUC ROAD

SCALE IN FEET

1500 0 1500 3000

STATE PROJECT NO.:
0053-0201

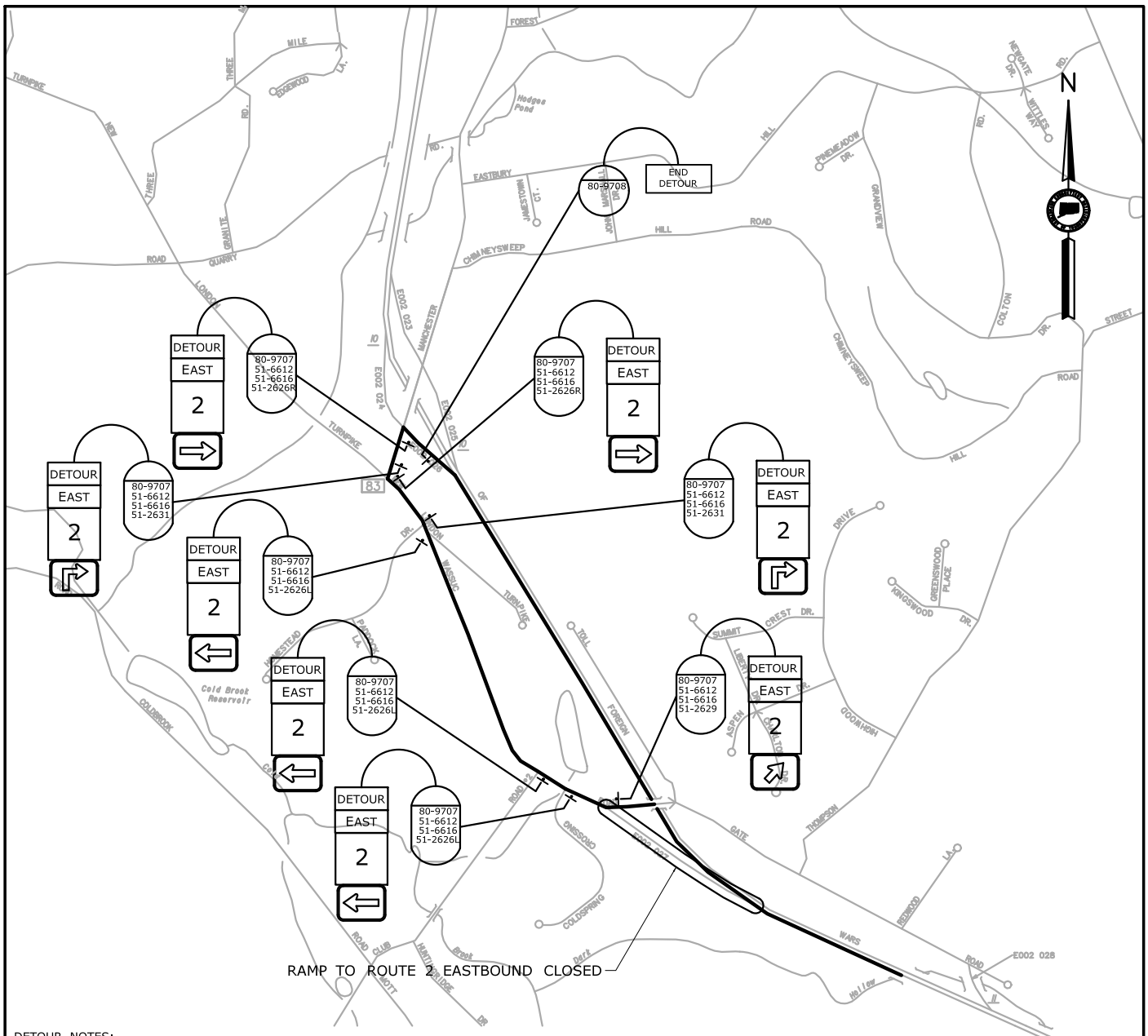
CITY/TOWN:
GLASTONBURY, MARLBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
EB EXIT 10 TO ROUTE 83 DETOUR PLAN
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



DETOUR NOTES:

1. CONTRACTOR MAY CLOSE THE RAMP AND INITIATE THE DETOUR DURING ALLOWABLE TIME PERIODS AS SPECIFIED IN THE SPECIAL PROVISIONS UNDER ARTICLE 1.08.04 AND ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC.

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3. DETOUR SIGNS SHALL BE INSTALLED ON BREAKAWAY POSTS PER TRAFFIC STANDARD SHEETS TR-1208-01, TR-1208-02, AND TR-1220-02 WITH THE EXCEPTION OF PORTABLE SIGNS AND SUPPORTS.

4. DETOUR SIGNS SHALL BE PAID UNDER ITEM NO. 1220027 - CONSTRUCTION SIGNS.

5. BARRICADE WARNING LIGHTS - HIGH INTENSITY SHALL BE MOUNTED ON ALL DIAMOND SHAPED POST-MOUNTED CONSTRUCTION SIGNS AND SHALL BE PAID UNDER ITEM NO. 0976002.

6. THE CONTRACTOR SHALL NOTIFY DISTRICT 2 CONSTRUCTION, THE TOWN OF GLASTONBURY AND MARLBOROUGH AND ALL EMERGENCY SERVICES AT LEAST TWO WEEKS PRIOR TO INITIATING THE DETOUR.

DETOUR ROUTE:
CONTINUE ON WASSUC ROAD, PAST ROUTE 2 EB ACCESS FROM WASSUC ROAD, TURN RIGHT ONTO ROUTE 83, TURN RIGHT ONTO ROUTE 2 EB ACCESS FROM ROUTE 83

SCALE IN FEET

1500 0 1500 3000

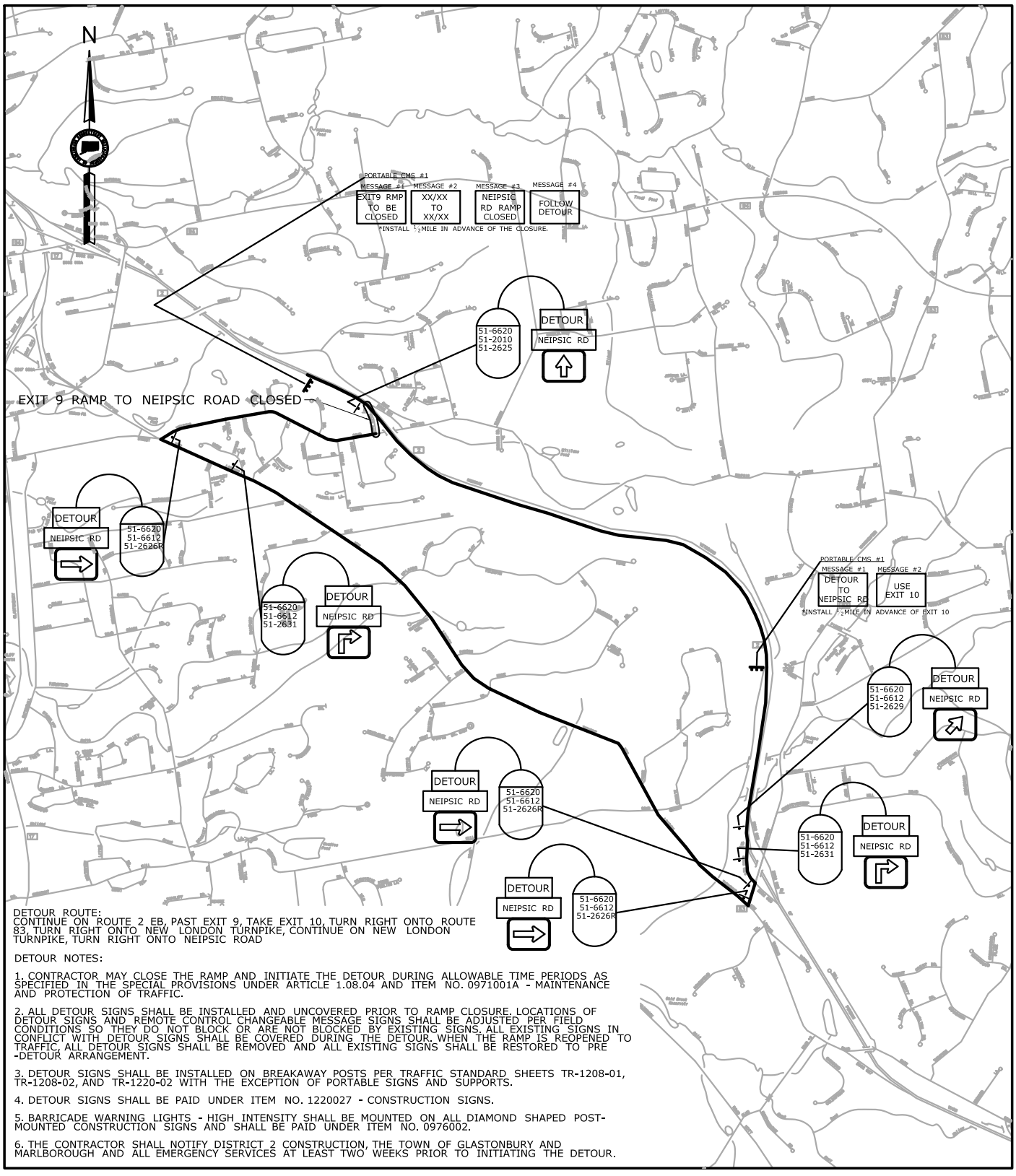
STATE PROJECT NO.:
0053-0201

CITY/TOWN:
GLASTONBURY, MARLBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
EB EXIT TO ROUTE 83 EXIT 10 DETOUR PLAN
DISTRICT 1 & 2 - ROUTE 2

DATE:
OCTOBER 2023



DETOUR ROUTE:
CONTINUE ON ROUTE 2 EB, PAST EXIT 9, TAKE EXIT 10, TURN RIGHT ONTO ROUTE 83, TURN RIGHT ONTO NEW LONDON TURNPIKE, CONTINUE ON NEW LONDON TURNPIKE, TURN RIGHT ONTO NEIPSIC ROAD

DETOUR NOTES:

1. CONTRACTOR MAY CLOSE THE RAMP AND INITIATE THE DETOUR DURING ALLOWABLE TIME PERIODS AS SPECIFIED IN THE SPECIAL PROVISIONS UNDER ARTICLE 1.08.04 AND ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC.

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3. DETOUR SIGNS SHALL BE INSTALLED ON BREAKAWAY POSTS PER TRAFFIC STANDARD SHEETS TR-1208-01, TR-1208-02, AND TR-1220-02 WITH THE EXCEPTION OF PORTABLE SIGNS AND SUPPORTS.

4. DETOUR SIGNS SHALL BE PAID UNDER ITEM NO. 1220027 - CONSTRUCTION SIGNS.

5. BARRICADE WARNING LIGHTS - HIGH INTENSITY SHALL BE MOUNTED ON ALL DIAMOND SHAPED POST-MOUNTED CONSTRUCTION SIGNS AND SHALL BE PAID UNDER ITEM NO. 0976002.

6. THE CONTRACTOR SHALL NOTIFY DISTRICT 2 CONSTRUCTION, THE TOWN OF GLASTONBURY AND MARLBOROUGH AND ALL EMERGENCY SERVICES AT LEAST TWO WEEKS PRIOR TO INITIATING THE DETOUR.

SCALE IN FEET

3000 0 3000 6000

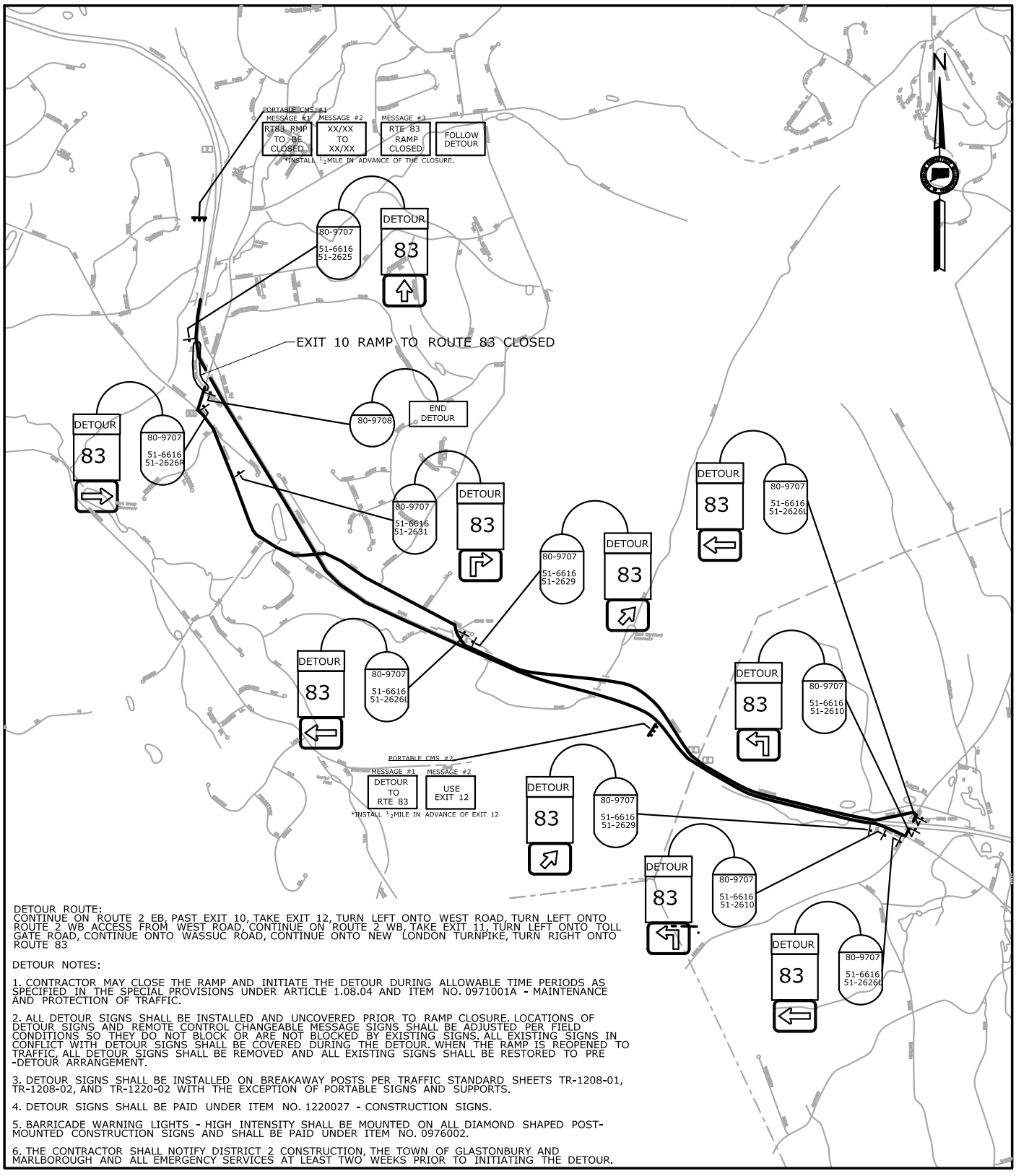
STATE PROJECT NO.:
0053-0201

CITY/TOWN:
GLASTONBURY, MARLBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
EB EXIT TO NEIPSIC RD EXIT 9 DETOUR PLAN
DISTRICT 1 & 2 - ROUTE 2

DATE:
OCTOBER 2023



DETOUR ROUTE:
CONTINUE ON ROUTE 2 EB, PAST EXIT 10, TAKE EXIT 12, TURN LEFT ONTO WEST ROAD, TURN LEFT ONTO ROUTE 2 WB ACCESS FROM WEST ROAD, CONTINUE ON ROUTE 2 WB, TAKE EXIT 11, TURN LEFT ONTO TOLL GATE ROAD, CONTINUE ONTO WASSUC ROAD, CONTINUE ONTO NEW LONDON TURNPIKE, TURN RIGHT ONTO ROUTE 83

DETOUR NOTES:

1. CONTRACTOR MAY CLOSE THE RAMP AND INITIATE THE DETOUR DURING ALLOWABLE TIME PERIODS AS SPECIFIED IN THE SPECIAL PROVISIONS UNDER ARTICLE 1.08.04 AND ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC.

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3. DETOUR SIGNS SHALL BE INSTALLED ON BREAKAWAY POSTS PER TRAFFIC STANDARD SHEETS TR-1208-01, TR-1208-02, AND TR-1220-02 WITH THE EXCEPTION OF PORTABLE SIGNS AND SUPPORTS.

4. DETOUR SIGNS SHALL BE PAID UNDER ITEM NO. 1220027 - CONSTRUCTION SIGNS.

5. BARRICADE WARNING LIGHTS - HIGH INTENSITY SHALL BE MOUNTED ON ALL DIAMOND SHAPED POST-MOUNTED CONSTRUCTION SIGNS AND SHALL BE PAID UNDER ITEM NO. 0976002.

6. THE CONTRACTOR SHALL NOTIFY DISTRICT 2 CONSTRUCTION, THE TOWN OF GLASTONBURY AND MARLBOROUGH AND ALL EMERGENCY SERVICES AT LEAST TWO WEEKS PRIOR TO INITIATING THE DETOUR.

SCALE IN FEET

3000 0 3000 6000

STATE PROJECT NO.:
0053-0201

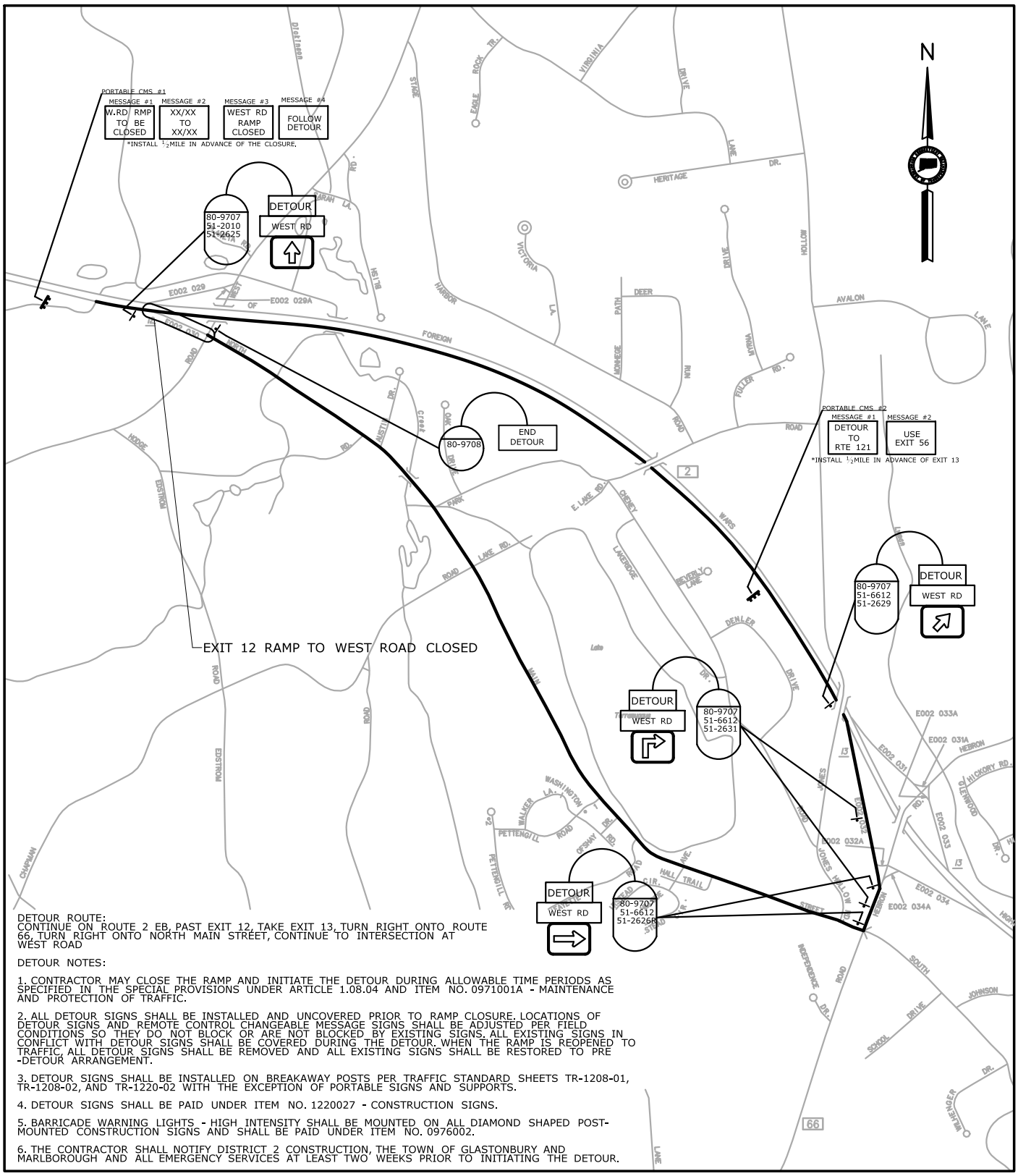
CITY/TOWN:
GLASTONBURY, MARLBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
EB EXIT 10 TO ROUTE 83 DETOUR PLAN
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



DETOUR ROUTE:
CONTINUE ON ROUTE 2 EB, PAST EXIT 12, TAKE EXIT 13, TURN RIGHT ONTO ROUTE 66, TURN RIGHT ONTO NORTH MAIN STREET, CONTINUE TO INTERSECTION AT WEST ROAD

DETOUR NOTES:

1. CONTRACTOR MAY CLOSE THE RAMP AND INITIATE THE DETOUR DURING ALLOWABLE TIME PERIODS AS SPECIFIED IN THE SPECIAL PROVISIONS UNDER ARTICLE 1.08.04 AND ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC.

2. ALL DETOUR SIGNS SHALL BE INSTALLED AND UNCOVERED PRIOR TO RAMP CLOSURE. LOCATIONS OF DETOUR SIGNS AND REMOTE CONTROL CHANGEABLE MESSAGE SIGNS SHALL BE ADJUSTED PER FIELD CONDITIONS SO THEY DO NOT BLOCK OR ARE NOT BLOCKED BY EXISTING SIGNS. ALL EXISTING SIGNS IN CONFLICT WITH DETOUR SIGNS SHALL BE COVERED DURING THE DETOUR. WHEN THE RAMP IS REOPENED TO TRAFFIC, ALL DETOUR SIGNS SHALL BE REMOVED AND ALL EXISTING SIGNS SHALL BE RESTORED TO PRE-DETOUR ARRANGEMENT.

3. DETOUR SIGNS SHALL BE INSTALLED ON BREAKAWAY POSTS PER TRAFFIC STANDARD SHEETS TR-1208-01, TR-1208-02, AND TR-1220-02 WITH THE EXCEPTION OF PORTABLE SIGNS AND SUPPORTS.

4. DETOUR SIGNS SHALL BE PAID UNDER ITEM NO. 1220027 - CONSTRUCTION SIGNS.

5. BARRICADE WARNING LIGHTS - HIGH INTENSITY SHALL BE MOUNTED ON ALL DIAMOND SHAPED POST-MOUNTED CONSTRUCTION SIGNS AND SHALL BE PAID UNDER ITEM NO. 0976002.

6. THE CONTRACTOR SHALL NOTIFY DISTRICT 2 CONSTRUCTION, THE TOWN OF GLASTONBURY AND MARLBOROUGH AND ALL EMERGENCY SERVICES AT LEAST TWO WEEKS PRIOR TO INITIATING THE DETOUR.

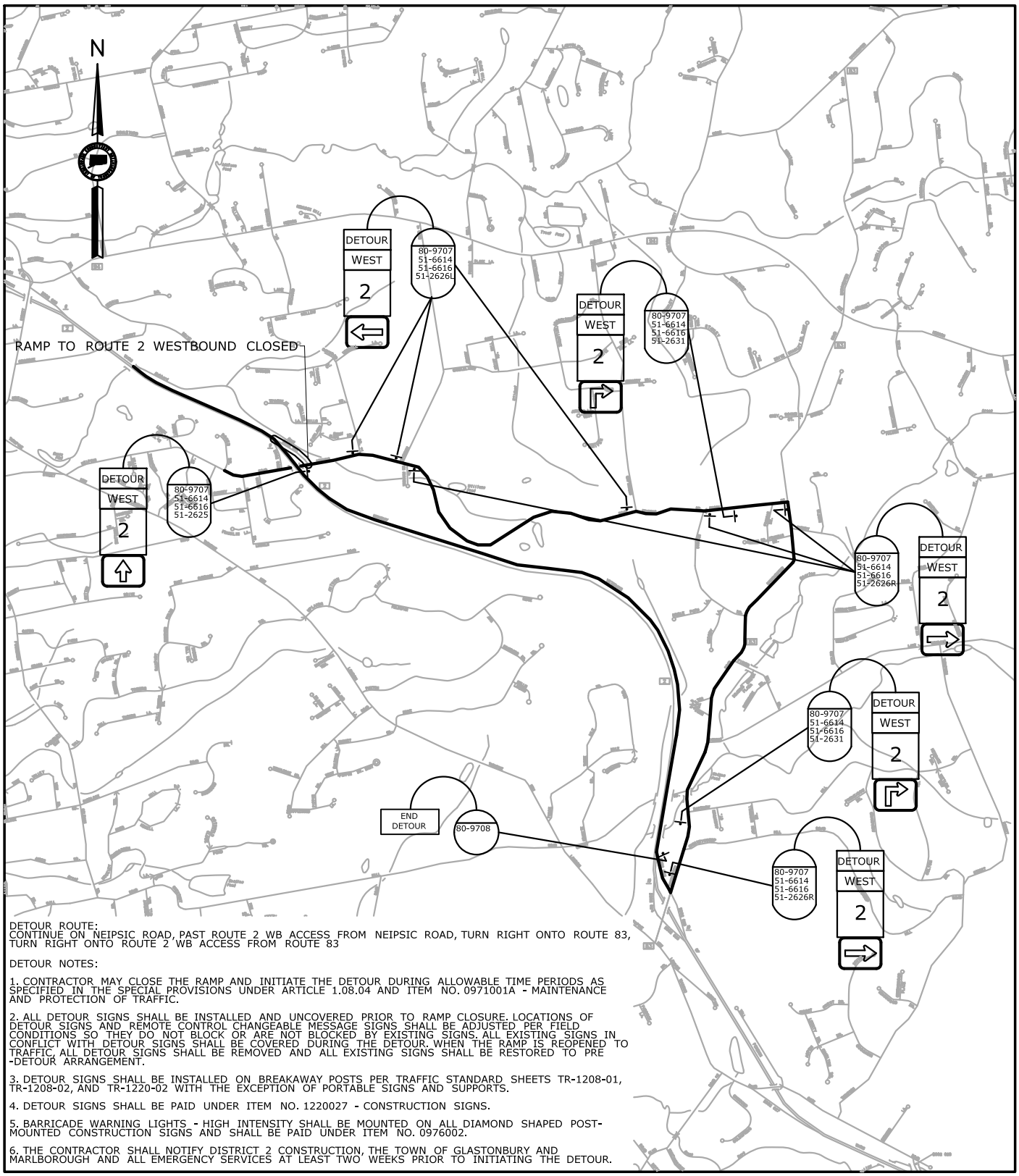
STATE PROJECT NO.:
0053-0201

CITY/TOWN:
GLASTONBURY, MARLBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
EB EXIT 12 TO WEST ROAD DETOUR PLAN
DISTRICT 1 & 2 - ROUTE 2

DATE:
OCTOBER 2023



DETOUR ROUTE:
CONTINUE ON NEIPSIC ROAD, PAST ROUTE 2 WB ACCESS FROM NEIPSIC ROAD, TURN RIGHT ONTO ROUTE 83, TURN RIGHT ONTO ROUTE 2 WB ACCESS FROM ROUTE 83

DETOUR NOTES:

1. CONTRACTOR MAY CLOSE THE RAMP AND INITIATE THE DETOUR DURING ALLOWABLE TIME PERIODS AS SPECIFIED IN THE SPECIAL PROVISIONS UNDER ARTICLE 1.08.04 AND ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC.

2. ALL DETOUR SIGNS SHALL BE INSTALLED AND UNCOVERED PRIOR TO RAMP CLOSURE. LOCATIONS OF DETOUR SIGNS AND REMOTE CONTROL CHANGEABLE MESSAGE SIGNS SHALL BE ADJUSTED PER FIELD CONDITIONS SO THEY DO NOT BLOCK OR ARE NOT BLOCKED BY EXISTING SIGNS. ALL EXISTING SIGNS IN CONFLICT WITH DETOUR SIGNS SHALL BE COVERED DURING THE DETOUR. WHEN THE RAMP IS REOPENED TO TRAFFIC, ALL DETOUR SIGNS SHALL BE REMOVED AND ALL EXISTING SIGNS SHALL BE RESTORED TO PRE-DETOUR ARRANGEMENT.

3. DETOUR SIGNS SHALL BE INSTALLED ON BREAKAWAY POSTS PER TRAFFIC STANDARD SHEETS TR-1208-01, TR-1208-02, AND TR-1220-02 WITH THE EXCEPTION OF PORTABLE SIGNS AND SUPPORTS.

4. DETOUR SIGNS SHALL BE PAID UNDER ITEM NO. 1220027 - CONSTRUCTION SIGNS.

5. BARRICADE WARNING LIGHTS - HIGH INTENSITY SHALL BE MOUNTED ON ALL DIAMOND SHAPED POST-MOUNTED CONSTRUCTION SIGNS AND SHALL BE PAID UNDER ITEM NO. 0976002.

6. THE CONTRACTOR SHALL NOTIFY DISTRICT 2 CONSTRUCTION, THE TOWN OF GLASTONBURY AND MARLBOROUGH AND ALL EMERGENCY SERVICES AT LEAST TWO WEEKS PRIOR TO INITIATING THE DETOUR.

SCALE IN FEET

3000 0 3000 6000

STATE PROJECT NO.:
0053-0201

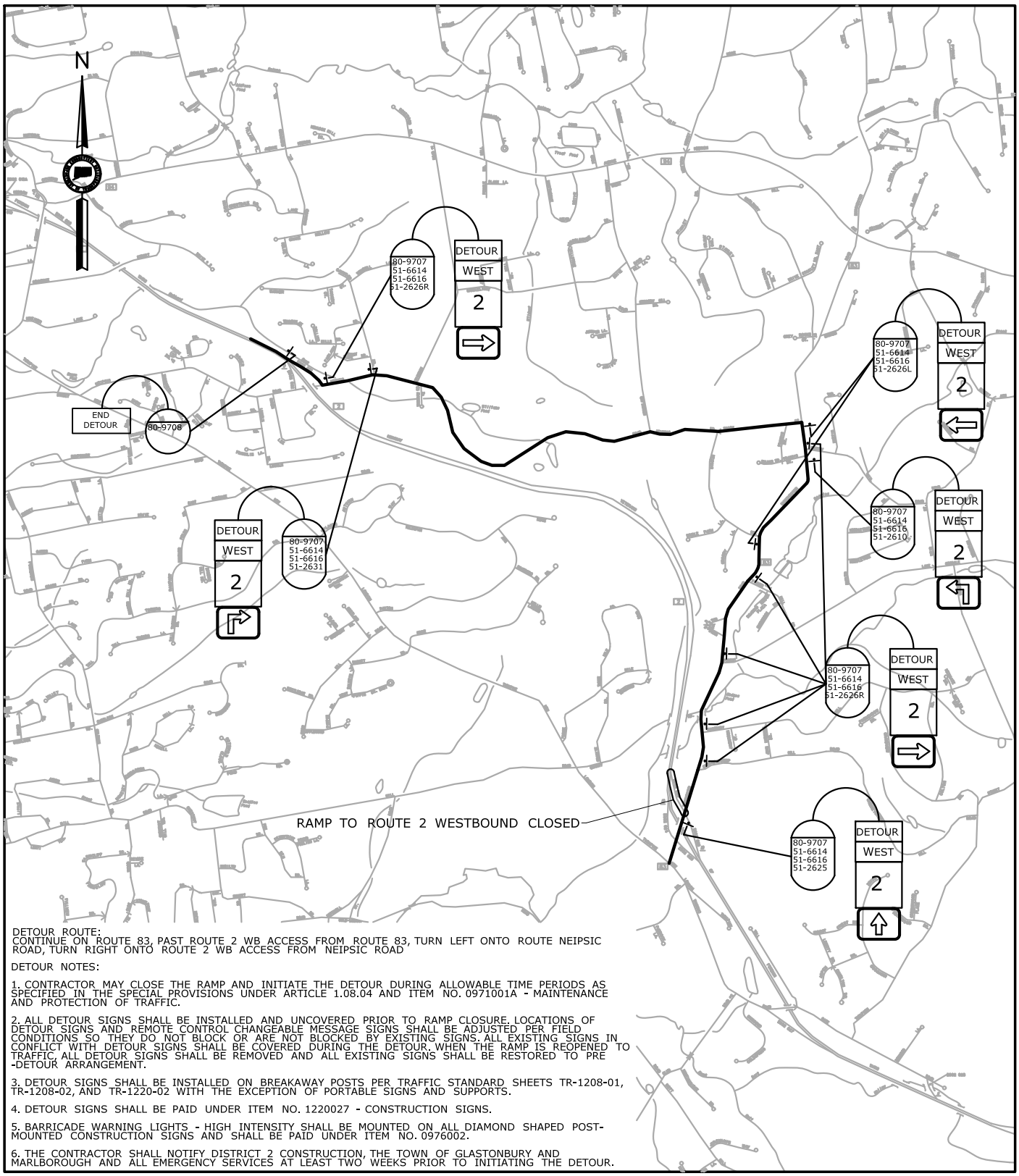
CITY/TOWN:
GLASTONBURY, MARLBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
WB ACCESS FROM NEIPSIC ROAD DETOUR PLAN
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



DETOUR ROUTE:
CONTINUE ON ROUTE 83, PAST ROUTE 2 WB ACCESS FROM ROUTE 83, TURN LEFT ONTO ROUTE NEIPSIC ROAD, TURN RIGHT ONTO ROUTE 2 WB ACCESS FROM NEIPSIC ROAD

DETOUR NOTES:

1. CONTRACTOR MAY CLOSE THE RAMP AND INITIATE THE DETOUR DURING ALLOWABLE TIME PERIODS AS SPECIFIED IN THE SPECIAL PROVISIONS UNDER ARTICLE 1.08.04 AND ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC.

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3. DETOUR SIGNS SHALL BE INSTALLED ON BREAKAWAY POSTS PER TRAFFIC STANDARD SHEETS TR-1208-01, TR-1208-02, AND TR-1220-02 WITH THE EXCEPTION OF PORTABLE SIGNS AND SUPPORTS.

4. DETOUR SIGNS SHALL BE PAID UNDER ITEM NO. 1220027 - CONSTRUCTION SIGNS.

5. BARRICADE WARNING LIGHTS - HIGH INTENSITY SHALL BE MOUNTED ON ALL DIAMOND SHAPED POST-MOUNTED CONSTRUCTION SIGNS AND SHALL BE PAID UNDER ITEM NO. 0976002.

6. THE CONTRACTOR SHALL NOTIFY DISTRICT 2 CONSTRUCTION, THE TOWN OF GLASTONBURY AND MARLBOROUGH AND ALL EMERGENCY SERVICES AT LEAST TWO WEEKS PRIOR TO INITIATING THE DETOUR.

SCALE IN FEET

3000 0 3000 6000

STATE PROJECT NO.:
0053-0201

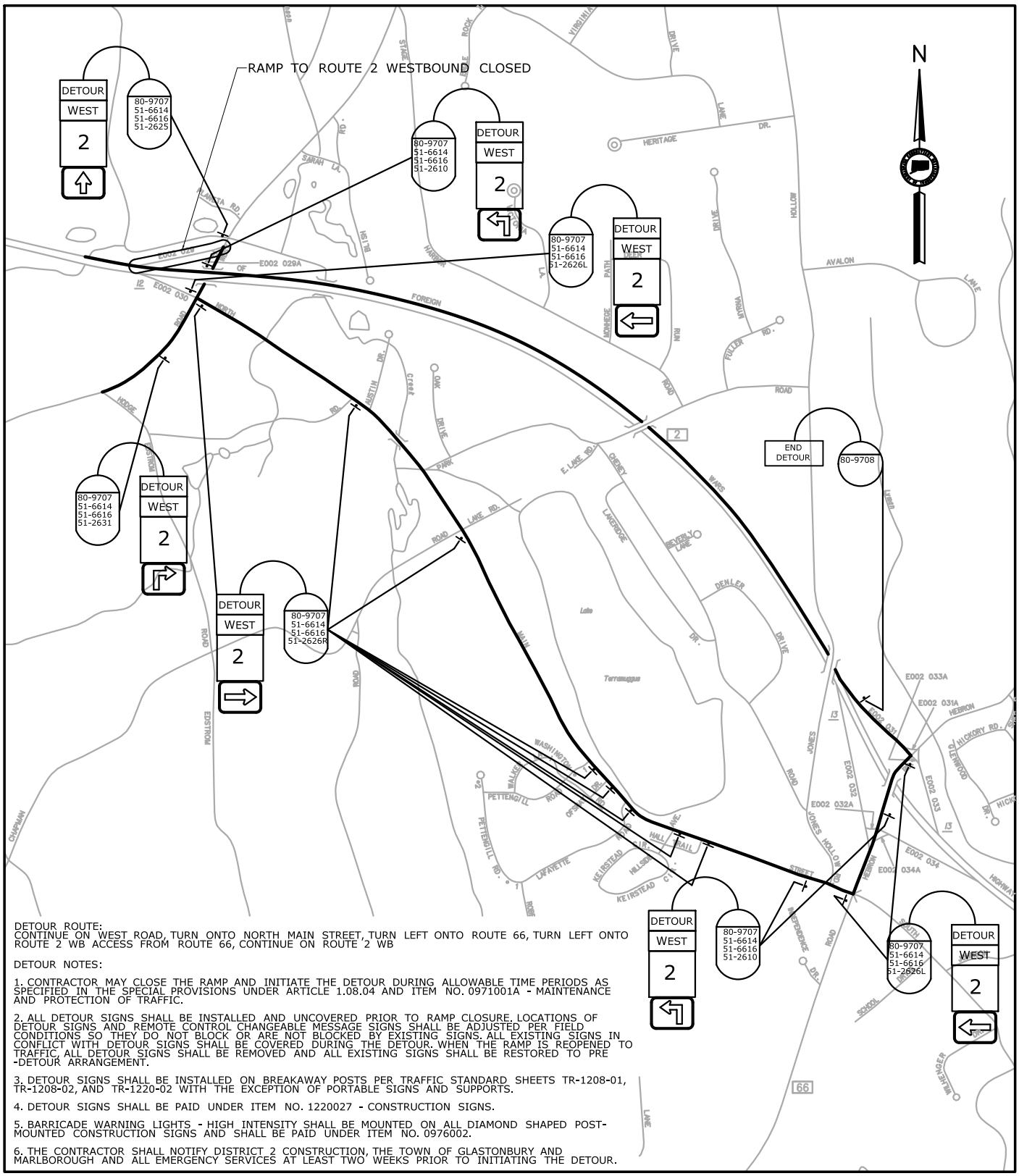
CITY/TOWN:
GLASTONBURY, MARLBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
WB ACCESS FROM ROUTE 83 DETOUR PLAN
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



DETOUR ROUTE:
CONTINUE ON WEST ROAD, TURN ONTO NORTH MAIN STREET, TURN LEFT ONTO ROUTE 66, TURN LEFT ONTO ROUTE 2 WB ACCESS FROM ROUTE 66, CONTINUE ON ROUTE 2 WB

DETOUR NOTES:

1. CONTRACTOR MAY CLOSE THE RAMP AND INITIATE THE DETOUR DURING ALLOWABLE TIME PERIODS AS SPECIFIED IN THE SPECIAL PROVISIONS UNDER ARTICLE 1.08.04 AND ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC.

2. ALL DETOUR SIGNS SHALL BE INSTALLED AND UNCOVERED PRIOR TO RAMP CLOSURE. LOCATIONS OF DETOUR SIGNS AND REMOTE CONTROL CHANGEABLE MESSAGE SIGNS SHALL BE ADJUSTED PER FIELD CONDITIONS SO THEY DO NOT BLOCK OR ARE NOT BLOCKED BY EXISTING SIGNS. ALL EXISTING SIGNS IN CONFLICT WITH DETOUR SIGNS SHALL BE COVERED DURING THE DETOUR. WHEN THE RAMP IS REOPENED TO TRAFFIC, ALL DETOUR SIGNS SHALL BE REMOVED AND ALL EXISTING SIGNS SHALL BE RESTORED TO PRE -DETOUR ARRANGEMENT.

3. DETOUR SIGNS SHALL BE INSTALLED ON BREAKAWAY POSTS PER TRAFFIC STANDARD SHEETS TR-1208-01, TR-1208-02, AND TR-1220-02 WITH THE EXCEPTION OF PORTABLE SIGNS AND SUPPORTS.

4. DETOUR SIGNS SHALL BE PAID UNDER ITEM NO. 1220027 - CONSTRUCTION SIGNS.

5. BARRICADE WARNING LIGHTS - HIGH INTENSITY SHALL BE MOUNTED ON ALL DIAMOND SHAPED POST-MOUNTED CONSTRUCTION SIGNS AND SHALL BE PAID UNDER ITEM NO. 0976002.

6. THE CONTRACTOR SHALL NOTIFY DISTRICT 2 CONSTRUCTION, THE TOWN OF GLASTONBURY AND MARLBOROUGH AND ALL EMERGENCY SERVICES AT LEAST TWO WEEKS PRIOR TO INITIATING THE DETOUR.

SCALE IN FEET

1500 0 1500 3000

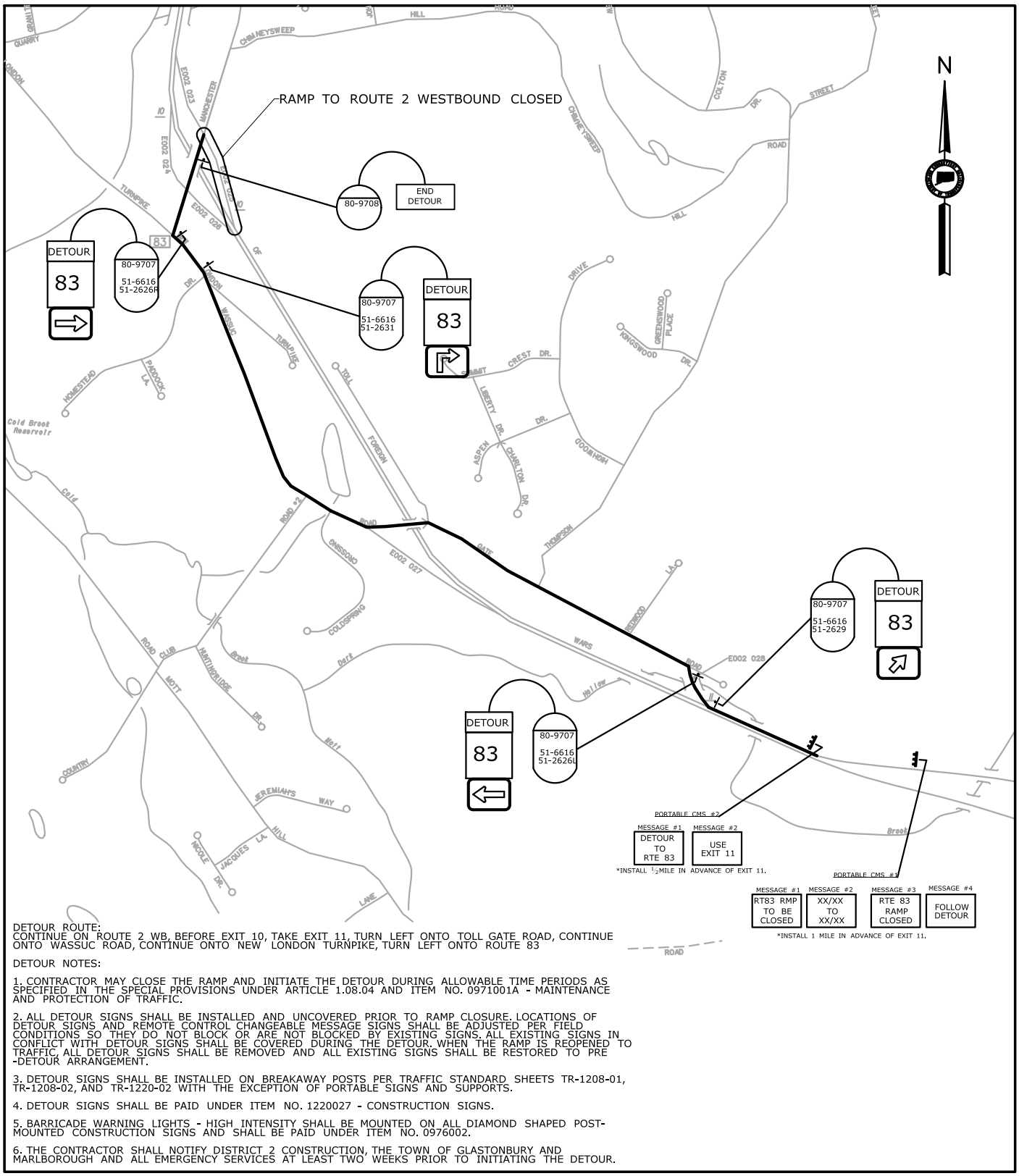
STATE PROJECT NO.:
0053-0201

CITY/TOWN:
GLASTONBURY, MARLBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
WB ACCESS FROM WEST ROAD DETOUR PLAN
DISTRICT 1 & 2 - ROUTE 2

DATE:
OCTOBER 2023



DETOUR ROUTE:
CONTINUE ON ROUTE 2 WB, BEFORE EXIT 10, TAKE EXIT 11, TURN LEFT ONTO TOLL GATE ROAD, CONTINUE ONTO WASSUC ROAD, CONTINUE ONTO NEW LONDON TURNPIKE, TURN LEFT ONTO ROUTE 83

DETOUR NOTES:

1. CONTRACTOR MAY CLOSE THE RAMP AND INITIATE THE DETOUR DURING ALLOWABLE TIME PERIODS AS SPECIFIED IN THE SPECIAL PROVISIONS UNDER ARTICLE 1.08.04 AND ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC.

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SCALE IN FEET

1500 0 1500 3000

STATE PROJECT NO.:
0053-0201

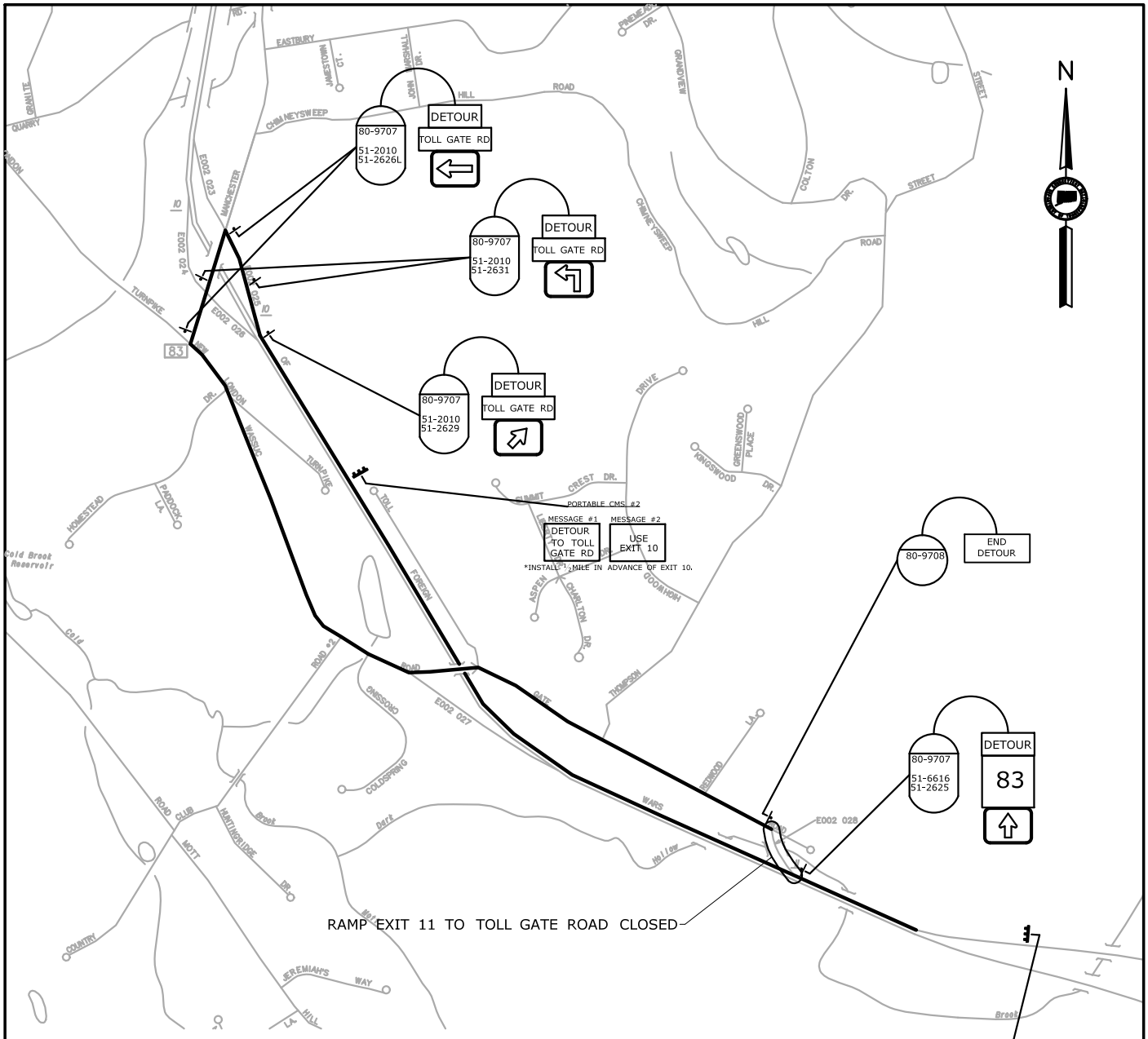
CITY/TOWN:
GLASTONBURY, MARLBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
WB EXIT 10 TO ROUTE 83 DETOUR PLAN
DISTRICT 1 & 2 - ROUTE 2

CDM Smith

DATE:
OCTOBER 2023



DETOUR ROUTE:
CONTINUE ON ROUTE 2 WB, PAST EXIT 10, TAKE EXIT 11, TURN LEFT ONTO ROUTE 83, TURN LEFT ONTO NEW LONDON TURNPIKE, CONTINUE ONTO WASSUC ROAD, CONTINUE ONTO TOLL GATE ROAD

DETOUR NOTES:

1. CONTRACTOR MAY CLOSE THE RAMP AND INITIATE THE DETOUR DURING ALLOWABLE TIME PERIODS AS SPECIFIED IN THE SPECIAL PROVISIONS UNDER ARTICLE 1.08.04 AND ITEM NO. 0971001A - MAINTENANCE AND PROTECTION OF TRAFFIC.

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STATE PROJECT NO.:
0053-0201

CITY/TOWN:
GLASTONBURY, MARLBOROUGH

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2024 PAVEMENT PRESERVATION PROGRAM
WB EXIT 10 TO ROUTE 83 DETOUR PLAN
DISTRICT 1 & 2 - ROUTE 2

DATE:
OCTOBER 2023