MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

CONTRACT DOCUMENTS

CONTRACT 2024.17

BRIDGE REPAIRS
STEVENSTOWN ROAD UNDERPASS
MILE 96.50

NOTICE TO CONTRACTORS

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SPECIFICATIONS

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

The Specifications are divided into two parts:
Part I, Supplemental Specifications and Part II, Special Provisions.

The Maine Turnpike Supplemental Specifications are additions and alterations to the 2014 Maine Department of Transportation Standard Specifications. See Subsection 100.1.

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MAINE TURNPIKE AUTHORITY

NOTICE TO CONTRACTORS

Sealed Proposals will be received by the Maine Turnpike Authority for:

CONTRACT 2024.17

BRIDGE REPAIRS
STEVENSTOWN ROAD UNDERPASS
MILE 96.5

at the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, ME, until 10:00 a.m., prevailing time as determined by the Authority on November 19, 2024 at which time and place the Proposals will be publicly opened and read. Bids will be accepted from Contractors **prequalified** by the Maine Department of Transportation for Bridge Construction Projects. All other bids may be rejected. This Project includes a wage determination developed by the State of Maine Department of Labor.

The work consists of repairing the Stevenstown Road bridge superstructure over the Maine Turnpike in the Town of Litchfield, Maine. This work includes the heat straightening and crack repair of the northerly girder; grinding gouges on the 2 northerly girders; removal and installation of protective coatings required to complete the work; installation of signing and traffic control devices; maintenance of traffic; and all other work incidental thereto in accordance with the Plans and Specifications.

Plans and Contract Documents may be examined by prospective Bidders weekdays between 8:00 a.m. and 4:30 p.m. at the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine. **The half size Plans** and Contract Documents may be obtained from the Authority upon payment of one-hundred ($100.00) Dollars for each set, which payment will not be returned. Checks shall be made payable to: Maine Turnpike Authority. The Plans and Contract Documents may also be downloaded from a link on our website at http://www.maineturnpike.com/Projects/Construction-Contracts.aspx.

For general information regarding Bidding and Contracting procedures, contact Nate Carll, Purchasing Manager, at (207) 482-8115. For information regarding Schedule of Items, plan holders list and bid results, visit our website at http://www.maineturnpike.com/Projects/Construction-Contracts.aspx. For Project specific information, fax all questions to Nate Carll, Purchasing Manager, at (207) 871-7739 or email ncarll@maineturnpike.com. Responses will not be prepared for questions received by telephone. Bidders shall not contact any other Authority staff or Consultants for clarification of Contract provisions, and the Authority will not be responsible for any interpretations so obtained.

All work shall be governed by the Specifications entitled "State of Maine, Department of Transportation, Standard Specifications, Revision of November 2014", "Standard Details, Revision of November 2014" and "Best Management Practices for Erosion and Sediment

Control", latest issue. Copies and recent updates to these publications can be downloaded at: http://www.maine.gov/mdot/contractors/publications/ .

Proposals must be accompanied by an original bid bond, certified or cashier's check payable to the Maine Turnpike Authority in an amount not less than Five (5%) Percent of the Total Amount in the Proposal, but not less than $500.00. The Bidder to whom a Contract is awarded will be required to furnish a Surety Corporation Bond, satisfactory to the Authority, on the standard Contract Bond form of the Authority, for a sum not less than the Total Amount of the Proposal.

Proposals must be made upon the Proposal Forms furnished by the Authority separately with the Contract Documents, and must be enclosed in the sealed special addressed envelope provided therefore bearing the name and address of the Bidder, the name of the Contract, and the date and time of Proposal opening on the outside.

A pre-bid conference will be held on November 12, 2024 at 10:00 a.m. at the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine.

The Authority reserves the unqualified right to reject any or all Proposals and to accept that Proposal which in its sole judgment will under all circumstances serve its best interest.

MAINE TURNPIKE AUTHORITY

Nate Carll
Purchasing Manager
Maine Turnpike Authority

Portland, Maine

Maine Turnpike Authority

MAINE TURNPIKE

PROPOSAL

CONTRACT 2024.17

BRIDGE REPAIRS
STEVENSTOWN ROAD UNDERPASS
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MAINE TURNPIKE AUTHORITY

PROPOSAL

CONTRACT 2024.17

BRIDGE REPAIRS
STEVENSTOWN ROAD UNDERPASS
MILE 96.50

TO MAINE TURNPIKE AUTHORITY:

This work consists of repairing the Stevenstown Road bridge over the Maine Turnpike in the Town of Litchfield, Maine. This work includes heat straightening and crack repair of the northerly girder; grinding gouges on the 2 northerly girders; removal and installation of protective coatings required to complete the work; installation of signing and traffic control devices; maintenance of traffic; and all other work incidental thereto in accordance with the Plans and Specifications.

This Work will be done under a Contract known as Contract 2024.17 according to the Plans and Specifications which are on file in the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine.

On the acceptance of this Proposal for said Work, the undersigned will give the required bond with good security conditioned for the faithful performance of said Work, according to said Plans and Specifications, and the doing of all other work required by said Specifications for the consideration herein named and with the further condition that the Maine Turnpike Authority shall be saved harmless from any and all damages that might accrue to any person, persons or property by reason of the carrying out of said Work, or any part thereof, or by reason of negligence of the undersigned, or any person or persons under his employment and engaged in said Work.

The undersigned hereby declares that he/she has carefully examined the Plans, Specifications and other Contract Documents, and that he/she will contract to carry out and complete the said Work as specified and delineated at the price per unit of measure for each scheduled item of Work stated in the Schedule of Prices as follows:

It is understood that the TOTAL AMOUNT stated by the undersigned in the following Schedule of Prices is based on approximate quantities and will be used solely for the comparison of bids, and that the quantities stated in the Schedule of Prices for the various items are estimates only and may be increased or decreased all as provided in the Specifications.

SCHEDULE OF BID PRICES
CONTRACT NO. 2024.17
STEVENSTOWN ROAD
BRIDGE REPAIR
MILE MARKER 96.5

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
504.80	Structural Steel Repair (Repair Area "A")	Lump Sum	1				
504.81	Structural Steel Repair (Repair Area "B")	Lump Sum	1				
506.17	Surface Preparation of Existing Steel	Lump Sum	1				
506.9103	Zinc Rich Coating System (Field Applied)	Lump Sum	1				
531.82	Heat Straightening	Lump Sum	1				
629.05	Hand Labor, Straight Time	Hour	20				
631.10	Air Compressor (Including Operator)	Hour	10				
631.11	Air Tool (Including Operator)	Hour	10				
631.171	Truck-Small (Including Operator)	Hour	5				
631.36	Foreman	Hour	10				
652.30	Flashing Arrow	Each	1				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
			BROUGHT FORWARD:				
652.33	Drum	Each	42				
652.34	Cone	Each	42				
652.35	Construction Signs	Square Foot	440				
652.361	Maintenance of Traffic Control Devices	Lump Sum	1				
652.38	Flaggers	Hour	600				
652.41	Portable-Changeable Message Sign	Each	1				
652.47	Sequential Flashing Warning Lights	Each	14				
659.10	Mobilization	Lump Sum	1				
					TOTAL:		

Acknowledgment is hereby made of the following Addenda received since issuance of the Plans and Specifications: _____

_____

_____

Accompanying this Proposal is an original bid bond, cashiers or certified check on _____ Bank, for _____, payable to the Maine Turnpike Authority. In case this Proposal shall be accepted by the Maine Turnpike Authority and the undersigned should fail to execute a Contract with, and furnish the security required by the Maine Turnpike Authority as set forth in the Specifications, within the time fixed therein, an amount of money equal to Five (5%) Percent of the Total Amount of the Proposal for the Contract awarded to the undersigned, but not less than $500.00, obtained out of the original bid bond, cashier's or certified check, shall become the property of the Maine Turnpike Authority; otherwise the check will be returned to the undersigned.

The performance of said Work under this Contract will be completed during the time specified in Subsection 107.1.

It is agreed that time is of the essence of this Contract and that I (we) will, in the event of my (our) failure to complete the Work within the time limit named above, pay to Maine Turnpike Authority liquidated damages in the amount or amounts stated in the Specifications.

The undersigned is an Individual/Partnership/Corporation under the laws of the State of _____, having principal office at _____, thereunto duly authorized.

_____ *(SEAL)*

_____ *(SEAL)*

Affix Corporate Seal
or Power of Attorney
Where Applicable

_____ *(SEAL)*

By: _____

Its: _____

Information below to be typed or printed where applicable:

INDIVIDUAL:

_____	_____
(Name)	(Address)

PARTNERSHIP - Name and Address of General Partners:

_____	_____
(Name)	(Address)
_____	_____
(Name)	(Address)
_____	_____
(Name)	(Address)
_____	_____
(Name)	(Address)

INCORPORATED COMPANY:

_____	_____
(President)	(Address)
_____	_____
(Vice-President)	(Address)
_____	_____
(Secretary)	(Address)
_____	_____
(Treasurer)	(Address)

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

YORK TO AUGUSTA

CONTRACT AGREEMENT

This Agreement made and entered into between the Maine Turnpike Authority, and sometimes termed the "Authority", and _____

_____

herein termed the "Contractor":

WITNESSETH: That the Authority and the Contractor, in consideration of the premises and of the mutual covenants, considerations and agreements herein contained, agree as follows:

FIRST: The parties hereto mutually agree that the documents attached hereto and herein incorporated and made a part hereof collectively evidencing and constituting the entire Contract to the same extent as if herein written in full, are the Notice to Contractors, the Accepted Proposal, the Specifications, the Plans, this Agreement, the Contract Bond and all Addenda to the Contract Documents duly issued and herewith enumerated:

_____

_____

SECOND: The Contractor for and in consideration of certain payments to be made as hereafter specified, hereby covenants and agrees to perform and execute all of the provisions of this Contract and of all documents and parts attached hereto and made a part thereof, and at his own cost and expense to furnish and perform everything necessary and required to construct and complete, ready for its intended purpose, in accordance with the Contract and such instructions as the Engineer may give, acceptable to the Authority, in the times provided, all of the Work covered and included under Contract No. _____ covering _____ as herein described.

THIRD: In consideration of the performance by the Contractor of his covenants and agreements as herein set forth, the Authority hereby covenants and agrees to pay the Contractor according to the Schedule of Prices set forth in the Proposal with additions and deductions as elsewhere herein provided in the times and in the manner stated in the Specifications. This Agreement shall insure to the benefit of, and shall be binding upon the parties hereto, and upon their respective successors and assigns; but neither party hereto shall assign or transfer his interest herein in whole or in part without the consent of the other, except as herein provided.

IN WITNESS WHEREOF the parties to this Agreement have executed the same in quintuplicate.

AUTHORITY -

MAINE TURNPIKE AUTHORITY

By: _____

Title: CHAIRMAN

Date of Signature: _____

ATTEST:

_____
Secretary

CONTRACTOR -

_____

CONTRACTOR

By: _____

Title: _____

Date of Signature: _____

WITNESS:

_____

CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS that _____

of _____ in the County of _____ and State of _____

as Principal, and _____ a Corporation duly organized under the

laws of the State of _____ and having a usual place of business in _____

_____

As Surety, are held and firmly bound unto the Maine Turnpike Authority in the sum of _____Dollars ($_____.___), to be paid to said Maine Turnpike Authority, or its successors, for which payment, well and truly to be made, we bind ourselves, our heirs, executors, successors and assigns jointly and severally by these presents.

The condition of this obligation is such that the Principal, designated as Contractor in the foregoing Contract No. _____ shall faithfully perform the Contract on his part and satisfy all claims and demands incurred for the same and shall pay all bills for labor, material, equipment and all other items contracted for, or used by him, in connection with the Work contemplated by said Contract, and shall fully reimburse the Obligee for all outlay and expense which the Obligee may incur in making good any default of said Principal, then this Obligation shall be null and void; otherwise it shall remain in full force and effect.

Signed and sealed this _____ day of _____, A.D., 202___

Witnesses: CONTRACTOR

_____ _____ *(SEAL)*

_____ _____ *(SEAL)*

_____ _____ *(SEAL)*

SURETY

_____ _____ *(SEAL)*

_____ _____ *(SEAL)*

_____ _____ *(SEAL)*

(Surety must attach copy of Power of Attorney showing authority of Office or Agent to execute bonds)

FINAL LIEN AND CLAIM WAIVER AND AFFIDAVIT

Upon receipt of the sum of _____, which sum represents the total amount paid, including the current payment for work done and materials supplied for Project No. _____, in _____, Maine, under the undersigned's Contract with the Maine Turnpike Authority.

The undersigned, on oath, states that the Final Payment of _____ is the final payment for all work, labor, materials, services and miscellaneous (all of which are hereinafter referred to as "Work Items") supplied to the said Project through _____and that no additional sum is claimed by the undersigned respecting said Project.

The undersigned, on oath, states that all persons and firms who supplied Work Items to the undersigned in connection with said Project have been fully paid by the undersigned for such Work Items or that such payment will be fully effected immediately upon receipt of this payment.

In consideration of the payment herewith made, the undersigned does fully and finally release and hold harmless the Maine Turnpike Authority, and its Surety, if any, from any and all claims, liens or right to claim or lien, arising out of this Project under any applicable bond, law or statute.

It is understood that this Affidavit is submitted to assure the Owner and others that all liens and claims relating to the Work Items furnished by the undersigned are paid.

_____
(Contractor)

By: _____

Title: _____

State of MAINE

County of _____

I, _____, hereby certify on behalf of _____
(Company Officer) *(Company Name)*

its _____, being first duly sworn and stated that the foregoing representations are
(Title)

are true and correct upon his own knowledge and that the foregoing is his free act and deed in said capacity and the free act and deed of the above-named

_____

.

(Company Name)

The above-named, _____, personally appeared before me this ____ day of _____ and swears that this is his free act and deed.

(SEAL)

_____
Notary Public

My Commission Expires: _____

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART I – SUPPLEMENTAL SPECIFICATIONS

(Rev. November 10, 2016)

Supplemental Specifications available on the Maine Turnpike Authority website:
https://www.maineturnpike.com/Projects/Construction-Contracts.aspx

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART II – SPECIAL PROVISIONS

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART II - SPECIAL PROVISIONS

All work shall be governed by the Maine Department of Transportation Standard Specifications, Revision of November 2014, except for that work which applies to sections of the Maine Department of Transportation Standard Specifications which are amended by the Maine Turnpike Supplemental Specifications and the following modifications, additions and deletions.

General Description of Work

This work consists of repairing the Stevenstown Road bridge over the Maine Turnpike in the Town of Litchfield, Maine. This work includes heat straightening and crack repair of the northerly girder; grinding gouges on the 2 northerly girders; removal and installation of protective coatings required to complete the work; installation of signing and traffic control devices; maintenance of traffic; and all other work incidental thereto in accordance with this Solicitation Package.

Plans

The drawings included in these Contract Documents, and referred to as the Plans, show the general character of the work to be done under this Contract. They bear the general title "Maine Turnpike – Contract 2024.17 – Stevenstown Road Underpass – Bridge Repairs – Mile Marker 96.50". The right is reserved by the Resident to make such minor corrections or alterations in the Plans as he deems necessary without change in the unit prices on the Schedule of Prices of the Proposal.

101.2 Definition

Holidays

The following is added after Memorial Day in the General Provisions:

Juneteenth 2025 (June 19th)	6:00 a.m Thursday to 6:00 p.m. Thursday
Independence Day 2025	12:01 p.m. preceding Thursday to 6:00 a.m. the following Monday.

103.4 Notice of Award

The following sentence is added:

The Maine Turnpike Authority Board is scheduled to consider the Contract Award on November 21, 2024.

104.3.8 Wage Rates and Labor Laws

Section 104.3.8 Wage Rates and Labor Laws has been amended as follows:

The fair minimum hourly rates determined by the State of Maine Department of Labor for this Contract are as follows:

THIS DOCUMENT MUST BE CLEARLY POSTED AT ALL CONSTRUCTION SITES FUNDED IN PART WITH STATE FUNDS

State of Maine Department of Labor - Bureau of Labor Standards
Augusta, Maine 04333-0045 - Telephone (207) 623-7906

Wage Determination - In accordance with 26 MRS §1301 et. seq., this is a determination by the Bureau of Labor Standards, of the fair minimum wage rate to be paid to laborers and workers employed on the below titled project.

2024 Fair Minimum Wage Rates -- Heavy & Bridge Kennebec County

Occupational Title	Minimum Wage	Minimum Benefit	Total
Brickmasons And Blockmasons	$35.00	$0.86	$35.86
Bulldozer Operator	$31.50	$7.53	$39.03
Carpenter	$28.00	$6.74	$34.74
Cement Masons And Concrete Finisher	$22.67	$2.21	$24.88
Commercial Divers	$25.00	$1.85	$26.85
Construction And Maintenance Painters	$24.50	$2.67	$27.17
Construction Laborer	$24.51	$20.33	$44.84
Crane And Tower Operators	$32.90	$7.82	$40.72
Crushing Grinding And Polishing Machine Operators	$23.00	$4.94	$27.94
Drywall And Ceiling Tile Installers	$26.20	$10.62	$36.82
Earth Drillers - Except Oil And Gas	$24.16	$2.53	$26.69
Electrical Power - Line Installer And Repairers	$30.34	$4.61	$34.95
Electricians	$35.00	$9.35	$44.35
Elevator Installers And Repairers	$68.38	$45.29	$113.67
Excavating And Loading Machine And Dragline Operators	$27.00	$5.08	$32.08
Excavator Operator	$36.84	$29.51	$66.35
Fence Erectors	$24.00	$2.05	$26.05
Flaggers	$24.51	$20.33	$44.84
Floor Layers - Except Carpet/Wood/Hard Tiles	$27.00	$6.21	$33.21
Glaziers	$37.00	$6.60	$43.60
Grader/Scraper Operator	$23.00	$1.99	$24.99
Hazardous Materials Removal Workers	$21.50	$1.54	$23.04
Heating And Air Conditioning And Refrigeration Mechanics And Installers	$32.00	$5.46	$37.46
Heavy And Tractor - Trailer Truck Drivers	$25.00	$1.99	$26.99
Highway Maintenance Workers	$20.00	$0.00	$20.00
Industrial Machinery Mechanics	$32.00	$0.96	$32.96
Industrial Truck And Tractor Operators	$30.00	$2.90	$32.90
Insulation Worker - Mechanical	$24.05	$3.59	$27.64
Ironworker - Ornamental	$27.75	$4.50	$32.25
Light Truck Or Delivery Services Drivers	$22.84	$1.25	$24.09
Millwrights	$33.75	$8.49	$42.24
Mobile Heavy Equipment Mechanics - Except Engines	$29.56	$7.11	$36.67
Operating Engineers And Other Equipment Operators	$28.00	$2.67	$30.67
Paver Operator	$25.30	$3.73	$29.03
Pile-Driver Operators	$32.75	$1.95	$34.70
Pipelayers	$28.50	$4.89	$33.39
Plumbers Pipe Fitters And Steamfitters	$36.00	$20.11	$56.11
Pump Operators - Except Wellhead Pumpers	$31.49	$32.08	$63.57
Radio Cellular And Tower Equipment Installers	$27.00	$3.90	$30.90
Reclaimer Operator	$27.03	$7.68	$34.71
Reinforcing Iron And Rebar Workers	$22.67	$25.11	$47.78
Riggers	$31.25	$7.68	$38.93
Roofers	$24.00	$3.35	$27.35
Screed/Wheelman	$29.25	$4.94	$34.19
Sheet Metal Workers	$27.38	$6.74	$34.12
Structural Iron And Steel Workers	$29.00	$7.22	$36.22
Tapers	$28.00	$1.71	$29.71
Telecommunications Equipment Installers And Repairers - Except Line Installers	$28.33	$6.08	$34.41
Telecommunications Line Installers And Repairers	$25.50	$5.71	$31.21
Tile And Marble Setters	$27.75	$6.73	$34.48

Welders are classified as the trade to which welding is incidental (e.g. welding structural steel is Structural Iron and Steel Worker)

Apprentices – The minimum wage rates for registered apprentices are the rates recognized in the sponsorship agreement for registered apprentices working in the pertinent classification.

For any other specific trade on this project not listed above, contact the Bureau of Labor Standards for further clarification.

Title 26 §1310 requires that a clearly legible statement of all fair minimum wage and benefits rates to be paid the several classes of laborers, workers and mechanics employed on the construction on the public work must be kept posted in a prominent and easily accessible place at the site by each contractor and subcontractor subject to sections 1304 to 1313.

Appeal – Any person affected by the determination of these rates may appeal to the Commissioner of Labor by filing a written notice with the Commissioner stating the specific grounds of the objection within ten (10) days from the filing of these rates.

A true copy

Attest: Scott R. Cotnoir

Scott R. Cotnoir
Wage & Hour Director
Bureau of Labor Standards

Expiration Date: 12-31-2024
Revision Date: 1-3-2024

104.4.6 Utility Coordination

This Subsection is amended by the addition of the following:

These Special Provisions outline the arrangements which have been established by the Authority for coordination of the work to be accomplished by the utilities. The scope and schedule of utility relocation work is noted herein. The Contractor shall plan and conduct his work accordingly.

General

No existing utilities are expected to be affected as part of this Project.

104.4.7 Cooperation With Other Contractors

This Subsection is amended by the addition of the following:

Adjacent contracts currently scheduled for the 2025 construction season include:

MTA Contract 2023.03 – Route 122 Bridge Rehabilitation, Mile 74.0
MTA Contract 2025.05 – Bridge Concrete Haunch Removal, Multiple Locations
MTA Contract 2025.06 – Androscoggin River Bridge Repair , Mile 78.9
MTA Contract 2025.07 – Culvert Repair, Multiple Locations

The following Subsection is added:

105.2.4.2 Lead Paint

The Contractor shall note that the existing bridge structure may contain lead based paint. The Contractor shall institute every precaution when working with materials coated with lead based paints.

Lead Paint Removal

The Contractor is required to remove and dispose of lead based paint and paint residue before cutting, grinding, drilling and sandblasting existing materials in preparation of completing the work except as provided under the Drilling of Lead Based Paint subsection in this Special Provision. All lead based paint and paint residue shall be removed, handled, stored and disposed of in conformance with all local, State and Federal laws and regulations governing lead based paint. The Contractor may use his own properly trained employees to abate the lead based paint in accordance with applicable regulations and requirements; or he may hire a licensed lead abatement subcontractor to abate the lead based paint in accordance with applicable regulations and requirements.

The Contractor, or licensed lead abatement subcontractor, shall submit a Project specific Health and Safety (OSHA) Plan and a Hazardous Waste Management Plan (EPA/DEP) a minimum of two (2) weeks prior to undertaking the removal of lead based paint.

Drilling of Lead Based Paint

The Contractor may drill lead based painted steel, without lead based paint removal, provided the Contractor collects and recycles the drill cuttings at a licensed metal recycling facility. If the Contractor chooses not to collect and recycle the drill cuttings at a licensed metal recycling facility he will be required to abate the area where drilling is to occur in full accordance with the lead based paint removal, storage and disposal requirement of this Special Provision.

The Authority will require a signed statement from the Contractor stating the drill cuttings were collected and recycled at a licensed metal recycling facility and the name the recycling facility.

Health and Safety Plan

The Health and Safety Plan submittal shall describe how the Contractor/licensed lead abatement subcontractor intends to remove the lead based paints; and shall outline how the Contractor/licensed lead abatement subcontractor will adhere to all Federal, State and local ordinances which govern worker (including authorized representatives of the Authority) exposure to lead based paints, and ensure the safety of the workers performing lead removal. Copies of current worker training certificates (OSHA), medical screenings, and respirator fit up shall be included in the submittal.

Hazardous Waste Management Plan

The Hazardous Waste Management Plan submittal shall describe how the Contractor/licensed lead abatement subcontractor intends to manage the hazardous waste that will be generated, temporarily accumulated, stored, transported off-site and disposed; adhere to ordinances associated with the management of hazardous wastes; and ensure protection of the environment.

The Hazardous Waste Management Plan shall:

- Be signed by the Contractor;
- State whether Contractor or licensed lead abatement subcontractor will be undertaking the work; and,
- State whether abated lead materials will be accumulated and stored on-site (required if Contractor is not licensed by DEP/EPA to transport and temporarily store lead based hazardous waste), or be removed in HEPA vacuums daily to the removal Contractor's licensed waste storage facility (permitted only if Contractor is licensed by DEP/EPA to transport and temporarily store lead based hazardous waste).

If abated lead materials are to be accumulated and stored on-site, the Hazardous Waste Management Plan shall include (at a minimum) the following:

- Container size and labeling standards:
  - Containers must be 55 gallons or less
  - Containers must have the labeled "HAZARDOUS WASTE"

- Accumulation requirements:
  - Labels will include accumulation start date and container full date
  - On-site storage will not exceed 180 days from full date
  - Total on-site storage shall not exceed 55 gallons or 220 pounds

- Inspections (including frequency and checklist):
  - Inspections shall be performed each day the Contractor works
  - Inspection checklist shall be similar to MaineDEP format (Refer to Appendix A1 of MaineDEP Handbook for Hazardous Waste Generators – June 2018)

- Transport and DOT "pre-transport requirements":
  - Specify the licensed hazardous waste transporter to be used
  - Obtain Generator's EPA ID No. (typically a provisional ID # is obtained through the licensed hazardous waste transporter)
  - USDOT – approved containers must be used for shipment
  - Schedule MTA for signing Hazard Waste Manifest

- Recordkeeping requirements:
  - Describe where at the jobsite the required records (e.g., inspection logs, training records, Lead Determination report/hazardous waste characterization, etc.) will be maintained
  - Describe how and when copies of the required documents specified above will be transferred to the MTA Environmental Services Coordinator's office

The Contractor/licensed lead abatement subcontractor, shall provide documentation to the MTA that the employees who will be removing, handling, managing and/or directly supervising the hazardous waste operations have received required Resource Conservation and Recovery Act (RCRA) hazardous waste management training, and all training is current.

The lead based hazardous waste must remain on-site, unless the removal is being performed by a licensed lead abatement subcontractor that collects the paint residue in HEPA vacuums and is licensed by DEP/EPA to transport and temporarily store lead based hazardous waste at the removal Contractor's licensed waste storage facility. Both on-site and licensed off-site lead based hazardous waste storage facilities require secure storage and daily inspection of the stored waste.

If the removal Contractor is not licensed by DEP/EPA to transport and temporarily store lead based hazardous waste off-site, then an EPA licensed Hazardous Waste transporter(s) shall be used to remove hazardous waste from the site. All removal and disposal documentation will be required when the hazardous waste leaves the site. As the Generator, only the Authority's Environmental Services Coordinator or his trained designee shall sign waste manifests when material is removed from the Project site.

107.1 Contract Time and Contract Completion Date

This Subsection is amended by the addition of the following:

All work on the site shall be substantially completed by June 30, 2025, and all work shall be completed on or before July 31, 2025.

107.1.1 Substantial Completion

This Subsection is amended by the addition of the following:

Substantially complete shall be defined by the Authority as the following:

- All Contract work, with the exception of removing traffic control devices and the completion of minor punch list work, shall be completed.

Liquidated damages on a calendar day basis in accordance with Subsection 107.7.2 shall be assessed for each calendar day that substantial completion is not achieved. Liquidated damages for substantial completion will end when substantial completion is accepted by the Resident or at the Contract Completion Date. If the work remains incomplete at the Contract Completion Date, liquidated damages on a calendar day basis in accordance with Subsection 107.7.2 shall be assessed for each calendar day that Contract completion is not achieved.

107.3.2 Night Work

This Subsection is amended by the addition of the following:

Night work will be allowed within the limitations defined in Section 652. The Contractor shall formally notify the Resident of their intent to preform night work a minimum of 14 calendar days ahead of the planned nightwork.

107.4.6 Prosecution of Work

The contractor shall plan the work and shall submit to the Authority a construction schedule which shall document that the Contractor has the necessary labor, equipment and materials to work in a reasonable and expeditious manner. The intent of this specification is to minimize the amount of time for lane closures, while providing the Contractor sufficient time to complete the work in a diligent manner.

107.4.7 Limitations of Operations

The Contractor shall provide shielding, tarps, welding blankets, etc., to prevent adjacent combustible surfaces from igniting during heat straightening operations, and shield patron vehicles from any debris. Fire extinguishers shall be on-site during all cutting, burning, and heating operations.

The specified traffic control for Stevenstown Road shall be in place prior to beginning of heat straightening and shall remain in place while heat straightening activities are actively occurring.

Heat straightening work shall be sequenced such that all repair areas on a given beam are heated in rapid succession in order to maximize the movement induced by each heat cycle.

Heat straightening work shall be completed using short-term lane closures on the Maine Turnpike that are removed at the completion of each day or night.

During heat straightening operations the north lane of Stevenstown Road on the bridge shall be closed and traffic shall be limited to a single lane of alternating one-way traffic controlled by flaggers.

Waste material shall be disposed of off the project site, in accordance with all environmental regulations.

At the completion of the project, all disturbed slopes shall be repaired as shown in the plans and as directed by the Resident. Four inches of loam and seeding shall be placed on all new or reconstructed slopes

SPECIAL PROVISION

SECTION 504

STRUCTURAL STEEL

(Repair of Damaged Girders)

504.01 Description

The following paragraphs are added:

This work includes structural steel repairs to existing girders at the Stevenstown Road Interchange Bridge over the southbound lanes of the Maine Turnpike.

The north fascia girder (G1) and northerly interior girder (G2) of the Stevenstown Road Bridge were damaged when the bridge was struck by an over height vehicle around August 2024.

The repairs at Girder G1 the beam shall include heat straightened to remove the sweep in the bottom flange, removal of a crack in the flange by grinding, and gouge removal by grinding as directed. The repair also includes paint removal in the repair areas and repainting following repairs. These repairs are shown by Repair Area “A” on the plans.

The repairs at Girders G2 include grinding directed to remove gouges to the bottom flange and paint removal and repainting of repair areas. This repair is shown by Repair Area “B” on the plans.

The work at all locations shall be in accordance with Standard Specification 504, Structural Steel. Work related to heat straightening shall be completed in accordance with Special Provision 531 and associated pay items.

This work also includes providing the Authority, or its duly authorized representatives, with reasonable access to the damaged girders for the purposes of inspection, testing, and observation as requested.

504.66 Steel Beam Repair

All repair work shall be performed in accordance with the following notes and repair procedures, the Plans, the General and Special Provisions, and the MaineDOT Standard Specifications, Revision of November 2014.

a. Sweep and Bottom Flange Distortion Repair Procedure (Repair Area “A")

1. Install traffic control devices on Stevenstown Road bridge and Turnpike mainline as shown on the plans.

2. Remove the protective coating system in the vicinity of the repairs as shown on the Contract Plans and in accordance with Special Provision 506.

3. Complete heat straightening of the fascia girder in accordance with Special Provision 531.

4. Nicks, gouges and scrapes more than 1/16" in depth shall be ground smooth. Repairs that require removal of more than 1/8 inch of thickness of a cross sectional element require the Resident's approval. Any cracks discovered before or during repair shall be brought to the attention of the Resident. Final grinding shall be done in the longitudinal direction of the beam. Visual inspection shall be performed on all gouge repairs by the Authority's representative prior to protective coating application.

5. Areas of protective coating removal and girder repair shall have new protective coating applied in accordance with Special Provision 506.

d. Girder Gouge Repair (Repair Areas "B")

1. Remove the protective coating system in the vicinity of the repairs as shown on the Contract Plans.

2. Nicks, gouges and scrapes more than 1/16" in depth shall be ground smooth. Repairs that require removal of more than 1/8 inch of the thickness of a cross-sectional element require the Resident's approval. Any cracks discovered before or during the repair shall be brought to the attention of the Resident. Final grinding shall be done in the longitudinal direction of the beam. Visual inspection shall be performed on all gouge repairs by the Authority's representative prior to protective coating application.

3. Areas of protective coating removal and girder repair shall have new protective coating applied in accordance with Special Provision 506.

504.65 Method of Measurement

Structural Steel Repair will be measured as one lump sum for each repair area ("A", "B") complete and accepted, consisting of all materials, equipment, labor and incidentals, including, but not necessarily limited to, temporary lighting, field measurements, and all other incidentals required to complete the work in accordance with the Plans and Specifications.

The removal of protective coatings, protective coating removal containment and disposal, and the application of new protective coatings shall be measured for payment separately under Section 506.

Heat straightening of damaged girders shall be measured for payment separately under Section 531.

504.65 Basis of Payment

The Subsection is deleted in its entirety and replaced with the following:

Payment will be made at the contract lump sum price for each of the following items:

Pay Item		Pay Unit
504.80	Structural Steel Repair (Repair Area “A”)	Lump Sum
504.81	Structural Steel Repair (Repair Area “B”)	Lump Sum

SPECIAL PROVISION

SECTION 506

PAINTING STRUCTURAL STEEL

506.01 Description

This work shall consist of removing areas of existing protective coatings to the limits shown on the plans, or as required to complete the work, and as approved by the Resident. All paint removal shall be completed in strict accordance with Section 105.2.4.2, Lead Paint.

This work shall also consist of applying a zinc-rich protective coating to steel substrate in accordance with the Plans and these Specifications.

506.02 Materials

Materials shall comply with the requirements in the respective Subsections of this Specification.

506.03 Submittals

The Contractor shall submit for review by the Authority a materials list and other such details as described within the Plans and the respective subsections of this Specification.

506.04 General Requirements

Requirements for the type of protective coating to be furnished are as follows:

- Zinc-Rich Coating System Subsections 506.20 through 506.27

506.05 Inspection

The Resident will have the authority to reject material or workmanship that does not meet the Contract requirements.

506.06 Non-Conforming Work

Rejected material and workmanship shall be corrected or replaced by the Contractor in accordance with Subsection 106.8.2 of the Standard Specifications.

ZINC-RICH COATING SYSTEMS

506.10 Description

Work shall consist of application of a two coat, zinc-rich coating system in accordance with this Specification.

506.11 Materials

Coatings systems shall be selected from the Northeast Protective Coating Committee (NEPCOAT) Qualified Products List (QPL) C or D list. The list may be found through the NEPCOAT Web page (http://www.nepcoat.org).

The Contractor shall provide the batch description, lot number, date of manufacture, shelf life and the manufacturer's published storage requirements for each coating to the Resident. In addition, the Contractor shall provide the manufacturer's published instructions for application of each coat of the coating system including equipment, surface preparation, anchor profile, mixing, thinning, application, cure time for the entire range of allowable environmental conditions, DFT and recoat time.

506.12 Limits of Work

All surfaces exposed in the assembled product shall be coated with primer and topcoat. Surfaces to be embedded in concrete shall receive a mist coat (0.75 to 1.5 mils) of primer only.

The termination point shall be taped off to prevent overrun and overspray. The finish coat color shall match color of the existing paint system.

Faying surfaces of bolted connections shall be primed only and develop a Class B slip coefficient in accordance with the *"Specification for Structural Joints Using ASTM A325 or A 490 Bolts"* by the Research Council of Structural Connections (RCSC). The Contractor shall provide documentation to demonstrate that the coating was tested and met the above requirements.

506.13 Surface Preparation

Prior to cleaning, all corners and edges of members and plates, whether rolled cut or sheared, exposed in the assembled product shall be rounded to approximately 1/8 inch radius. A series of tangents to the approximate radius will be considered as rounded

Surfaces to be field-painted shall be power tool cleaned to meet the requirements of SSPC-SP3. All surfaces shall be solvent wiped in accordance with SSPC-SP1 following power tool cleaning.

After cleaning is complete the surface shall be visually inspected for fins, tears, delaminations and other discontinuities. Fins, tears and other discontinuities shall be removed with a grinder or other suitable power tool and the area shall be blended at a slope of approximately 1:20.

The allowable time between cleaning and primer application shall not exceed the manufacturer's published recommendations or eight hours, whichever is less. If the substrate develops flash rust (rust bloom) before the primer is applied or before the primer application is completed, the piece shall be re-blasted to bare substrate and re-coated.

All paint removal shall be in accordance with Section 105.2.4.2, Lead Paint and all applicable state and federal regulations.

506.14 Mixing and Application

All protective coatings shall be applied using a method approved by the Resident. Protective coating shall not be applied when the steel temperature, or the ambient temperature in the immediate vicinity of the piece(s) in question; See manufacturers guidelines for temperature limitations. Thinning and mixing of coatings shall be in conformance with the manufacturer's published instructions. Thinner shall be measured using a graduated cup or other container that clearly indicates the amount of thinner being added. Mixing shall be done using the method, equipment and for the amount of time recommended by the coating manufacturer.

Primer and topcoat shall be applied in accordance with the manufacturer's published recommendations. Environmental conditions in the immediate vicinity of the surfaces to be coated shall be within the range of the manufacturer's published requirements both during the coating operation and during the curing period. Primer shall not be force cured.

Recoat time shall be in accordance with the manufacturer's published requirements for the environmental conditions at the time of application and cure. If the coating is contaminated with dust, debris, over spray or other deleterious material, the surface shall be cleaned in accordance with SSPC-SP 1 immediately prior to recoating. Other methods of cleaning may be used if approved by the Resident.

The Resident shall be given ample notice in order to inspect the product prior to coating, recoating or removal of paint from the area. "Ample notice" shall be defined at the Pre-Job meeting depending on shop or site conditions.

Substrates that are primed or surfaces that are recoated without notification of the Resident will be rejected and no further coating shall be done on the piece. Rejected coating shall be removed and re-applied. The cost of repairs shall be borne by the Contractor.

506.16 Touch-up and Repairs

Damaged or unacceptable coatings shall be repaired. Damaged areas shall be prepared in accordance with the manufacturer's published instructions or as directed by the Resident. Damaged or unacceptable coatings shall be repaired using the same coating removed and prepared for repair. Environmental conditions, cure times and DFTs shall be in accordance with manufacturer's published directions for the coating being applied. Repairs to topcoat shall result in a uniform gloss and color match. The Resident shall have final authority concerning acceptable appearance.

506.17 Handling and Storage

The coating shall be adequately cured before handling but under no circumstances shall the product be handled before the coating has achieved the manufacturer's published minimum cure time. Coated steel members shall be handled in a manner to avoid damage to the coating. Members shall be lifted and moved using non-metallic slings, padded chains and beam clamps, softeners or other non-injurious methods. Material shall be stored, both at the coating facility and in the field, in a manner that prevents damage to the coating.

506.90 Method of Measurement

The application of Protective Coating shall be measured by the lump sum method, complete and accepted. The limits shall be as shown on the Plans or as described within the respective Subsections.

The removal of the existing paint system necessary to complete the work shall be measured by the lump sum method, complete and accepted. The limits shall be as required to complete the repairs shown on the Plans or as described within the respective Subsections 504 and 531.

506.91 Basis of Payment

Application of the Zinc-Rich Coating System will be paid for at the lump sum price for the respective item. Payment will be full compensation for all work and materials needed to complete the work including: protective coating application and curing; and all testing, labor, materials, equipment and incidentals required to satisfactorily complete the work in accordance with these Specifications and the Contract Plans.

Surface preparation the existing steel will be paid for at the lump sum price for the respective item. Payment will be full compensation for all work and materials needed to complete the work including: existing paint removal, containment and disposal in accordance with Section 105; preparation of surfaces to receive protective coating; and all testing, labor, and materials, equipment, and incidentals required to satisfactorily complete the work in accordance with these Specifications and the Contract Plans.

Pay Items		Pay Unit
506.17	Surface Preparation of Existing Steel	Lump Sum
506.9103	Zinc-Rich Coating System	Lump Sum

SPECIAL PROVISION

SECTION 531

HEAT STRAIGHTENING REPAIRS TO STRUCTURAL STEEL

531.01 Description

This work shall consist of repairing damaged structural steel through the application of heat to damaged sections of beams and girders as described on the Contract Plans and in these Specifications. All heat straightening work shall be completed by one of the prequalified heat straightening firms listed in this Specification.

This work also includes the removal, modification, and installation of existing diaphragms, cross frames, stiffeners, and other secondary structural elements and attachments required to complete the heat straightening repair as described on the Contract Plans and in the Specifications.

Photos of the damaged areas to be heat straightened are provided in Appendix A. Approximate measurements of the girder deformation are provided on the plans.

531.02 General Construction Requirements

Heat straightening is a repair procedure in which a limited amount of heat is applied in specific patterns to plastically deformed regions of damaged steel in repetitive cycles of heating and cooling to produce a gradual straightening of the member. An approved amount of force may be used to restrain the member from excessive undesired movement during heating. Force is not intended to be the primary method of straightening and its application shall be limited in accordance with this Section.

Procedures using forces that result in stresses over the yield stress of the material at the applied temperature, such as Hot Mechanical Straightening and Hot Working, are prohibited without prior approval of the Resident.

531.03 Submittals

Prior to initiating the repair, the Contractor shall develop and submit to the Resident for approval a repair plan that includes the following, at a minimum, with detailed requirements described in the Subsections noted:

(a) Name, address and contract information for the Contractor or Subcontractor designated to perform the heat straightening work (531.04)
(b) Damage assessment and documentation (531.05)
(c) Equipment to be used for heat application (531.06)
(d) Application of heat (531.07)
(e) Application of passive or active jacking forces (531.08)
(f) Crack inspection method (531.09)
(g) Paint removal and cleaning procedure (531.10)

Detailed requirements for each of the repair plan components are included in the Subsections that follow. The repair shall not begin without approval of this plan. Modifications to the approved repair plan due to changing conditions shall be submitted to the Resident for approval.

531.04 Qualifications

All heat straightening work shall be completed by one of the following prequalified heat straightening specialists; no alternate heat straightening specialists will be considered for this Contract:

Flame On, Inc.
12632 Wagner Road
Monroe, WA
Phone: (425) 397-7039

International Straightening
901 E. Bristol Drive
Bismarck, ND
Phone: (701) 223-5972

Dan Dalton, Inc.
912 W. Calispell Road
Usk, WA
Phone: (509) 447-3528

The heat straightening repair shall be completed by, or directly supervised by, a person with a minimum of five (5) years of continuous and successful experience completing heat straightening repairs of comparable scope and magnitude. This individual shall be on-site and actively engaged in all heat straightening activities.

531.05 Damage Assessment

All areas exhibiting damage and to which heat shall be applied shall be visually inspected following paint removal and prior to heat application. Suspected areas of cracking shall be called to the attention of the Resident and inspected using dye penetrant (ASTM E 165), magnetic particle (ASTM E 709), or other approved non-destructive testing method in accordance with Section 6 of the AASHTO/AWS D1.5 Bridge Welding Code. The repair plan submitted in accordance with Subsection 531.03 shall identify all locations to which heat shall be applied, areas that were visually inspected, and the results of non-destructive testing at areas suspected of cracking. In no case, shall the cracks be "V" grooved, filled with welding material, and then straightened.

531.06 Equipment

An oxygen-fuel combination shall be used for heating. Propane, propylene, acetylene, and MAPP gas are acceptable fuels. Heat shall be applied using either single or multiple (rosebud) orifice tips only. The size of the tip shall be proportional to the thickness of the heated material. The tip sizes shown in Table 531-1 are provided as a guide. Heating the steel with cutting torch heads is prohibited.

Where the application of force has been approved to restrain undesired movement during heating, use either hydraulic or mechanical jacks, come-alongs or other approved force application devices. Force application limits are described in Subsection 531.08.

Table 531-1 Orifice Type and Size Limits Based on Steel Thickness		
Steel Thickness (in)	Orifice Type	Size
< 1/4	Single	3
3/8	Single	4
1/2	Single	5
5/8	Single	7
3/4	Single	8
1	Single Multiple	8 3
2	Single Multiple	8 4
3	Multiple	5
> 4	Multiple	5

531.07 Application of Heat

A series of heats applied consecutively to different elements of the member at the same cross section is referred to as a heating pattern. Heating patterns and sequences shall be selected to match the type of damage and cross-section shape. Fundamental heating patterns (vee, line, edge, spot, and strip) may be used separately or in combination. When vee heats are used, the maximum width of the vee along the edge of the heated element shall be the smaller of one half of the width of the element or 10 inches.

The maximum allowable temperature to which the material can be heated is listed in Table 531-2. The steel shall be heated in a single pass following the approved heating pattern. All spots, lines, and patterns shall be clearly identified and marked on the steel prior to heating. The steel within the planned pattern shall be heated to the specified temperature as rapidly as possible without overheating. The Contractor shall protect adjacent surfaces and elements from unintentional heat application, and proposed methods of protection shall be described in the repair plan submitted for approval accordance with Subsection 531.03.

Table 531-2 Maximum Temperature Limits for Heat Application	
Material Grade	Maximum Temperature (°F)
ASTM A7, Grade 30 and 33	1,200
ASTM A709, Grade 36, 50, 50S and 50W	1,200
ASTM A709, Grade HPS 70W	1,050
ASTM A709, Grade 100 and 100W	1,100

The steel shall be permitted to cool to 250°F prior to reheating. Artificial cooling using dry compressed air to achieve the reheat temperature is permitted once the surface temperature of the steel is below 600°F. Artificial cooling methods that include water are prohibited.

Heat shall be applied completely through the thickness of the material at vee and strip patterns to ensure total upset of the material thickness. The heat pattern shall not be retraced until the steel has cooled to ambient temperatures. Weaves shall just touch each other but not overlap.

Where line heats are utilized, heat shall be applied partially through the thickness of the material to ensure upsetting of the material on the convex face of the element. A line heat is applied along a straight or radial path and is intended only to heat material along that path, effectively heating material within the width of the orifice tip. Line heat patterns do not incorporate the weaving movement of vee and strip heats, which are intended to heat an area wider than the orifice tip.

The Contractor shall field determine the limits of heat application and provide a submittal including the types of heat patters to be applied, their relative locations and the sequence of their application. The location of vee heats shall be shifted along the zone of yielded material between successive heating patterns. Simultaneous vee heats are permitted provided that the clear spacing between vees is greater than the width of the plate element to which heat is being applied, but no less than twelve inches.

Heating patterns other than those suggested in the Contract Documents may be used only if approved by the Engineer. The Contractor shall develop and submit proposed heating patterns to the Resident for the Engineer's approval as part of the repair plan described in Subsection 531.03. All proposed heating patterns, including the suggested patterns provided in the Contract Documents, shall be included in the repair plan submittal.

Steel temperatures shall be monitored during heat straightening with temperature-sensitive crayons, a pyrometer, or an infrared non-contact thermometer. Pyrometers and infrared thermometers shall be calibrated prior to use, and the calibration procedure and results shall be documented. When temperature-sensitive crayons are used either as the primary monitoring device or for calibration, the crayons provided shall be rated in temperature increments not to exceed 50°F above or below the desired temperatures, and they shall be accurate to within one percent of the rated temperature. The Contractor shall provide the heat monitoring device, and make it available to the Resident at all times. Temperature verifications shall be made regularly throughout the pattern, and the Contractor shall notify the Resident if the temperature of the steel exceeds the specified maximum temperature at any time. The heating flame shall be removed from the steel prior to each temperature reading.

531.08 Application of Passive or Active Jacking Forces

Passive or active jacking forces may only be used in accordance with an approved jacking submittal. Passive jacking forces are developed through the installation of a strut, tie or jack in a snug tight condition prior to heating. Passive jacks limit undesired girder movements during heating operations and increase the straightening effect of each heat cycle. The jacking force for a passive jack is limited to that which produces zero deflection of the unheated element. As straightening occurs the jacking forces should be relieved. Engineering calculations are not

required to be submitted for the use of passive jacks. Active jacking forces shall be considered the application of any force that exceeds the passive force needed to prevent undesired girder movement during heating operations.

When the Contractor elects to use active jacking forces the maximum allowable active jacking force for members shall be calculated by a Professional Engineer licensed in the state of Maine, with calculations submitted to the Resident for approval prior to commencing work. For computation of maximum allowable jacking force, assume the yield strength of the steel is 33,000 psi, unless otherwise noted in the Contract Documents. For repairs of local flange bending, the jacking force is limited to that which produces no deflection of the unheated flange.

The jacking forces shall be determined in accordance with the recommendations outlined in the "Guide for Heat-Straightening of Damaged Steel Bridge Members" (FHWA, 2008). Hot mechanical straightening and hot working repair methods (methods that induce stress in the steel beyond first yield) are prohibited. All plans and calculations prepared by the Contractor shall be stamped by a Professional Engineer licensed in the State of Maine.

The calibration of jacks shall be performed and documented.

Jacking forces shall not be increased during heating or cooling; all adjustments shall be made when the steel is cool to touch (in the area where heat was directly applied).

No deflection shall be induced in other bridge members being used to support the Contractor's proposed jacking devices.

When the use of jacking forces is proposed the repair plan submitted for approval in accordance with Subsection 531.03 shall include calculations and details of the proposed jacking scheme, including the restraint type, location, magnitude of applied force, and method of controlling the magnitude of the applied force.

531.09 Crack Inspection

If cracks are discovered during the course of the heat straightening repair, the Contractor shall stop work and notify the Resident for review and direction.

Upon completion of straightening, the Contractor shall inspect the flanges for cracks using methods prescribed in Subsection 531.05. Cracks discovered shall be reviewed by the Resident, and repairs shall be made as directed by the Resident prior to acceptance of the heat straightening repair.

The repair plan submitted in accordance with Subsection 531.03 shall include the frequency at which visual inspections are to be performed and the proposed non-destructive method to be used where cracks are suspected.

531.10 Paint Removal and Cleaning

Structural steel surfaces to which heat shall be applied during the repair shall be thoroughly cleaned of all paint, dust, dirt, oil, grease, corrosion and all other foreign matter prior to inspection and heat application. Unless otherwise noted in the Contract Documents, the Contractor shall be

responsible for identifying surface areas to be cleaned. If the existing surface is covered with a lead-based paint system, the paint shall be removed, contained, and disposed of in accordance with the Standard Specifications and the Special Provisions. All surfaces shall be cleaned as needed to perform the damage assessment described in Subsection 531.05 and marking as required in Subsection 531.07. Upon completion and acceptance of the heat straightening repair, a protective coating shall be applied. See Section 506, Painting Structural Steel for more details.

531.11 Tolerances

Completed tolerances shall be as follows:

At all locations of sweep and flange bulging repair: Completed tolerances for straightness of the flanges are within 1/4 inch of flat at the flange edge and 1/4 inch of horizontal sweep over 20 feet at the point of impact. The completed tolerances for the web are 1/100 of the web depth or 1/4 inch, whichever is greater, out of vertical alignment; and no more than 1/4 inch of localized deviation as measured with a straightedge vertically and horizontally against the web. These tolerances shall be met before cross frames are attached. The cross frames shall not be used to hold the straightened member in position in order to satisfy the tolerances specified herein.

531.12 Gouge Repairs

When gouge repairs are required, all nicks, divots, gouges, burrs, and scrapes shall be ground smooth prior to initial heat application. Grinding shall be completed parallel to the longitudinal axis of the beam. Visual inspection shall be performed on all gouge repairs by the Authority's representative prior to painting. Repairs that require removal of more than two percent of the cross-sectional area of an element require the Resident's approval.

531.13 Heat Straightening Procedures

1. The Contractor shall have the following equipment on-site, or readily available, throughout the duration of the heat straightening work:

   - Electric generator and air compressor
   - Four foot long perforated air cooling pipe with shut-off valve
   - *Tempil* sticks
   - Calibrated Infrared thermometer
   - Appropriate multi-orifice heating tips
   - Sufficient oxygen and fuel cylinders (manifold if necessary)

2. Prior to initiating the repair, the Contractor shall develop and submit to the Resident for approval a repair plan that includes the following, at a minimum:

   - Name, address and contract information for the Contractor or Subcontractor designated to perform the heat straightening work
   - Any additional damage documentation and field measurements collected by the Contractor and used to develop the planned repair procedure
   - Equipment to be used for heat application
   - Proposed heating patterns and sequences
   - Proposed jacking scheme (if applicable)

- Paint removal and cleaning procedure

3. The Contractor shall remove the paint system in the repair areas, as shown on the Contract Plans, prior to heat application.

4. The Contractor shall be required to perform heat straightening to achieve the alignment tolerances noted herein. A maximum of two heating cycles may be applied simultaneously in a given repair area to hasten the work, subject to spacing limitations shown on the Contract Plans.

5. Heat straightening shall be performed using a combination of vee heats on the bottom flange immediately followed by strip heats up the web. The satisfactory completion of one vee heat and corresponding web strip heat shall be considered one cycle. The straightening shall be done so as not to produce wrinkles, cracks or bulges in the web or flange. The Resident shall accept the heating cycle as complete before moving to the next heating cycle location, and shall concur with the Contractor where the next heating cycle shall be applied. The following shall apply during the work:

   - The calibration of electronic temperature monitoring equipment shall be performed and documented if such equipment is used.

   - Heating tips shall be adjusted to produce a neutral flame. Regulators appropriate for the proposed fuel shall be used. The maximum temperature reached by the steel under the flame shall not exceed the value shown in Table 531-2. During heating the temperature shall be checked periodically using temperature indicating crayons or a thermocouple instrument. Surface melting of the steel from flame contact shall be avoided. Heated steel shall be air cooled to 600°F after which dry compressed air emitted uniformly from a cooling pipe shall be used. Artificial cooling by quenching is prohibited. Only multi-orifice heating tips suitable for rapid heating through the flange/web thicknesses shall be used.

   - The number and location of flange vee heats shall be determined in the field as the work progresses. Web strip heats shall immediately follow all flange vee heats and be applied to the width of web material directly above the intersection of vee pattern on the flange and the web.

   - Heat shall be applied completely through the thickness of the material at vee and strip patterns to ensure total upset of the material thickness. The heat pattern shall not be retraced until the steel has cooled to ambient temperatures. Weaves shall just touch each other but not overlap.

   - Where line heats are utilized, heat shall be applied partially through the thickness of the material to ensure upsetting of the material on the convex face of the element. Line heat is applied along a straight or radial path and is intended only to heat material along that path, effectively heating material within the width of the orifice tip. Line heat patterns do not incorporate the weaving movement of vee and strip heats, which are intended to heat an area wider than the orifice tip.

6. The Contractor may elect to use jacks to restrain the members or elements against undesired movement associated with expansion during the cycles of applying heats in accordance with the requirements of subsection 531.08.

7. Any nicks, gouges and scrapes shall be ground smooth prior to initial heat application. Repairs that require removal of more than 2% of the cross sectional element, the web and each flange are considered a separate cross sectional element, require the Engineer's approval. Any cracks discovered before or during the repair shall be brought to the attention of the Resident. Grinding shall be done in the longitudinal axis of the beam, where practical.

8. Paint shall be touched-up as required by Section 506 of the Special Provisions.

531.14 Method of Measurement

Heat Straightening shall be measured for payment as one lump sum, complete and accepted. Removal of the existing paint system and painting will be paid under Section 506 Painting Structural Steel. See Section 506 for more details.

531.15 Basis of Payment

Heat straightening will be paid as lump sum, which shall be full compensation for all materials, equipment, labor and incidentals including, but not necessarily limited to, field measurements necessary to complete the work, submittal development, and heat straightening, as required in accordance with the Plans and Specifications. Payment shall also include full compensation for all materials and consumables; equipment, labor and incidentals; set-up and heat straightening, including grinding, as directed by the Resident.

Payment will be made under:

Pay Item		Pay Unit
531.82	Heat Straightening	Lump Sum

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

MaineDOT Standard Specification 2014 Edition Section 652 – Maintenance of Traffic and the Maine Turnpike Authority 2016 Supplemental Specification Section 652 – Maintenance of Traffic are deleted in their entirety and replaced with the following:

652.1 Description

This work shall consist of furnishing, installing, maintaining and removing traffic control devices necessary to provide reasonable protection for motorists, pedestrians and construction workers in accordance with these Specifications, the applicable provisions of Section 105.4.5 - Special Detours, and the plans.

Traffic control devices include signs, signals, lighting devices, markings, barricades, channelizing, and hand signaling devices, portable light towers, truck mounted impact attenuators, portable rumble strips, portable speed trailers, sequential warning lights, traffic officers, and flaggers.

652.2 Materials

All maintenance of traffic control devices shall conform to the requirements of the latest edition of the MUTCD, NCHRP 350 guidelines and all Traffic control devices shall meet Manual for Assessing Safety Hardware (MASH) 16 guidelines if date of manufacture was after December 31, 2019.

All signs shall be fabricated with high intensity fluorescent retroreflective sheeting conforming to ASTM D 4956 - Type VIII, or Type IX (prismatic). All barricades, drums, and vertical panel markers shall be fabricated with high intensity orange and white fluorescent retroreflective sheeting conforming ASTM D 4956 - Type VII, Type VIII, or Type IX (prismatic).

Construction signs shall be fabricated from materials that are flat, free from defects, retro-reflectorized, and of sufficient strength to withstand deflections using a wind speed of 80 miles/hr.

652.2.2 Signs

Only signs with symbol messages conforming to the design of the Manual of Uniform Traffic Control Devices (MUTCD) shall be used unless the Resident approves the substitution of word messages.

Any proposed use of temporary plaques to cover text or to change text shall be approved by the resident. All signs or proposed plaques shall have a uniform face and be constructed from similar sheeting.

All signs shall be new, or in like new condition and maintained in like new condition throughout the project duration. Signs shall be cleaned just prior to installation and throughout the project utilizing a method that will not damage the reflective sign sheeting.

652.2.3 Flashing Arrow Board

Flashing Arrow Boards must be of a type that has been submitted to AASHTO's National Transportation Product Evaluation Program (NTPEP) for evaluation and placed on the Maine Department of Transportations' Approved Products List of Portable Changeable Message Signs & Flashing Arrow Boards.

Flashing Arrow Boards units shall meet requirements of the current Manual on Uniform Traffic Control Devices (MUTCD) for Type "C" panels as described in Section 6F.56 - Temporary Traffic Control Devices. Flashing Arrow Boards shall have matrix of a minimum of 15 low-glare, sealed beam, Par 46 elements capable of either flashing or sequential displays as well as the various operating modes as described in the MUTCD, Chapter 6-F. If a Flashing Arrow Board consisting of a bulb matrix is used, each element should be recess-mounted or equipped with an upper hood of not less than 180 degrees. The color presented by the elements shall be yellow.

Flashing Arrow Board elements shall be capable of at least a 50 percent dimming from full brilliance. Full brilliance should be used for daytime operation and the dimmed mode shall be used for nighttime operation. Flashing Arrow Board shall be at least 96 inches x 48 inches and finished in non-reflective black. The Flashing Arrow Board shall be interpretable for a distance not less than 1 mile.

Operating modes shall include, flashing arrow, sequential arrow, sequential chevron, flashing double arrow, and flashing caution. In the three arrow signals, the second light from the arrow point shall not operate.

The minimum element on-time shall be 50 percent for the flashing mode, with equal intervals of 25 percent for each sequential phase. The flashing rate shall be not less than 25 nor more than 40 flashes per minute. All on-board circuitry shall be solid state.

Primary power source shall be 12 volt solar with a battery back-up to provide continuous operation when failure of the primary power source occurs, up to 30 days with fully charged batteries. Batteries must be capable of being charged from an onboard 110 volt AC power source and the unit shall be equipped with a cable for this purpose.

Controller and battery compartments shall be enclosed in lockable, weather-tight boxes.

The Flashing Arrow Board shall be mounted on a pneumatic-tired trailer or other suitable support for hauling to various locations, as directed. The minimum mounting height of an arrow panel should be 7 feet from the roadway to the bottom of the panel.

The face of the trailer shall be delineated on a permanent basis by affixing retro-reflective material, known as conspicuity material, in a continuous line as seen by oncoming drivers.

A portable changeable message sign may be used to simulate an arrow panel display.

652.2.4 Other Devices

Vertical panel markers shall be orange and white striped, 8 inches wide by 24 inches high. On the Interstate System, vertical panel markers shall be orange and white striped, 12 inches wide by 36 inches high.

Cones shall be orange in color, a minimum of 28 inches high, and retro-reflectorized. Retro- reflection shall be provided by a white bands of retro-reflective sheeting conforming to the MUTCD. All cones utilized on the project shall be new or in like new condition and shall have a consistent design/appearance.

Drums shall be of plastic or other yielding material and shall be a minimum of 36 inches high and a minimum of 18 inches in diameter. There shall be at least two retro-reflectorized orange and at least two retro-reflectorized white stripes a minimum of 4 inches wide on each drum. All drums utilized on the project shall be new or in like new condition and shall have a consistent design/appearance.

Flaggers shall use a STOP / SLOW handheld paddle as the primary and preferred hand signaling device. Flags shall only be limited to emergencies. STOP / SLOW paddles shall have high intensity prismatic retro reflective sheeting, have an octagonal shape on a rigid handle and shall be at least 18 inches wide with letters at least 6 inches high and shall be constructed from light semi-rigid material. The STOP (R1-1) face shall have white letters and a white border on a red background. The SLOW (W20-8) face shall have black letters and a black border on an orange background.

STOP / SLOW paddles shall also incorporate either white or red flashing lights on the STOP face and white or yellow flashing lights on the SLOW face of the paddle and always be in use.

Paddles must conform to one of the following patterns:

A. Two white or red lights (colors shall be all white or all red), one centered vertically above and one centered vertically below the STOP legend; and/or two white or yellow lights (colors shall be all white or all yellow), one centered vertically above and one centered vertically below the SLOW legend.

B. Two white or red lights (colors shall be all white or all red), one centered horizontally on each side of the STOP legend; and/or two white or yellow lights (colors shall be all white or all yellow), one centered horizontally on each side of the SLOW legend.

C. One white or red light centered below the STOP legend; and/or one white or yellow light centered below the SLOW legend.

D. A series of eight or more small all white or all red lights no larger than 1/4 inch in diameter along the outer edge of the paddle, arranged in an octagonal pattern at the eight corners of the border of the STOP face; and/or a series of eight or more small all
white or all yellow lights no larger than 1/4 inch in diameter along the outer edge of the paddle, arranged in a diamond pattern along the border of the SLOW face; or

E. A series of white lights forming the shapes of the letters in the legend. Flashing light patterns shall be compliant with Section 6E.03 Hand Signaling Devices in the most current version of the Manual on Uniform Traffic Control Devices.

All flashing light patterns on the STOP / SLOW paddle shall be visible from a minimum distance of 1000 feet.

Type I barricades shall be 2 feet minimum, 8 feet maximum in length with an 8 inch wide rail mounted 3 feet minimum above the ground. Type II barricades shall be 2 feet in length with two 8 inch wide rails, and the top rail shall be mounted 3 feet minimum above the roadway. Type III barricades shall be 8 feet in length with three 8 inch wide rails, and the top rail shall be mounted 5 feet minimum above the roadway. The cross members of all barricades shall be of ½ or ⅝ inch thick plywood or other lightweight rigid material such as plastic, fiberglass or fiber wood as approved by the Resident. The predominant color for supports and other barricade components shall be white, except that unpainted galvanized metal or aluminum components may be used.

652.2.5 Portable Changeable Message Sign

Portable-Changeable Message Signs (PCMS) will be furnished by the Contractor and shall be Ver-Mac PCMS-1210 or an approved equal. The face of the PCMS trailer shall be delineated on a permanent basis by affixing retro-reflective material, known as conspicuity material, in a continuous line as seen by oncoming drivers. PCMS's shall be located and relocated to locations approved by the Resident within the Project limits for the duration of the Project.

Features to the Ver-Mac PCMS shall include:

- An all-LED display.
- Be legible from a distance of 1,000 feet.
- Have three (3) lines available for messages.
- Be NTCIP compliant (NTCIP 1203 & 1204).
- Be capable of being programmed by a remote computer via a data (IP over Cell) cellular modem connection.
- Have GPS location capability by adding on a GPS device capable of providing GPS location remotely to the MTA Communications' Center.
- Be programmable by Vanguard Software by Daktronics.

The Contractor shall complete and/or provide the following:

- Submit a catalog cut shop drawing to the Resident of all proposed equipment for review and approval.
- Establish and pay for a data cellular account so that PCMS may be remotely programmed and operated from the MTA Communications' Center.

- Provide to the Authority technical support from the PCMS manufacturer that may be necessary to integrate the PCMS into the MTA software platform (Vanguard Software by Daktronics).

- Provide the manufacturer's software necessary to change the PCMS messages remotely from the MTA Communications' Center and the Resident's computer if necessary or requested.

- Provide training on the operation of the PCMS to the Resident and the MTA Communications' Center representative.

- Make all PCMS on the Project work site available to the MTA for any/all emergency situations as defined by the MTA. This shall include the preemption of any messages running at the time of need as approved by the MTA and the Resident.

The Contractor shall also:

- Furnish, operate, relocate and maintain the PCMS as approved or requested by the Resident.

- Be responsible for the day-to-day programming and operation of the PCMS for Project purposes.

The PCMS(s) shall be on-site, with data cellular account established, GPS location capable, and all training required complete within one month after mobilization or seven days prior to implementing traffic shifts, detours or stoppages, whichever is sooner. Implementation of traffic shifts, detours, or stoppages of traffic will not be allowed without PCMS boards on-site with the specified MTA Communications' Center Software Platform integration and training.

652.2.5 Truck Mounted Attenuator

The truck mounted attenuator system shall conform to the following requirements:

- Truck and attached attenuator shall conform to the NCHRP Report 350, Test Level 3 criteria or MASH if manufactured after 2019.
- Amber, Green, white or any variation of those colors strobe lights with 360-degree visibility.
- An arrow light bar fixed to the vehicle.
- The attenuator shall be mounted to a vehicle with a minimum weight of 24,000 lbs. unless otherwise specified.

Installation: **The TMA shall be located in the closed lane adjacent to active traffic; for double lane closures, only the outer closed lane requires the TMA**. If a buffer zone is required the TMA shall not be located in the buffer zone. The shadow vehicle shall have its front wheels turned away from the work area and from traffic, have parking brake set, and be put in park if an automatic transmission; or if a manual transmission it shall have its front wheels turned away from the work area and from traffic, have parking brake set and should be placed in gear and shut off if possible while still maintaining warning lights. If length of time or weather are a concern for the battery since the warning lights must be maintained the engine should be started and run periodically for battery recharging. No other vehicles or equipment shall park in front of the shadow vehicle or within the buffer space behind the shadow vehicle. For placement details, reference the Manual on Uniform Traffic Control Devices (MUTCD).

A Truck Mounted Attenuator **shall** be utilized in all lane closures, and shoulder closures, where workers are not protected by other positive means (i.e., closures that do not include temporary concrete barrier). If work is being completed behind guardrail a TMA shall be required for all work that is being completed within the deflection zone of the guardrail (minimum of four feet behind the guardrail post).

The placement and positioning of the vehicle shall be in accordance with the Manual on Uniform Traffic Control Devices and the manufacturer's recommendation. TMAs used on the Turnpike mainline shall have a minimum weight of 24,000 lbs and shall provide a 200 foot shadow distance from vehicles or the work zone. **For lane and shoulder closures in excess of 3,000 feet containing multiple work zones a TMA shall be used at each work zone.**

If a Truck Mounted Attenuator is not used as described above, then it will be considered a Traffic Control Plan violation and result in a reduction of payment as outlined in Section 652.

652.2.6 Sequential Flashing Warning Lights

When included in contracts as a bid item Sequential Flashing Warning Lights on drums used for merging tapers and shifting tapers during nighttime operation for project use. The purpose of these lights is to assist the motorist in determining which direction to merge or shift and to reduce the number of late merges resulting in devices being struck and having to be reset to maintain positive guidance at the merge point. The successive flashing of the lights shall occur from the upstream end of the taper to the downstream end of the taper in order to identify the desired vehicle path.

The Sequential Flashing Warning Lights shall meet all of the requirements for warning lights within the current edition of the MUTCD. Each light unit shall be capable of operating fully and continuously for a minimum of 500 hours when equipped with a standard battery set. Each light in sequence shall be flashed at a rate of not less than 55 times per minutes and not more than 75 times per minute. The flash rate and flash duration shall be consistent throughout the sequence.

Sequential Flashing Warning Lights shall be "Pi-Lit" Sequential Barricade Warning Lamps or an approved equal.

Sequential Flashing Warning lights are to be used for merging and shifting tapers that are in place during the nighttime hours (12-hours when ambient light is dimmed). These lights shall flash sequentially beginning with the first light and continuing until the final light at the beginning of a tangent section.

The Sequential Flashing Warning Lights shall automatically flash in sequence when placed on the drums that form the merging or shifting tapers.

The number of lights used in the drum taper shall equal one half the number of drums used in the taper.

Drums are the only channelizing device permitted for mounting the Sequential Flashing Warning Lights.

The Sequential Flashing Warning Lights shall be weather independent and visual obstruction shall not interfere with the operation of the lights.

The Sequential Flashing Warning Lights shall automatically sequence when placed in line in an open area with a distance between lights of 25 to 150 feet. A 10-foot stagger in the line of lights shall have no adverse effect on the operation of the lights.

If one light fails, the flashing sequence shall continue. Non-sequential flashing is prohibited.

652.2.7 Automated Trailer Mounted Speed Sign

The Contract will furnish, operate, and maintain Automated Trailer Mounted Speed Limit Sign(s) for project use. The automated speed sign shall be required when there is a Work Zone Speed Limit in place. The Contractor shall furnish, operate, and maintain the Automated Trailer Mounted Radar Speed Limit Signs during the project operations

Trailer mounted speed limit signs shall be self-contained units including sign assembly, flashing lights, directional radar to measure speed limits, a regulatory speed limit sign, andpower supply specifically constructed to operate as a trailer-mounted sign. The preferred color of the unit shall be “construction orange”.

Base material for the regulatory speed limit signs shall be weatherproof, rigid substrate specifically manufactured for highway signing and meet the retro-reflective sheeting application requirements of the sheeting manufacturer.

Sign text shall consist of the letters, digits and symbols either applied by stick-on or silk screen, to conform to the dimensions and designs indicated in the Contract, MUTCD and/or FHWA Standard Highway Signs. The materials and methods shall be in accordance with standard commercial processes.

“Work Zone” construction signs shall be mounted on the trailer unit above the regulatory speed limit sign. (see attached graphic details).

Signs and secondary signs shall follow the MUTCD for minimum mounting heights.

The power supply shall be either full battery power with solar panel charging (capable of maintaining a charged battery level) and 135 amperes, 12-volt deep cycle batteries, or diesel powered generator with a fuel capacity sufficient for 10 hours of continuous operation.

Each unit shall be equipped with two mono-directional flashing lights, placed in accordance with the MUTCD, with amber lenses and reflectors, which are visible through a range of 120 degrees when viewed facing the sign. The lights shall be a minimum of 8-inch diameter, either LED, halogen, or incandescent lamps, and shall be visible for a minimum distance of one mile under daylight conditions and shall have a minimum flash rate of 40 flashes per minute. An "On" indicator light shall be mounted on the back of the signs, which is visible for at least 500 feet to provide confirmation that the flashing lights are operating.

The directional radar shall monitor approaching traffic only. The radar shall be capable of measuring speeds from 5 to 70 MPH at a distance of up to 1500 feet and shall have a high speed cut off thresh hold. Speed data shall be recorded and stored on the sign and must be made available to the Authority as requested.

All existing speed limit signs, which conflict with the construction zone trailer mounted speed limit signs shall be covered completely when the work zone speed limit is in place.

Automated Trailer Mounted Speed Limit Signs shall only be used when a work zone speed limit is in place **and shall be required when the work zone speed limit is active**. The Contractor shall manage the utilization and operation of the Automated Trailer Mounted Speed Limit Signs and if at least one is not used when work zone speed limits are in place then it will be considered a Traffic Control Plan violation and result in a reduction of payment as outlined in Section 652.

The Resident will record the actual time and location for the signs on a daily basis when the Automated Trailer Mounted Speed Limit Signs are in use.

The Automated Trailer Mounted Radar Speed Limit Sign may be placed as shown on the plans, or may replace the posted regulatory speed limit signs, or may be placed at a location within the closed lane that has a reduced speed limit.

Automated Trailer Mounted Speed Limit Signs shall be delineated with retro-reflective temporary traffic control devices while in use and shall also be delineated by affixing a retro-reflective material directly on the trailer.

Upon delivery of the Automated Trailer Mounted Speed Limit Sign and before acceptance by the Authority, the Contractor shall have a representative of the manufacturer review the condition and notify the Resident in writing, of all deficiencies noted.

The Contractor shall arrange to have all necessary repairs performed at no cost to the Authority.

To avoid impairing driver vision, the Contractor shall dim the lighted speed limit readings by 50 percent during nighttime use and restore full power lighting during daytime operation.

652.2.8 Temporary Portable Rumble Strips

If a pay item is included in the contract or the Contract desires to utilize Temporary Portable Rumble Strips this work consists of furnishing and placing temporary portable rumble strips RoadQuake 2F TPRS or an approved equal. Furnishing a temporary portable rumble strip system includes a method to transport and move these to on-site locations where they will be used. The

Contractor shall submit for approval, literature and all necessary certifications to the Maine Turnpike prior to procurement of the product.

If used, Temporary Portable Rumble Strips may not be practicable in areas where the roadway has more than two travel lanes, where volume windows do not allow for breaks in traffic to set up and monitor and adjust, or during nighttime lane closures.

Provide rumble strips where the plans show or as directed by the Resident as follows:

Prior to placing rumble strips, clean the roadway of sand and other materials, that may cause slippage.

Place one end of the rumble strips 6 inches from the roadway centerline. Extend the strips perpendicular to the direction of travel. Ensure strips lay flat on the roadway surface.

Only one series of rumble strips, placed before the first work zone, is required per direction of travel for multiple work zones spaced 1 mile or less apart. Work zones spaced greater than 1 mile apart require a separate series of rumble strips. Each lane shall use one group of temporary rumble strips.

Bracketed “Rumble Strip Ahead” and “Bump” signs shall be utilized and will be paid for under the respective construction sign pay items.

Maintain rumble strips as follows:

If rumble strips slide, become out of alignment, or are no longer in the wheel path of approaching vehicles during the work period, thoroughly clean both sides of the rumble strips and reset on a clean roadway.

Repair or replace damaged rumble strips immediately.

652.3.1 Responsibility of the Authority

The Authority will provide Project specific traffic control requirements and traffic control plans for use by the Contractor. The specific traffic control requirements for the Project are identified in Special Provision Section 652, Maintenance of Traffic (Specific Project Maintenance of Traffic Requirements). No revisions to these requirements or Plans will be permitted unless the
Contractor can thoroughly demonstrate an overall benefit to the public and a Contract Modification is approved.

The Maine Turnpike Authority may erect lane closures on the mainline within the Project area to collect survey, provide layout, and for any other reasons deemed necessary by the Authority.

652.3.2 Responsibility of the Contractor

The Contractor shall provide continuous and effective traffic control and management for the Project that is appropriate to the construction means, methods, and sequencing allowed by the Contract and selected by the Contractor:

The Contractor shall ensure all jobsite personnel shall wear a safety vest labeled as ANSI 107-2004 standard performance for Class 3 risk exposures at all times. This requirement also applies to truck drivers and equipment operators when out of an enclosed cab.

652.3.3 Submittal of Traffic Control Plan

The Contractor shall provide continuous and effective traffic control and management for the Project that is appropriate to the means, methods and sequencing allowed by the Contract; and consistent with the Traffic Control Plans and Maintenance of Traffic Specifications. The Contractor is responsible for ensuring a safe environment for the Contract workforce, local road users, and turnpike users; and maintaining the safe efficient flow of traffic through the construction zone at all times during the Contract. The protocols and requirements outlined in the Contract shall be strictly enforced. The Contractor shall submit, at or before the Preconstruction Meeting, a Traffic Control Plan (TCP) that provides the following information to the Authority:

a. The name, telephone number, and other contact numbers (cellular phone, pager, if any) of the Contractor's Traffic Control Supervisor (TCS). The TCS is the person with overall responsibility for ensuring the contractor follows the TCP, and who has received Work Zone Traffic Control Training commensurate with the level of responsibility shown in the requirements of the Contract, and who is empowered to immediately resolve any work zone traffic control deficiencies or issues. Provide documentation that the Traffic Control Supervisor has completed a Work Zone Traffic Control Training Course (AGC, ATSSA, or other industry- recognized training), and a Supervisory refresher training every 5 years thereafter. Submit training certificates or attendance roster that includes the course name, training entity, and date of training. **State how the traffic control devices will be maintained including a frequency of inspection for both temporary and permanent traffic control devices.**

Traffic Control Training Course curriculum must be based on the standards and guidelines of the MUTCD and must include, at a minimum, the following:

1. Parts of Temporary Traffic Control Zone
2. Appropriate use and spacing of signs
3. Use and spacing of channelizing devices
4. Flagging basics
5. Typical examples and applications

The Traffic Control Supervisor, or designee directly overseeing physical installation, adjustment, and dismantling of work zone traffic control, will ensure all personnel performing those activities are trained to execute the work in a safe and proper manner, in accordance with their level of decision-making and responsibility. The emergency

contact list shall contain a listing of individuals who may be contacted during non-work hours and shall adequately respond to the request.

b. Proposed revisions to the construction phasing or sequencing that reasonably minimizes traffic impacts.

c. A written narrative and/or plan explaining how traffic and pedestrians will be moved through the Project Limits, including transitions during the change from one phase of construction to the next, as applicable.

d. Temporary traffic control treatments at all intersections with roads, rail crossings, businesses, parking lots, pedestrian ways, bike paths, trails, residences, garages, farms, and other access points, as applicable.

e. A list of all Contractor or Subcontractor certified flaggers to be used on the Project, together with the number of flaggers which will be used for each type of operation that flagging is needed. If the Contractor is using a flagging Subcontractor, then the name and address of the Subcontractor may be provided instead of a list of flaggers.

f. A procedure for notifying the Resident of the need to change the traffic control plan or the need to remove a lane restriction.

g. A description of any special detours including provisions for constructing, maintaining, signing, and removing the detour or detours, including all temporary bridges and accessory features and complete restoration of the impacted land.

h. The maximum length of requested contiguous lane closure. The Contractor shall not close excessive lengths of traffic lane to avoid moving traffic control devices.

i. The proposed temporary roadway surface conditions and treatments. The Contractor shall provide an adequate roadway surface at all times; taking into account traffic speed, volume, and duration.

j. The coordination of appropriate temporary items (drainage, concrete barriers, barrier end treatments, impact attenuators, and traffic signals) with the TCP.

k. The plan for unexpected nighttime work, the contractor shall provide a list of emergency nighttime lighting equipment and safety personnel available on-site or have the ability to have them on site within an hour of the time of need.

l. The plan for meeting any project specific requirements contained in special provision 105 and/or 107, and/or Section 656

m. The lighting plan if night work is anticipated.

The Authority will review the TCP for completeness and conformity with Contract provisions, the current edition of the MUTCD, and Authority policy and procedures. The Authority will review and provide comments to the Contractor within 14 days of receipt of the TCP. No

review or comment by the Authority, or any failure to review or comment, shall operate to absolve the contractor of its responsibility to design and implement the plan in accordance with the Contract, or to shift any responsibility to the Authority. If the TCP is determined by the Authority to be operationally ineffective, the Contractor shall submit modifications of the TCP to the Authority for review and shall implement these changes at no additional cost to the Contract. Nothing in this Section shall negate the Contractor's obligations set forth in Section 110 - Indemnification, Bonding, and Insurance. The creation and modification of the TCP will be considered incidental to the related 652 items.

652.3.4 General

Prior to starting any work on any part of the project adjacent to or being used by the traveling public, the Contractor shall install the appropriate traffic control devices in accordance with the plans, specifications and the latest edition of Manual of Uniform Traffic Control Devices, Part VI. The Contractor shall continuously maintain the traffic control devices in their proper position, and they shall be kept clean, legible and in good repair throughout the duration of the work. If notified that the traffic control devices are not in place or not properly maintained, the Contractor may be ordered to immediately suspend work until all deficiencies are corrected.

No equipment or vehicles of the Contractor, their subcontractors, or employees engaged in work on this contract shall be parked or stopped on lanes carrying traffic, or on lanes or shoulders adjacent to lanes carrying traffic, at any time, except as required by ongoing work operations. Contractor equipment or vehicles shall never be used to stop, block, or channelize traffic.

Vehicles parked on the shoulder shall be located so all portions of the vehicle(s) are a minimum of one foot from the traveled way. No operation shall be conducted on or near the traveled lanes or shoulders without first setting up the proper lane closure and traffic control devices. These precautions shall be maintained at all times while this Work is being performed. The Contractor shall keep all paved areas of the highway as clear as possible at all times. No materials shall be stored on any paved area of the highway or within 30 feet of the traveled way (unless protected by concrete barriers and specifically approved by the Resident). Private vehicles owned by Contractor's employees shall be parked close together in a group no closer than 30 feet from the traveled way in pre-approved areas.

Channelization devices shall include Vertical Panel Markers, Barricades, Cones, and Drums shall be in accordance with the MUTCD. These devices shall be installed and maintained at the spacing determined by the MUTCD through the work area.

The Contractor shall maintain existing guardrails and/or barriers until removal is necessary for construction. The Contractor shall use a temporary barrier or appropriate channelizing devices,
as approved by the Resident, while the guardrails and/or barriers are absent. Permanent guardrails and barriers shall be installed as soon as possible to minimize risk to the public.

When Contractor operations or shoulder grading leave a continuous 3 inch or less exposed vertical face at the edge of the traveled way, including the shoulder, or when traffic is shifted into the shoulder adjacent to the edge of pavement where an existing 3 inch or less exposed vertical face creates a safety hazard, channelization devices should be placed 2 feet outside the edge of

the pavement at intervals not exceeding 600 feet and, depending on type and location of the exposed vertical face, a 48 inch by 48 inch W8-9 Low Shoulder, or W8-11 Uneven Lane, and/or a W8-17P Shoulder Drop-Off sign should be placed at a maximum spacing of ½ mile. When Contractor operations or shoulder grading leave greater than a 3-inch exposed continuous vertical face at the edge of the traveled way, including the shoulder, or when an existing condition of an exposed vertical face of 3 inches or more is adjacent to active traffic shifted into shoulder, the Contractor shall place shoulder material at a slope not exceeding 3 horizontal to 1 vertical to meet the pavement grade, before the lane is opened to traffic.

Special Detours and temporary structures, if used, shall meet applicable AASHTO standards, including curve radii and grade.

Maine Turnpike Traffic Control Requirements

This Section outlines the minimum requirements that shall be maintained for working on, over, or adjacent to the Maine Turnpike roadway.

General

Two travel lanes in each direction (each direction being 24 feet wide including/excluding shoulder) in the two lane portion of the turnpike, and three travel lanes in each direction (each direction being 36 feet wide including/excluding shoulder) in the three lane portion of the turnpike (Mile 0.0 to mile 44.3) shall be maintained at all times except while performing work in a designated lane, directly over or adjacent to traffic, and during the placement and removal of traffic control devices.

Unless otherwise specified in the contract documents the minimum main line width for a single travel lane shall be 14 ft and minimum ramp widths of 16 ft which must be maintained at all times, from ½ hour before sunrise and ½ hour after sunset as indicated on the Sunrise/Sunset Table at: http://www.sunrisesunset.com/usa/Maine.asp . If the Project town is not listed, the closest town on the list will be used as agreed at the Preconstruction Meeting.

Shoulder closures, lane closures, and lane shifts meeting the MUTCD guidelines, other than those shown in the plans, must be submitted for approval from the MTA prior to use in the construction operations.

No lane closures will be allowed during non-working hours, weekends and/or holiday periods unless included in the Contract as long-term traffic control requirement as outlined in Section 652 – Specific Project Maintenance of Traffic Requirements **unless written permission is obtained from the Authority.**

Any special signs, barricades or other devices deemed necessary by the Resident shall be furnished and maintained by the Contractor. Extra care shall be taken so that the traffic flow will not be disturbed. The use of construction signs and warning devices not shown on the Plans or in the MUTCD is prohibited unless approved by the Resident

The Contractor's personnel and equipment shall avoid crossing traffic whenever possible. No Contractor's vehicle may slow down or stop in a traffic lane unless said lane has previously been made safe with signs and barricades as required by the Resident.

No vehicle will move onto the traveled way at such a time or in such a manner so as to cause undue concern or danger to traffic approaching from either direction. The Contractor or his employees are not empowered to stop traffic.

The Contractor shall take necessary care at all times, in all operations and use of his equipment, to protect and facilitate traffic. During periods of idleness, the equipment shall not be left in a way to obstruct the traffic artery or to interfere with traffic.

The Contractor shall furnish approved signs reading "Construction Vehicle - Keep Back" to be used on trucks hauling to the Project. The signs shall be a minimum of 30-inch by 60-inch, Black and Orange, and meet construction sign retro reflectivity requirements

All vehicles used on the Project shall be equipped with amber flashing lights, by means of a single or multiple, flashing LED or strobe lights mounted so as to be visible 360 degrees. **In addition, vehicles operating under direction of the Maine Turnpike Authority may be equipped with auxiliary lights that are green, white or amber or any combination of green, white or amber.** Auxiliary lighting shall have sufficient intensity to be visible at 500 feet in normal daylight and a flash rate between 1Hz and 4Hz. The vehicle flashing system shall be in continuous operation while the vehicle is on any part of the project and positioned or mounted in such a way to not be obstructed by vehicle mounted or other equipment. Dump trucks, **concrete trucks** and utility trucks **at a minimum** shall have a strobe light mounted on each side of the vehicle. **The use of motorcycles is not permitted within a construction site or as a means to arrive at or leave a work zone**.

Where space is available pavement striping for all tapers shall create a minimum buffer of 250 feet to the point where the temporary concrete barrier taper ends and becomes parallel to the travelway. Temporary concrete barrier shall be tapered at a minimum 8:1 unless space is available and then it should be tapered at 15:1 or 100 feet whichever is longest.

Milling and paving of interchange ramps shall be done between 9:00 p.m. and 5:00 AM, unless otherwise shown on the Maintenance of Traffic Phasing Plans or as directed by the MTA. Only a single ramp at an interchange may be closed at once. Ramp closures will not be permitted the day before or after holidays, on holidays, or on Saturdays or Sundays. The Contractor shall request approval from the Resident/Authority two weeks prior for all ramp closures. Portable changeable message signs shall be used to provide advance notice and warning of the ramp closure. PCMS's shall be operational a minimum of 1 week prior to ramp closure to notify Patrons. The contractor shall coordinate PCMS locations with the Resident and the MTA.

Access to, and egress from, the construction area shall be with the direction of travel without crossing traffic. Construction vehicles are prohibited from merging with mainline traffic during the AM and PM peak traffic hours unless approved in writing from the MTA. The contractor shall develop work zone access/egress with acceleration and deacceleration areas and should utilize interchange ramp areas whenever feasible.

Temporary Mainline Lane Closures

A lane closure may be required whenever personnel will be actively working within four feet of a travel lane.

Loading/unloading trucks shall not be closer than six feet from an open travel lane. Temporary lane closures will only be allowed at the times outlined in Special Provision, Section 652, Specific Project Maintenance of Traffic Requirements. These hours may be adjusted based on the traffic volume each day by the Resident.

A lane closure is required when a danger to the traveling public may exist. The following is a partial list of activities requiring lane closures. Lane closures may be required for other activities as well:

- Milling and Paving Operations
- Bridge work
- Drainage Installation and/or Adjustment
- Clear Zone Improvements
- Pavement Markings Layout and Placement
- Work directly over traffic within six feet of a travel lane as measured from the painted pavement marking line or traffic control device will require a lane closure. This work includes but is not limited to the following:

    1. **Unbolting structural steel**
    2. **Removing structural steel**
    3. **Erecting structural steel**
    4. **Erecting or moving sign panels on bridges or sign structures**
    5. **Bolting structural steel**
    6. **Loading and unloading trucks**
    7. **Light pole removal or installation**
    8. **Snow fence installation**

Lane closures shall be removed if work requiring the lane closure is not ongoing unless included in the Contract as a long-term traffic control requirement or approved by the Resident.

During adverse weather condition when the speed limit on the Maine Turnpike has been reduced to 45 MPH, or during fog or when there is less than ½ mile of visibility, **shoulder/lane closures cannot be set up and any currently in place shall be removed. Only work on the turnpike mainline that is behind temporary concrete barrier will be allowed when speed is reduced to 45 MPH or fog/visibility conditions exist.**

Daytime lane closures shall be a maximum of three (3) miles. Only one daytime lane closure will be permitted per direction. Nighttime lane closures may extend through the entire length of the Project.

Temporary single lane closures are allowed upon approval of the Resident. **Lane and/or ramp** closure setup may not begin until the beginning time specified. Closures that are setup early or that remain in place outside of the approved time period shall be subject to a lane rental fee of **$1,000** per five minutes for every five minutes outside of the approved time. The installation of the construction signs will be considered setting up the lane closure. Removal of the last construction sign will be considered removal of the closure. Construction signs shall be installed immediately prior to the start of the closure and shall be promptly removed when no longer required. The installation and removal of a closure, including signs, channelizing devices, and arrow boards shall be a continuous operation. The Authority reserves the right to order the removal of an approved closure.

The Authority desires to minimize the number of daytime lane closures and the number of times that a complete stoppage of traffic is required. The Contractor is encouraged to schedule work so that the interference with the flow of traffic will be minimized. Lane closures will not be allowed until traffic associated with complete stoppages of traffic has cleared. Complete stoppages of traffic or lane closures may not be allowed on a particular day if another complete stoppage of traffic has been previously approved for another project.

The Resident is required to receive approval from the Maine Turnpike Authority for all lane closures. **The Resident is required to submit a request for lane closures by noon on Thursday for any lane closures needed for the following week.** The Contractor shall plan the work accordingly.

Temporary Mainline Shoulder Closures

Shoulder closures are anticipated at locations where Contractor access to the mainline is required.

Shoulder closures with plastic drums shall be removed at the end of the workday. Temporary shoulder closures with plastic drums will not be allowed during periods of inclement weather as determined by the Authority.

The location (limits) of shoulder closures with concrete barrier are shown on the Plans. The barrier must be placed prior to the start of the work requiring concrete barrier and shall remain in place until the work activity is complete.

Equipment Moves

The complete stoppage of traffic for an equipment move (including delivery of materials to the median) will be considered for approval if the action cannot reasonably be completed with the erection of a lane closure. Contractor shall be responsible for the installation of Signs CS-3, “Expect Stopped Traffic” and Signs W3-4 “Be Prepared to Stop”, in accordance with the Single Lane Closure Detail immediately prior to the equipment move. **Signs will be required on any adjacent ramps within proximity to the stoppage**. These signs shall be covered when not applicable.

State Police will be used to stop traffic. Cost for State Police will be the responsibility of the Authority. The times requested for trooper assisted equipment moves by on-duty troopers

cannot be guaranteed. The MTA will not be held responsible for any delays or costs associated with the delay, postponement or cancellation of an on-duty trooper assisted equipment move.

The maximum time for which traffic may be stopped and held for an equipment move across mainline or ramp at any single time shall be five (5) minutes. The duration shall be measured as the time betweenthe time the last car passes the Resident until the time the Resident determines that all travel lanes are clear. The traffic shall only be stopped for the minimum period of time required to complete the approved activity. The Contractor shall reimburse the Authority at a rate of $500 per minute for each minute in excess of the five-minute allowance.

Unapproved movement of equipment or materials across the travel lanes shall be considered a violation of the Maintenance of Traffic Requirements and is subject to a minimum fine of $500 per occurrence with an additional $500 per minute thereafter.

Request for Complete Stoppage of Traffic

A request for a complete stoppage of traffic must be submitted to the Resident for approval. The Resident is required to receive approval from the Maine Turnpike Authority for all stoppages. The request shall be submitted to the Authority by the Resident at least five (5) working days prior to the day of the requested stoppage of traffic and two (2) days for a stoppage less than five minutes. All requests must be received by 12:00 p.m. noon to be considered as received on that day. Requests received after 12:00 p.m. shall be considered as received the following day. The Contractor shall plan the work accordingly.

During the erection or removal of overhead structures or signs

Traffic shall be stopped and may be held for periods of up to 25 minutes during these operations. Before the roadway is reopened, all materials shall be secured so they will not endanger traffic passing underneath. The Contractor will reimburse the Authority at the rate of $2,500.00 per five-minute period for each roadway not reopened (northbound and southbound), in excess of the 25-minute limit. Total penalty shall be deducted from the next pay estimate.

Blasting of Ledge

The maximum time for which traffic may be stopped at any single time shall be six (6) minutes. This duration shall be measured as the time between the time that the last car passes the Resident, until the time the Resident determines that all travel lanes are cleared of blast debris. The Contractor shall reduce the size of the blast, change the design and method of the blast, use more mats, or otherwise alter the blasting so that the traffic is not stopped for more than six minutes. If, due to the throw of rock onto the highway or other blasting related activities, traffic is stopped for more than six minutes, the Contractor shall pay a penalty of $1,000.00 per minute for every minute traffic is stopped in excess of the six-minute limit. The penalty shall be measured separately on the northbound and southbound roadway (or eastbound and westbound roadway). Total penalties will be deducted from the next pay estimate. Whenever the volume of traffic is excessive such that a six-minute interruption would cause objectionable congestion, in the opinion of the Authority, the hours during which blasting may occur may be further restricted. A detailed blasting plan shall be submitted as required in Supplemental Specific or Special Provision Sections 105 or 107.

652.3.5 Installation of Traffic Control Devices

All traffic control devices shall be in conformance with NCHRP 350 requirements and MASH 16 requirements if manufactured after December 31, 2019 and installed as per manufactures recommendations.

Portable signs shall be erected on temporary sign supports approved crashworthy devices so that the bottom of the sign is either 1) 12 inches or 2) greater than 5 feet above the traveled way. The bottom of all regulatory signs and ramp exit signs shall be a minimum of 5 feet above the traveled way. The contractor is responsible for maintaining the temporary sign structures so that the sign face remains in a vertical position. Temporary signs supports shall not be used for signs that will remain in place at a single location for more than one month.

No signs on easels shall be placed on 4 foot shoulders with guardrail, signs required at these location shall be placed on taller easels on the median side of the guardrail.

Post-mounted signs shall be erected so the bottom of the sign is no less than 5 feet above the traveled way, and 7 feet above the traveled way in business, commercial, and residential areas. Post-mounted signs must be erected so that the sign face is in a true vertical position. All signs shall be placed so that they are not obstructed in any manner and immediately modified to ensure proper visibility if obstructed.

The bottom of mainline and ramp traffic control signs intending to remain longer than 3 days, except as provided in 2009 MUTCD Section 6F.03 paragraph 12, shall be mounted 5 feet or greater above the edge of pavement on posts or portable sign supports.

The Resident will verify the exact locations of the construction signs in the field.

Construction signs behind guardrail shall be mounted high enough to be visible to traffic.

Vertical panel markers shall be mounted with the top at least 4 feet above the traveled way.

Drums placed along the Turnpike mainline shall have a minimum of one drum weight. Drums that will remain in the same location for more than three days shall have double drum weights. (i.e. a minimum of 40 lbs of drum tire rings). Drums shall not be weighted on the top. Drain holes shall be provided to prevent water from accumulating in the drums During winter periods, drums shall be placed on the grass shoulder or removed from the roadway so winter maintenance operations will not be impacted. This requires the placement of drums behind the median guardrail. Drums shall not be placed on snowbanks.

The Contractor shall operate and maintain the flashing arrow board unit and for dependable service during the life of the contract. The units shall remain in continuous night and day service at locations designated until the Resident designates a new location or discontinuance of service.

The Contractor shall maintain the devices in proper position and clean them as necessary. Maintenance shall include the covering and uncovering of all signs when no longer applicable (even if for a very short duration). The sign shall be considered adequately covered when no part of the sign face is visible either around or through the covering.

The Contractor shall replace damaged traffic control devices with devices of acceptable quality, as directed by the Resident.

The Contractor is required to cover all existing signs, including regulatory and warning signs, within the Work zone which may conflict with the proposed construction signs. The Contractor is also required to cover all permanent construction signs when they conflict with a daily traffic control setup. The method of covering existing signs must be approved by the Resident. The use of adhesives on the sign face is prohibited.

Work Zone Speed Limits

Work Zone Speed (Fines Doubled) is a regulatory speed limit that indicates the maximum legal speed through a work zone which is lower than the normal posted speed. The speed limit shall be displayed by black on white speed limit signs in conjunction with a black on orange "Work Zone" plate. Speed limit signs shall be installed at each mile within the work zone. Any existing regulatory speed limit signs within the reduced speed zone shall be covered once the reduced speed signs have been erected.

Two orange fluorescent flags shall be attached to all speed limit signs that are uncovered for a period of time exceeding one week. This work shall be incidental. Signs that are covered and uncovered on a regular basis are not required to have the supplemental flags.

The reduced speed limit signs shall be used when workers are adjacent to traffic, when travel lane(s) are closed, when indicated on Maintenance of Traffic Control Plans provided or other times as approved by the Resident:

The signs shall be covered or removed when not applicable. The covering and uncovering of signs shall be included for payment under Maintenance of Traffic. Signs relating to reduced speed shall be installed in accordance with the details. The Contractor shall note that all signs including those behind concrete barrier or guardrail are required to be clearly visible to all drivers at all times.

Lane Closure Installation and Removal Procedure

The Contractor will follow the following procedures when closing any travel lanes on the turnpike roadways:

1. The sign package shall be erected starting with the first sign and proceeding to the start of the taper. The sign crew shall erect signs with the vehicle within the outside shoulder.

2. Position the arrow board with the proper arrow at the beginning of the taper; and,

3. When arrow board is in place, continue with the drums/cones to secure the work area.

To dismantle the lane closure, start with last drums/cone placed and work in reverse order until all the drums are removed. The arrow board which was installed first shall be the final traffic control device removed, excluding the sign package. The remaining sign package shall be picked-up starting with the first sign placed and continuing in the direction of traffic and with the vehicle in the outside shoulder.

Trucking Plan

The Contractor shall submit a trucking plan to the Resident within 10 working days of the award of the Contract. The trucking plan shall consist of at least the following:

- Date of anticipated start of work per each location.
- Haul routes from plant/pit to work area and return.
- Haul routes from work area to disposal area and return.
- Entering / exiting the work area.
- Vehicle safety equipment and Vehicle inspection.
- Personal safety equipment.
- Communications equipment and plan.

The trucking plan will not be paid for separately but shall be incidental to the Contract.

652.3.6 Traffic Control

The existing travel way width shall be maintained to the maximum extent practical.

Vertical panel markers, drums, cones, or striping shall be used to clearly delineate the roadway through the construction area. Two-way traffic operation shall be provided at all times that the Contractor is not working on the project. One- way traffic shall be controlled through work areas by flaggers, utilizing radios, field telephones, or other means of direct communication.

The traffic control devices shall be moved or removed as the work progresses to assure compatibility between the uses of the traffic control devices and the traffic flow.

Pavement markings shall be altered as required to conform to the existing traffic flow pattern. Repainting of pavement marking lines, if required to maintain the effectiveness of the line, shall be considered **incidental to the** maintenance of traffic control devices, no separate payment will be made. Inappropriate pavement markings shall be removed whenever traffic is rerouted, and temporary construction pavement markings shall be placed. Removal of non-applicable markings and **initial** placement of temporary construction pavement markings will be paid for under the appropriate Contract items. Traffic changes shall not be made unless there is sufficient time, equipment, materials, and personnel available to complete the change properly before the end of the workday. This provision will not be required when traffic is rerouted for brief periods and the route can be clearly defined by channelizing devices, or flaggers, or both.

All vehicles used during the installation and removal of traffic control devices, including lane closures, shall be equipped with a vehicle-mounted lighted arrow board **or high intensity LED full width light bar** acceptable to the Resident. The arrow board **or full width light bar** shall be capable of displaying a left arrow, right arrow, double arrow, and light bar **patterns**.

652.4 Flaggers

The Contractor shall furnish flaggers as required by contract documents or as otherwise specified by the Resident. **Flaggers shall not stop traffic on Turnpike mainline or interchange ramps. Only State Police are allowed to stop traffic on mainline or interchange ramps.**

All flaggers must have successfully completed a flagger test approved by the Maine Department of Transportation and administered by a Maine Department of Transportation approved Flagger-Certifier. All flaggers must carry an official certification card with them at all times while flagging.

For daytime conditions, flaggers shall wear a top (vest, shirt or jacket) that is orange, yellow, yellow-green, or fluorescent versions of these colors meeting ANSI 107-2004, Class 3, along with a hat with 360 ˚ retro-reflectivity.

For nighttime conditions, flaggers shall wear all Class 3 apparel, meeting ANSI 107-2004, including a Class 3 top (vest, shirt or jacket) and a Class E bottom (pants or coveralls), shall be worn along with a hardhat with 360 ˚ retro-reflectivity and shall be visible at a minimum distance of 1000 ft. Flagger stations must be illuminated in nighttime conditions to assure visibility and will be specifically addressed in detail in the Contractor's TCP.

Flagger stations shall be located far enough in advance of the workspace so that approaching road users will have sufficient distance to stop at the intended stopping point. While flagging, the flagger should stand either on the shoulder adjacent to the traffic being controlled, or in the closed lane. At a spot obstruction with adequate sight distance, the flagger may stand on the shoulder opposite the closed sections to operate effectively. Under no circumstances shall the flagger stand in the lane being used by moving traffic or have their back to oncoming traffic. The flagger should be clearly visible to approaching traffic at all times and should have a clear escape route.

When conditions do not allow for proper approach sight distance of a flagger or storage space for waiting vehicles, additional flaggers shall be used at the rear of the backlogged traffic or at a point where approaching vehicles have adequate stopping sight distance to the rear of the backlogged traffic. All flagger stations shall be signed, even when in close proximity. The signs shall be removed or covered when flagger operations are not in place, even if it is for a very short duration.

Flaggers shall be provided as a minimum, a 10-minute break, every 2 hours and a 30 minute or longer lunch period away from the workstation. Flaggers may only receive 1 unpaid break per day; all other breaks must be paid. Sufficient certified flaggers shall be available onsite to provide for continuous flagging operations during break periods. If the flaggers are receiving the appropriate breaks, breaker flagger(s) shall be paid starting 2 hours after the work begins and

ending 2 hours before the work ends. A maximum of 1 breaker per 6 flaggers will be paid. (1 breaker flagger for 2 to 6 flaggers, 2 breaker flaggers for 7 to 12 flaggers, etc.). If a flagger station is manned for 10 hours or more, then ½ hour for lunch will be deducted from billable breaker flagger hours.

652.41 Traffic Officers

Local road traffic officers, if required, shall be uniformed police officers. State Police officers and vehicles shall be used to warn and stop traffic on the Maine Turnpike. All State Police shall be scheduled through the Maine Turnpike Authority. The Authority will make payment for the State Police officers and vehicles directly to the State Police.

The Contractor will not be entitled to additional compensation if scheduled Work is not completed due to the unavailability of State Police.

652.5.1 Rumble Strip Crossing

When lane shifts or lane closures require traffic to cross a permanent longitudinal rumble strip for 7 calendar days or less, the Contractor shall install warning signs that read "RUMBLE STRIP CROSSING" with a supplemental Motorcycle Plaque, (W8-15P).

When lane shifts or lane closures require traffic to cross a permanent longitudinal rumble strip for more than 7 calendar days, the Contractor shall pave in the rumble strips in the area that traffic will cross, unless otherwise directed by the Resident. Rumble strips shall be replaced prior to the end of the project, when it is no longer necessary to cross them.

652.6.1 Daylight Work Times

Unless otherwise described in the Contract, the Contractor is allowed to commence work and end work daily according to the Sunrise/Sunset Table at: http://www.sunrisesunset.com/usa/Maine.asp . If the Project town is not listed, the closest town on the list will be used as agreed at the Preconstruction Meeting. Any work conducted before sunrise or after sunset will be considered Night Work.

652.6.2 Night work

When Night Work occurs (either scheduled or unscheduled), the Contractor shall provide and maintain lighting on all equipment, at all workstations, and all flagger stations.

The lighting facilities shall be capable of providing light of sufficient intensity to permit good workmanship, safety, and proper inspection at all times. The lighting shall be cut off and arranged on stanchions at a height that will provide perimeter lighting for each piece of equipment and will not interfere with traffic, including commercial vehicles, approaching the work site from either direction.

The Contractor shall have available portable floodlights for special areas.

The Contractor shall utilize padding, shielding or other insulation of mechanical and electrical equipment, if necessary, to minimize noise, and shall provide sufficient fuel, spare lamps, generators, etc. to maintain lighting of the work site.

The Contractor shall submit a lighting plan prior to any night work for review showing the type and location of lights to be used for night work. The Resident may require modifications be made to the lighting set up in actual field conditions.

Prior to beginning any Night Work, the Contractor shall furnish a light meter for the Residents use that is capable of measuring the range of light levels from 5 to 20 foot-candles.

Horizontal illumination, for activities on the ground, shall be measured with the photometer parallel to the road surface. For purposes of roadway lighting, the photometer is placed on the pavement. Vertical illumination, for overhead activities, shall be measured with the photometer perpendicular to the road surface. Measurements shall be taken at the height and location of the overhead activity.

Night Work lighting requirements:

Mobile Operations: For mobile-type operations, each piece of equipment (paver, roller, milling machine, etc.) will carry indirect (i.e. balloon type) lights capable of producing at least 10 foot- candles of lighting around the work area of the equipment.

Fixed Operations: For fixed-type operations (flaggers, curb, bridge, pipes, etc.), direct (i.e. tower) lighting will be utilized capable of illuminating the work area with at least 10 foot- candles of light.

Hybrid Operations: For hybrid-type operations (guardrail, sweeping, In-slope excavation, etc.), either direct or indirect lighting may be utilized. The chosen lights must be capable of producing at least 10 foot-candles of light around the work area of the equipment

Inspection Operations: Areas required to be inspected by the Authority will require a minimum of 5 foot-candles of lighting. This may be accomplished through direct or indirect means.

The Contractor shall apply 2- inch wide retro-reflective tape, with alternating red and white segments, to outline the front back and sides of construction vehicles and equipment, to define their shape and size to the extent practicable. Pickup trucks and personal vehicles are exempt from this requirement.

The Resident or any other representative of the Authority reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Authority shall not be held responsible for any delay in the work due to any suspension under this item.

Failure to follow the approved Lighting Plan will result in a Traffic Control violation.

Payment for lighting, vehicle mounted signs and other costs accrued because of night work will not be made directly but will be considered incidental to the related contract items.

652.6.3 Traffic Coordinator and Personnel

The Contractor shall submit to the Resident for approval a list of traffic control personnel assigned to the Project including qualifications, certifications and experience.

The Traffic Coordinator duties shall include, but are not necessarily limited to:

a. Developing, in conjunction with the Resident and Project superintendent, a traffic control program for the days' work activities which will facilitate traffic in a safe and efficient manner.

b. Ensure that all traffic control implements (signs, arrow boards, barrels, etc.) are on-site so the traffic program can be implemented effectively.

c. Ensure a safe and effective setup or take-down of all signing implements to least impact the traveling motorist; and,

d. Working knowledge of construction signing/traffic control requirements in conformance with the latest issued Manual on Uniform Traffic Control Devices.

e. The Contractor shall supplement the traffic control plan with a daily plan, which includes schedules for utilizing traffic coordinators and flaggers. This plan shall be submitted daily and agreed upon cooperatively with the Resident.

652.7 Method of Measurement

Signs, signs supplied by the Authority, and panel markers will be measured by the square foot for all signs authorized and installed. Flashing arrow boards, portable-changeable message signs, and flashing and steady burn lights, will be measured by each unit authorized and installed on the project. Barricades and cones will be measured by each unit authorized. Drums will be measured by each or as a lump sum authorized and installed, as indicated on the plans and specifications. No additional payment will be made for devices that require replacement due to poor condition or inadequate retroreflectivity.

Flaggers or traffic officers used during the Contract, for the convenience of the Contractor, will not be measured separately for payment, but shall be incidental to the various pay items. **This includes use of Flaggers for the delivery of materials and equipment to the project or other Flagger use that is for the Contractor's convenience, as determined by the Resident Engineer. If flaggers are required to maintain traffic and there is not a pay item in the contractor for flaggers, then flaggers shall be incidental to the other Section 652 contract items and no separate payment shall be made.**

The accepted quantity of traffic officer and flagger time will be the number of hours the designated station is occupied. The number of hours authorized for payment, **if any**, will be measured to the nearest ¼ hour.

The Authority will make payment for the State Police officers and vehicles directly to the State Police when utilized for mainline traffic control activities. State Police escorts, if required

to move oversize material or equipment loads to the jobsite, will not be paid separately, but shall be incidental to the various pay items.

Maintenance of traffic control devices, including Truck mounted impact attenuators and Automated trailer mounted speed limit signs required for the project will be measured by the calendar day or as one lump sum, as indicated in the plans and specifications, for all authorized and installed traffic control devices. Traffic control devices will only be measured for payment the first time used. Subsequent uses shall be incidental to Item 652.36 or 652.361.

The vehicle mounted arrow board, mounted on trucks used for installation and removal of lane closures, will not be measured separately for payment, but shall be incidental to Item 652.36 or 652.361.

The traffic coordinator(s) will not be measured separately for payment but shall be incidental to Item 652.36 or 652.361.

Portable light towers, lighting on equipment and lighting plan will not be measured separately for payment but shall be incidental to the related Contract items.

Sequential Flashing Warning Lights shall be measured for payment by the maximum number of sequential flashing warning lights satisfactorily installed and properly functioning at any one time during the life of the project. Payment shall include all materials and labor to install, maintain and remove all Sequential Flashing Warning Lights.

Automated Trailer Mounted Speed Limit Sign shall incidental to the Maintenance of Traffic Control device item Payment shall include the Trailer, Radar Speed Limit Sign, flashing beacon amber lights, regulatory speed limit sign, fuel, necessary maintenance, and all checking of Radar Speed Limit Signs by manufacturer and all project moves including the transporting and delivery of the unit.

The accepted quantity of temporary portable rumble strips shall be measured by the unit complete in place, per lane closure application. A unit shall consist of 1 group of 3 full-lane width of rumble strips. As shown in the plans, a maximum of 3 units may be used at each lane closure. A unit shall be measured for each group of rumble strips, each time they are used for a lane closure.

652.8 Basis of Payment

The accepted quantity of signs, signs supplied by the Authority, and panel markers will be paid for at the contract unit price per square foot. Such payment will be full compensation for furnishing (or retrieving from the Authority) and installing all signs, sign supports, and all incidentals necessary to complete the installation of the signs.

The accepted quantity of flashing arrow boards, barricades, battery operated flashing and steady burn lights, and cones will be paid for at the contract unit price each for the actual number of devices authorized, furnished, and installed. Such payment shall be full compensation for all incidentals necessary to install and maintain the respective devices.

The Sequential Flashing Warning Lights will be paid for at the Contract unit price per each. This price shall include all costs associated with furnishing, installing, operating, maintaining, relocating, and removing the Sequential Flashing Warning Lights.

The Truck Mounted Attenuator(s) will be incidental to the Maintenance of Traffic Control device item. This price shall include all costs associated with the use of the vehicle. Payment shall include operator, fuel, truck, maintenance, flashing lights, arrow board and all other incidentals necessary to operate the vehicle.

Failure by the contractor to reinstall cones, barrels, signs, covered/uncovered signs, and similar traffic control devices within an hour of them being displaced, moved, knocked over, uncovered and etc. will result in a $150 fine per traffic control device if the issues is not resolved within 1 hour of notification by the resident. An additional $150 will be assessed for each additional hour that the device has not been corrected. If the traffic control device is critical to the maintenance of traffic creating an actual or potential safety issue with traffic and is not corrected immediately then it will result in a violation letter as described below.

Failure by the contractor to follow the Contracts 652 Supplemental Specifications, Special Provisions and Standard Specification and/or the Manual on Uniform Traffic Control Devices (MUTCD) and/or the Contractors own Traffic Control Plan, or failure to correct a violation, will result in a violation letter and result in a reduction in payment as shown in the schedule below. The Resident or any other representative of the Authority reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Authority shall not be held responsible for any delay in the work due to any suspension under this item. Any reduction in payment under this Special Provision will be in addition to forfeiting payment of maintenance of traffic control devices for that day.

Amount of Penalty Damages per Violation		
1st	2nd	3rd & Subsequent
$500	$1,000	$2,500

652.8.1 Maintenance of Traffic Control Devices

Maintenance of Traffic Control Devices will be paid at the contract unit price per calendar day or lump sum price, as indicated in the plans and specifications. Such payment will be full compensation for all days that the Contractor maintains traffic as specified herein, and for moving devices as many times as necessary; for replacing devices damaged, lost, or stolen; and for cleaning, maintaining, and removing all devices used for traffic control, including replacing temporary pavement marking lines.

The contract price for Maintenance of Traffic Control Devices shall be full compensation for all days for such maintenance, encompassing all areas of the contract, regardless of whether or not the work areas or projects are geographically separated.

652.8.2 Other Items

The accepted quantities of flagger hours will be paid for at the contract unit price per hour for each flagging station occupied excluding lunch breaks, and for each approved breaker flagger.

Overtime hours, as reported on the certified payrolls, will be paid an additional 30% of the bid price for 652.38. The computation and additional payment for overtime hours will occur during the project close-out process and will be paid as additional hours of 652.38 to the nearest ¼ hour. The contract unit price shall be full compensation for hiring, transporting, equipping, supervising, and the payment of flaggers and all overhead and incidentals necessary to complete the work.

There will be no payment made under any 652 pay items after the expiration of the adjusted total contract time.

The accepted quantities of traffic officer hours will be paid for at the contract unit price per ¼ hour for each station occupied, with no additional payment for overtime. This price shall be full compensation for supplying uniformed officers with police cruisers, and all incidentals necessary to complete the work, including transportation, equipment, and supervision.

Payment for temporary pavement marking lines and pavement marking removal will be made under the respective pay item in Section 627 - Pavement Markings.

Payment for temporary traffic signals will be made under Section 643 - Traffic Signals. The accepted quantity of Portable Changeable Message Signs will be paid for at the Contract unit price each. This price shall be full compensation for furnishing, relocating, maintaining and removing the PCMS. The price also includes all costs associated with setting-up and paying for a data cellular account, technical support, training and any costs associated with the GPS location device.

Progress payment of each PCMS shall be pro-rated over the duration of the Contract. Contract duration shall be from the specified Contract start date to substantial completion or Contract completion, whichever is sooner.

For a PCMS that fails to operate when required, the Contractor will be given 24-hours to repair or replace the PCMS. For periods longer than 24-hours, payment will be reduced based on the pro-rated time that the PCMS is out of service.

Drums will be paid for at the contract unit price each, or at the Contract lump sum price, as designated in the Plans and specifications. Such payment shall be full compensation for all drums as shown on the Plans or required to complete the work.

The accepted quantity of temporary portable rumble strips will be paid for at the contract unit price per unit which shall include the transport device. Payment is full compensation for providing, relocating, maintaining or replacing, and removing temporary portable rumble strips. If the pay item is not included in the contract quantities, then the Authority does not anticipate the use of this item on the contract. If contractor wishes to utilize temporary portable rumble strips and the item is not in the contract, then the contractor may propose use of them to the Authority for consideration.

Payment will be made under:

Pay Item		Pay Unit
652.30	Flashing Arrow Board	Each

652.31	Type I Barricade	Each
652.311	Type II Barricade	Each
652.312	Type III Barricades	Each
652.32	Battery Operated Light	Each
652.33	Drum	Each
652.331	Drum	Lump Sum
652.34	Cone	Each
652.35	Construction Signs	Square Foot
652.351	Construction Signs-Supplied by Authority	Square Foot
652.36	Maintenance of Traffic Control Devices	Calendar Day
652.361	Maintenance of Traffic Control Devices	Lump Sum
652.38	Flaggers	Hour
652.381	Traffic Officers	Hour
652.41	Portable-Changeable Message Sign	Each
652.46	**Temporary Portable Rumble Strips**	**Unit**
652.47	**Sequential Flashing Warning Lights**	**Each**

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(Specific Project Maintenance of Traffic Requirements)

This Specification describes the specific project maintenance of traffic requirements for this Project.

The following minimum traffic requirements shall be maintained:

Stevenstown Road Traffic Control Requirements

During heat straightening work, Stevenstown Road Bridge shall be limited to alternating one-way traffic with the use of a single lane closure and flaggers. The Contractor shall submit a temporary traffic control plan, including flagger stations, and a proposed schedule for the single lane closure. The Contractor shall notify the Resident/Authority two weeks prior to the single lane closure.

Maine Turnpike Traffic Control Requirements

Temporary lane and shoulder closures will be allowed at all times at Stevenstown Road in accordance with Special Provision Section 652 Maintenance of Traffic.

The mainline traffic control plan allows for daily single lane closures in the southbound roadway to allow the Contractor to complete miscellaneous contract work. Traffic stoppages may be required to allow heat straightening work to occur at Repair Area "A". All other work for the Project shall be completed using daily single lane closures as required. Traffic stoppages shall comply with Special Provision 652 Maintenance of Traffic.

Temporary lane closures shall be removed if construction is not ongoing. Unattended lane closures are not allowed unless included in the contract language or approved by the Resident as a long term traffic control operation.

A lane closure is required when a danger to the traveling public may exist. The potential for any material falling into the roadway shall be considered a potential danger. This shall include, but not necessarily be limited to, water, tools, equipment and materials.

A lane closure will be required whenever men or equipment will be present within four feet of a travel lane. Dump trucks shall be parked at least six (6) feet from the travel lane when being loaded or unloaded.

Equipment moves requiring stoppages shall be requested a minimum of 7 days prior to proposed need. Stoppage day of week and time of day shall be determined upon request; daytime stoppages may not be approved depending on traffic volumes.

Complete stoppages of traffic for the purpose of heat straightening at repair areas "A" are permitted Sunday through Thursday beginning at 10:00 p.m. and ending at 5:30 a.m. The duration of complete stoppages of traffic shall be in accordance with Special Provision 652, Maintenance of Traffic (Work requiring Complete Stoppages of Traffic) and this Special Provision.

A request for a complete stoppage of traffic must be submitted to the Resident for approval a minimum of 14 days prior to the day of the requested stoppage of traffic. The Resident is required to receive approval from the Maine Turnpike Authority for all stoppages.

During paint removal, heat straightening, painting, and other work involving overhead structures and/or equipment adjacent to an active lane, traffic may be stopped and held for periods of up to 25 minutes during these operations. Before the roadway is reopened, all materials shall be secured so they will not endanger traffic passing underneath. The Contractor will reimburse the Authority at the rate of $2,500.00 per five-minute period for each roadway not reopened, in excess of the 25-minute limit. Total penalty shall be deducted from the next pay estimate.

State Police will be used to stop traffic for all stoppages. Cost for State Police will be the responsibility of the Authority. The times requested for trooper assisted stoppages by on-duty troopers cannot be guaranteed. The MTA will not be held responsible for any delays or costs associated with the delay, postponement or cancellation of an on-duty trooper assisted stoppage.

Complete stoppages of traffic for the purpose of heat straightening shall require use of a portable changeable message sign. The PCMS shall be set up 7 days in advance of the proposed closure or as directed by the Resident.

Two lanes of traffic shall be maintained in each direction at all times in accordance with the details shown on the Plans with the exception of the following:

- Single Lane Closures, Southbound: Temporary single lane closures and temporary shoulder closures with drums are permitted beginning Sunday at 7:00 p.m. and ending Saturday at 6:00 pm.

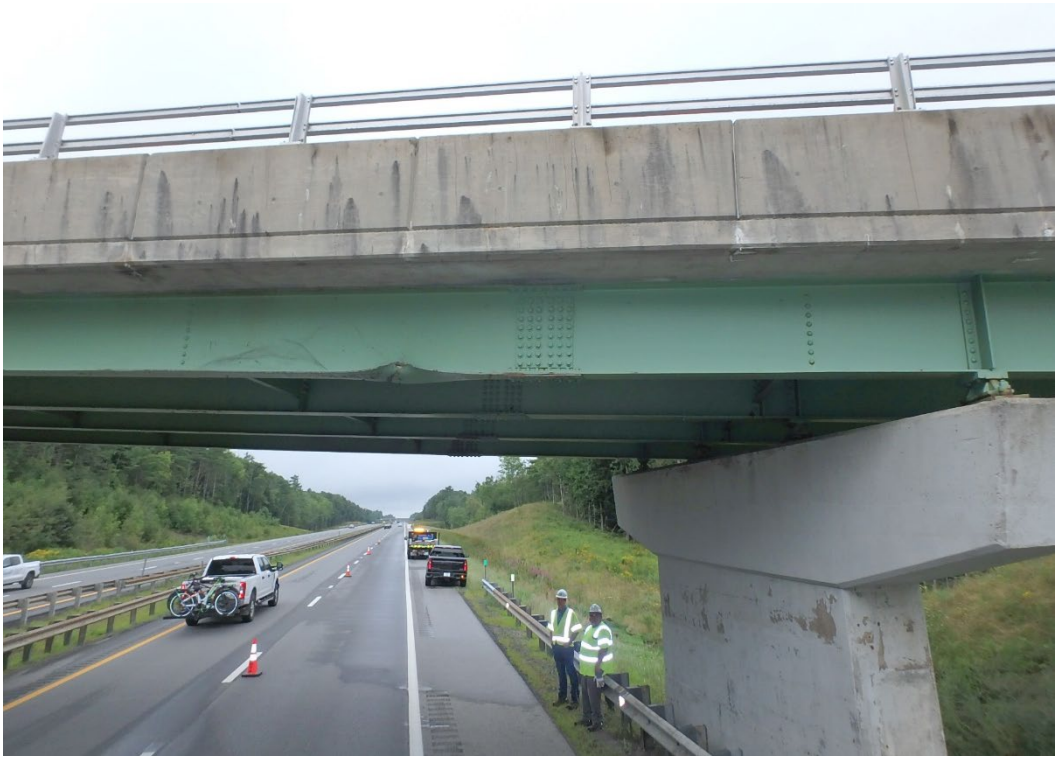
MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

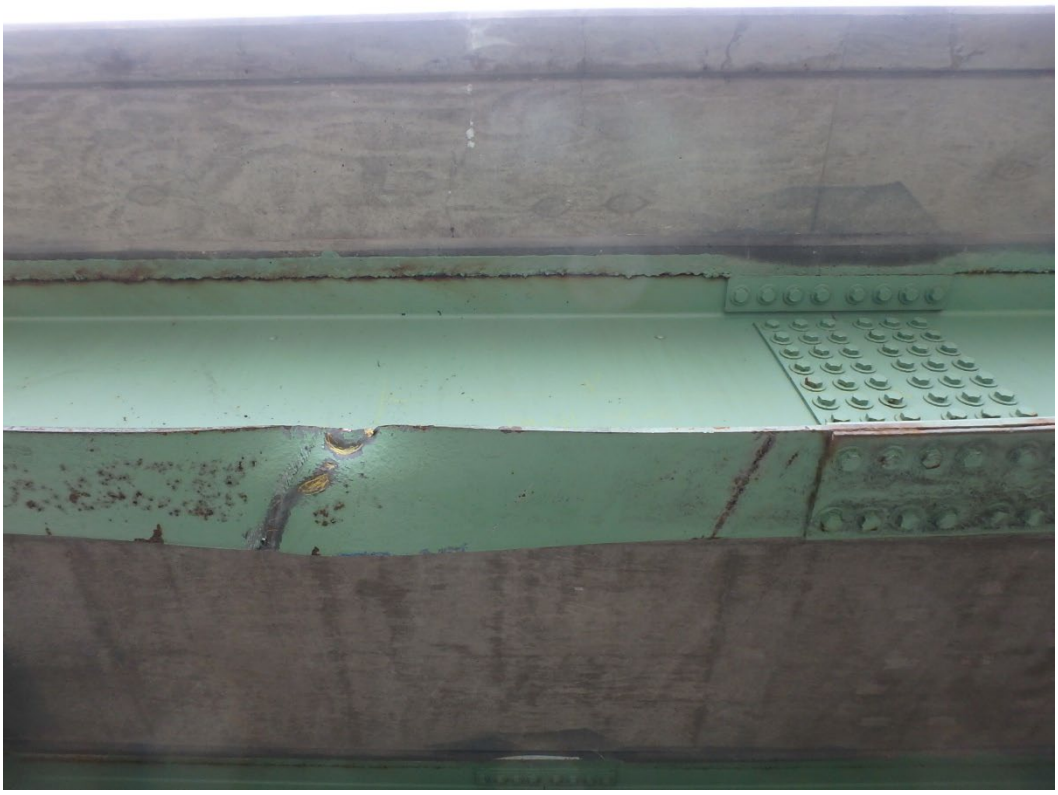
PART III – APPENDICES

APPENDIX A

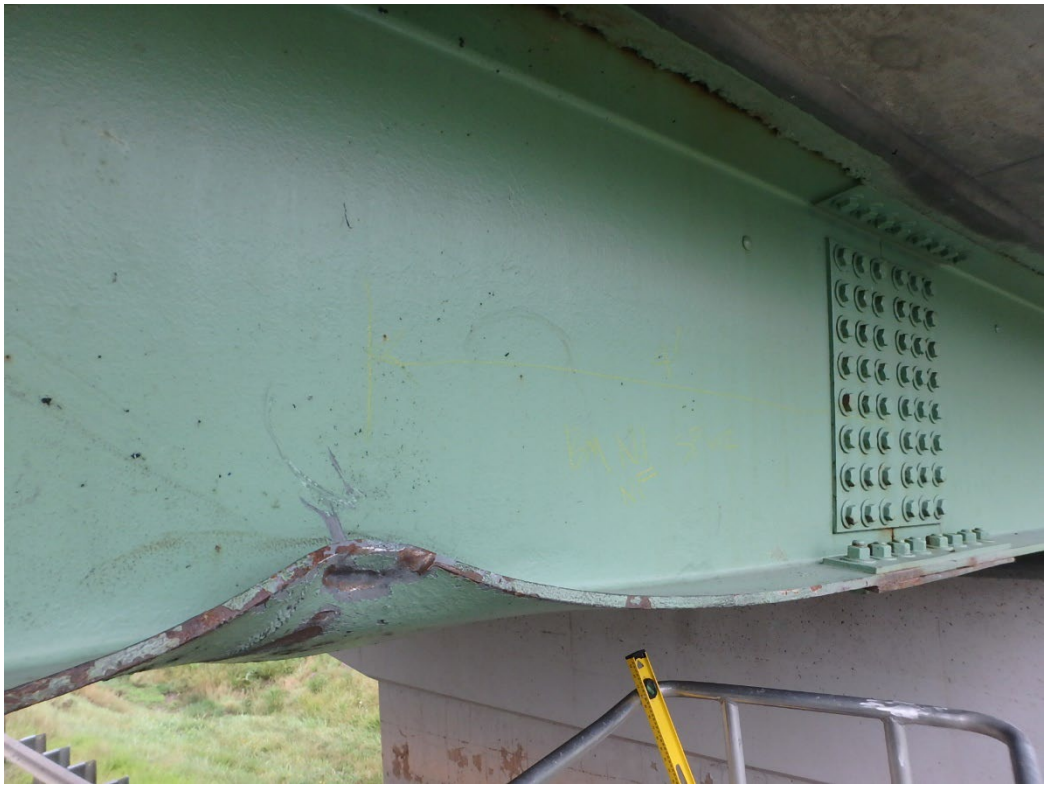
GIRDER DAMAGE PHOTOS



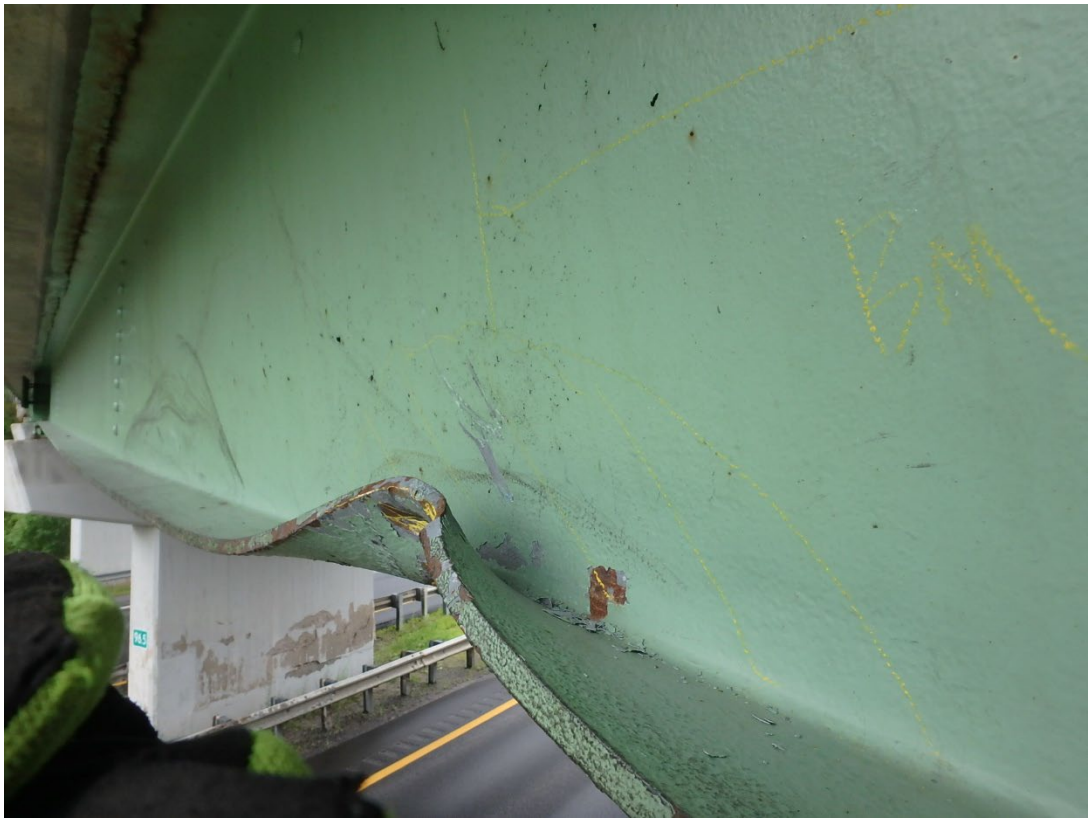
Stevenstown Road Bridge: Collision damage, elevation, looking south



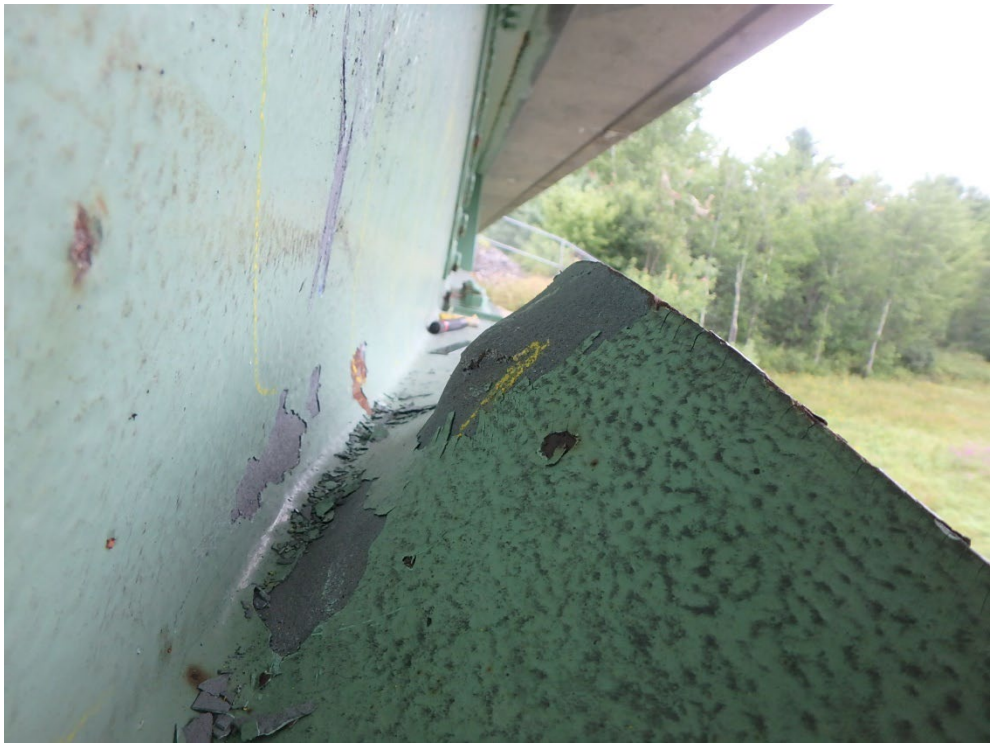
Girder G1: Collision damage, north face, looking up



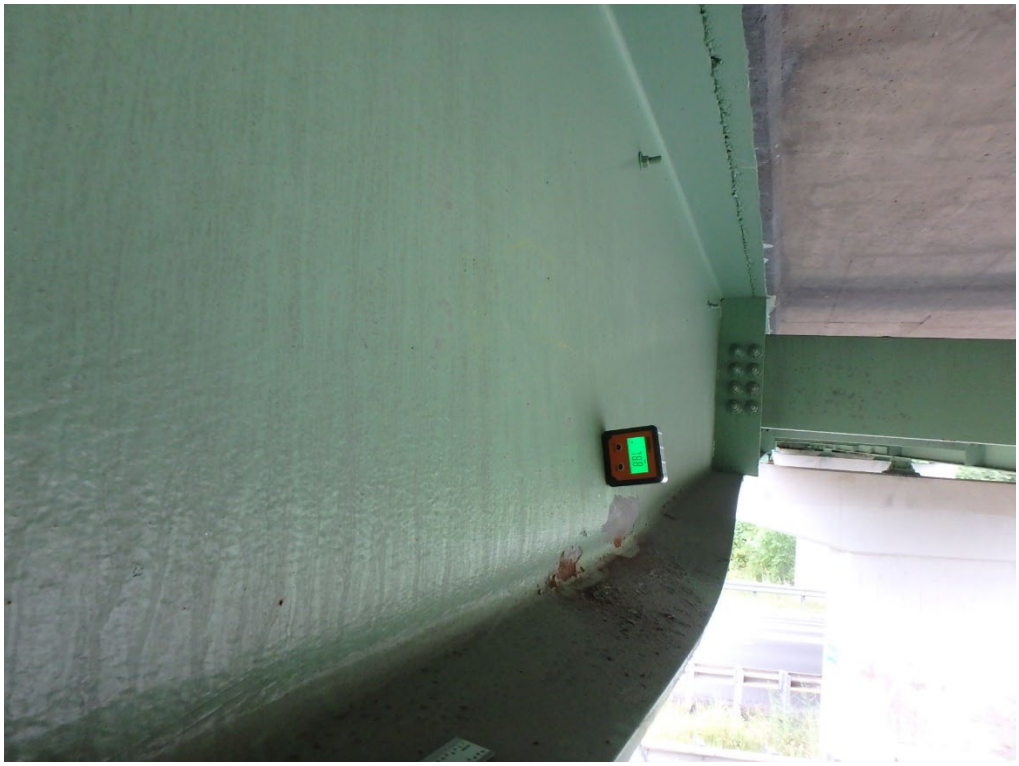
Girder G1: Collision damage, north face, looking south west



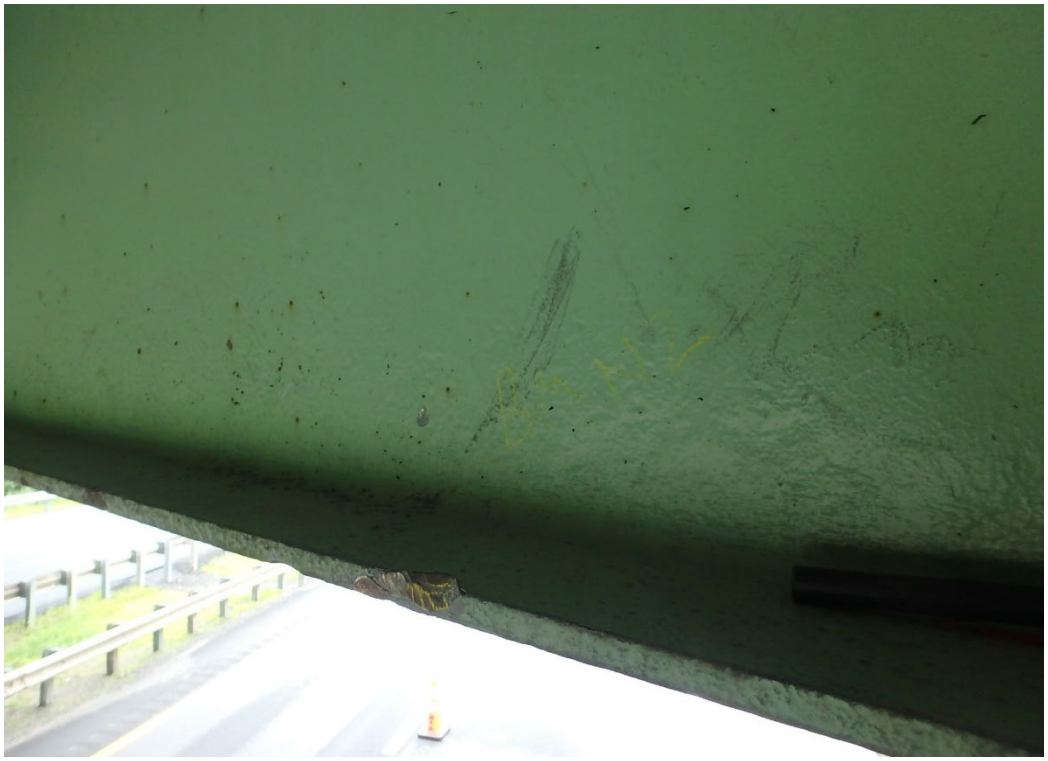
Girder G1: Collision Damage and bend with sweep, north face, looking south east



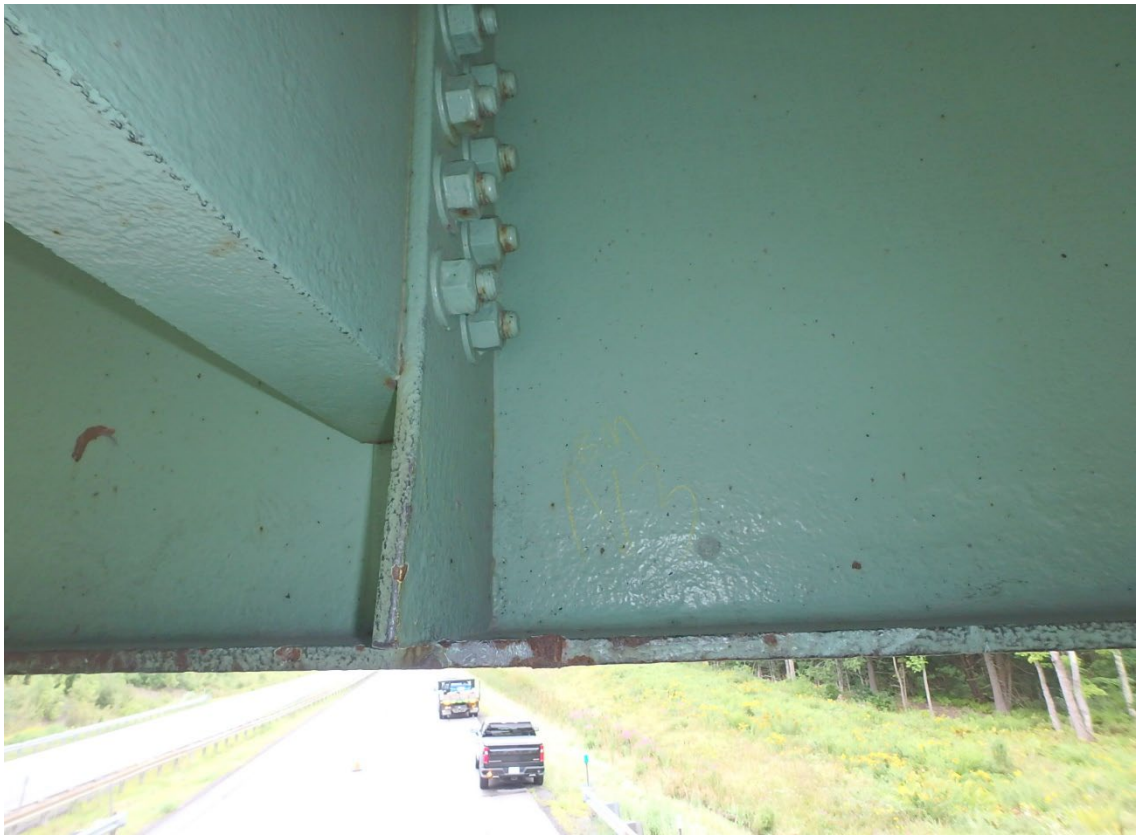
Girder G1: Collision damage and bend with sweep, crack in flange, looking west



Girder G1: Flange distortion and web sweep, south face, looking east



Girder G2: Bottom flange collision damage, looking south



Girder G3: Bottom flange collision damage and bent stiffener, looking south