

Updated 2/5/2026

FEDERAL PROJECT

BIDDING INSTRUCTIONS

FOR ALL PROJECTS:

1. Use pen and ink to complete all paper Bids.
2. As a minimum, the following must be received prior to the time of Bid opening:

For a Paper Bid:

- a) a copy of the Notice to Contractors, b) the completed Acknowledgement of Bid Amendments form, c) the completed Schedule of Items, d) two copies of the completed and signed Contract Offer, Agreement & Award form, e) a Bid Guaranty, (if required), and f) any other certifications or Bid requirements listed in the Bid Documents as due by Bid opening.

For an Electronic Bid:

NOTE: Not all projects accept Electronic Bids. Please review the Notice to Contractors and see if it specifically states that Electronic Bids will be accepted.

- a) a completed Bid using Expedite® software and submitted via the Bid Express™ web-based service, b) an electronic Bid Guaranty (if required) or a faxed copy of a Bid Bond (with original to be delivered within 72 hours), and c) any other Certifications or Bid requirements listed in the Bid Documents as due by Bid opening.
3. Include prices for all items in the Schedule of Items (excluding non-selected alternates).
 4. Bid Guaranty acceptable forms are:
 - a) a properly completed and signed Bid Bond on the Department's prescribed form (or on a form that does not contain any significant variations from the Department's form as determined by the Department) for 5% of the Bid Amount or
 - b) an Official Bank Check, Cashier's Check, Certified Check, U.S. Postal Money Order or Negotiable Certificate of Deposit in the amount stated in the Notice to Contractors or
 - c) an electronic bid bond submitted with an electronic bid.
 5. If a paper Bid is to be sent, "FedEx First Overnight" delivery is suggested as the package is delivered directly to the DOT Headquarters Building located at 16 Child Street in Augusta. Other means, such as U.S. Postal Service's Express Mail has proven not to be reliable.

IN ADDITION, FOR FEDERAL AID PROJECTS:

6. Complete the DBE Proposed Utilization form, and submit with your bid. If you are submitting your bid electronically, you must FAX the form to (207) 624-3431. This is a curable defect.

If you need further information regarding Bid preparation, call the DOT Contracts Section at (207) 624-3410.

For complete bidding requirements, refer to Section 102 of the Maine Department of Transportation, Standard Specifications, March 2020 Edition.

February 5, 2026
Supersedes April 28, 2017

NOTICE

The Maine Department of Transportation is attempting to improve the way Bid Amendments/Addendums are handled and allow for an electronic downloading of bid packages from our website, while continuing to maintain an optional plan holders list.

Prospective bidders, subcontractors or suppliers who wish to download a copy of the bid package and receive a courtesy notification of project specific bid amendments must fill out the on-line plan holder registration form and provide an email address to the MDOT Contracts mailbox at: MDOT.contracts@maine.gov. Each bid package will require a separate request.

Additionally, interested parties will be responsible for reviewing and retrieving the Bid Amendments from our web site, and acknowledging receipt and incorporating those Bid Amendments in their bids using the Acknowledgement of Bid Amendment Form.

The downloading of bid packages from the MDOT website is not the same as providing an electronic bid to the Department. Electronic bids must be submitted via <http://www.BIDX.com>. For information on electronic bidding contact Guy Berthiaume at guy.berthiaume@maine.gov.

NOTICE

For security and other reasons, all Bid Packages which are mailed, shall be provided in double (one envelope inside the other) envelopes. The *Inner Envelope* shall have the following information provided on it:

Bid Enclosed - Do Not Open

PIN:

Town:

Date of Bid Opening:

Name of Contractor with mailing address and telephone number:

In Addition to the usual address information, the *Outer Envelope* should have written or typed on it:

Double Envelope: Bid Enclosed

PIN:

Town:

Date of Bid Opening:

Name of Contractor:

This should not be much of a change for those of you who use Federal Express or similar services.

Hand-carried Bids may be in one envelope as before, and should be marked with the following information:

Bid Enclosed: Do Not Open

PIN:

Town:

Name of Contractor:

October 16, 2001

STATE OF MAINE DEPARTMENT OF TRANSPORTATION
Bid Guaranty-Bid Bond Form

KNOW ALL MEN BY THESE PRESENTS THAT _____

_____, of the City/Town of _____ and State of _____

as Principal, and _____ as Surety, a

Corporation duly organized under the laws of the State of _____ and having a usual place of

Business in _____ and hereby held and firmly bound unto the Treasurer of

the State of Maine in the sum of _____, for payment which Principal and Surety bind

themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

The condition of this obligation is that the Principal has submitted to the Maine Department of

Transportation, hereafter Department, a certain bid, attached hereto and incorporated as a

part herein, to enter into a written contract for the construction of _____

_____ and if the Department shall accept said bid

and the Principal shall execute and deliver a contract in the form attached hereto (properly

completed in accordance with said bid) and shall furnish bonds for this faithful performance of

said contract, and for the payment of all persons performing labor or furnishing material in

connection therewith, and shall in all other respects perform the agreement created by the

acceptance of said bid, then this obligation shall be null and void; otherwise it shall remain in full

force, and effect.

Signed and sealed this _____ day of _____ 20____

WITNESS:

WITNESS

PRINCIPAL:

By _____

By: _____

By: _____

SURETY:

By _____

By: _____

Name of Local Agency: _____

NOTICE

Bidders:

Please use the attached “Request for Information” form when submitting questions concerning specific Contracts that have been advertised for Bid, include additional numbered pages as required. RFI’s may be faxed to 207-624-3431, submitted electronically through the Departments web page of advertised projects by selecting the RFI tab on the project details page or via e-mail to RFI-Contracts.MDOT@maine.gov.

These are the only allowable mechanisms for answering Project specific questions. Maine DOT will not be bound to any answers to Project specific questions received during the Bidding phase through other processes.

When submitting RFIs by Email please follow the same guidelines as stated on the “Request for Information” form and include the word “RFI” along with the Project name and Identification number in the subject line.

RFI No: _____

Date _____ **Time** _____

WIN(S): _____ **Town(s):** _____ **Bid Date:** _____

Question(s):_____

Company Name: _____ **Phone: ()** _____

Email: _____ **Fax:** (____) _____

7

NOTICE

BIDDER'S LIST FORM

All Bidders must submit the Bidder's List Form with their bid.

The Bidder's List Form contains information required by USDOT.

The Bidder's List Form must be completed by each Prime Contractor.

A copy of the new Bidder's List Form and instructions for completing it are attached.

The DBE Directory can be found on the MaineDOT Website at: <https://www.maine.gov/mdot/civilrights/dbe/>

Questions about the Directory or this form should be sent to the Civil Rights Office at mary.bryant@maine.gov or by calling 207-624-3056.

INSTRUCTIONS FOR PREPARING THE MAINEDOT BIDDER'S LIST FORM

The Contractor shall extend equal opportunity to MaineDOT certified DBE firms (as listed in MaineDOT's DBE Directory of Certified Businesses) in the selection and utilization of subcontractors and suppliers.

Each prime contractor submitting a bid on a federally funded project must complete each section of the Bidder's List Form in its entirety for itself and each subcontractor on that project.

SPECIFIC INSTRUCTIONS FOR COMPLETING THE FORM:

Section A:

1. Insert Prime Contractor Name
2. Insert WIN for the Federal Project bidding on
3. Insert Bid Date
4. Insert Project Location
5. Insert Email address of Contact Person

Section B:

- A. Enter each Contractor's and Sub-Contractor's name and address (including zip code) – Prime Contractor's name should be listed in first box of this section; then each additional line would be proposed subcontractors – DBE and NonDBE
- B. Enter each Contractor's and Sub-Contractor's annual gross receipts bracket (see the legend on the form)
- C. Enter DBE status (DBE or non-DBE) for each contractor/sub-contractor
- D. Enter each Contractor's and Sub-Contractor's NAICS (North Amer. Industry Classification System) code (may be more than one) and Scope of Work
- E. For each Contractor and Sub-Contractor enter the Race and Gender of the firm's majority owner
- F. Enter the Age of each firm for every Contractor and Sub-Contractor
- G. Enter the Proposed amount of payment (Bid amount) for each Contractor/Sub-Contractor.

Maine Department of Transportation
BIDDER'S LIST FORM

Section A. Bidder/Prime Contractor Information.

This section must be completed by the Bidder/Prime Contractor.

1. Prime Contractor Name:		2. Federal Project WIN:		3. Bid Date:	
4. Project Location:		5. Email Address:			

Section B. Commitment Details - Prime Contractor and all Proposed Subcontractor Information is Required in This Section

A. Firm's Name & Address, Including Zip Code Prime must be listed first	B. Annual Gross Receipt Bracket Select 1 to 7*	C. Status DBE or Non-DBE	D. NAICS Code(s) and Scope of Work	E. Race & Gender of each Firm's Majority Owner	F. Age of Each Firm	G. Proposed Amount

***1) Less Than \$1M, 2) \$1 - \$3M, 3) \$3 - \$6M, 4) \$6 - \$10M, 5) \$10 - \$20M, 6) \$20 - \$50M, 7) Greater Than \$50M - More than 5 Subs use a new form**

MaineDOT Use Only:

Form Received: ____ / ____ / ____ Verified by: ____ FHW A ☐ FTA ☐ FAA ☐

For a complete list of certified DBE firms please visit: <http://www.maine.gov/dot/doing-business/civil-rights/dbe>

Note: This information is required pursuant to 49 CFR §26.11 and is used to track data in all federally funded MaineDOT contracts.

DBE GOAL NOTICE
Maine Department of Transportation
Disadvantaged Business Enterprise Program

Notice is hereby given that in accordance with US DOT regulation 49 CFR Part 26, the Maine Department of Transportation (MaineDOT) has established a Disadvantaged Business Enterprise Program (DBE) for disadvantaged business participation in the federal-aid highway and bridge construction programs; MaineDOT contracts covered by the program include consulting, construction, supplies, manufacturing, and service contracts.

Beginning September 1, 2024, MaineDOT has established an annual DBE participation goal of **1.43%** to be achieved through race/gender neutral means. This goal has been approved by the Federal Highway Administration through August 31, 2027. MaineDOT must meet this goal each federal fiscal year. If the goal is not met, MaineDOT must provide a justification for not meeting the goal and provide a plan to ensure the goal is met, which may include contract goals on certain projects that contractors will be required to meet.

MaineDOT asks all contractors, consultants and subcontractors to seek certified DBE firms for projects and to work to meet the determined 1.43% goal without the need to impose contract goals. DBE firms are listed on the MaineDOT website at:

<http://www.maine.gov/mdot/disadvantaged-business-enterprises/pdf/directory.pdf>

Interested parties may view MaineDOT's DBE goal setting methodology, also posted on this website. If you have questions regarding this goal or the DBE program you may contact Sherry Tompkins at the Maine Department of Transportation, Civil Rights Office by telephone at (207) 624-3066 or by e-mail at: sherry.tompkins@maine.gov

Maine Department of Transportation Civil Rights Office

Directory of Certified Disadvantaged Business Enterprises

Listing can be found at:

<https://www.maine.gov/mdot/civilrights/dbe/>

For additional information and guidance contact:

Civil Rights Office at (207) 624-3056

It is the responsibility of the Contractor to access the DBE Directory at this site in order to have the most current listing.

Vendor Registration

Prospective Bidders must register as a vendor with the Department of Administrative & Financial Services if the vendor is awarded a contract. Vendors will not be able to receive payment without first being registered. Vendors/Contractors will find information and register through the following link –

<http://www.maine.gov/purchases/venbid/index.shtml>

STATE OF MAINE DEPARTMENT OF TRANSPORTATION NOTICE TO CONTRACTORS

Sealed Bids addressed to the Maine Department of Transportation, Augusta, Maine 04333 and endorsed on the wrapper "Bids for Pavement Milling, Hot Mix Asphalt Overlay, Ultra-Thin Bonded Wearing Course with Safety Improvements in the City of Augusta" will be received from contractors at the Reception Desk, MaineDOT Building, Capitol Street, Augusta, Maine, until 11:00 o'clock A.M. (prevailing time) on **June 10, 2026**, and at that time and place, publicly opened and read. Bids will be accepted from all bidders. The lowest responsive bidder must have completed, or successfully complete, a Highway Construction, Paving, or project specific prequalification to be considered for the award of this contract. **We now accept electronic bids for bid packages posted on the bidx.com website. Electronic bids do not have to be accompanied by paper bids. Please note: The Department will accept a facsimile of the bid bond; however, the original bid bond must then be received at the MDOT Contract Section within 72 hours of the bid opening.** Until further notice, dual bids (one paper, one electronic) will be accepted, with the paper copy taking precedence.

Description: Maine Federal Aid Project No. 2749810, WIN 27498.10.

Location: In Kennebec County:

Project 2749810 is located on Interstate 95 Northbound beginning 0.12 of a mile north of the Hallowell City Line and extending north 3.26 miles. Southbound is located beginning 0.55 of a mile south of the Old Belgrade Road Overpass and extending south 3.28 miles. Includes ramps and approaches.

Outline of Work: Pavement Milling, Hot Mix Asphalt Overlay, Ultra-Thin Bonded Wearing Course with Safety Improvements, and other incidental work.

For general information regarding Bidding and Contracting procedures, contact George Macdougall at (207) 624-3410. Our webpage at <http://www.maine.gov/mdot/contractors/> contains a copy of the Schedule of Items, Plan Holders List, written portions of bid amendments, drawings, bid results and an electronic form for RFI submittal. For Project-specific information fax all questions to **Shawn Smith** at (207) 624-3431, use electronic RFI form or email questions to RFI-Contracts.MDOT@maine.gov, project name and identification number should be in the subject line. Questions received after 12:00 noon of Monday (or if that Monday is a state holiday, Friday) prior to bid date will not be answered. Bidders shall not contact any other Departmental staff for clarification of Contract provisions, and the Department will not be responsible for any interpretations so obtained. TTY users call Maine Relay 711.

Bid Documents, specifications and bid forms can be viewed and obtained digitally at no cost at <http://www.maine.gov/mdot/contractors/>. Specifications and bid forms may be seen at the MaineDOT Building in Augusta, Maine, and at the Department of Transportation's Regional Office in Augusta. They may be purchased from the Department between the hours of 8:00 a.m. to 4:30 p.m. by cash, credit card (Visa/Mastercard) or check payable to Treasurer, State of Maine sent to Maine Department of Transportation, Attn.: Mailroom, 16 State House Station, Augusta, Maine 04333-0016. They also may be purchased by telephone at (207) 624-3536 between the hours of 8:00 a.m. to 4:30 p.m. Full size plans **\$17.00 (\$20.50 by mail)**. Half size plans **\$8.50 (\$10.75 by mail)**, Bid Book \$10 (\$13 by mail), Single Sheets \$2, payment in advance, all non-refundable.

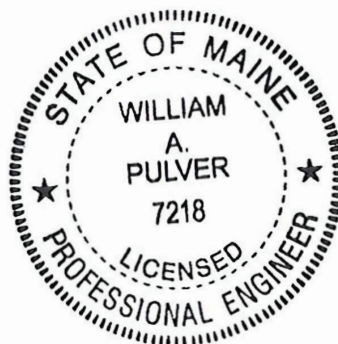
Each Bid must be made upon blank forms provided by the Department and must be accompanied by a bid bond at 5% of the bid amount or an official bank check, cashier's check, certified check, certificate of deposit, or United States postal money order in the amount of 5% of the bid amount, payable to Treasurer, State of Maine as a Bid guarantee. A Contract Performance Surety Bond and a Contract Payment Surety Bond, each in the amount of 100 percent of the Contract price, will be required of the successful Bidder.

This Contract is subject to all applicable Federal Laws. This contract is subject to compliance with the Disadvantaged Business Enterprise program requirements as set forth by the Maine Department of Transportation.

All work shall be governed by *State of Maine, Department of Transportation, Standard Specifications, March 2020 Edition*, price \$10 [\$15 by mail], and *Standard Details, March 2020 Edition*, price \$10 [\$15 by mail]. They also may be purchased by telephone at (207) 624-3536 between the hours of 8:00 a.m. to 4:30 p.m. *Standard Detail* updates can be found at <http://www.maine.gov/mdot/contractors/publications/>.

The right is hereby reserved to the MaineDOT to reject any or all bids.

Augusta, Maine
May 20, 2026



A handwritten signature in blue ink, appearing to read "W. A. Pulver", written over a horizontal line.

WILLIAM A. PULVER P. E.
CHIEF ENGINEER

NOTICE

All bids for Federal Projects **shall** be accompanied by the DBE Proposed Utilization form. If you are submitting an electronic bid, the DBE Utilization Form may be faxed to 207-624-3431. Failure to submit the form with the bid will be considered a curable defect.

SPECIAL PROVISION 102.7.3
ACKNOWLEDGMENT OF BID AMENDMENTS

With this form, the Bidder acknowledges its responsibility to check for all Amendments to the Bid Package. For each Project under Advertisement, Amendments are located at <http://www.maine.gov/mdot/contractors/> . It is the responsibility of the Bidder to determine if there are Amendments to the Project, to download them, to incorporate them into their Bid Package, and to reference the Amendment number and the date on the form below. The Maine DOT will not post Bid Amendments any later than noon the day before Bid opening without individually notifying all the planholders.

Amendment Number	Date

The Contractor, for itself, its successors and assigns, hereby acknowledges that it has received all of the above referenced Amendments to the Bid Package.

CONTRACTOR

Date

Signature of authorized representative

(Name and Title Printed)

5/4/2026

Maine Department of Transportation

Proposal Schedule of Items

Page 1 of 5

Proposal ID: 027498.10

Project(s): 027498.10

SECTION: 1 HIGHWAY ITEMS

Alt Set ID:

Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0010	202.2023 REMOVING PAVEMENT SURFACE - MEDIUM CUT DRUM	136,414.000 SY	_____	 _____	_____	 _____
0020	202.205 RUMBLE STRIPS - SHOULDER	32,000.000 LF	_____	 _____	_____	 _____
0030	203.20 COMMON EXCAVATION	750.000 CY	_____	 _____	_____	 _____
0040	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	600.000 CY	_____	 _____	_____	 _____
0050	403.2081 12.5 MM POLYMER MODIFIED HOT MIX ASPHALT	3,000.000 T	_____	 _____	_____	 _____
0060	403.2085 12.5 MM BALANCED MIX DESIGN (BMD)	500.000 T	_____	 _____	_____	 _____
0070	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	125.000 T	_____	 _____	_____	 _____
0080	403.2111 9.5 MM POLYMER MODIFIED HMA (SHIM)	500.000 T	_____	 _____	_____	 _____
0090	403.2131 12.5 MM POLYMER MODIFIED HMA BASE	5,200.000 T	_____	 _____	_____	 _____
0100	409.15 BITUMINOUS TACK COAT - APPLIED	2,500.000 G	_____	 _____	_____	 _____
0110	410.151 EMULSIFIED ASPHALT SEALCOAT, APPLIED	80,000.000 SY	_____	 _____	_____	 _____

5/4/2026

Maine Department of Transportation

Proposal Schedule of Items

Page 2 of 5

Proposal ID: 027498.10

Project(s): 027498.10

SECTION: 1 HIGHWAY ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0120	424.22 ASPHALT RUBBER CRACK SEALER TYPE 2, APPLIED	20,000.000 LB	_____	_____	_____	_____
0130	424.38 CRACK REPAIR - HOT POUR MASTIC	15,000.000 LB	_____	_____	_____	_____
0140	424.385 MASTIC FOR ASPHALTIC PLUG JOINT REPLACEMENT, 0.75-1.25 INCH	220.000 LF	_____	_____	_____	_____
0150	462.301 POLYMER MODIFIED ULTRATHIN BONDED WEARING COURSE	112,000.000 SY	_____	_____	_____	_____
0160	502.342 STRUCTURAL CONCRETE ROADWAY TRUCK APRON	350.000 CY	_____	_____	_____	_____
0170	604.18 ADJUSTING MANHOLE OR CATCH BASIN TO GRADE	1.000 EA	_____	_____	_____	_____
0180	606.1302 31" W-BM GR, MID-WAY SPLICE-DBL FACED	75.000 LF	_____	_____	_____	_____
0190	606.1305 31" W-BM GR, MID-WAY SPLICE FLARED TERMINAL	25.000 EA	_____	_____	_____	_____
0200	606.178 GUARDRAIL BEAM	200.000 LF	_____	_____	_____	_____
0210	606.265 TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	5.000 EA	_____	_____	_____	_____
0220	606.353 REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	40.000 EA	_____	_____	_____	_____

5/4/2026

Maine Department of Transportation

Proposal Schedule of Items

Page 3 of 5

Proposal ID: 027498.10

Project(s): 027498.10

SECTION: 1 HIGHWAY ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0230	606.356 UNDERDRAIN DELINEATOR POST	10.000 EA				
0240	606.36 GUARDRAIL REMOVED AND RESET	525.000 LF				
0250	606.362 GUARDRAIL ADJUSTED	500.000 LF				
0260	606.367 REPLACE UNUSABLE EXISTING GUARDRAIL POSTS	15.000 EA				
0270	606.93 SACRIFICIAL CRASH CUSHION	3.000 EA				
0280	609.341 CURB TYPE 5 - TRUCK APRON	265.000 LF				
0290	609.38 RESET CURB TYPE 1	250.000 LF				
0300	609.40 RESET CURB TYPE 5	700.000 LF				
0310	613.319 EROSION CONTROL BLANKET	365.000 SY				
0320	615.07 LOAM	50.000 CY				
0330	618.14 SEEDING METHOD NUMBER 2	100.000 UN				
0340	619.12 MULCH	100.000 UN				
0350	620.58 EROSION CONTROL GEOTEXTILE	1,200.000 SY				

5/4/2026

Maine Department of Transportation

Proposal Schedule of Items

Page 4 of 5

Proposal ID: 027498.10

Project(s): 027498.10

SECTION: 1 HIGHWAY ITEMS

Alt Set ID:

Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0360	627.18 12 " SOLID WHITE PAVEMENT MARKING	3,500.000 LF	_____	_____	_____	_____
0370	627.30 GROOVING FOR PAVEMENT MARKING	47,000.000 SF	_____	_____	_____	_____
0380	627.744 6" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	45,000.000 LF	_____	_____	_____	_____
0390	627.745 6" WHITE OR YELLOW POLYUREA PAVEMENT MARKING LINE (RECESSED)	80,000.000 LF	_____	_____	_____	_____
0400	627.78 TEMPORARY 4 INCH PAINTED PAVEMENT MARKING LINE, WHITE OR YELLOW	104,000.000 LF	_____	_____	_____	_____
0410	627.781 TEMPORARY 6 INCH PAINTED PAVEMENT MARKING LINE, WHITE OR YELLOW	45,000.000 LF	_____	_____	_____	_____
0420	629.05 HAND LABOR, STRAIGHT TIME	50.000 HR	_____	_____	_____	_____
0430	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	200.000 HR	_____	_____	_____	_____
0440	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	400.000 HR	_____	_____	_____	_____
0450	639.18 FIELD OFFICE TYPE A	1.000 EA	_____	_____	_____	_____

Maine Department of Transportation

Proposal Schedule of Items

Page 5 of 5

Proposal ID: 027498.10

Project(s): 027498.10

SECTION: 1 HIGHWAY ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0460	652.30 FLASHING ARROW BOARD	3.000 EA	_____	 _____	_____	 _____
0470	652.33 DRUM	100.000 EA	_____	 _____	_____	 _____
0480	652.34 CONE	500.000 EA	_____	 _____	_____	 _____
0490	652.35 CONSTRUCTION SIGNS	2,500.000 SF	_____	 _____	_____	 _____
0500	652.36 MAINTENANCE OF TRAFFIC CONTROL DEVICES	90.000 CD	_____	 _____	_____	 _____
0510	652.41 PORTABLE CHANGEABLE MESSAGE SIGN	3.000 EA	_____	 _____	_____	 _____
0520	652.441 TYPE 1 SMART WORK ZONE SYSTEM	2.000 EA	_____	 _____	_____	 _____
0530	652.45 AUTOMATED TRAILER MOUNTED SPEED LIMIT SIGN	2.000 EA	_____	 _____	_____	 _____
0540	652.46 SEQUENTIAL FLASHING WARNING LIGHTS	30.000 EA	_____	 _____	_____	 _____
0550	652.47 TEMPORARY PORTABLE RUMBLE STRIP	6.000 GP	_____	 _____	_____	 _____
0560	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP SUM	_____	 LUMP SUM	_____	 _____
0570	659.10 MOBILIZATION	LUMP SUM	_____	 LUMP SUM	_____	 _____
Section: 1			Total:		_____	 _____
			Total Bid:		_____	 _____

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

_____ a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, **WIN 027498.10 for the Pavement Milling, Hot Mix Asphalt Overlay, Ultra-Thin Bonded Wearing Course with Safety Improvements in the City of Augusta, County of Kennebec,** Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work; performing construction quality control including inspection, testing and documentation; providing all required documentation at the conclusion of the project; warranting its work; and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract. Payment shall be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, within **90** Working Days. Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, March 2020 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is _____

\$_____ Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, March 2020 Edition, Standard Details March 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Federal Contract Provisions Supplement, and the Contract are still complete and accurate as of the date of this Agreement.
2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.
3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications March 2020 Edition*, *Standard Details March 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of: **WIN 027498.10 for the Pavement Milling, Hot Mix Asphalt Overlay, Ultra-Thin Bonded Wearing Course with Safety Improvements in the City of Augusta, County of Kennebec,** State of Maine, on which bids will be received until the time specified in the “Notice to Contractors” do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached “Schedule of Items.”

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached “Schedule of Items” in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached “Schedule of Items,” which may be ordered by the Resident, and to accept as full compensation the amount determined upon a “Force Account” basis as provided in the *Standard Specifications, March 2020 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier’s check, certificate of deposit or U. S. Postal Money Order in the amount given in the “Notice to Contractors”, payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications March 2020 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor’s Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

Date

(Signature of Legally Authorized Representative
of the Contractor)

Witness

(Name and Title Printed)

G. Award.

Your offer is hereby accepted.
documents referenced herein.

This award consummates the Contract, and the

MAINE DEPARTMENT OF TRANSPORTATION

Date

By: Dale F. Doughty, Commissioner

Witness

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

_____ a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, **WIN 027498.10 for the Pavement Milling, Hot Mix Asphalt Overlay, Ultra-Thin Bonded Wearing Course with Safety Improvements in the City of Augusta, County of Kennebec,** Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work; performing construction quality control including inspection, testing and documentation; providing all required documentation at the conclusion of the project; warranting its work; and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract. Payment shall be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, within **90** Working Days. Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, March 2020 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is _____

\$_____ Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, March 2020 Edition, Standard Details March 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Federal Contract Provisions Supplement, and the Contract are still complete and accurate as of the date of this Agreement.
2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.
3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications March 2020 Edition*, *Standard Details March 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of: **WIN 027498.10 for the Pavement Milling, Hot Mix Asphalt Overlay, Ultra-Thin Bonded Wearing Course with Safety Improvements in the City of Augusta, County of Kennebec,** State of Maine, on which bids will be received until the time specified in the “Notice to Contractors” do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached “Schedule of Items.”

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached “Schedule of Items” in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached “Schedule of Items,” which may be ordered by the Resident, and to accept as full compensation the amount determined upon a “Force Account” basis as provided in the *Standard Specifications, March 2020 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier’s check, certificate of deposit or U. S. Postal Money Order in the amount given in the “Notice to Contractors”, payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications March 2020 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor’s Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

Date

(Signature of Legally Authorized Representative
of the Contractor)

Witness

(Name and Title Printed)

G. Award.

Your offer is hereby accepted.
documents referenced herein.

This award consummates the Contract, and the

MAINE DEPARTMENT OF TRANSPORTATION

Date

By: Dale F. Doughty, Commissioner

Witness

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

(Name of the firm bidding the job)

a corporation or other legal entity organized under the laws of the State of Maine, with its principal place of business located at **(address of the firm bidding the job)**

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, PIN No.01 **12345.00**, for the **Hot Mix Asphalt Overlay** in the town/city of **South Nowhere**, County of **Washington**, Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **November 15, 2006**. Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, March 2020 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is (Place bid here in alphabetical form such as One Hundred and Two dollars and 10 cents)
\$ (repeat bid here in numerical terms, such as \$102.10) Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, March 2020 Edition, Standard Details March 2020 Edition*, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in Appendix A to Division 100 of the *Standard Specifications March 2020 Edition* (Federal Contract Provisions Supplement), and the Contract are still complete and accurate as of the date of this Agreement.
2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.
3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications, March 2020 Edition, Standard Details March 2020 Edition*, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

PIN 012345.00 South Nowhere, Hot Mix Asphalt Overlay,

State of Maine, on which bids will be received until the time specified in the "Notice to Contractors" do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached "Schedule of Items."

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached "Schedule of Items" in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items," which may be ordered by the Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the *Standard Specifications, March 2020 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier's check, certificate of deposit or U. S. Postal Money Order in the amount given in the "Notice to Contractors", payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications March 2020 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor's Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

Date

(Witness Sign Here)
Witness

CONTRACTOR

(Sign Here)
(Signature of Legally Authorized Representative of the Contractor)

(Print Name Here)
(Name and Title Printed)

G. Award.

Your offer is hereby accepted.
documents referenced herein.

This award consummates the Contract, and the

MAINE DEPARTMENT OF TRANSPORTATION

Date

By: Dale F. Doughty, Acting Commissioner

(Witness)

BOND # _____

CONTRACT PERFORMANCE BOND
(Surety Company Form)

KNOW ALL MEN BY THESE PRESENTS: That _____
_____ in the State of _____, as principal,
and _____,
a corporation duly organized under the laws of the State of _____ and having a
usual place of business _____,
as Surety, are held and firmly bound unto the Treasurer of the State of Maine in the sum
of _____ and 00/100 Dollars (\$ _____),
to be paid said Treasurer of the State of Maine or his successors in office, for which
payment well and truly to be made, Principal and Surety bind themselves, their heirs,
executors and administrators, successors and assigns, jointly and severally by these
presents.

The condition of this obligation is such that if the Principal designated as Contractor in
the Contract to construct Project Number _____ in the Municipality of _____
promptly and faithfully performs the Contract, then this
obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the State
of Maine.

Signed and sealed this _____ day of _____, 20....

WITNESSES:

Signature.....
Print Name Legibly

Signature

Print Name Legibly

SURETY ADDRESS:

.....
.....
.....

TELEPHONE.....

SIGNATURES:

CONTRACTOR:

.....
Print Name Legibly

SURETY:

.....
Print Name Legibly

NAME OF LOCAL AGENCY:

ADDRESS

.....
.....

BOND # _____

CONTRACT PAYMENT BOND
(Surety Company Form)

KNOW ALL MEN BY THESE PRESENTS: That _____
_____ **in the 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 Treasurer of the State of Maine for the use
and benefit of claimants as herein below defined, in the sum of
_____ **and 00/100 Dollars (\$** _____ **)**
for the payment whereof Principal and Surety bind themselves, their heirs, executors and
administrators, successors and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Principal designated as Contractor in
the Contract to construct Project Number _____ in the Municipality of
_____ promptly satisfies all claims and demands incurred for all
labor and material, used or required by him in connection with the work contemplated by
said Contract, and fully reimburses 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.

A claimant is defined as one having a direct contract with the Principal or with a
Subcontractor of the Principal for labor, material or both, used or reasonably required for
use in the performance of the contract.

Signed and sealed this day of, 20

WITNESS:

SIGNATURES:

CONTRACTOR:

Signature.....

.....

Print Name Legibly

Print Name Legibly

SURETY:

Signature.....

.....

Print Name Legibly

Print Name Legibly

SURETY ADDRESS:

NAME OF LOCAL AGENCY:

.....

ADDRESS

.....

.....

TELEPHONE

.....

STATIONING

End Project	114+14	End Project
Civic Center Drive	114+14	Bridge Joint
Civic Center Drive	112+54	Bridge Joint
MM 112	109+71	
Cross Over (center)	105+50	Cross Over (center)
Median Catch Basin	86+76	Median Catch Basin
Bond Brook Bridge	69+54	Bridge Joint
Bond Brook Bridge	65+34	Bridge Joint
Median Catch Basin	45+00	Median Catch Basin
Median Catch Basin	27+00	Median Catch Basin
36" Culvert	13+00	36" culvert
MM 110	4+11	
Equation	5626+95.05 BK = 0+00.00 AHD	Equation +562629.05'
Old Winthrop Road	5623+98	Overpass
Western Avenue	5609+71	Overpass
NB/SB Ramps	5596+60	Overpass
Equation	5591+00.00 BK =5591+12.08 AHD	Equation -12.80
Begin Project	5583+50	Begin Project

STATIONING

Blue 109A	10+50	Sign
Blue 109B	15+41	Sign
Exit 109 A&B ½ Mile	20+65	Sign
Radio Travel Advisory	30+75	Sign
Capital Facilities	38+16	Brown Sign
Gas 109 A&B	45+10	Sign
	(Power Lines)	
Food 109 A	53+32	Sign
Lodging 109 A&B	63+90	Sign
Bond Brook Bridge	65+83	Bridge Joint
Bond Brook Bridge	69+95	Bridge Joint
Exits 109A-B	76+43	Sign
Keep Right Except	85+67	Sign
Speed Limit 65	92+80	Sign
Yellow 45 mph	95+48	Sign
South I-95	99+56	Sign
MM 112	109+71	
Civic Center Drive	113+52	Bridge Joint
Civic Center Drive	114+88	Bridge Joint
Begin Project	114+88	

STATIONING

End Project	5583+33	End Project
Equation	5591+00.00 Back= 5591+12.08 Ahead	Equation = -12.80'
Exit 109 A	5593+19	Sign
	(I-95 On/Off Ramp Overpass)	
14'4"	5607+43	Sign
	(Western Avenue Overpass)	
Exit 109B	5617+32	Sign
30 mph on Ramp	5619+30	Sign
14'4"	5623+14	Sign
	(Old Winthrop Road Overpass)	
Equation	5626+95.05 Back= 0+00.00 Ahead	Equation = -56, 2695.05'
MM 110	4+32	

RAMP STATIONING

Exit 109 Northbound Off to Western Avenue to Augusta “Ramp A & Ramp D”

I-95 NB STA.5587+25 = Ramp A STA. 29+15
STA. 45+00 = intersect of Ramp D to in town Augusta
STA. 45+00 Ramp A Continued
STA. 49+05 = Bridge Joint
STA. 50+90 = Bridge Joint
STA. 61+18 = Tip of Island on Western Avenue
Match Western Ave Gutter STA 61+18

“Ramp D” STA. 45+00 = Ramp D STA 0+00 Begin
Gutter on Western Ave 6+25

Exit 109A Southbound Off Western Avenue to Winthrop “Ramp G”

I-95 SB 5596+60 = Ramp G STA 20+00
STA. 34+90 = Bridge Joint
STA. 36+97 = Bridge Joint
STA 40+00 Point of Intersect with Ramp A

Exit 109 On Western Avenue from Augusta heading North I-95 and to Southbound MTA On Ramp “Ramp B”

STA. 61+27 = Tip of Island on Western Avenue
STA. 50+90 = Bridge Joint
STA. 49+05 = Bridge Joint
STA 44+73 Point of Intersect with Ramp H

Exit 109 On Western Avenue from Winthrop heading Northbound On Ramp “Ramp H”

STA. 44+73 = Begin “Ramp H” I-95 NB ON Ramp 0+00 – 9+00 = 5604+25 I-95 NB

Exit 109 Western Ave to Southbound MTA “Ramp F”

STA 44+74 = Split between Ramp H and Ramp F
STA. 36+97 = Bridge Joint
STA. 34+90 = Bridge Joint
STA 20+00 = Match I-95 SB STA 5685+00

RAMP STATIONING

Exit 112B On Civic Center Drive On Ramp

STA. 0+00 = Gutter of Civic Center Drive STA. 28+70 = STA. 138+18 I-95 NB

Exit 113 Off Route 3 Off Ramp

STA. 0+00 = STA. 120+05 I-95 NB STA. 27+60 = Limits of Work

Construction Notes

Item 203.20 Common Excavation

See plan set for 109 A earthwork details

Item 202.203 Removing Pavement Surface – Medium Cut Drum

Northbound Mainline

<u>Station</u>	<u>to</u>	<u>Station</u>	<u>Depth</u>	<u>Remarks</u>
5583+500	-	5591+00	$\frac{3}{4}$ " 2- $\frac{3}{4}$ "	Passing lane and shoulder 16.0' ± 12.5'± Travel lane
Equation 5591+00 Back 5591+12 Ahead				
5591+12	-	5626+95	$\frac{3}{4}$ " 2"- $\frac{3}{4}$ "	Passing lane and shoulder 16.0'± 12.5'± Travel lane
Equation 5626+95 Back = 0+00 Ahead				
0+00	-	65+34	$\frac{3}{4}$ " 2- $\frac{3}{4}$ "	Passing lane and shoulder 16.0'± 12.5'± Travel Lane
Bond Brook Bridge				
65+34	-	69+54	1 ½"	Bridge Deck Full Width 32'±
69+54	-	112+54	$\frac{3}{4}$ " 2- $\frac{3}{4}$ "	Passing lane and shoulder 16.0'± 12.5'± Travel lane
112+54	Civic Center Drive Southerly Abutment			

Southbound Mainline

<u>Station</u>	<u>to</u>	<u>Station</u>	<u>Depth</u>	<u>Remarks</u>
Civic Center Drive Bridge Deck				
114+88	-	113+52	1 ½"	Bridge Deck Full Width 38±
113+52	-	68+95	$\frac{3}{4}$ " 2- $\frac{3}{4}$ "	Passing lane and shoulder 16.0' ± 12.5'± Travel lane
Bond Brook Bridge				
69+95	-	65+83	1 ½"	Bridge Deck Full Width 32'±

Construction Notes

Item 202.2023 Removing Pavement Surface – Medium Cut Drum (Continued)

Southbound Mainline

<u>Station</u>	<u>to</u>	<u>Station</u>	<u>Depth</u>	<u>Remarks</u>
65+83	-	0+00	$\frac{3}{4}$ " 2- $\frac{3}{4}$ "	Passing lane and shoulder 16.0'± 12.5'± Travel lane
Equation 0+00 Ahead = 5626+95 Back				
5626+95	-	5617+32	$\frac{3}{4}$ " 2- $\frac{3}{4}$ "	Passing lane and shoulder 16.0'± 12.5'± Travel lane
5617+32	-	5591+12	$\frac{3}{4}$ " 2- $\frac{3}{4}$ "	Passing lane and shoulder 16.0'± 12.5'± Travel lane
5590+00		5583+33	$\frac{3}{4}$ " 2- $\frac{3}{4}$ "	Passing lane and shoulder 16.0'± 12.5'± Travel lane

Ramps

<u>Station</u>	<u>to</u>	<u>Station</u>	<u>SY</u>	<u>Depth</u>	<u>Remarks</u>
Exit 109 Northbound Off Western Avenue to Augusta/ Winthrop Ramp "A"					
29+15		49+05±	1990±	1 ½"	Travel Lane
49+05		50+90±	185±	1 ½"	Bridge Deck full width
50+90		61+18±	1028±	1 ½"	Travel Lane
Exit 109 NB/SB Off Western Avenue to intown Augusta Ramp "D"					
0+00		6+50±	650±	1 ½"	Travel Lane
Exit 109A Southbound Off Western Avenue to Winthrop Ramp "G"					
20+00		34+90±	1490±	1 ½"	Travel Lane
34+90		36+97±	207±	1 ½"	Bridge Deck full width
36+97		40+00±	303±		See Plan set and plan stationing

Construction Notes

Item 202.2023 Removing Pavement Surface – Medium Cut Drum (Continued)

Ramps

<u>Station</u>	<u>to</u>	<u>Station</u>	<u>SY</u>	<u>Depth</u>	<u>Remarks</u>
Exit 109 On Western Avenue from Augusta heading Southbound MTA Ramp “B”					
61+27		50+90±	1850±	1 ½”	Travel Lane
50+90		49+05±	185±	1 ½”	Bridge Deck full width
49+05		44+73±	432±	1 ½”	Travel Lane
Exit 109 On Western Avenue from Augusta heading to Southbound MTA Ramp “F”					
44+73		36+97	776±	1 ½”	Travel lane
36+97		34+90±	207±	1 ½”	Bridge Deck full width
34+90		20+00±	1490±	1 ½”	Travel lane
Exit 109 On Western Avenue from Winthrop heading Northbound Ramp “H”					
0+00		9+00±	900±	1 ½”	Travel Lane
Exit 112B On Civic Center Drive					
0+00		28+70± includes spurs	4500±	1 ½”	mill Travel Lane
Exit 113 Off Route 3					
0+00		27+60±	3700±	1 ½”	mill Travel Lane

Contractor will remove pavement to maintain existing cross slopes or as directed by the Resident. Mark downs shall be in place on Mainline prior to commencing milling operations. Contractor will establish centerline control points prior to removal of existing centerline. See Typical for ramps.

Construction Notes

Item 304.10 Aggregate Subbase Course Gravel

See plan set for 109 A earthwork details

403.2085 12.5mm HMA Surface Balanced Mix Design

This will be used on Exit 112 On ramp, I -95 Deceleration Lane to Exit 113 Off ramp.

I-95 Mainline Deceleration Lane
STA 119+75 – 138+ 20

Exit 112B On Civic Center Drive On Ramp

STA. 0+00 = Gutter of Civic Center Drive to STA. 28+70 (= STA 138+20 I-95 NB Decel)

Exit 113 Off Route 3 Off Ramp
STA. 0+00 (= STA. 138+20 I-95 NB) to STA. 15+50 = Limits of Work Off Ramp

Approximate minimum tonnage is 500 tons, exact locations and tonnage to be determined in the field. See Special Provision 403 for more details.

403.209 9.5mm Drives, Sidewalks, Incidentals

This item will be used for island paving on Exit Ramp 109 A in conjunction of the re-construction area.

403.2111 9.5mm Polymer Modified HMA Shim

This item may be used for a leveling course and possible de-lamination areas in the pavement removal areas, rutting areas, and as directed the Resident.

403.2131 12.5mm Polymer Modified Base

Item shall be used in the travel lanes for both NB and SB sides and on Ramp 109 A modification (see plan set)

Construction Notes

Item 410.151 Emulsified Asphalt Sealcoat Applied

Emulsified Asphalt shall be applied to the 4 & 10' shoulders the entire length of project and as directed. Item will be applied after Item 202.205 Rumble Strips – Shoulder has been completed. It is the intent to seal the rumble strip areas. Shoulders that are not resurfaced on ramps will be seal coated.

424.22 Asphalt Rubber Crack Sealer Type 2, Applied

Item will be used to treat centerline, longitudinal cracks on mainline & shoulders and as directed by the Resident.

424.38 Crack Repair- Hot Pour Mastic

Item will be used to treat centerline, longitudinal cracks on mainline & shoulders and directed by the Resident.

502.342 Structural Concrete Roadway Truck Apron

See plan set for details

604.18 Adjusting Manhole or Catch Basin to Grade

See plan set station 21+75± LT

609.38 Reset Type 1 curb

See plan set for details

609.40 Reset Curb type 5

See plan set for details

609.341 Curb Type 5 – Truck Apron

See plan set for details

Construction Notes

Item 606.356 Underdrain Delineator Post

Item shall be installed at all culverts 24" and smaller or as directed by the Resident. One post is to be installed at each approach to bridges left & right. Post shall be mounted using approved hardware to the second post from the concrete end post. Top of post will be 8' above ground level. No additional payment to be made for this work.

627.30 Grooving for Pavement Marking

Item shall include yellow edge line, white edge line, and white skips. Skip lines shall be ground 15 feet in length.

627.78 Temporary 4" Painted Pavement Marking Line, White or Yellow

All areas that have received the surface course shall be painted prior to being opened to traffic or immediately after the lane closure is removed. Any striping procedure besides paint, including white and yellow temporary approved raised pavement markers, shall be considered incidental.

627.781 Temporary 6" Painted Pavement Marking Line, White or Yellow

Item is to be used once lanes have been milled, prior to being opened to traffic or immediately after the lane closure is removed. Any striping procedure besides paint, including white and yellow temporary approved raised pavement markers, shall be considered incidental.

629 & 631 Items

These Items to be used for plumbing existing delineator posts, cleaning culverts, cleaning winter sand from guardrail areas and paved areas under overpasses, and removing excess material from in-slopes, in-slopes behind guardrail areas, ditching, and other work as directed. All equipment used for certain tasks and operations will be as directed by the Resident.

652.35 Construction Signs

Two "Road Work Next 4 Miles" signs are required as part of this project.

GUARDRAIL

MIDWAY SPLICE FLARED TERMINAL		LANE	ADJUST GUARDRAIL		REMOVE/RESET NEW GUARDRAIL		REMARKS
STATION	STATION		STATION	STATION	STATION	STATION	
5591+00	5591+41	Travel					Northbound
5607+00	5607+41	Travel					Remove/Replace Existing/Adjust as needed
5621+00	5621+41	Travel					Remove/Replace Existing/Adjust as needed
7+00	7+41	Travel					Remove/Replace Existing/Adjust as needed
37+55	37+95	Travel					Remove/Replace Existing/Adjust as needed
61+80	62+21	Travel					Remove/Replace Existing/Adjust as needed
97+15	97+56	Travel					Remove/Replace Existing/Adjust as needed
107+25	107+66	Travel					Remove/Replace Existing/Adjust as needed
3+00	3+50	Passing					Remove/Replace Existing/w median crash cushion
61+65	62+15	Passing					Remove/Replace Existing/Adjust as needed
97+50	98+00	Passing					Remove/Replace Existing/Adjust as needed
STATION	STATION	LANE	STATION	STATION	STATION	STATION	Southbound
97+50	98+00	Travel					Remove/Replace Existing/Adjust as needed
88+30	88+85	Travel					Remove/Replace Existing/Adjust as needed
78+00	78+50	Travel					Remove/Replace Existing/Adjust as needed
0+36	0+86	Travel					Remove/Replace Existing/Adjust as needed
5612+75	5613+25	Travel					Remove/Replace Existing/Adjust as needed
5600+04	5600+54	Travel					Remove/Replace Existing/Adjust as needed
73+70	74+20	Passing					Remove/Replace
17+90	18+40	Passing					Remove/Replace
46+09	46+59	Ramp A RT					Remove/Replace
48+16	48+66	Ramp B RT					Remove/Replace
56+02	56+52	Ramp B RT					Remove/Replace
56+02	56+52	Ramp A RT					Remove/Replace
0+83	1+35	Ramp H LT					Remove/Replace
29+01	29+51	Ramp F LT					Remove/Replace
30+36	30+86	Ramp F RT					Remove/Replace
Guardrail shall require seven-foot posts on all runs. End treatments shall be installed using posts as recommended by the manufacturer. The contractor shall provide the Resident with the system to be used on the project at the pre-construction meeting. The contractor shall plan their work accordingly that end treatments shall be installed within the widen shoulder areas and installed according to manufacturers' recommendations. Any adjustments needed from installing guardrail or end treatments prior to, after paving surface, or after winter suspension shall be the responsibility of the contractor. Terminals and widenings have been estimated for a 41.0' end treatment.							
** Requires Median Sacrificial Crash Cushion Item 606.93							
End Treatments to be selected from MASH Compliant MaineDOT QPL							

GENERAL NOTES

1. Pavement thicknesses shown on the typical sections are intended to be nominal.
2. When super elevation exceeds the slope of the low side shoulder, the low side shoulder will have same slope as the travelway.
3. Cross slopes for normal and superelevated sections will be straight unless otherwise directed by the Department.
4. The algebraic difference between travelway and shoulder cross slope shall not exceed 8 percent.
5. Where deemed necessary by the Resident, winter sand (outside paved areas) shall be removed from the edges of shoulders and placed in designated areas or disposed of. Payment will be made under the appropriate hourly rental items.
6. All waste material not used on the project shall be disposed of off the project in acceptable waste areas reviewed by the Resident. Grading, seeding and mulching of waste areas shall be considered incidental.
7. All joints between existing and proposed hot mix asphalt shall be butted. Payment shall be made under Item 202.2023.
8. Any damage to the slopes caused by the Contractor's equipment, personnel, or operation shall be repaired to the satisfaction of the Resident. All work, equipment and materials required to make repairs shall be at the Contractor's expense.
9. Any necessary cleaning of existing pavement prior to paving or milling shall be incidental to the related items. This includes killing and removal of all vegetative matter.
10. All spoils, HMA & millings shall be cleaned daily from project to the satisfaction of the Resident prior to the contractor leaving for the shift.
11. As directed by the Resident, all existing Underdrain Outlets shall be located, cleaned out, and ditched as required or replaced as necessary. Payment will be made under appropriate hourly contract items.
12. Guardrail which is removed and not reused on the project shall become the property of the Contractor. Removal and disposal shall be considered incidental to the guardrail items.

GENERAL NOTES

13. Holes created by Guardrail removal will be filled and compacted with approved materials as directed by the Resident. Payment to be considered incidental to the guardrail items.
14. Connections for proposed guardrail to existing guardrail will be considered incidental to Item 606.
15. "Undetermined Locations" shall be determined by the Resident.
16. Stations referenced are approximate.
17. All work shall be done in accordance with the Maine Department of Transportation's Best Management Practices for Erosion & Sedimentation Control, February 2008.
18. Reference to left or right is in the direction of stationing which runs south to north.
19. Milling widths & depths may be adjusted by the Resident.
20. The paved gore areas between the on/off ramps and the mainline shall have an edge line of 12-inch white pavement marking line, Item 627.18, as directed by the Resident.
21. No separate payment for superintendent or foreman will be made for the supervision of work paid under equipment rental items, however supervision is required.
22. Cleaning of the pavement following rental work will be considered incidental to the rental items. Cleaning will be done daily and to the satisfaction of the Resident prior to the Contractor leaving the project for the shift.
23. Temporary erosion control blanket is estimated for use in ditching areas. When used in other areas to conform to Special Provision 656, blanket will not be measured.
24. Existing culverts and catch basins will be cleaned as directed by the Resident under the appropriate Pay Items.
25. All ditches that are regraded/excavated must receive erosion control immediately, as directed by the Resident.

GENERAL NOTES

26. All waste material not used on the project shall be disposed of off the project in acceptable waste areas reviewed by the Resident. Grading, seeding and mulching of waste areas shall be considered incidental.
27. The Contractor will place appropriately marked stakes at the following locations on the project: striping pattern changes, cross-slope changes, and every 500 feet for stationing. The Contractor will paint every full station (100 feet) on the existing roadway and will transfer the painted stationing through all intermediate lifts (not surface). Appropriately sized striping pattern changes will be painted on surface. Stationing control must be placed before work can commence. Cross-slope and striping change controls must be placed before paving can commence.

SPECIAL PROVISION
SECTION 101
CONTRACT INTERPRETATION
(Working Day – Pavement Preservation)

Replace the following to 101.2 – Definitions:

Weather Event Any precipitation, such as rain, sleet, snow, or fog that causes wet pavement that prevents the contractor from completing work within the Construction Limits as determined by the Department. This excludes ambient air temperatures below Specification.

Weather Dependent Activities Contractor's work, as shown on the approved Schedule of Work, that cannot be completed should a Weather Event occur. Paving, crack sealing, fog sealing, or other activities as determined by the Department will be considered Weather Dependent Activities.

Working Day Any Calendar Day except:

- Identified non-work days in the Contract Special Provision 107
- Saturdays, Sundays and Holidays – as outlined in Section 107.3.3
- Work suspensions subject to Department approval
- Any day a Weather Event prevents the Contractor from performing at least seven hours of weather dependent activities, as determined by the Department. Up to a three-hour hold, with the crew and equipment on-site, prior to the start of work may be required if weather conditions are uncertain.

The Contractor may request, in writing, a non-working day due to a Weather Event up to 16 hours in advance of the normal start time. The Department may approve this request depending on the certainty of the forecast.

For day work, if the Contractor elects to work a Saturday, an allowable holiday, or receives approval to work Sunday, the same process will be utilized to determine if it is a Working Day. If the Contractor requests approval to work Saturday and does not cancel their request by Thursday at the end of shift, that Saturday will be considered a Working Day regardless of the actual weather conditions and whether work occurred.

For night work, if the Contractor elects to work a Friday night, an allowable holiday, or receives approval to work Saturday night, the same process will be utilized to determine if it is a Working Day. If the Contractor requests approval to work Friday night and does not cancel their request by Wednesday morning at the end of shift, that Friday night will be considered a Working Day regardless of the actual weather conditions and whether work occurred.

SPECIAL PROVISION
SECTION 104
GENERAL RIGHTS AND RESPONSIBILITIES
(Electronic Payroll Submission)
(Payment Tracking)

104.3.8.1 Electronic Payroll Submission The prime contractor and all subcontractors and lower-tier subcontractors will submit their certified payrolls electronically on this contract utilizing the Elation System web based reporting. There is no charge to the contracting community for the use of this service. The submission of paper payrolls will not be allowed or accepted. Additional information can be found at <http://www.maine.gov/mdot/contractors/> under the first “Notice”.

104.3.8.2 Payment Tracking The prime contractor and all subcontractors and lower-tier subcontractors will track and confirm the delivery and receipt of all payments through the Elation System

"General Decision Number: ME20260037 01/02/2026

Superseded General Decision Number: ME20250037

State: Maine

Construction Type: Highway

County: Kennebec County in Maine.

HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	01/02/2026

ENGI0004-005 04/01/2025

Rates	Fringes

POWER EQUIPMENT OPERATOR:

Grader/Blade, Milling Machine, Paver (Asphalt, Aggregate, and Concrete), Roller Asphalt.....	\$ 30.17	13.80

SUME2014-032 06/23/2017

Rates	Fringes

CARPENTER, Includes Form Work....	\$ 18.34	2.84

HIGHWAY/PARKING LOT STRIPING:

Laborer.....	\$ 14.80	1.27

IRONWORKER, REINFORCING.....	\$ 16.27	0.00

LABORER: Asphalt, Includes Raker, Shoveler, Spreader and Distributor.....	\$ 15.06	2.72

LABORER: Common or General.....	\$ 14.02	2.16

LABORER: Landscape.....	\$ 18.69	2.70

LABORER: Wheelman.....	\$ 15.64	4.29
OPERATOR:		
Backhoe/Excavator/Trackhoe.....	\$ 19.52	5.15
OPERATOR: Bobcat/Skid		
Steer/Skid Loader.....	\$ 21.98	4.85
OPERATOR: Broom/Sweeper.....	\$ 19.09	5.20
OPERATOR: Bulldozer.....	\$ 17.30	3.50
OPERATOR: Loader.....	\$ 18.59	5.53
OPERATOR: Mechanic.....	\$ 21.91	8.55
OPERATOR: Screed.....	\$ 19.43	4.90
OPERATOR: Roller (Earth).....	\$ 16.43	3.40
TRAFFIC CONTROL: Flagger.....	\$ 9.38	0.00
TRAFFIC CONTROL:		
Laborer-Cones/		
Barricades/Barrels -		
Setter/Mover/Sweeper.....	\$ 17.47	4.80
TRUCK DRIVER: Dump Truck.....	\$ 14.32	5.81
TRUCK DRIVER: TackTruck.....	\$ 20.18	7.75

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at

www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based.

The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7) Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

=====

END OF GENERAL DECISION

**SPECIAL PROVISIONS
SECTION 104
UTILITIES**

UTILITY COORDINATION

The Contractor has primary responsibility for coordinating their work with Utilities **AFTER** contract award. The Contractor shall communicate directly with the Utilities regarding any utility work necessary to maintain the Contractor's schedule and prevent project construction delays. The Contractor shall notify the Resident of any issues.

THE CONTRACTOR SHALL PLAN AND CONDUCT WORK ACCORDINGLY.

MEETING

A Preconstruction Utility Conference, as defined in Subsection 104.4.6 of the Standard Specifications, **IS** required. The Contractor shall conduct work in accordance with MaineDOT Standard Specifications 104.3.11.

GENERAL INFORMATION

These Special Provisions outline the arrangements that have been made by the Department for utility and/or railroad work to be undertaken in conjunction with this project. The following list identifies all known Utilities or Railroads having facilities presently located within the limits of this project or intending to install facilities during project construction.

Utilities have been notified and will be furnished a project specification.

The Contractor shall give all Utilities **ten (10) working days' notice** prior to beginning **ANY** work on this project. In addition to the 10 working days' notice, the Contractor shall adhere to any specific notification periods stipulated in the utility/railroad summaries below.

OVERVIEW

Utility	Aerial	Subsurface	Contact Person	Contact Phone
Central Maine Power Company	X		Josh Shanoltzer	207-593-6168
Charter/Spectrum Communications	X		Joshua Mooers	207-620-3409 C:207-446-8553
Ecopower Development	X	X	Todd Grenich	206-999-3399
Greater Augusta Utility District		X	Mihael Morey Jason Souzer	207-622-3701 207-485-4030
MaineCom Services	X	X	Andrew Swan	207-894-4285

Temporary utility adjustments **NOT** anticipated. If any unexpected utility relocations become necessary, they shall be scheduled in accordance with Section 104 of the Standard Specifications and shall be performed by the appropriate utility company in conjunction with the work by the Contractor. Should the Contractor choose to have any poles temporarily relocated, all work shall be done at the Contractor's request and expense, with no additional cost or schedule impacts to the Department.

All adjustments are to be made by the respective Utility/Railroad unless otherwise specified herein.

Fire hydrants shall not be disturbed until all necessary work has been accomplished to ensure proper fire protection.

***** Specific information regarding the line voltage can be requested from Central Maine Power Co. *****

Utility working days are Monday through Friday. Times are estimated on the basis of a single crew for each utility. Any times and dates mentioned are **estimates only** and are dependent upon favorable weather, working conditions, and freedom from emergencies.

AERIAL

Aerial utility adjustments are **NOT** anticipated at this time for the project. Though unexpected, if utility relocations become necessary, they will be scheduled in compliance with Section 104 of the Standard Specifications and will be done by the Utilities after the Contractor has finished their work.

SUBSURFACE

There **ARE** subsurface utilities within this road project segment, utility adjustments are not anticipated in order to complete the scope of this project.

NOTE: The Contractor will be responsible to make any final grade adjustments to water gates in conjunction with paving operations, unless otherwise specified by the Utility. The cost of any final adjustments to water gates will be considered incidental to paving items.

Special Funding:

Special Funding requirements for Utilities, such as State Revolving Funding (SRF) will be tracked by the corresponding Utility.

Summary:

Utility Specific Issues:

Ecopower Development (EPD): EPD has a solar site located at the 109 interchange. No conflicts anticipated.

Greater Augusta Utility District (GAUD): GAUD has UG water crossings at 105' and 2,850 north of Old Winthrop Rd overpass, and sewer crossing diagonally at Old Winthrop Rd overpass. Water & sewer crossings 4,500' south of the Western Ave overpass. No conflicts anticipated.

MAINTAINING UTILITY LOCATION MARKINGS

The Contractor will be responsible for maintaining the buried utility location markings following the initial locating by the appropriate utility or their designated representative.

UTILITY SIGNING

Any Utility working within the construction limits of this project shall ensure that the traveling public is adequately protected at all times. All work areas shall be signed, lighted, and traffic flaggers employed as determined by field conditions. All traffic controls shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, as issued by the Federal Highway Administration.

SPECIAL PROVISION
SECTION 105
GENERAL SCOPE OF WORK
(LIMITATIONS OF OPERATIONS)

1. No off-shift lane closures shall be permitted unless authorized by the Department.
2. Interstate Crossovers shall not be allowed to be utilized.
3. The maximum length of lane closure is 3.5 miles in length. A one-mile extension beyond the maximum allowed lane closure length may be requested by the Contractor to accommodate sight distance or ramp areas. All lane closures that will extend beyond the maximum length will require Department approval.
4. All rental items shall be completed in an area prior to the contractor commencing pavement removal or HMA placement in a given area.
5. No work shall be allowed after the end of shift on Saturday until beginning of shift on Sunday.
6. The Contractor may utilize multiple crews as long as applicable sections of the Contract are met; and provided the Resident is given 72 hours' notice.
7. Any circumstance outside of these time frames, the Contractor shall be charged Supplemental Liquidated Damages as outlined in Special Provision 107 (Supplemental Liquidated Damages).

**AGREEMENT REGARDING ENTRY AND WORK ON
MAINE TURNPIKE AUTHORITY LAND
BY MAINE DEPARTMENT OF TRANSPORTATION
AND IT'S CONTRACTORS**

Entry and Work by MaineDOT Contractors

Prior to any work or installation of any facility on Maine Turnpike Authority land, a Contractor working for the MaineDOT is required to file application with the Authority for a work permit as specified in a document titled "*Maine Turnpike Authority Application for Work Permit or License to Locate Facilities on MTA Land*", last revised August, 2022 and attached hereto and made a part hereof.

Entry and Work by MaineDOT Employees

Prior to any new work or installation of any facility on Maine Turnpike Authority land, an Employee working for the MaineDOT is required to follow rules as specified in a document titled "*Maine Turnpike Authority Work Permit*", last revised August, 2022 and attached hereto and made a part hereof. The MaineDOT is exempt from the paragraphs in said document: *Insurance and Bonding and Costs*.

In absence of a specific license of any existing or permanent installation on Maine Turnpike Authority land, the MaineDOT will provide notice to the Authority when self-performing maintenance on said installation. If a Contractor is hired to perform maintenance on the existing facility, the paragraph above titled "*Entry and Work by MaineDOT Contractors*" will apply.

The MaineDOT will include language from the Maine Turnpike Authority February 17, 2023 Specifications, attached hereto and made part hereof, relating to the above within its contracts when work is to be performed in proximity to Maine Turnpike Authority lands.

MAINE DEPARTMENT OF TRANSPORTATION
Project Development



Signature 3/27/2023
Date

MAINE TURNPIKE AUTHORITY



Peter Merfeld, PE 3/27/23
Chief Operations Officer Date



Application Package – MTA Work Permit / License

This is Maine Turnpike Authority's Application for a Work Permit or License to Locate Facilities on MTA Land.

- A Work Permit is required for work on MTA property of a temporary nature where no permanent facility will be installed.
- A License is required for work on MTA property when a facility will be installed on MTA property which is designed to remain when the applicant's work is complete.

The requirements of the documents are very similar. The MTA will determine which document is appropriate given the nature of the application. Depending on the nature of the work, a contractor may be issued a work permit while the eventual owner / operator of the facility will be issued a license for the facility.

Please review the attached application and the requirements of the sample documents. Any questions on these requirements may be directed to Ben Bolduc of the MTA's Right of Way Department.

Submit application and all related materials to:

Ben Bolduc
Maine Turnpike Authority
Right of Way Department
2360 Congress Street
Portland, ME 04102
Tel: (207)871-7771 x355
Fax: (207)879-5567
BBolduc@maineturnpike.com



MAINE TURNPIKE AUTHORITY

APPLICATION FOR WORK PERMIT or LICENSE to LOCATE FACILITIES on MTA LAND

(March, 2019 Revision)

APPLICANT _____

STREET ADDRESS _____

CITY, STATE, ZIP _____

MAILING ADDRESS _____

CONTACT _____ PHONE () _____

NAME OF PERSON TO EXECUTE ANY AGREEMENT _____

TITLE _____

TYPE OF FACILITY

☐ ELECTRICAL TRANSMISSION/DISTRIBUTION

☐ STORM DRAIN

☐ COMMUNICATION LINE

☐ SANITARY SEWER

☐ WATER DISTRIBUTION

☐ CABLE TV

OTHER(DESCRIBE) _____

TYPE OF INSTALLATION

☐ OVERHEAD - CLEARANCE _____

☐ SUBSURFACE

☐ SLEEVE, ATTACHMENT TO BRIDGE

☐ OTHER _____

LOCATION

ROAD _____

TOWN _____

BASELINE STATION OF TURNPIKE _____

DISTANCE TO NEAREST
ROAD, STREAM, OR TOWN LINE _____

THE FOLLOWING MATERIAL **MUST** BE SUBMITTED BEFORE THE MTA WILL REVIEW THIS APPLICATION.

1. A PLAN SHOWING THE LOCATION OF THE PROPOSED INSTALLATION, IF ANY
2. ENGINEERING DESIGN PLANS IN SUFFICIENT DETAIL FOR OUR ENGINEERING CONSULTANTS TO REVIEW THE PROPOSAL, INCLUDING TRAFFIC CONTROL PLANS
3. A PROPOSED SCHEDULE FOR THE WORK
4. DRAINAGE CALCULATIONS FOR STORMWATER DISCHARGE ONTO MAINE TURNPIKE AUTHORITY LAND, IF ANY
5. IF THE APPLICANT IS A CORPORATION, YOU MUST STATE THE CORPORATE ADDRESS AND STATE OF INCORPORATION.
6. DOCUMENTATION OF APPLICANT'S EXISTING GENERAL LIABILITY, AUTOMOBILE AND WORKERS' COMPENSATION INSURANCE
7. NON-REFUNDABLE APPLICATION FEE OF \$250 MADE PAYABLE TO THE MAINE TURNPIKE AUTHORITY. (THIS APPLICATION FEE DOES NOT APPLY TO NON-PROFITS OR MUNICIPALITIES).

The applicant acknowledges and agrees that the Applicant shall be responsible for all costs incurred by the Maine Turnpike Authority in connection with the review of this application, including, but not limited to, costs of reviewing any materials or documents submitted with the application; any field work done in connection therewith, and any engineering, survey, or legal fees associated therewith, whether or not the application is ever carried to a successful conclusion.

If, for any reason the Applicant fails to conclude or consummate necessary negotiations or actions, or fails to act within a reasonable period of time or withdraws, abandons, cancels or neglects the application, the Applicant shall pay, upon presentation of an invoice, the Maine Turnpike Authority, its agents or assigns all actual costs incurred by the Maine Turnpike Authority up to that date and time.

Date _____

By _____

Title _____

Office Use Only

Received:

By:

MAINE TURNPIKE AUTHORITY

WORKPERMIT / LICENSE

The **Maine Turnpike Authority** grants permission to _____ (Permittee) to enter upon the property of the Maine Turnpike in _____, Maine for the purpose of conducting the following work.

Description of Work (and/or plan reference):

All work shall be subject to the following conditions:

1. Approval of Plans: The MTA may require that Permittee supply it with plans & specifications of the proposed work prior to any entry onto MTA property. If required, Permittee shall not proceed with any work until said documents have been reviewed and approved in writing by the MTA.

Required _____ Not Required _____ Special (see below) _____

2. Dig Safe: If earthwork is a component of the work, proof of location of all utilities in the vicinity of the work must be obtained. Proof of utility location from DigSafe must be provided to the MTA and approved before any work will be allowed under this permit.

3. Entry onto Land: Permittee must provide the MTA with a work plan, including schedule, traffic control plan, and any other documentation requested by the MTA. This documentation must be provided at least two weeks in advance of any work on MTA property. The MTA must approve the documentation, and may decide to have an MTA Inspector present while the work is being completed. Restrictions may be imposed based on MTA operational considerations, including but not limited to time of day restrictions based on time of year and peak travel flow. Weekly schedule updates shall be provided by noon on Thursday for the

following Saturday to Sunday period. Permittee must notify the MTA Traffic Management Control Center (TMCC) (871-7701) each day regarding traffic control installed on the roadway, and must notify the TMCC each time any traffic control device is set up, dismantled, on relocated on the roadway or shoulder.

4. Indemnification: Permittee indemnifies and holds the MTA harmless from any liability or third party claims related to Permittee's presence on MTA land, regardless of Permittee's negligence or lack thereof. This includes all losses or expenses related to any third party claim, including attorney's fees, and specifically includes, but is not limited to, claims that are brought by employees or agents of Permittee. Nothing contained herein is intended to waive any defenses or immunities available to the MTA with respect to third parties including, but not limited to, the defenses and immunities provided under the Maine Tort Claims Act.

Any damages to MTA real or personal property caused by Permittee shall be repaired promptly by Permittee or the MTA shall undertake said repairs, in which case Permittee shall reimburse the MTA for all costs incurred.

5. Insurance & Bonding: Prior to any entry onto MTA land, Permittee will file with the MTA certificates of insurance evidencing general liability insurance, automobile insurance, and workers' compensation insurance with such limits as the MTA shall require, which in all cases shall be a minimum of one million dollars per occurrence. The amount required, if higher, shall be noted below. Permittee shall maintain this insurance coverage for so long as work continues on MTA property.

The MTA shall be covered as an Additional Insured under the general liability and automobile insurance policies. The workers' compensation policy shall include an endorsement waiving subrogation in favor of the MTA for all claims relating to work on MTA land. Copies of the endorsements providing this coverage and waiver of subrogation will be provided to the MTA along with the insurance certificates.

The MTA may require performance and/or payment bonds depending on the nature of Permittee's project. Bonding requirements, if any, will be noted below.

6. Maine Tort Claims Act: Any endorsement adding the MTA as Additional Insured shall include the following provision. An endorsement that does not contain said provision, including endorsements that generally provide additional insured status when required by contract, shall be interpreted as if it did:

"Without limiting in any way Insurer's obligation to defend, coverage under this policy for actions seeking tort damages pursuant to provisions of the Maine Tort Claims Act is governed by the immunities and limitations on damages contained in the Maine Tort Claims Act."

7. Costs: Permittee shall fully and promptly reimburse the MTA for any costs incurred by the MTA, including but not limited to the cost of personnel involved in reviewing Permittee's plans and specifications or supervising Permittee's work. There is a non-refundable application fee of \$250 made payable to the Maine Turnpike Authority for all applications (this application fee does not apply to non-profits or municipalities).

8. Safety & MTA Operations: Permittee must abide by all applicable laws and regulations pertaining to workplace safety, and must also comply with the requirements of the most current MTA Supplemental Specification for construction contracts (<http://www.maineturnpike.com/Projects/Construction-Contracts.aspx>).

Median openings shall not be used and U-Turns at toll plazas shall not be permitted. Traffic stoppages require MTA approval and must be conducted with participation of the Maine State Police. Shoulder and lane closure times on the turnpike must be approved in advance.

When the speed limit has been reduced to 45 mph due to weather or other conditions, Permittee must remove temporary traffic control devices, stop work, and return the roadway to passable condition. Permittee shall not be allowed to reestablish traffic control devices until speed is restored. During this time, Permittee will not be able to work adjacent to the turnpike unless the work area is protected by concrete barrier.

Permittee shall comply with all other specific instructions of MTA personnel and take all other steps required to avoid or minimize disruption to MTA operations.

9. Contacts: The following are the formal contact persons responsible for administration of this Work Permit. All material that Permittee is required to provide under this Permit must be provided to the MTA Contact listed below. When approval of the MTA is required under this permit, the MTA contact listed below is the only person authorized to grant said approval. Communications and direction addressed to Permittee's contact below will be binding upon Permittee.

MTA: _____

Address: 2360 Congress Street _____

Phone: _____

E-Mail: _____

Permittee: _____

Address: _____

Phone: _____

E-Mail: _____

10. Special Conditions or Requirements:

A. Work requiring a stoppage of traffic on the mainline will require Maine State Police and due to police staffing considerations work requiring a stoppage shall not be permitted unless a request for such work is submitted to the MTA two weeks in advance of the work.

B. The following day and time restrictions are in place for this Work *(but are subject to change at discretion of MTA)*:

Insert Other Special Conditions / Requirements:

11. Revocation: The MTA reserves the right to revoke this permit in the event of any breach of its conditions as well as for any reason whatsoever that, in the sole judgment of the Authority, warrants such a revocation.

Maine Turnpike Authority

Permittee

**Stephen R. Tartre, PE
Director of Engineering
Maine Turnpike Authority**

Name

Title

Company Name

The following Special Provision pertains to entry onto the Maine Turnpike Authority land by Contractors of the Maine Department of Transportation.

110.3.9 Administrative & General Provisions

A. Additional Insured

Each policy, with the exception of Workers' Compensation and Professional Liability Insurance, shall name the Authority as an additional named insured. The MaineDOT Contract Number shall be clearly stated on each policy. Contractor shall provide the Authority with adequate proof of its Additional Insured status, including but not necessarily limited to Certificates of Insurance and copies of Endorsements from the applicable policies evidencing the status of the Authority as Additional Insured.

B. Defense of Claims Each insurance policy shall include a provision requiring the carrier to investigate, defend, indemnify, and hold harmless all named insureds against any and all claims for death, bodily injury, or property damage, even if groundless.

C. Primary Insurance The insurance coverage provided by the Contractor shall be primary insurance with respect to Authority. Any insurance or self-insurance maintained by the Authority is in excess of the Agent's insurance and shall not contribute with it.

D. Reporting Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the Authority.

E. Separate Application The insurance provided by the Contractor shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

Nothing in this document constitutes a waiver of any defense, immunity or limitation of liability that may be available to the Department, or its officers, agents or employees under the Maine Tort Claims Act (Title 14 M.R.S.A. 8101 st. seq.), and shall not constitute a waiver of other privileges or immunities that may be available to the Authority.

105.5.1 General Requirements

Subsection is amended by the addition of the following:

Prior to any work or installation of any facility on Maine Turnpike Authority land, a Contractor (Permittee) working for the Maine Department of Transportation is required to file application with the Authority for a Work Permit. Contractor must abide by the Maine Turnpike Authority agreement with the Maine Department of Transportation regarding Entry

onto Maine Turnpike Authority Land by Contractors of the Maine Department of Transportation. All specific operational, safety, and environmental requirements of the Authority for a contractor will be followed.

The installation of construction signs on the Maine Turnpike shall be approved in advance by the Maine Turnpike Authority. The Contractor shall submit plans illustrating construction details and proposed locations. Signs shall be located behind guardrail or outside of the roadside recovery area or shall be installed on break away supports. In addition to Dig Safe process, the Contractor shall contact the Maine Turnpike Authority Dig Safe administrators to coordinate locating any MTA utilities through digsafe@maineturnpike.com. Notifications must be provided 10 business days in advance of submitting a Dig Safe ticket. Submit any maps and marked up plans showing where the excavation may occur and the Authority will locate their utilities. Any activity that requires ground disturbance will not be allowed on Turnpike property until 10 business days from initial notification.

This Subsection is amended by the addition of the following:

Change of Direction: The Contractor will not be permitted to reverse directions (U-turns) at the toll plazas or at interchanges. All vehicles must exit the turnpike prior to reversing directions.

The Contractor shall not use the median openings on the turnpike unless the opening is located within passing lane closures on both roadways. The Contractor will be assessed a fine every time any employee of the Contractor, Subcontractor or supplier is observed using a median opening by a Resident or turnpike employee anywhere on the Maine Turnpike throughout the duration of the Contract. The fine will be deducted from monies owed to the Contractor.

The fines will be levied on a per occurrence basis as follows:

<u>NUMBER OF OCCURRENCES</u>	<u>FINE</u>
First	\$250

For the second occurrence, and any occurrence thereafter, the fine is increased by \$100 per each occurrence. The number of occurrences is not specific to a Contract, an individual or a vehicle, but based solely on the number of times any employee of the Contractor, Subcontractor or supplier is observed using a median opening anywhere on the Maine Turnpike. The Contractor shall be notified in writing of the violation by the Authority.

107.4.2 Schedule of Work Required

This Subsection is amended by the addition of the following:

The Contractor shall submit a schedule that shows all work on the Maine Turnpike that is anticipated for the following week. This schedule shall be transmitted to the Resident Engineer by noon Thursday of the preceding week and will show each day Sunday thru Saturday of the following week. The Resident Engineer shall transmit this information to the Maine Turnpike Authority. Any lane or shoulder closures are subject to approval by the Maine Turnpike Authority. Daily updates if there are changes shall be given to the Authority and any activity shall be reported to the Traffic Management & Communication Center (871-7701).

The Contractor shall submit a schedule that shows all work within 1500' of the toll plaza and all toll plaza lane closures that are anticipated for the following week. This schedule shall be transmitted to the Resident Engineer by noon Thursday of the preceding week. The Resident Engineer shall transmit this information to the Maine Turnpike Authority.

The following Subsections are added:

652.3.2 Responsibility of 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 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.

Section 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.

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.

All cones utilized on the project shall be new or in like new condition and shall have a consistent design/appearance.

All drums utilized on the project shall be new or in like new condition and shall have a consistent design/appearance.

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.

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**

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.

All work within 1500' of the toll plaza shall be coordinated with the Maine Turnpike Authority. Night work may be required to accommodate Turnpike operations. This work is required to be shown on the proposed schedule as noted in Section 107.4.2. The Engineer shall be responsible for coordinating the activities with the Maine Turnpike on site toll supervisor or his designee immediately prior to the operations. Restrictions in contractor operations may be required by the Maine Turnpike Authority.

Loading/unloading trucks shall not be closer than six feet from an open travel lane when being loaded or unloaded within the work zone. Temporary lane closures will only be allowed at the times outlined in Special Provision, Section 652, Specific Project Maintenance of Traffic Requirements or as contained within the Work Permit being issued by the Authority. These hours may be adjusted based on the traffic volume each day by the Resident and approved by the Authority.

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.

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.

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 at any single time shall be five (5) minutes. The duration shall be measured as the time between the 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.

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.**

SPECIAL PROVISION
SECTION 105
General Scope of Work
(Environmental Requirements)

- I. To protect Northern Long Eared Bat (*Myotis septentrionalis*) a federally Endangered species:
Temporary lighting must not be directed toward suitable habitat during the active season (April 1 through October 31).
- II. Approvals:
Temporary Soil Erosion and Water Pollution Control Plan (SEWPCP)

SPECIAL PROVISION 105
CONSTRUCTION AREA

Construction Areas located in the City of Augusta have been established by the Maine Department of Transportation (MDOT) in accordance with provisions of 29-A § 2382 Maine Revised Statutes Annotated (MRSA).

The sections of highway under construction in Kennebec County:

Project 027498.10 is located on Interstate 95 Northbound beginning 0.12 mile north of the Hallowell City Line and extending north 3.26 miles. Southbound is located beginning 0.55 mile south of the Old Belgrade Road Overpass and extending south 3.28 miles. Includes ramps and approaches.

Per 29-A § 2382 (7) MRSA, the MDOT may “issue permits for stated periods of time for loads and equipment employed on public way construction projects, United States Government projects or construction of private ways, when within construction areas established by the Department of Transportation. The permit:

A. Must be procured from the municipal officers for a construction area within that municipality;
B. May require the contractor to be responsible for damage to ways used in the construction areas and may provide for:

- (1) Withholding by the agency contracting the work of final payment under contract; or
- (2) The furnishing of a bond by the contractor to guarantee suitable repair or payment of damages.

The suitability of repairs or the amount of damage is to be determined by the Department of Transportation on state-maintained ways and bridges, otherwise by the municipal officers;

C. May be granted by the Department of Transportation or by the state engineer in charge of the construction contract; and

D. For construction areas, carries no fee and does not come within the scope of this section.”

The Municipal Officers for the City of Augusta agreed that an Overlimit Permit will be issued to the Contractor for the purpose of using loads and equipment on municipal ways in excess of the limits as specified in 29-A MRSA, on the municipal ways as described in the “Construction Area.”

As noted above, a bond may be required by the municipality, the exact amount of said bond to be determined prior to use of any municipal way. The MDOT will assist in determining the bond amount if requested by the municipality.

The maximum speed limits for trucks on any town way will be 25 mph (40 km per hour) unless a higher legal limit is specifically agreed upon in writing by the Municipal Officers concerned.

SPECIAL PROVISION
SECTION 105
GENERAL SCOPE OF WORK
(Build America, Buy America)

105.11 Other Federal Requirements this section is replaced with the following:

105.11 Build America, Buy America Requirements

Unless expressly otherwise provided in the Bid Documents, the following provisions are hereby incorporated into the Contract.

This project is subject to the Buy America (23 CFR 635.410) and Build America, Buy America Act (BABA) included in the Infrastructure Investment and Jobs Act (IIJA), Public Law No. 117-58. Further guidance can be found at the FHWA Buy America Construction Program Guide linked here:

<https://www.fhwa.dot.gov/construction/cqit/buyam.cfm>

The Contractor shall certify compliance with Buy America and BABA in the following categories. An article, material or supply should only be classified into one of the following categories and is classified based on its state when it arrives at the project site.

1. **Iron and Steel:** All iron and steel permanently incorporated into the project must be produced in the United States. The only exception to this requirement is the production of pig iron and the processing, pelletizing, and reduction of iron ore, which may occur in another country. This means all manufacturing processes, from the initial melting stage through the application of coatings, must occur in the United States. Any process that modifies the chemical content, the physical size and shape, or the final finish is considered a manufacturing process, including rolling, extruding, machining, bending, grinding, drilling, and coating. “Coating” includes epoxy coating, galvanizing, painting, or any other coating that protects or enhances the value of the material.

Existing De Minimis Use Exemption for Iron and Steel: The requirements of the law and regulations do not prevent a minimal use of foreign steel and iron materials if the total cost of such materials used does not exceed one-tenth of one percent (0.1%) of the total construction contract price or \$2,500.00, whichever is greater.

2. **Manufactured Products:** Articles, materials, or supplies that have been processed into a specific form and shape, or combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies. If a domestic product is taken out of the United States for any process, it becomes a foreign source material.

All Manufactured Products used in the project must be manufactured in the United States (“final assembly requirement”). “Component” means an article, material, or supply, whether manufactured or unmanufactured, incorporated directly into a manufactured product or, where applicable, an iron or steel product. If a manufactured product is predominantly iron, steel, or a combination of both it must meet the above requirements for iron and steel products. Predominantly iron or steel or a combination of both means the total cost of the iron and steel content exceeds 50 percent of the total cost of all its components.

Precast concrete products classified as Manufactured Products must additionally have predominantly iron or steel components meet the above requirements for iron and steel. Cabinets or other enclosures of intelligent transportation systems (ITS) and other electronic hardware systems classified as Manufactured Products must also comply with the above requirements for iron and steel if the cabinet or enclosure is predominantly iron or steel.

3. **Construction Materials:** Items, articles, materials, or supplies that consist of only one of the items listed below:
- i. Non-ferrous metals.
 - ii. Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables).
 - iii. Glass (including optic glass);
 - iv. Fiber optic cable.
 - v. Optical fiber.
 - vi. Lumber.
 - vii. Engineered wood; and
 - viii. Drywall.

Minor additions of articles, materials, supplies, or binding agents to a Construction Material do not change the categorization of the Construction Material.

All Construction Materials permanently incorporated into the project must be produced in the United States. For the Construction Material to be considered “produced in the United States,” it must meet the following standards:

- i. Non-ferrous metals. All manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.
- ii. Plastic and polymer-based products. All manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.
- iii. Glass. All manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.
- iv. Fiber optic cable (including drop cable). All manufacturing processes, from the initial ribboning (if applicable), through buffering, fiber stranding, and jacketing, occurred in the United States. All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic, and polymer-based products, or any others.
- v. Optical fiber. All manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States.
- vi. Lumber. All manufacturing processes, from the initial debarking through treatment and planning, occurred in the United States.

- vii. Drywall. All manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.
- viii. Engineered wood. All manufacturing processes, from the initial combination of constituent materials until the wood product is in its final form, occurred in the United States.

Construction Materials brought on site and combined with other materials are not considered Manufactured Products. Items that consist of two or more of the listed Construction Materials that have been combined off-site through a manufacturing process, and items that include at least one of the listed materials combined with a material that is not listed through a manufacturing process should be treated as Manufactured Products rather than as Construction Materials.

Specifically Excluded Materials

Section 70917(c) of the Build America Buy America Act specifically excludes certain materials from being classified as either construction materials or manufactured products. These exclusions include cement and cementitious materials, aggregates (such as stone, sand, or gravel), and aggregate binding agents or additives.

Additionally, when these materials are combined as an unsettled mixture without a final form upon arriving at the work site, such as wet concrete or hot mix asphalt, the mixture is not considered a manufactured product. However, if these same materials are combined off-site to create a finished product, such as precast concrete, that finished product is considered a manufactured product.

Public Interest Waiver of BABA Requirements for De Minimis Costs

The US Department of Transportation issued a public interest Waiver of Buy America Requirements for De Minimis Costs. The Waiver for De Minimis Costs exempts Manufactured Products and Construction Materials produced outside the United States for which the total value of the non-compliant products is no more than the lesser of \$1,000,000 or 5% of total applicable costs for the project.

The obligation to track costs throughout the life of the contract is the Contractor's responsibility. The term "total applicable costs" is defined as the total actual final material cost of the compliant and non-compliant iron and steel, Manufactured Products, and Construction Materials.

Certification

For iron and steel materials and for Manufactured Products produced predominantly of iron or steel or a combination of both*, the Contractor shall submit a certification from the producer of steel or iron, or any product containing steel or iron as a component, stating that all steel or iron furnished or incorporated into the furnished product was manufactured in the United States in accordance with the requirements of the Buy America provisions of 23 CFR § 635.410, as amended. Such certification shall also include (1) a statement that the iron or steel product or component was produced entirely within the United States, or (2) a statement that the iron or steel product or component was produced within the United States, except for minimal quantities of foreign steel and iron valued at \$ (actual value). A "Buy America" Certification is required from each manufacturer, fabricator, supplier, subcontractor that engages in "manufacturing" as defined above.

**Predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50% of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products, castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of the iron or steel components.*

In addition, upon completion of the project, the Contractor shall certify in writing as to the overall compliance with BABA and provide the total project delivered cost of all foreign Manufactured Products and Construction Materials. The Contractor shall also submit individual certifications from all subcontractors and suppliers that furnish applicable Construction Materials and Manufactured Products valued at \$10,000 or more. Such individual certifications shall be submitted upon delivery of the Construction Material or Manufactured Products to the site.

Example certification:

I hereby certify that this project is in compliance with the Build America, Buy America Act (Public Law 117-58) requirements for this project. All Iron and Steel, Manufactured Products produced predominantly of steel or iron, Manufactured Products and Construction Materials that are permanently incorporated into the work for this project were produced in the United States of America, with the only exceptions as noted below.

As required, we will maintain all records and documents pertinent to the Build America, Buy America Act requirements, at the address given above, for not less than 3 years from the date of Final Acceptance. These files will be available for inspection and verification by the Maine Department of Transportation and/or the Federal Highway Administration.

We further certify that the total value of foreign steel and iron for this project is \$_____, said value being less than 0.1% of the total construction contract price or \$2,500.00, whichever is greater.

We further certify that the total material cost of foreign Manufactured Products and Construction Materials for this project is \$_____, said value being no more than the lesser of \$1,000,000 or 5% of total applicable costs. The term “total applicable costs” is defined as the total actual final material cost of the compliant and non-compliant iron and steel, Manufactured Products, and Construction Materials.

Signed (Contractor)
(President) (Contractor Firm)

MaineDOT DBE Project Attainment Target (PAT)
for this Project is 0%

The MaineDOT seeks to meet the specified annual Disadvantaged Business Enterprise (DBE) usage goal set out by 49 CFR 26.45 through the efforts of contractors seeking to employ qualified DBE subcontractors. We seek to meet this goal by race neutral means and do not, at this time, use contract specific requirements for each project. We do however, understand the capacity of Maine's DBE community and the unique characteristics a project may have that would differ from the broad annual goal.

Taking this into consideration, the MaineDOT will review each project and develop an anticipated attainment or Project Attainment Target (PAT) based on several factors that are project specific. Those factors include:

- ☐ Scope of Work
- ☐ DBE availability according to Specification Item
- ☐ Geographic location
- ☐ DBE capacity

This PAT is developed to assist contractors to better understand the DBE participation that the MaineDOT can reasonably expect for a specific project. The PAT is NOT a mandate but an assessment of the DBE opportunities that this project could meet or exceed. MaineDOT anticipates that each contractor will make the best effort to reach or exceed the PAT for this project.

SPECIAL PROVISION
SECTION 106 - HOT MIX ASPHALT PAVEMENT

The following subsections of the most current version of Specification 100 – General Conditions have been revised and amended by the following:

106.7.3 Early Termination of Lots

In the event a Lot in progress is terminated prematurely before the Department is able to take the number of acceptance samples required by the test method specified in the Contract, the following will apply as applicable unless otherwise detailed in the specifications for the item:

1. For items under statistical acceptance where payfactors are generated
 - a. If three or more samples have been taken, then payfactors will be generated using the available samples results for the lot.
 - b. If the termination was requested by the Contractor and approved by the Department prior to three samples being taken, then each property's payfactor will be set to 0.80.
 - c. If the termination was initiated by the Department prior to three samples being taken, then each property's payfactor will be set to 1.00 for each property.
2. For items not under statistical acceptance
 - a. If initiated by the contractor and no random sample has been reached the entire lot shall be subject to a penalty of 20% of the item's price.
 - b. If initiated by the contractor and only the most recent sample tonnage has not been reached only the tonnage for that subplot will be subject to a penalty of 20% of the items price.

An HMA mix design aim change request from the Contractor with open Lots in progress will constitute a contractor initiated lot termination. For methods A & C, the minimum samples required to generate a pay factor prior to termination will be three. If a minimum of three samples have not been obtained, then each property's payfactor will be set to 0.80. For methods B & D the minimum number of samples (sublots) required prior to an aim change will be the total tonnage of the lot, or a minimum of three, whichever is less. If the minimum number of samples have not been obtained then the pay adjustment for each of the subplot's properties will be set to 0.80.

SPECIAL PROVISION
SECTION 107
PROSECUTION AND PROGRESS
(Contract Time – Working Days)

This Contract shall be completed within **(90)** working days. The Contractor may begin work anytime in accordance with Standard Specification 104.4.2 and upon approval of all required submittals. Time charge will commence on the start date or no later than **June 21, 2026**, whichever occurs first.

At least 21 calendar days prior to the desired Begin Construction Date **and no later than May 31, 2026**, the Contractor shall submit an **electronic copy of their signed request to begin work and the Begin Construction Date**. This signed request shall be sent read receipt through **email** with their **Schedule of Work**, in accordance with Standard Specification 107.4.2, to **Shawn.Smith@Maine.gov**, **Scott.Bickford@Maine.gov**. The Contractor shall notify all utility contacts listed in the 104 Special Provision and provide the utility contacts the submitted schedule of work within 2 calendar days of the schedule of work submittal. **A penalty in the amount of \$500/day will be assessed for each calendar day or partial calendar day beyond June 21th that the schedule of work is not received.** Upon receipt of the schedule of work, a pre-construction meeting will be scheduled.

The Contractor may request to adjust the submitted schedule of work and Begin Construction Date once after the initial submittal. The Department will allow adjustments in the Begin Construction Date of up to **seven calendar days** if the request is made at least **21 calendar days** prior to the updated Begin Construction Date. This signed request shall be sent read receipt through **email** with their **Schedule of Work**, in accordance with Standard Specification 107.4.2, to **Shawn.Smith@Maine.gov** and **Scott.Bickford@Maine.gov**. The Contractor shall notify all utility contacts listed in the 104 Special Provision and provide the utility contacts the updated schedule of work within 2 calendar days of the request to adjust the Begin Construction Date.

SPECIAL PROVISION
SECTION 107
(Contract Time)

1. Ramps may be closed Sunday night through Friday morning between the hours of 9 pm to 6 am with 72 hours' notice. The Contractor shall notify local emergency personnel resources of closure dates and times. Under no circumstances will two adjacent on or off ramps be closed simultaneously. Message Boards will be in place 72 hours prior to ramp closure with an message approved by the Department. Work on ramps may continue after these hours with shoulder closures only upon request and Department approval.
2. The Contractor shall be allowed to work 6 days per week unless otherwise authorized by the Department or stated elsewhere in contract documents.
3. All work shall only take place between the hours of 7pm to 6am Sunday -Saturday. No day work allowed, no work will be allowed Saturday night to Sunday morning.

No work will be allowed on:

May 23, 2026, beginning at 6am to May 25, 2026, at 7pm.

July 2, 2026, beginning at 6am to July 5, 2026, at 7pm.

September 5, 2026, beginning at 6am. to September 7, 2026, at 7pm.

4. The Contractor shall be charged Supplemental Liquidated Damages as outlined in Special Provision 107 (Supplemental Liquidated Damages) if the dates and times above are not met.

SPECIAL PROVISION
SECTION 107
CONTROL OF WORK
(Supplemental Liquidated Damages)

General: Monetary assessments will be made against the Contractor for each ¼ hour there are lane restrictions as specified below.

Definitions of Terms: For this contract the following definitions apply:

- (a) Calendar Day: Any portion of the day on the calendar including Saturdays, Sundays, and holidays, beginning and ending at midnight.
- (b) Hour: Any continuous 60-minute period or portion of a continuous 60 minute period beginning at the point when a lane and/or shoulder is closed or obstructed by the contractor's operation(s).
- (c) 15 Minute Period: Any portion of a 15-minute continuous period.
- (d) Obstruction: When the contractor's operation(s) have resulted in the useable lane width of the travel lane or passing lane to be less than that specified in the plan documents.

This contract includes a supplemental liquidated damage procedure under which the contractor is assessed a charge for each lane closure outside the time periods specified under Special Provision 105. The charge will be assessed for each lane restriction as follows:

One Lane Closed	\$1,250/ 0 - 15 Minutes
	\$2,500/ 16 -30 Minutes
	\$5,000/ 31-45 Minutes
	\$10,000/ 46-60 Minutes

* **These charges will be accumulative in nature. Example: 0 to 15 minutes, the contractor shall be assessed \$1250.00. From 16 minutes to 30 minutes the charges will be \$2,500.00 + \$1250.00 = \$3,750.00 and so on. Times above 60 minutes shall receive an additional assessment of \$2,500.00 for each portion of a 15-minute time period.**

The applicable charges will be deducted from any monies due the Contractor for work performed. The deduction will be based on the applicable rate for any and all closures whether work is being performed or not. Deductions will be accomplished through progress payments due the Contractor.

The Contractor shall address in their Traffic Control Plan a contingency plan for opening up both lanes of traffic within one hour of being notified by the Resident. This plan shall be fully detailed, and Permission to open up both lanes shall only be granted if work being performed can safely be stopped to allow lanes to be opened to traffic.

SPECIAL PROVISION
SECTION 107
TIME
(Liquidated Damages)
(Working Days)

107.7.2 SCHEDULE OF LIQUIDATED DAMAGES

Revise this section by removing the numbers in the chart and replace with the following:

Original Contract Amount

From More Than		To and Including	Amount of Liquidated Damages per Working Day
\$ 0	to	\$ 100,000.00	\$400.00
\$ 100,000.00	to	\$ 250,000.00	\$800.00
\$ 250,000.00	to	\$ 500,000.00	\$1,000.00
\$ 500,000.00	to	\$1,000,000.00	\$1,250.00
\$1,000,000.00	to	\$2,000,000.00	\$1,600.00
\$2,000,000.00	to	\$4,000,000.00	\$2,000.00
\$4,000,000.00	and	More	\$3,350.00

SPECIAL PROVISIONS
SECTION 202
REMOVING STRUCTURES AND OBSTRUCTIONS
(Removing Pavement Surface – Medium Cut Drum)

The March 2020 Revision of the Standard Specifications, Section 202-Removing Structures and Obstructions, subsection 202.061-Removing Pavement Surface, has been removed and replaced in its entirety by the following:

202.061 Removing Pavement Surface The equipment for removing the bituminous surface shall be a power operated milling machine or grinder capable of removing bituminous concrete pavement to the required depth, transverse cross slope, and profile grade using an automated grade and slope control system. The controls shall automatically increase or decrease the pavement removal depth as required, and readily maintain desired cross slope, to compensate for surface irregularities in the existing pavement course. The equipment shall be capable of accurately establishing profile grades by referencing from a fixed reference such as a 30 foot minimum contact ski (floating beam), 24 foot non-contact ski (floating beam) with 3 or more sensors; or 3 non-contact sensors directly affixed at the fore, mid, and aft points of the milling machine. Systems designed to incorporate a contact sensor located at the mid-point of the milling machine in lieu of the non-contact sensor will be permitted. Grade control sensors shall all be located on the same side. A single sensor, contact or otherwise, shall not be permitted unless otherwise approved by the Department.

The rotary drum shall be a minimum of 7 feet in width and utilize carbide tip tools spaced not more than $\frac{5}{16}$ inches (8mm) apart and a minimum triple wrap configuration. The difference in height from the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed $\frac{1}{8}$ inch. The forward speed of the milling machine shall be adjusted to produce a milled surface meeting the groove spacing, groove depth, and surface tolerance requirements of this specification. The tools on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture. The Department may evaluate the texture of the milled surface for information purposes by performing the Sand Patch test according to ASTM E 965.

The Contractor shall locate and remove all objects in the pavement through the work area that would be detrimental to the milling or grinding machine. Any structures or obstructions left within the travel lane or shoulders shall have tapers installed according to Standard Detail 202(01). The finished milled surface will be inspected before being accepted, and any deviations in the profile exceeding $\frac{1}{2}$ inch under a 16 foot string line or straightedge placed parallel to the centerline will be corrected. Any deviations in the cross-slope that exceed $\frac{1}{8}$ inch under a 10 foot string line or straightedge placed transversely to centerline will be corrected. All corrections will be made with approved methods and materials. Any areas that require corrective measures will be subject to the same acceptance tolerances. Excess material that becomes bonded to the milled surface will be removed to the Resident's satisfaction before the area is accepted.

On roadways with adjoining lanes carrying traffic, the Contractor shall remove the pavement surface in each lane per the conditions in Table 1, unless otherwise noted by the Department in Special Provision, Section 105 – Limitations of Operations.

TABLE 1: MILLING CONDITIONS FOR ADJOINING LANES

Depth (At Centerline)	Milling Conditions
Vertical Longitudinal Joint	
$\frac{3}{4}$ " and less	The Contractor may remove the pavement on a single travel lane width for each production day.
1" to 1 $\frac{1}{4}$ "	The Contractor may remove the pavement on a single travel lane width for each production day and will be required to mill the adjacent section of travel lane before weekend or holiday suspension.
1 $\frac{1}{2}$ " to 2"	The Contractor may remove the pavement on a single travel lane width for each production day and will be required to mill the adjacent section of travel lane before the end of the following calendar day.
Greater than 2"	The Contractor shall remove the pavement over the full width of the traveled way section being milled that day.
12:1 Tapered Centerline Joint	
1 $\frac{1}{2}$ " to 2"	The Contractor may remove the pavement on a single travel lane width for each production day and will be required to mill the adjacent section of travel lane before weekend or holiday suspension. A maximum unmatched centerline joint length of 0.5 miles will be permitted over the weekend.
Greater than 2"	The Contractor shall remove the pavement on a single travel lane width for each production day and will be required to mill the adjacent section of travel lane before the end of the following calendar day.

The Contractor will be required to remove the pavement over the full width of the mainline traveled way, regardless of highway type, cut depth, or longitudinal joint type prior to Memorial Day, July 4th, Labor Day, suspensions exceeding three days, or other dates as specified by Special Provision, Section 105 – Limitations of Operations.

The Contractor will also be responsible for installing additional warning signage that clearly defines the centerline elevation differential hazard. Unless otherwise addressed in the contract, the Contractor shall install additional centerline delineation such as a double RPM application, or temporary painted line. The Traffic Control Plan shall be amended to include this option and the additional requirements. All signs and traffic control devices will conform to Section 719.01, and Section 652, and will be installed prior to the work, at a maximum spacing of 0.50 mile for the entire length of effected roadway section. If this option is utilized, all additional signing, labor, traffic control devices, or incidentals will not be paid for directly, will be considered incidental to the appropriate 652 items.

On roadways with immediately adjacent shoulders, the Contractor shall remove the pavement surface in each lane per the conditions in Table 2, unless otherwise noted by the Department in Special Provision, Section 105 – Limitations of Operations.

TABLE 2: MILLING CONDITIONS FOR THE EDGE OF TRAVELED WAY

Depth (At Edge of Traveled Way)	Conditions
1" or less	The Contractor may leave a vertical edge joint exposed indefinitely.
Greater than 1" to 2"	The Contractor may leave a vertical edge joint exposed for up to 21 days after milling is performed. The Contractor shall treat vertical edge joints exposed beyond 21 days per the criteria below.
Greater than 2"	The Contractor shall treat vertical edge joints exposed per the criteria below.

When required by Table 2, the Contractor shall treat vertical edge joints through one of the options below:

1. The vertical edge shall be tapered to a zero edge by means of milling a 12:1 transition from the edge of traveled way onto the shoulder before opening the lane to traffic. Tapers shall be removed to form a vertical edge prior to the placement of the new pavement course. No additional payment will be made for tapers, or taper removal.
2. An additional 2 feet of pavement shall be removed from the shoulder to eliminate the vertical edge at the edge of travelway before opening the lane to traffic. Unless otherwise authorized by the Department, no additional payment will be made for the additional milling.
3. A pavement layer shall be placed to reduce the vertical edge to 1 inch or less before opening the lane to traffic.

As a minimum, the use of temporary painted line, or RPMs placed along the edge of traveled way at 200 foot intervals is required for all elevation differentials. When pavement milling is extended into the shoulder (including milled tapers), appropriate channelization devices shall be placed 2 feet outside the edge of the vertical face at intervals not exceeding 600 feet, and RPMs shall be placed on the remaining pavement surface along the vertical edge at 200 foot intervals. Uneven pavement signs shall be placed at a maximum spacing of ½ mile when any pavement milling operations leaves an exposed uneven pavement surface.

Weepers shall be ground across the full width sections adjacent shoulders or remaining pavement surface matching the milled travel way or shoulder milled depth to minimize water ponding in any lanes carrying traffic. Weepers shall typically be 18 – 24" inches in width, installed along each lane, at a frequency of approximately one per half mile at locations as directed by the Resident or in areas that will provide drainage for the milled areas. Installation of weepers will not be paid for directly but will be considered incidental to the contracts pavement removal item. The replacement of mix in the weeper locations shall be performed concurrently within the pavement placement operation closure using the appropriate HMA item produced for the Contract or a MaineDOT approved 9.5mm HMA. There will be no separate payment for repaving the weeper locations as they are considered incidental to the square yard price of the contracts pavement removal item.

The milled surface shall be cleaned of all material resulting from the pavement removal operation. Loaders, skid steers, motorized side cast brooms, sweeper pick up brooms, vacuum pick up machines and hand labor may be used in any number or sequence as determined by the Contractor in order to clean the milled surfaces to the satisfaction of the Department before acceptance and opening the area up to traffic. The use of compressed air may be required to loosen any bonded materials from the surface to aid in cleaning.

Any areas of concern, such as de-lamination or pot-holing shall be identified on a continuous basis as milling progresses. Proper corrective action will be determined by the Resident and paid for under the appropriate contract items, and if required, completed prior to opening lane to traffic.

Any issues that arise **up to 21 calendar days** after being milled will be the responsibility of the MaineDOT unless otherwise noted in Special Provision Section 105 – Limitations Of Operations.

Basis of Payment

Contractor Quality Control The Contractor shall develop and submit a Quality Control Plan (QCP) that addresses the methods to be used, equipment to be used, work accomplished (quantity measurements and tracking) as well as methods of cleaning and protection of the work as it is completed. The Contractor shall control the work and operate in accordance with the approved QCP in order to complete work meeting the contract requirements. The Contractor shall not begin pavement removal operations until the Department approves the QCP in writing.

Quality Control The QCP shall meet the requirements of Section 106.6 – Acceptance and this Section. The QCP shall address any items that affect the quality of the operation, and shall include the following personnel meeting these minimum requirements:

- a. QCP Administrator – The QCP Administrator must be a full-time employee of or a consultant engaged by the prime contractor or pavement removal subcontractor. The QCP Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the QCP. The QCP Administrator (or their designee in the QCP Administrator's absence) may not be required to be onsite during all work activities but shall be available to communicate with the Department as needed.
- b. Onsite Representative - The Onsite Representative (OR) shall be onsite and work directly with the crew as needed. The OR shall perform quality control inspections or measurements at the job site to assure that layout, pavement removal depth, width, profile and final surface tolerance meet the requirements of the contract.

The QCP shall detail the coordination of the activities of the Plan Administrator, and the OR. The Superintendent shall be named in the QCP if different than the OR, and the responsibilities for successful implementation of the QCP within the companies' activities shall be outlined.

The QCP shall address any items that may impact the quality of pavement removal activities and final milled pavement surface including, but not limited to, the following:

a. General Requirements:

- Name of QCP Administrator
- Description of corrective action processes
- Remediation of defective work

b. Quality Control Plan requirements

- Name of Onsite Representative(s)
- Equipment make and model (including product sheet)
- Width of cutting drum
- Automation make, model and series (including product sheet)
- Describe automation set up, including methods to ensure pavement removal operations meet the requirements of the contract using control points, reference points, and cut points as well as any slope or cut depth transitions.
- Describe project layout, including centerline and any edge cut control, any off-set control layout to maintain or recreate centerline or edge cut control, cross slope transitions, or variable depth transitions required to perform the work
- Procedures to remove pavement surface to the required depth, width and profile
- Procedures to monitor pavement removal activities to ensure the final milled surfaces meet surface tolerance and texture requirements
- General cleaning operation activities including equipment to be used to sweep, vacuum and prepare surfaces for traffic use
- Procedures to ensure that traffic can transition from the milled to non-milled surfaces safely.
- Procedures to protect the milled surfaces from deterioration from construction activities, traffic or weather impacts

A summary of the day's results including a quantity report, equipment used, and environmental conditions will be recorded and signed by the OR and presented to the Department's representative by 1 PM the following working day.

Failure to adhere to the QCP, replace or repair defective or non-conforming equipment, or adjust material or installation procedures in an effort to produce work that meets the contract requirements will result in a notification of a quality control violation resulting in monetary penalties.

A letter describing the violation shall be provided to the Contractor which will result in a mandatory work suspension and a reduction in payment as shown in Table 106.4A below. The Contractor shall submit a letter to the Department that details the corrective action made to address the violation(s) in its Quality Control Plan. Work may resume when the Department is satisfied the corrective action will result in adherence to the Quality Control Plan.

Table 106.4 A - Quality Control Pay Reduction

Quality Control Plan Value*		Pay Reduction		
From More Than	To and Including	1st	2nd	3rd & Subsequent
\$0	\$500,000	\$1,000	\$2,000	\$4,000
\$500,000	\$1,000,000	\$2,000	\$4,000	\$8,000
\$1,000,000	\$3,000,000	\$5,000	\$10,000	\$20,000
\$3,000,000	and more	\$10,000	\$20,000	\$40,000

* The Quality Control Plan Value is the total Bid value of all items covered by a Quality Control Plan, as detailed in the applicable specification or Special Provision.

Pay reductions for failure to comply with the approved QCP are cumulative, and the Department will deduct any pay reductions from amounts otherwise due the Contractor. These pay reductions are intended to encourage the Contractor to comply with its approved QCP, and are not necessarily related to the quality of the work provided.

The square yard or hourly rental contract price will be full compensation for mobilizing to the site, de-mobilizing from the site, labor, supervision, cleaning of the milled surface, and all other incidentals required to complete the work. Hauling and stockpiling of the material will not be paid for directly, but will be considered incidental to the milling items.

Square Yard: Payment will be made at the contract unit price for the number of square yards removed.

Hourly: Payment will be made at the contract unit price for the number of hours of operation removing pavement surface as directed by the Resident. The equipment used for pavement removal shall be operated at the minimum speed of 50 fpm, unless the Resident directs otherwise for milled surface quality reasons, or traffic control limitations impact pavement removal operations, or site conditions make operations at the prescribed rate unreasonable. Trimming to create a vertical face along curb line, guardrail, or around structures will be considered incidental to the 202.202 items. Additional trimming beyond the incidental work described will be paid under the appropriate rental items as listed in the Contract.

Pay Item

Pay Unit

202.2023 Removing Pavement Surface - Medium Cut Drum	S.Y.
202.20231 Removing Pavement Surface - Medium Cut Drum (Hourly)	Hour

SPECIAL PROVISIONS
SECTION 202
REMOVING STRUCTURES AND OBSTRUCTIONS
(Vacuum Truck)

Description The Contractor shall provide a vacuum truck as part of the pavement removal surface cleaning operation. The vacuum truck may act as a supplement to the contractors normal milled surface cleaning equipment train, or act as the primary cleaning equipment. Number of vacuum trucks to be used, the sequence of how they are used, and duration they are to be used will generally be up to the contractor with the exception that the vacuum truck will be required in any final cleanup operation prior to the roadway being opened up to traffic.

The equipment shall meet the minimum criteria outlined in this Special Provision.

Equipment The equipment for vacuuming the pavement surface removing the bituminous surface shall be a power operated regenerative air sweeper equipped with cleaning and vacuum system that contains the materials being cleaned and vacuumed from the surface, filters the air of any milling debris, contains the milling debris in a sealed, onboard self-off-loading hopper, and returns the air to the sweeper heads to aid in continued surface cleaning.

Each machine shall use a controlled blast of air the width of the pickup head to dislodge debris from the surface. It will be equipped with a mid-mount, on demand wide sweeper broom, gutter brooms, and vacuum system which will use high velocity recycled air to assist in removing millings and dirt from the surface. The broom assist pick-up head shall work independently of gutter brooms. Recycled air will be distributed across the entire width of a pick-up head(s), covering the entire width of the sweeper. The sweeper shall have positive contact suction heads designed to remove milling debris and dust from surface. All debris picked up by the pick-up head is directed up a large diameter heavy duty 12" -14" suction hose into the hopper. A high-capacity dust separator located before the blower is required limiting polluted air (dust) to re-enter back into the atmosphere. Each air assisted vacuum head shall be equipped with a minimum of 2 water nozzle jets used to minimize dust. The additional use of compressed air and air wand may be required to loosen bonded materials from the surface in preparation of vacuuming.

Basis of Payment Payment will not be made directly for the vacuum truck but will be considered incidental to the square yard or hourly rental contract price for removing pavement surface and will be full compensation for mobilizing to the site, de-mobilizing from the site, labor, supervision, and cleaning of the milled surface, and disposal of all vacuumed materials removed from required surfaces. Hauling and stockpiling of the material will not be paid for directly but will be considered incidental to the pavement removal items.

SPECIAL PROVISION
SECTION 202
REMOVING STRUCTURES AND OBSTRUCTIONS
(Shoulder Rumble Strip)

Description This work shall consist of milling a pattern onto highway shoulders at the spacing, offset, width, and depth shown on the plans. Rumble strips shall not be placed across ramp openings, crossover openings, or bridges.

CONSTRUCTION REQUIREMENTS

Removing Material The bituminous material shall be removed by a cold milling machine capable of removing the pavement to the required depth and width. The machine must be adjustable to grind or plane on various cross-slopes. Salvage and disposal of bituminous material shall be in accordance with Section 203.

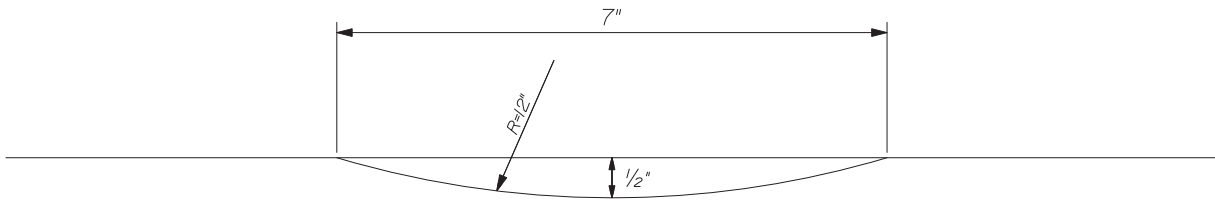
Equipment The equipment shall be a cold milling machine or a cold planing machine specially manufactured for rumble strips. This machine shall be capable of cutting 1200 rumble strips per hour of operation. The Contractor will perform a test section prior to rumble strip installation and at any time as directed by the Resident. The test section will be done to ensure that the machine is capable of milling the rumble strips in accordance with these specifications and the plans.

Method of Measurement Rumble strips will be measured by the meter [foot] longitudinally along the edge of the travelway. For rumbled strips that are broken at regular intervals to permit emergency stopping on shoulders for motorcycles, the length measured for payment shall include the full running length including the regular breaks. Breaks in rumble strip installation for acceleration lanes, deceleration lanes, and crossovers will not be included in the length measured for payment.

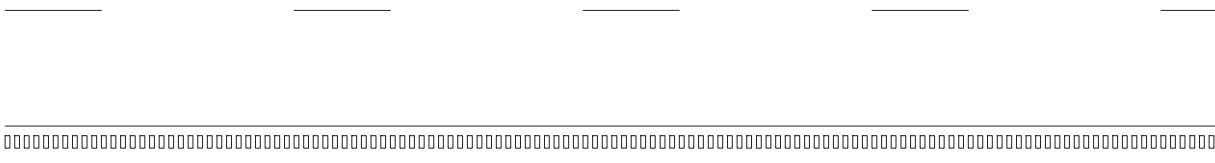
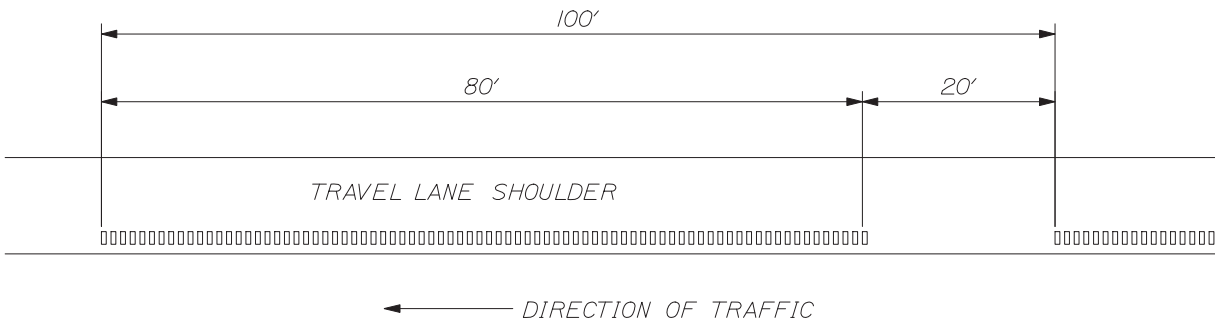
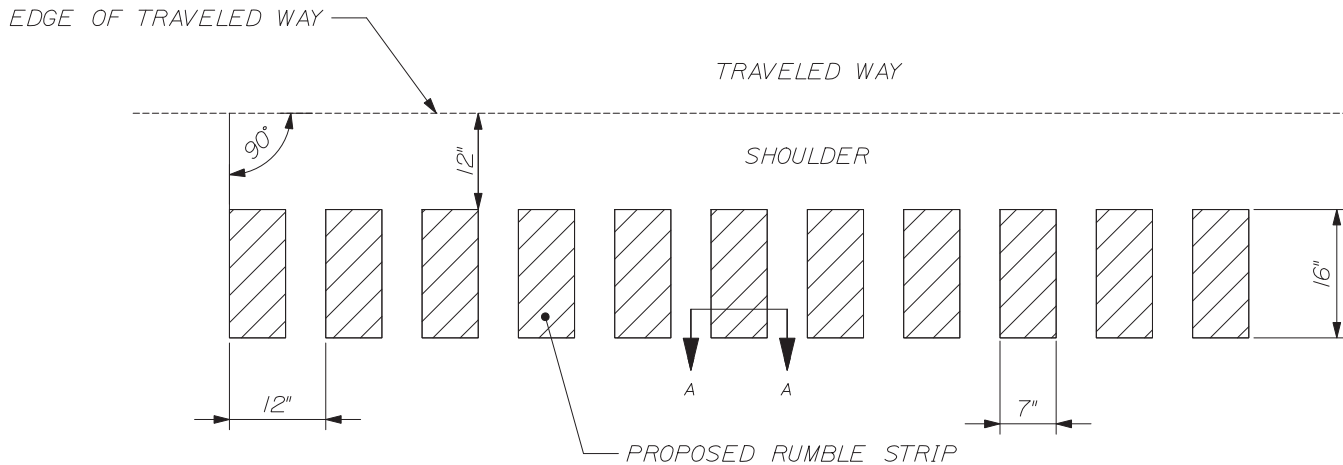
Basis of Payment The accepted quantity of rumble strips will be paid for at the unit price bid per foot [meter] which price will be full compensation for removing and salvaging the bituminous material and for any labor, equipment, and incidentals needed to complete this work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
202.205 Rumble Strip - Shoulder	Foot [Meter]



SECTION A - A



BREAK DETAIL

NOTES:

1. SHOULDER RUMBLE STRIPS SHALL BE PLACED ON THE MEDIAN AND OUTSIDE SHOULDER AS SHOWN IN THE ABOVE DETAIL.

2. ON THE OUTSIDE SHOULDER, THE RUMBLE STRIP PLACEMENT SHALL BE BROKEN FOR A DISTANCE OF 20 FT FOR EVERY 80 FT PLACED.

SHOULDER RUMBLE STRIP DETAIL - INTERSTATE

SECTION 401 - HOT MIX ASPHALT PAVEMENT

401.01 Description The Contractor shall furnish a uniformly blended, homogeneous mixture placed as one or more courses of Hot Mix Asphalt Pavement (HMA) using a single approved design for each item on an approved base in accordance with the contract documents and in reasonably close conformity with the lines, grades, thickness, and typical cross sections shown on the plans or established by the Resident. The Department will accept this work under Quality Assurance provisions, in accordance with these specifications and the requirements of Section 106 – Quality, the provisions of AASHTO M 323 except where otherwise noted in sections 401 and 703 of these specifications, and the MaineDOT Policies and Procedures for HMA Sampling and Testing.

401.02 Materials Materials shall meet the requirements specified in Section 700 - Materials:

Asphalt Cement	702.01
Aggregates for HMA Pavement	703.07
RAP for HMA Pavement	703.08
HMA Mixture Composition	703.09

401.03 Composition of Mixtures The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), approved antistrip, warm mix additive, and/or mineral filler if required. HMA shall be designed and tested according to AASHTO R 35 and the volumetric criteria in Table 1. The Contractor shall size, uniformly grade, and combine the aggregate fractions in proportions that provide a mixture meeting the grading requirements of the Job Mix Formula (JMF). Unless otherwise noted in Special Provision 403 - Hot Mix Asphalt Pavement, the design, verification, Quality Control, and Acceptance tests for this mix will be performed at 65 gyrations.

TABLE 1: VOLUMETRIC DESIGN CRITERIA

Design ESAL's (Millions)	Required Density (Percent of G _{mm})			Voids in the Mineral Aggregate (VMA) (Minimum Percent)					Voids Filled with Binder (VFB) (Minimum %)	Fines/Eff · Binder Ratio
				Nominal Maximum Aggregate Size (mm)						
	N _{initial}	N _{design}	N _{max}	25.0	19.0	12.5	9.5	4.75		
	< 3.0	≤90.5	96.0	≤98.0	13.0	14.0	15.0	16.0		
3 to <10	≤89.0									
> 10										

*For 9.5 mm nominal maximum aggregate size mixtures, the maximum VFB is 82. For 4.75 mm nominal maximum aggregate size mixtures, the maximum VFB is 84.

The Contractor shall submit a JMF to the Department for each mixture to be supplied. The JMF will be approved by the Department in accordance with the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual. At the time of JMF submittal, the Contractor shall identify and make available the stockpiles of all proposed aggregates at the plant site. There must be a minimum of 150 ton for coarse aggregate stockpiles and 75 ton for fine aggregate stockpiles before

the JMF may be submitted. The Contractor shall provide aggregate samples to the Department unless otherwise required. The Contractor shall also make available to the Department the PGAB proposed for use in the mix in sufficient quantity to test the properties of the asphalt and to produce samples for testing of the mixture. The first day's production shall be monitored, and the approval may be withdrawn if the mixture exhibits undesirable characteristics such as checking, shoving or displacement. The Contractor shall be allowed to submit aim changes for a JMF as outlined in the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual: Mix Design Approval Section.

The Contractor shall submit a new JMF for approval each time a change in material source or materials properties is proposed. The same approval process shall be followed. The cold feed percentage of any aggregate may be adjusted up to 10 percentage points from the amount listed on the JMF, however no aggregate listed on the JMF shall be eliminated. The cold feed percentage for RAP may be reduced up to 10 percentage points from the amount listed on the JMF and shall not exceed the percentage of RAP approved in the JMF or for the specific application under any circumstances.

401.031 Warm Mix Technology The Contractor may place Hot Mix Asphalt Pavement produced with an accepted WMA technology if approved by the Department. Methods or technologies shall generally be at the Contractors option, but will be limited to proven, Agency and Industry accepted practice. Mixture production, placement and volumetric testing details, including temperatures, shall be included in the project specific QCP, and submitted to the Department for approval prior to any work.

401.04 Temperature Requirements The temperature of the mixture shall conform to the tolerances in Table 2 as measured at the truck at the mixing plant and at the paver unless otherwise authorized by the Department.

TABLE 2: ALLOWABLE TEMPERATURE RANGES

PGAB Grade(s)	Temperature Range (°F)
PG58-28 / PG64-28	275-325
PG64E-28 / PG70E-28	285-335

401.05 Performance Graded Asphalt Binder The Contractor shall utilize either a PG58-28, PG64-28, PG64E-28, PG70E-28, or other grade as specified in the 403 Special Provision. The Contractor shall utilize a PG64-28 if no liquid grade is specified within the 403 Special Provision.

401.06 Weather and Seasonal Limitations The State is divided into two paving zones as follows:

- a. Zone 1 Areas north of US Route 2 from Gilead to Bangor and north of Route 9 from Bangor to Calais.
- b. Zone 2 Areas south of Zone 1 including the US Route 2 and Route 9 boundaries.

TABLE 3: SEASONAL AND TEMPERATURE LIMITATIONS

Description	Zone 1 Allowable Placement Dates	Zone 2 Allowable Placement Dates	Minimum Ambient Air Temperature
HMA Surface Course greater than or equal to 1” (Travelway)	May 1 to Saturday following October 1	April 15 to Saturday following October 15	50°F
HMA Surface Course less than 1” (Travelway)	May 15 to Saturday following September 15	May 15 to Saturday following October 1	
HMA Surface Course less than 1” considered to be “ Night Work ” (Travelway)	June 1 to the Saturday following September 1		
HMA Surface Course less than 1” (Shoulders)	May 15 to the Saturday following October 15		
HMA for Surface Course on Bridge Decks	May 1 to Saturday following October 1	April 15 to Saturday following October 15	
HMA for Base or Shim Course on Bridge Decks	April 15 to November 15		40°F
HMA for use other than Travelway Surface Course (Shoulders greater than or equal to 1”, Intermediate, Base, Shim)	April 15 to November 15		
HMA for curb, driveways, sidewalks, islands, or other incidentals	N/A		
With Use of Approved Warm Mix Technology as Compaction Aid (Surface Course Ambient Air Temperature Allowances)			
HMA Surface Course greater than or equal to 1” (Travelway)	May 1 to Saturday following October 1	April 15 to Saturday following October 15	Begin at 50°F and pave down to 45°F
HMA Surface Course less than 1” (Travelway)	May 15 to Saturday following October 1	May 15 to Saturday following October 15	
HMA Surface Course less than 1” considered to be “ Night Work ” (Travelway)	June 1 to the Saturday following September 15		
HMA Surface Course less than 1” (Shoulders)	May 15 to the Saturday following October 15		
With Use of Approved Warm Mix Technology as Compaction Aid (Seasonal Limitation Extensions)			
HMA Surface Course greater than or equal to 1” (Travelway)	Saturday following October 1 to Saturday following October 15	Saturday following October 15 to Saturday following October 29	50°F
HMA Surface Course less than 1” (Shoulders)	Saturday following October 15 to Saturday following October 29		
HMA for use other than Travelway Surface Course (Shoulders greater than or equal to 1”, Intermediate, Base, Shim)	April 15 to Saturday following November 15		35°F

1. Shoulders paved with the travelway pass shall meet travelway ambient air temperatures

2. Refer to the 461 SP for UTBWC for seasonal and temperature requirements.

3. The minimum ambient air temperature for placement of HMA for curbs, driveways, sidewalks, islands, and other incidental work shall be 40°F, regardless of whether the mixture is produced using an approved WMA technology.

The ambient air temperature shall be determined by an approved thermometer placed in the shade at the paving location. Unless otherwise specified, the Contractor shall not place Hot Mix Asphalt Pavement on a wet or frozen surface regardless of the ambient air temperature. The Hot Mix Asphalt Pavement produced with an approved WMA technology shall meet the requirements of section 401.04 - Temperature Requirements, unless otherwise approved by the Department. For the purposes of this Section, the traveled way includes truck lanes, ramps, approach roads and auxiliary lanes.

401.07 Hot Mix Asphalt Plant

401.071 General Requirements HMA plants shall conform to AASHTO M 156, Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures with exception of Section 4.2.1, 4.2.2, 4.3.4, 4.3.5, and 4.12.2.

All HMA plants will be inspected annually by the Department prior to producing HMA for Department projects. The Contractor shall provide the Department at least 72 hours' notice that the plant is ready for inspection. The Contractor shall equip the plant with ladders and platforms that are accessible and safe to obtain samples of PGAB, aggregate and mix from the relevant tanks, collector belts and haul units. Silo storage time of mixtures shall not exceed 36 hours.

401.072 Stockpiles The Contractor shall provide sufficient space for stockpiles and maintain a minimum of supply for 2 days production of all aggregate products used in MaineDOT approved mix designs currently under production. A minimum stockpile supply of 100 ton (70 yards) shall be maintained at all times. The Contractor shall construct stockpiles to prevent intermingling and to minimize segregation. All stockpiles used in MaineDOT mixes shall be identified with weatherproof signs at least 12" high and 24" wide, with reflective lettering at least 2" high.

401.073 Cold Feeds Cold Feed Bins will have bin dividers to keep aggregate products separated. Adequate means must be provided for obtaining samples of the combined flow of all Cold feed bins.

401.074 Dryer Dryer shall be capable of heating aggregate to required mixing temperature and shall be in good operation and condition. Dryer shall be subject to annual inspection prior to start-up. The Contractor shall dry and heat the aggregates for the HMA to the required temperature, adjusting flames to avoid damaging the aggregates. The Contractor shall provide the Department a minimum period of 72 hours to inspect the dryer and provide at least 24 hours' notice that the dryer is ready for inspection.

401.075 Asphalt Binder The plant shall include a heating system and insulation to maintain the asphalt binder at a uniform temperature for proper mixing and compaction. A thermometer shall be provided in the asphalt binder line. No direct flame may come in contact with tank. A sampling valve shall be provided in the circulation line downstream of any binder additive used unless otherwise approved by the Department. The Contractor shall drain down the asphalt as low as safely possible in any tank that will be switched to a new source or grade prior to adding the new PGAB.

401.076 Additives Additives (WMA, anti-strip, etc.) introduced into the binder at the HMA plant shall be introduced per the supplier's recommendations and shall be approved by the Department. The system for introducing additives shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all production rates and batch sizes. Additive introduction systems shall be controlled by a proportioning device to the amount required on the JMF plus or minus 0.1% of the target. Additive introduction systems shall be interlocked with the plant and the recordation (batch tickets or drum recordation) shall display the additive and the weight and percentage added. A means for sampling the PG binder with additive introduced will be provided. The sampling point shall be after the additive is mixed with the PGAB before entering the drum or mixer unit.

401.077 Batch Plants

Hot Bins Hot bins shall provide uniform continuous operation and be in good working condition. The plant shall be able to provide samples of hot bins upon request. Overflow shall be provided for each hot bin. Hot bin gates shall close without leaking. Bin walls must prevent intermingling between bins. Each hot bin shall have low level indicators which will alert the operator when the bin is empty.

Mixer Unit Clearance between blades and liner shall be 1" maximum, unless the aggregate exceeds 1 ¼" then the clearance shall be 1 ½". The spray bar length shall be at least 75% of the mixer length. The mixer unit shall be a twin pug mill-type mixer capable of mixing continuously for at least 45 seconds after all materials have been introduced into the mixer. The blades in the mixer shall be capable of producing a homogenous mixture. If the mixer is not enclosed, it shall be equipped with an adjustable hood to prevent loss of dust by dispersion. The mixer unit shall be subject to annual inspection prior to removal of safety features and being readied for service. The Contractor shall provide the Department the opportunity to inspect the mixer unit prior to the annual inspection. The Contractor shall provide the Department a minimum period of 72 hours to inspect the mixer unit and provide at least 24 hours' notice that the mixer unit is ready for inspection.

Mineral Filler Mineral filler and fiber shall utilize separate bins and feed systems to store and proportion the required quantity into the mixture. The feed systems shall be accurate to no more than 10% of the required weight with a convenient and accurate means of calibration. Mineral filler and fiber shall be introduced in the weigh hopper and uniformly distributed prior to the injection of the asphalt binder.

Automation The HMA batch plant shall automatically batch, mix and discharges mixes. The batch plant shall accurately proportion the various materials in the proper order by weight. The entire batching and mixing cycle shall be continuous and shall not require any manual operations. The batch plant shall use auxiliary interlock circuits to trigger an audible alarm whenever an error exceeding the acceptable tolerance occurs. Along with the alarm, the printer shall print an asterisk on the delivery slip in the same row containing the out-of-tolerance weight. The automatic proportioning system shall be capable of consistently delivering material within the full range of batch sizes. When RAP is being used, the plant must be capable of automatically compensating for the moisture content of the RAP.

The HMA batch plant shall be operated within the following tolerances:

Each aggregate component	+/- 1.5% cumulative, per bin
Mineral Filler	+/- 0.5%
Bituminous Material	+/- 0.1%
Zero return (aggregate)	+/- 0.5%
Zero Return (AC)	+/- 0.1%
Additives	+/- 0.1%

Recordation All plants shall be equipped with an approved digital recording device. The printer shall mark any weight on the ticket that exceeds tolerance. The delivery slip shall contain information required under Section 108.1.3 - Provisions Relating to Certain Measurements, Mass and paragraphs a, b, and c of Section 401.078.

401.078 Drum Plants

Cold Feeds and Delivery System A scalper screen shall be used to remove oversize material. The accuracy of the belt scale shall be within +/- 1.0% of the actual weight being measured. The plant shall be capable of correcting for aggregate moisture. Mineral filler and fiber shall utilize separate bin(s) and feeder systems to store and proportion the required quantity into the mixture. The feed systems shall be accurate to no more than +/- 10% of the required weight with a convenient and accurate means of calibration. The plant shall be equipped with a single control to change all feed rates. Mineral filler and fiber shall be introduced such that dry mixing is accomplished no less than 18 inches prior to the injection of the asphalt binder. The Contractor shall ensure that the mineral filler does not become entrained in the exhaust stream of the dryer.

Binder System The flow of asphalt binder shall adjust automatically with dry aggregate weights. The Department will conduct an asphalt flow meter check annually and after each change of plant location. The flow meter check must be performed prior to producing mix for Department projects. The plant must be configured to provide a convenient means to check accuracy of the flow meter. The flow meter will be considered accurate if the measured weight is within 1% of actual weight.

Drum Mixer The plant shall be equipped with a diversion system where mix can be diverted at startup/shutdown and any time. The drum mixer shall be subject to annual inspection prior to removal of safety features and being readied for service. The Contractor shall provide the Department a minimum period of 72 hours to inspect the drum mixer while providing at least 72 hours' notice that the drum mixer is ready for inspection.

Recordation An approved automatic ticket printer system shall be used to print delivery slips. The requirements for delivery slips for payment of materials measured by weight, as given in the following Sections, shall be waived: 108.1.3 a., 108.1.3 b., 108.1.3 c., and 108.1.3 d. The automatic printed ticket will be considered as the Weight Certificate. The dry aggregate weights and binder flow shall be recorded as well as mineral filler and all binder additives. The recordation of materials shall be printed a minimum of every ten minutes while in production.

The requirements of Section 108.1.3 f. - Delivery Slips, shall be met by the delivery slip printed by the automatic system, which accompanies each truckload, except for the following changes:

- a. The quantity information required shall be individual weights of each batch or total net weight of each truckload.
- b. Signatures (legible initials acceptable) of Weighmaster (required only in the event of a malfunction as described in 401.074 c.).
- c. The MaineDOT designation for the JMF.

401.079 Scales and Weight Checks Scales shall meeting the requirements of Section 108 - Payment. The scales shall be inspected and sealed by the State Sealer (or approved alternative) as often as the Department deems necessary to verify their accuracy. Plant scales shall be checked prior to the start of the paving season, and each time a plant is moved to a new location. Subsequent checks will be made as determined by the Resident. The Contractor will have at least ten 50 pound masses for scale testing at batch plants. At Contractor's option, the Contractor can use one single test weight that has been checked on sealed scales. This weight shall be 1,000 lbs. or greater. At least twice during each 5 days of production either of the following checks will be performed:

- a. A loaded truck may be intercepted and weighed on a platform scale that has been sealed by the State Sealer of Weights and Measures within the past 12 months. The inspector will notify the producer to take corrective action on any discrepancy over 1.0%. The producer may continue to operate for 48 hours under the following conditions.
 1. If the discrepancy does not exceed 1.5%; payment will still be governed by the printed ticket.
 2. If the discrepancy exceeds 1.5%, the plant will be allowed to operate as long as payment is determined by truck platform scale net weight.

If, after 48 hours the discrepancy has not been addressed and reduced below 1.0%, then plant operations will cease. Plant operation may resume after the discrepancy has been brought within 1.0%.

- b. Where platform scales are not readily available, a check will be made to verify the accuracy and sensitivity of each scale within the normal weighing range and to assure that the interlocking devices and automatic printer system are functioning properly. If platform scales are not readily available, a weight with a known mass-verified and sealed annually by a licensed scale company, may be used by hanging weight from silo or surge hopper, at lower middle and upper third levels upon request to verify scale accuracy.
- c. In the event of a malfunction of the automatic printer system, production may be continued without the use of platform truck scales for a period not to exceed the next two working days, providing total weights of each batch are recorded on weight tickets and certified by a Licensed Public Weighmaster.

401.08 Hauling Equipment Units hauling HMA shall have tight, clean, and smooth metal bodies, which have been thinly coated with a small amount of approved release agent to prevent the mixture from adhering to the bodies. Release agents that dissolve or strip asphalts, including diesel fuel, will not be allowed.

All mix haul units shall have a cover of water repellent material capable of heat retention, which completely covers the mixture. The cover shall be securely fastened on the truck, unless unloading. Haul units shall have an opening on both sides near the midpoint of the body, at least 12 in above the bed, which will accommodate a thermometer stem.

401.09 Pavers The Contractor shall use pavers meeting the requirements of this section unless otherwise authorized by the Department. Pavers shall meet the requirements of Table 4: Paver Requirements.

TABLE 4: PAVER REQUIREMENTS

Use	Paver Requirement
Traveled Way & Auxiliary Lanes	Equipped with a 10 ft minimum main screed with activated extensions. The minimum tractor weight shall be 30,000 pounds.
	Equipped with automatic grade and slope controls that automatically adjust the screed and increase or decrease the layer thickness to compensate for irregularities in the preceding course. The controls shall maintain the proper transverse slope and be readily adjustable so that transitions and superelevated curves can be properly paved. The controls shall operate from a fixed or moving reference such as a grade wire or ski type device (floating beam) with a minimum length of 30 ft, a non-contact grade control with a minimum span of 24 ft, except that a 40 ft reference shall be used on interstate and divided highway projects.
All HMA Placement	Self-contained, self-propelled units of sufficient class and size to place Hot Mix Asphalt Pavement in full lane widths specified in the contract on the main line, shoulder, or similar construction.
	Equipped with a free-floating activated heated main screed with activated extensions. Pavers with extendible screeds shall have auger extensions and tunnel extenders as per the manufacturer's recommendations, a copy of which shall be available if requested.
	Equipped with a receiving hopper with sufficient capacity for a uniform spreading operation and a distribution system to place the mixture uniformly, without segregation in front of the screed.
	Operated in such a manner as to produce a visually uniform surface texture and a thickness within the requirements of Section 401.11 - Surface Tolerances. The screed assembly shall produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.

The Contractor shall have the paver at the project site sufficiently before the start of paving operations to be inspected and approved by the Department. The Contractor shall repair or replace any paver found worn or defective, either before or during placement, to the satisfaction of the Department. Pavers that produce an unevenly textured or non-uniform mat will be repaired or replaced before continuing to place HMA on MaineDOT projects. On a daily basis, the Contractor shall perform density testing across that mat as detailed in Section 401.191 Quality Control - Method A, B & C.

401.10 Rollers Rollers shall be static steel, pneumatic tire, oscillatory, or approved vibrator type. Rollers shall be in good mechanical condition, capable of starting and stopping smoothly, and be free from backlash when reversing direction. Rollers shall be equipped and operated in such a way as to prevent the picking up of hot mixed material by the roller drums or tires. Crushing of the aggregate or displacement of the HMA during rolling will not be permitted. Any HMA Pavement that becomes loose, broken, contaminated, shows an excess or deficiency of PGAB, or is in any other way defective shall be removed and replaced at no additional cost with fresh material which shall be immediately compacted to conform to the adjacent area.

The Contractor shall repair or replace any roller found to be worn or defective, either before or during placement, to the satisfaction of the Department. Rollers that produce grooved, unevenly textured or non-uniform mat will be repaired or replaced before continuing to place HMA. The type of rollers to be used and their relative position in the compaction sequence shall generally be the Contractor's option unless otherwise specified in the contract, provided specified density is attained and with the following requirements:

- a. On variable-depth courses, the first lift of pavement over gravel, reclaimed pavement, on irregular or milled surfaces, or on bridges, at least one roller shall be 16 ton pneumatic-tired. Pneumatic-tired rollers shall be equipped with skirting to minimize the pickup of HMA materials from the paved surface. When required by the Resident, the roller shall be ballasted to 20 ton.
- b. Compaction with a vibratory or steel wheel roller shall precede pneumatic-tired rolling, unless otherwise authorized by the Department.
- c. Vibratory rollers shall not be operated in the vibratory mode on bridge decks.
- d. Any method, which results in cracking or checking of the mat, will be discontinued and corrective action taken.
- e. The use of an oscillating steel roller shall be required to compact all mixtures placed on bridge decks.

The maximum operating speed for a steel wheel or pneumatic roller shall not exceed the manufacturer's recommendations, a copy of which shall be available if requested.

401.11 Surface Tolerances The Department will check the following surface tolerances:

- a. Longitudinally: The pavement surface profile shall be free of deviations in excess of $\pm \frac{1}{4}$ inches from the required pavement surface profile grade. To verify the surface tolerance a straight plane shall be established using 16 foot straight edge or a taught string line placed parallel to the direction of travel and checked continuously across the width of the lane.
- b. Transversely: The pavement surface profile shall be free of deviations in excess of 0 inches below and $\frac{1}{4}$ inches above the required cross-sectional profile grade. To verify the surface tolerance a straight plane shall be established using a 10 foot straight edge or taught string line placed perpendicular to the direction of travel and checked continuously along the length of the lane.

The Contractor shall correct defective areas by removing defective work and replacing it with new material as directed by the Department. The Contractor shall furnish a 10 foot straightedge for the Department's use.

401.12 Preparation of Existing Surface The Contractor shall thoroughly clean the surface upon which Hot Mix Asphalt Pavement is to be placed of all objectionable material. When the surface of the existing base or pavement is irregular, the Contractor shall bring it to uniform grade and cross section. All surfaces shall have a tack coat applied prior to placing any new HMA course.

When covering portland cement concrete surfaces (concrete slabs or concrete backfill), as a minimum, a triple application of tack coat shall be applied on the surface prior to pavement being placed over the concrete.

Tack coat shall conform to the requirements of Section 409 – Bituminous Tack Coat, Section 702 – Bituminous Material, and all applicable sections of the contract.

401.13 Spreading and Finishing In areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the Contractor shall spread, rake, and lute the HMA with hand tools to provide the required compacted thickness. Release agents that dissolve or strip asphalts, including diesel fuel, will not be allowed. On roadways with adjoining lanes carrying traffic, the Contractor shall place each course per the conditions in Table 5, unless otherwise noted by the Department in Section 403 - Hot Mix Asphalt Pavement.

TABLE 5: PLACEMENT CONDITIONS FOR ADJOINING LANES

Depth (at centerline)	Placement Conditions
Vertical Longitudinal Joint	
¾" and less (incl. shim)	The Contractor may place the HMA course over the full single travel lane width for each production day.
1" to 1 ¼"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before weekend or holiday suspension. A maximum unmatched centerline joint of the project's 1 days' average production will be permitted over the weekend.
1 ½" to 2"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before the end of the following calendar day.
Greater than 2"	The Contractor shall place each course over the full width of the traveled way section being paved that day.
Notched-Wedge Longitudinal Joint	
1 ½" to 2"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before weekend or holiday suspension. A maximum unmatched centerline joint of the project's 1 days' average production will be permitted over the weekend.
Greater than 2"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before the end of the following calendar day.
Longitudinal Joints (<45 mph) *	
Greater than 2"	With use of a Notch-Wedge device, the Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before weekend or holiday suspension. A maximum unmatched centerline joint of the project's 1 days' average production will be permitted over the weekend.

* Longitudinal joint allowances for segments under 45 mph will only be permitted if the segment length is continuous for one mile or greater or the total length of the project is one mile or less.

Constructed wedge joints that degrade or break off will not qualify for the open joint duration as described above. The impacted area shall be matched up within 48 hours of notification by the Department. Prior to matching, the Contractor shall trim off the impacted area and construct a vertical joint. Failure to comply will result in an automatic Traffic Control Violation as per section 652.8.

The Contractor shall place the specified course over the full width of the mainline traveled way being paved, regardless of use, depth, or longitudinal joint type prior to Memorial Day, July 4th, Labor Day, paving suspensions exceeding three days, or other dates as specified by special provision.

The Contractor shall install additional warning signage that clearly defines the centerline elevation differential hazard. Unless otherwise addressed in the contract, the Contractor shall install additional centerline delineation such as a double application of raised pavement markers at 100 foot intervals, or temporary painted line. For any exposed vertical edge between the shoulder and traveled way, at a minimum, the use of temporary painted line, or RPMs placed along the edge of traveled way at 200 foot intervals is required. The Traffic Control Plan shall be amended to include this option and the additional requirements. All signs and traffic control devices will conform to Section 719.01, and Section 652, and will be installed prior to the work, at a maximum spacing of 0.50 mile for the entire length of effected roadway section. If this option is utilized, all additional signing, labor, traffic control devices, or incidentals will not be paid for directly, will be considered incidental to the appropriate 652 items.

When covering a portland cement concrete surface (concrete slabs or concrete backfill) a minimum of 3 inches of HMA pavement will be required over the concrete.

401.14 Hot Mix Asphalt Placement on Bridge Decks Hot mix asphalt pavement placed on bridges shall also conform to Section 508.04 and the following requirements:

- a. The minimum production and placement temperature for the Hot Mix Asphalt placed over membrane shall conform to the manufacturer's recommendations.
- b. The bottom course shall be placed with an approved rubber mounted paver of such type and operated in such a manner that the membrane waterproofing will not be damaged in any way.
- c. The top course shall not be placed until the bottom course has cooled sufficiently to provide stability.
- d. The Contractor will not be required to cut sample cores from the compacted pavement on the bridge deck, unless otherwise directed by Special Provision.
- e. After the top course has been placed, the shoulder areas shall be sealed 3 ft wide with two applications of an emulsified bituminous sealer meeting the requirements of Section 612.03 - Sealing and Section 702.12 - Emulsified Bituminous Sealing Compound. The first application shall be pre-mixed with fine, sharp sand, similar to mortar sand, as needed to fill all voids in the mix in the area being sealed. The second application may be applied without sand. The sealer shall be carried to the curb at the gutter line in sufficient quantity to leave a bead or fillet of material at the face of the curb. The area to be sealed shall be clean, dry and the surface shall be at ambient temperature. The furnishing and applying of the required quantity of sealer for the bridge shoulder areas shall be incidental to placing the hot mix asphalt pavement.
- f. The area between the edge of the membrane and the vertical surface of bridge curbing and concrete bridge headers shall be completely sealed with hot-applied asphaltsealant material, meeting the requirements of Type 4 or mastic crack seal. Sealant shall be applied to form a complete seal between the membrane and the vertical surface and shall extend up the vertical surface to within ½ inch of the top of the HMA wearing surface. This work shall be considered incidental to the contract pavement items unless 508 membrane items are included in the contract.

401.15 Compaction Immediately after the Hot Mix Asphalt Pavement has been spread, struck off, and any surface irregularities adjusted, the Contractor shall thoroughly and uniformly compact the HMA by rolling.

The Contractor shall roll the surface when the mixture is in the proper condition and when the rolling does not cause undue displacement, cracking, or shoving. The Contractor shall prevent adhesion of the HMA to the rollers or vibrating compactors without the use of fuel oil or other petroleum-based release agents. Solvents designed to strip asphalt binders from aggregates will not be permitted as release agents on equipment, tools, or pavement surfaces.

The Contractor shall immediately correct any displacement occurring as a result of the reversing of the direction of a roller or from other causes to the satisfaction of the Department. Any operation other than placement of variable depth shim course that results in breakdown of the aggregate shall be discontinued. Any new pavement that shows obvious cracking, checking, or displacement shall be removed and replaced for the full lane width as directed by the Resident at no cost to the Department.

Along forms, curbs, headers, walls, and other places not accessible to the rollers, the Contractor shall thoroughly compact the HMA with mechanical vibrating compactors. The Contractor shall only use hand tamping in areas inaccessible to all other compaction equipment. On depressed areas, the Contractor may use a trench roller or cleated compression strips under a roller to transmit compression to the depressed area.

Any HMA that becomes unacceptable due to cooling, cracking, checking, segregation or deformation as a result of an interruption in mix delivery shall be removed and replaced with material that meets contract specifications at no cost to the Department.

For all items requiring pavement density testing, the Contractor shall cut 6-inch diameter cores at no additional cost to the Department by the end of the working day following paving. Cores shall be cut such that the nearest edge at least 9 inches from any joint. Pre-testing of the cores will not be allowed. If the Contractor and the Department mutually determine that a core is damaged, the Contractor shall cut new core(s) at the same offset and within 3 ft of the initial sample. The Contractor and the Department will mutually determine if underlying material is adhered to the core and if so will mark the core at the point where sawing is needed. The Department will place the cores in a secure container and the Contractor shall transport the cores to the designated MaineDOT lab. The cores will be saw cut by the Department to remove underlying layers. No recuts are allowed at a test location after the core has been tested.

On all sections of overlay with wearing courses designed to be 1 in or less in thickness, there shall be no pay adjustment for density otherwise noted in Section 403 - Hot Mix Asphalt Pavement. For overlays designed to be 1 in or less in thickness, density shall be obtained by the same rolling train and methods as used on mainline travelway surface courses with a pay adjustment for density, unless otherwise directed by the Department.

There shall be no pay adjustment for density on shoulders unless otherwise noted in Section 403 - Hot Mix Asphalt Pavement. Density for shoulders shall be obtained by the same rolling train and methods as used on mainline travelway, unless otherwise directed by the Department. Efforts to obtain optimum compaction will not be waived by the Department unless it is apparent during construction that local conditions make densification to this point detrimental to the finished pavement surface course.

401.16 Joints The Contractor shall construct wearing course transverse and longitudinal joints in such a manner that minimum tolerances shown in Section 401.11 - Surface Tolerances are met when measured with a straightedge. The paver screed shall maintain a uniform head of HMA during transverse and longitudinal joint construction. The HMA shall be free of segregation and meet temperature requirements outlined in Section 401.04. Transverse joints of the wearing course shall be straight and neatly trimmed. The Contractor may form a vertical face exposing the full depth of the course by inserting a header, by breaking the bond with the underlying course, or by cutting back with hand tools. The Contractor shall apply a coating of emulsified asphalt immediately before paving all joints to the vertical face and 3 in of the adjacent portion of any pavement being overlaid except those formed by pavers operating in echelon. The Contractor shall use an approved spray apparatus designed for covering a narrow surface. The Department may approve application by a brush for small surfaces, or in the event of a malfunction of the spray apparatus, but for a period of not more than one working day.

Where pavement under this contract joins an existing pavement, or when the Department directs, the Contractor shall cut the existing pavement along a smooth line, producing a neat, even, vertical joint. The Department will not permit broken or raveled edges. The cost of all work necessary for the preparation of joints is incidental to related contract pay items. Longitudinal joints shall be generally straight to the line of travel and constructed in a manner that best ensure joint integrity. Methods or activities that prove detrimental to the construction of straight, sound longitudinal joints will be discontinued.

The Contractor may utilize an approved notched wedge joint device on all HMA layers 1 ½ inches in depth or greater. A notched wedge joint shall be constructed as shown in Figure 1 using a device that is attached to the paver screed and is capable of independently adjusting the top and bottom vertical notches.

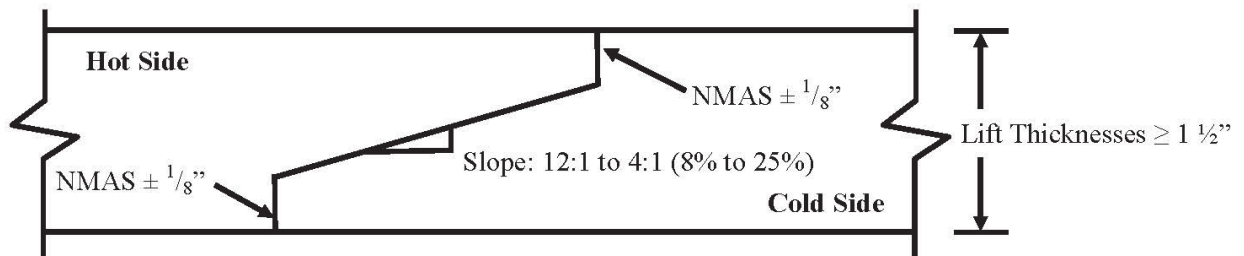


FIGURE 1: Notched Wedge Joint

Notes

1. An emulsified tack coat shall be applied to the vertical edges and the wedge surface so that the total rate is 0.05 G/SY plus the normal specified rate prior to placing the adjacent layer. The Contractor may elect to apply the emulsified tack coat in one or multiple passes.
2. Dimensions shown are compacted depths (after rolling is complete).

The Department reserves the right to have centerline cores cut by the Contractor's QC personnel for informational purposes to monitor the density along the joint. Informational cores at the centerline joint will be taken centered over the tapered part of the wedge joint.

Any notched wedge joint constructed areas that become cracked or broken shall be trimmed back to the limits affected prior to placing the adjoining lane. Any materials that become unbound or separated from the wedge or tapered joint section, or contaminated by materials determined by the Department as being detrimental to the construction of a sound construction joint, shall be removed by sweeping, compressed air and lance, or by hand tools as required. This work, if necessary, will not be paid for directly, but shall be considered incidental to the related contract items.

The Contractor shall apply a coating of emulsified asphalt on the vertical and tapered surface of the longitudinal centerline joint immediately before paving if the notched wedge joint device is used.

The total rate of application shall be 0.050 G/SY plus the normal specified tack coat rate. The Contractor shall use an approved spray apparatus designed for covering a narrow surface. The Department may approve application by a brush for small surfaces.

401.17 Hot Mix Asphalt Documentation The Contractor and the Department shall agree on the amount of Hot Mix Asphalt Pavement that has been placed each day. All delivery slips shall conform to the requirements of 401.078.

401.18 Prepave Meeting Prior to placing any mix, the Department and the Contractor shall hold a Pre-paving conference to discuss the paving schedule, source of mix, type and amount of equipment to be used, sequence of paving pattern, rate of mix supply, random sampling, project lots and sublots and traffic control. A copy of the density QC random numbers to be used on the project shall be provided to the Resident. The Departments' random numbers for Acceptance testing shall be generated and on file with the Resident and the Project Manager. All personnel of the Department and the Contractor who have significant information relevant to the paving items shall attend, including the responsible onsite paving supervisor for the Contractor. The Resident will prepare minutes of the conference and distribute them to all attendees. Any requests to revise the minutes must be made to the Resident within 7 Days of Receipt. These minutes will constitute the final record of the Pre-paving conference. On the first day of paving and whenever there is a change in the onsite paving foreman or paving inspector, the Department and the Contractor shall hold an informal onsite meeting to review the minutes of the Pre-paving conference, Project Specific QCP, Plans, Typical, Special Provisions and communication process. This meeting shall be held prior to placing any mix and, at minimum, shall occur yearly for multi-year contracts. The onsite paving supervisor, QCT, Superintendent, Resident and/or paving inspector shall attend.

401.19 Contractor Quality Control – Method A, B, C & D

The Contractor shall operate in accordance with the approved Quality Control Plan (QCP) to assure a product meeting the contract requirements. The Contractor shall not begin paving operations until the Department approves the QCP in writing.

401.191 Quality Control The QCP shall meet the requirements of Section 106.6 – Acceptance and this Section. The QCP shall address any items that affect the quality of the Hot Mix Asphalt Pavement, and shall include the following personnel meeting these minimum requirements:

- a. QCP Administrator – The QCP Administrator must be a full-time employee of or a consultant engaged by the Contractor or paving subcontractor. The QCP Administrator shall have full authority to institute any and all actions necessary for the successful operation of the QCP. The QCP Administrator (or their designee in the QCP Administrator's absence) shall be available to communicate with the Department at all times.

- For items accepted under Methods A and B, the QCP Administrator shall be certified as a Quality Assurance Technologist (QAT) by NETTCP.
 - For items accepted under Methods C and D, the QCP Administrator shall be certified by NETTCP as a Quality Assurance Technologist (QAT), Plant Technician, or Paving Inspector.
- b. Process Control Technician(s) (PCT) shall utilize test results and other quality control practices to assure the quality of aggregates and other mix components and control proportioning to meet the JMF(s). The PCT shall inspect all equipment used in mixing to assure it is operating properly and that mixing conforms to the mix design(s) and other Contract requirements, and that delivery slips and plant recordation accurately reflects the mix being produced with all the required information. The QCP shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one PCT is required. The Plan shall include the criteria to be utilized by the PCT to correct or reject unsatisfactory materials. The PCT shall be certified as a Plant Technician by the NETTCP.
- c. Quality Control Technician(s) (QCT) shall perform and utilize quality control tests at the job site to assure that delivered materials meet the requirements of the JMF(s). The QCT shall inspect all equipment utilized in transporting, laydown, and compacting to assure it is operating properly and that all laydown and compaction conform to the Contract requirements. The QCP shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one QCT is required. The QCP shall include the criteria utilized by the QCT to correct or reject unsatisfactory materials. The QCT shall be certified as a Paving Inspector by the NETTCP.

The QCP shall detail the coordination of the activities of the Plan Administrator, the PCT and the QCT. The Project Superintendent shall be named in the QCP, and the responsibilities for successful implementation of the QCP shall be outlined.

The QCP shall address any items that affect the quality of the Hot Mix Asphalt Pavement including, but not limited to, the following:

a. General Requirements:

- Job Mix Formulas (JMFs)
- Name of QCP Administrator, and certification number
- Description of corrective action process
- Disposition of defective material
- A procedure to take immediate possession of acceptance samples once released by MaineDOT and deliver said samples to the designated acceptance laboratory.
- Type of release agent to be used on haul units, tools and rollers.
- A note stating that the use of petroleum-based fuel oils, such as diesel or kerosene, or asphalt stripping solvents will not be permitted.

b. Process Control Requirements: Each Hot Mix Asphalt plant shall have a Plant Specific Process Control Plan. At minimum the plan shall include:

- Name of Plant Specific Process Control Technician(s) and certification number(s)
- Hot mix asphalt plant details
- Stockpile Management
- Mixing & transportation
- Silo management and details
- A detailed description of RAP processing, stockpiling and introduction into the plant
- PG Binder management:
 - Tanks and storage (including polymer modified binders if applicable)
 - Binder temperature
 - Sample points
 - Method to ensure mixture contains the specified binder grade
 - Additive introduction details if introduced at the plant
- Testing and inspection plan for control of aggregates and RAP
- Mix Testing and inspection plan

c. Quality Control Requirements – Method A & B:

- Name of Quality Control Technicians(s) and certification number(s)
- Laydown operations
- Longitudinal joint construction including the tacking of all joints.
- Procedures for avoiding paving in inclement weather
- Compaction of shoulders
- Methods to ensure that segregation is minimized
- Procedures to determine the maximum rolling and paving speeds based on best engineering practices and past experience in achieving acceptable pavement smoothness.
- Sequence for paving around drainage structures, under guard rail, around curb, at bridges, intersections, drives and minor approaches to ensure proper compaction, finish, and drainage.

d. Quality Control Requirements – Method C and D:

- Name of QCP Administrator and certification number(s) as specified in Section 401.19.
- Name of Process Control Technicians(s) and certification number(s).
- Name of Quality Control Technicians(s) and certification number(s).
- Anticipated Compaction Temperature Zones for each roller zoned during placement.
- Mix TMD to be used for density gauge setting for method spec density work
- Procedures for avoiding paving in inclement weather.

The Contractor shall also supply a Laydown Operation Plan that addresses sequence of work, layout of work, longitudinal joint construction, compaction of shoulders, methods to minimize segregation, and procedures to achieve acceptable pavement smoothness.

For each production day, a summary of each day's results, including a daily paving report, summarizing the mixture type, mixture temperature, equipment used, environmental conditions, and the number of roller passes, shall be recorded and signed by the QCT and presented to the Department's representative by 1 PM the following working day.

Unless otherwise noted in Section 403 – Hot Mix Asphalt Pavement, the Contractor shall submit a modified QC Plan every year detailing, how the mix is to be placed, what equipment is to be used, and what HMA plant is to be used for Items covered under the Plan. All mix designs (JMF) shall be approved and verified by MaineDOT prior to use.

The Contractor shall certify the mix and the test results for each item by a Certificate of Compliance.

The Contractor shall have a testing lab at the plant site, equipped with all testing equipment necessary to complete the tests in Table 6. The Contractor shall generate QC sampling random numbers for each approved mix design every year. A copy of the random numbers shall be emailed to the QC.mainedot@maine.gov email address and remain on-file (in print) and be available for inspection at the QC laboratory. The Contractor shall sample, test, and evaluate Hot Mix Asphalt Pavement in accordance with the minimum frequencies per each approved mix design.

TABLE 6: MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Temperature of mix	6 per day at street and plant	-
Temperature of mat	4 per day	-
%TMD (In-Place Density - Surface)	1 per 125 ton	AASHTO T 355 or AASHTO T 343
%TMD (In-Place Density - Base)	1 per 250 ton	AASHTO T 355 or AASHTO T 343
Fines / Effective Binder	1 per 500 ton	AASHTO T 312*
Gradation	1 per 500 ton	AASHTO T 30
PGAB Content	1 per 500 ton	AASHTO T 164 or AASHTO T 308
Voids at N_{design}	1 per 500 ton	AASHTO T 312*
VMA at N_{design}	1 per 500 ton	AASHTO T 312*
Rice Specific Gravity	1 per 500 ton	AASHTO T 209
Percent Fractured Particles	1 per 5,000 ton	AASHTO T 335
Flat and Elongated Particles	1 Per 5,000 ton	ASTM D4791
Fine Aggregate Angularity	1 Per 5,000 ton	AASHTO T 304

The Contractor shall monitor plant production on each approved mix design using running average of three control charts as specified in Section 106 - Quality. Control limits shall be as noted in Table 7 below. The UCL and LCL, shall not exceed the allowable gradation control points for the particular type of mixture as outlined in Table 1 of Section 703.09.

TABLE 7: CONTROL LIMITS

Property	UCL and LCL
Percent Passing 4.75 mm and larger sieves	Target +/- 4.0
Percent Passing 2.36 mm sieve	Target +/- 2.5
Percent Passing 0.075 mm sieve	Target +/- 1.0
PGAB Content	Target +/- 0.25
VMA at N_{design}	LCL = LSL + 0.2
Voids at N_{design}	JMF Target +/- 1.2
Theoretical Maximum Specific Gravity	JMF Target +/- 0.020

The Contractor shall submit all QC test and inspection reports and updated control charts to the Resident and QC.mainedot@maine.gov by email. The reports and updated control charts shall be signed by the appropriate technician and be submitted to the Department by 1:00 P.M. on the next working day, except when otherwise noted in the QCP and approved by the Department.

The Contractor shall also retain splits of the previous 5 QC tests, with QC results enclosed for random selection and testing by the Department. Test results of splits that do not meet the Dispute Resolution

Variance Limits in Table 18 shall trigger an investigation by the MaineDOT Independent Assurance Unit and may result in that lab losing NETTCP certification and the ability to request a dispute [Section 401.50 - Process for Dispute Resolution].

The Contractor shall make density test results, including randomly sampled densities, available to the Department onsite. Summaries of each day's results, including a daily paving report summarizing the mixture type, mixture temperature, equipment used, environmental conditions, and the number of roller passes, shall be recorded and signed by the QCT and provided to the QC.mainedot@maine.gov email address and Resident in writing by 1:00 p.m. the next working day. The Contractor shall fill all holes in the pavement resulting from cutting cores by the Contractor or the Department with a properly compacted, acceptable mixture no later than the following working day. Before filling, the Contractor shall carefully clean the holes and apply a coating of emulsified asphalt. The Contractor may only cut additional cores for verification of the densometer, at a rate not to exceed 3 per day or 2 per 1000 ton placed.

If the Contractor's control chart shows the process for a given mix design to be out of control (defined as a single point outside of the control limits on the running average of three chart) on any property listed in Table 7: Control Limits, the Contractor shall notify the Resident of all affected projects in writing of the corrective action by 1:00 PM the next working day. The written description shall detail what action is being taken by the Contractor to bring the property in question back within control limits. Subsequent quality control results are expected to demonstrate an improvement and regression towards the aim. The Department reserves the right to take action, to include cessation of production, in the case of repeated results outside the Table 7 control chart control limits.

On a daily basis, or whenever equipment type or sequence is modified, the Contractor shall perform density testing across the mat being placed, prior to being compacted by equipment at 12 in intervals. If the density values vary by more than 2.0% from the mean, the Contractor shall make adjustments to the screed until the inconsistencies are remedied. Failure to replace or repair defective placement equipment may result in a letter of suspension of work and notification of a quality control violation resulting in possible monetary penalties as governed by Section 106 – Quality.

The Contractor shall cease paving operations whenever one of the following occurs:

- a. The quality level for density using all quality control tests for the current Lot is less than 60 PWL.
- b. The Coarse Aggregate Angularity or Fine Aggregate Angularity value falls below the requirements of Section 703.07, Table 3: Aggregate Consensus Properties Criteria for the design traffic level.
- c. The Flat and Elongated Particles value exceeds 10% by ASTM D4791.
- d. There is any visible damage to the aggregate due to over-densification other than on variable depth shim courses.
- e. The Contractor fails to follow the approved QCP.

The Contractor shall notify the Resident in writing as to the reason for shutdown, as well as the corrective action, by the end of the workday. Failure to do so will be treated as a second incident under 106.4.6 QCP Non-compliance. The Department will only allow the continuation of paving operations when it is satisfied the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production. The Department

retains the exclusive right, with the exception of the first day's production of a new JMF, to determine whether the resumption of production involves a significant change to the production process. If the Department so determines, then the current lot will be terminated, a pay factor established, and a new lot will begin.

The Contractor may utilize innovative equipment or techniques not addressed by the Contract documents to produce or monitor the production of the mix, subject to approval by the Department.

401.192 Quality Control and Acceptance for Item 403.209 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size, (sidewalks, drives, islands & incidentals) and visual acceptance items Item 403.209 will be accepted under method D acceptance unless otherwise noted in the 403 special provision. A QCP, certified QC personnel, or Prepave Meeting shall not be required for Item 403.209 - Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals) when accepted under either visual acceptance or under Method D acceptance unless otherwise specified in the 403 SP. An approved JMF shall be provided to the Resident prior to placement.

401.20 Acceptance Method A & C These methods utilize Quality Level Analysis and pay factor specifications. For Hot Mix Asphalt Pavement designated for acceptance under Quality Assurance provisions, the Department will sample once per subplot on a statistically random basis, test, and evaluate in accordance with the Acceptance Properties as outlined in Table 8:

TABLE 8: ACCEPTANCE PROPERTIES – METHOD A & C

Properties	Point of Sampling	Test Method
Gradation	Paver Hopper	AASHTO T 30
PGAB Content	Paver Hopper	AASHTO T 308
% TMD (In-Place Density)	Mat behind all Rollers	AASHTO T 269
Voids at N_{design}	Paver Hopper	AASHTO T 312
VMA at N_{design}	Paver Hopper	AASHTO T 312
Fines to Effective Binder	Paver Hopper	AASHTO T 312
VFB	Paver Hopper	AASHTO T 312

The Department will obtain samples of Hot Mix Asphalt Pavement in conformance with AASHTO R 97, Sampling Asphalt Mixtures, and the MaineDOT Policies and Procedures for HMA Sampling and Testing. The Contractor shall transport the samples in containers provided by the Department to the designated MaineDOT Laboratory within 48 hours except when otherwise noted in the project specific QCP or as directed by the Resident. Failure to deliver an acceptance sample to the designated acceptance laboratory will be considered the second incident under 106.4.6–QCP Non-Compliance.

Target values shall be as specified in the JMF. The Department will withhold reporting of the test results for the Acceptance sample until 7:00 AM, on the second working day of receipt of the sample, or after receipt of the Contractors results of the Acceptance sample split. Upon conclusion of each lot being evaluated under quality level analysis, where there is a minimum of four sublots, results shall be examined for statistical outliers, as stated in Section 106.7.2 - Statistical Outliers.

Lot sizes and subplot sizes shall be determined as outlined in Table 9.

TABLE 9: LOT AND SUBLOT SIZES – METHOD A & C

Lot Size*	Entire production per item per contract per year up to 6000 ton
Maximum Sublot Size – Mix	750 ton
Maximum Sublot Size – Density	Surface Layers – 250 ton Base / Intermediate Layers – 500 ton
Minimum Number of Samples – Mix	Four
Minimum Number of Samples – Density	Five

*General – Lot and Sublot size may be adjusted to accommodate the work scope and schedule, or as otherwise agreed upon at the Prepave Meeting

If there is less than one-half of a subplot remaining at the end of production for the year, then it shall be combined with the previous subplot. If there is more than one-half subplot remaining at the end of production for the year, then it shall constitute the last subplot and shall be represented by test results. If it becomes apparent partway through a Lot that, due to an underrun, there will be insufficient mix quantity to obtain the minimum number of sublots needed, the Resident may adjust the size of the remaining sublots and select new sample locations based on the estimated quantity of material remaining in the Lot. Unanticipated over-runs of up to 1500 ton shall be rolled into the last lot. Cases where the lot is terminated prior to reaching completion shall be handled in accordance with Section 106.7.3 Early Termination of Lots. In cases where a density incentive/disincentive provision apply, additional cores shall be taken to attain a minimum of three for the Lot.

Isolated Areas During the course of inspection, should it appear that there is an isolated area that is not representative of the lot based on a lack of observed compactive effort, excessive segregation, a change in process or any other questionable practice, that area may be isolated and tested separately.

An area so isolated that has a calculated pay factor below 0.80 for Method A, based on three random tests shall be removed and replaced at the expense of the Contractor for the full lane width and a length not to be less than 150 ft.

TABLE 10: ACCEPTANCE LIMITS – METHOD A & C

Property	USL and LSL	
	Method A	Method C
Percent Passing 4.75 mm and larger sieves	Target +/- 7%	Target +/- 7%
Percent Passing 2.36 mm to 1.18 mm sieves	Target +/- 4%	Target +/- 5%
Percent Passing 0.60 mm sieve	Target +/- 3%	Target +/- 4%
Percent Passing 0.30 mm to 0.075 mm sieve	Target +/- 2%	Target +/- 2%
PGAB Content	Target +/- 0.4%	Target +/- 0.4%
Voids at N_{design}	4.0% +/- 1.5%	N/A
Fines to Effective Binder	0.9 +/- 0.3	N/A
VMA at N_{design}	LSL from Table 1	N/A
VFB	Table 1 plus a 4% production tolerance for USL	N/A
% TMD (In-place Density)	94.5% +/- 2.5%	94.5% +/- 2.5%

Cease Production The Contractor shall cease paving operations whenever one of the following occurs on a lot in progress:

TABLE 11: CEASE PRODUCTION – METHOD A & C

Property	Percent Within Limits (PWL)	
	Method A	Method C
Percent Passing NMAS sieve*	<60 PWL	<60 PWL
Percent Passing 2.36 mm sieve*		
Percent Passing 0.30 mm sieve*		
Percent Passing 0.075 mm sieve*		
PGAB Content		N/A
Voids at N_{design}		
Fines to Effective Binder*		
VMA at N_{design}		
VFB	<60 PWL	<60 PWL
% TMD (In-place Density)		

*Paving operations shall not be required to cease if the mean test value is equal to the LSL or USL and $s = 0$.

In cases where the Contractor is to cease paving operations based upon an Acceptance result or payfactor, the Contractor will submit a corrective action plan to the Department. The Department will only allow the continuation of paving operations when it is satisfied the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production.

401.201 Pay Adjustment - Method A & C The Department will use the following criteria for pay adjustment at the completion of the Lot using the pay adjustment factors under Section 106.7 - Quality Level Analysis.

Density Upon conclusion of each lot, density results shall be examined for statistical outliers as stated in Section 106.7.2. If the pay factor for Density falls below 0.80, all of the cores will be randomly re-cut by Sublot. A new pay factor will be calculated that combines all initial and retest results. If the resulting pay factor is below 0.80, the entire Lot shall be removed and replaced with material meeting the specifications at no additional cost to the Department, except that the Department may, when it appears that there is a distinct pattern of defective material, isolate any defective material by investigating each mix sample subplot and require removal of defective mix sample sublots only, leaving any acceptable material in place if it is found to be free of defective material. Pay factors equal to or greater than the reject level will be paid accordingly.

Mix Properties The Department will determine a pay factor (PF) using the applicable Acceptance Limits. If all three pay factors for PGAB Content, VMA at N_{design} , and Voids at N_{design} fall below 0.80 for Method A, then the composite pay factor for PGAB Content, VMA at N_{design} , and Voids at N_{design} shall be 0.50.

The following variables will be used for pay adjustment:

PA = Pay Adjustment
 Q = Quantity represented by PF in ton
 P = Contract price per ton
 PF = Pay Factor

The Department will determine a pay adjustment using Table 12: Pay Adjustment Calculations as follows:

TABLE 12: PAY ADJUSTMENT CALCULATIONS – METHOD A & C

Acceptance Method	Mix Properties / Gradation	Density
Method A	$PA = (\text{Voids @ } N_d \text{ PF} - 1.0)(Q)(P)x0.20 + (\text{VMA @ } N_d - 1.0)(Q)(P)x0.20 + (\text{PGAB Content PF} - 1.0)(Q)(P)x0.10$	$PA = (\text{density PF} - 1.0)(Q)(P)x0.50$
Method C	$PA = (\% \text{ Passing Nom. Max PF} - 1.0)(Q)(P)x0.05 + (\% \text{ passing 2.36 mm PF} - 1.0)(Q)(P)x0.05 + (\% \text{ passing 0.30 mm PF} - 1.0)(Q)(P)x0.05 + (\% \text{ passing 0.075 mm PF} - 1.0)(Q)(P)x0.10 + (\text{PGAB Content PF} - 1.0)(Q)(P)x0.25$	$PA = (\text{density PF} - 1.0)(Q)(P)x0.50$

In addition, for 9.5 mm NMAS mixtures the following pay adjustment shall also apply:

The average percent passing for the 0.075 mm sieve shall be evaluated for each Lot. If the average is greater than 6.5%, a pay adjustment according to Table 13 below shall apply in addition to the other pay adjustments for the given method of testing.

TABLE 13: 0.075 MM SIEVE PAY ADJUSTMENT

Average Percent Passing 0.075 mm Sieve	Pay Adjustment
6.6% - 7.0%	-5%
> 7.0%	-10%

The Department shall notify the Contractor whenever the average of at least three samples in a given Lot is greater than 6.5%.

401.21 Acceptance Method B & D Unless otherwise stated in the 403 special provision, the Lot shall be the entire mix quantity per item per contract per year. The Department will sample once per subplot per pay item on a statistically random basis, test, and evaluate in accordance with the Acceptance Properties in Table 14. The Department will obtain samples of Hot Mix Asphalt Pavement in conformance with AASHTO R 97, Sampling Asphalt Mixtures, and the MaineDOT Policies and Procedures for HMA Sampling and Testing. The Contractor shall transport the samples in containers provided by the Department to the designated MaineDOT Laboratory within 48 hours except when otherwise noted in the project specific QCP or as directed by the Resident. Failure to deliver an acceptance sample to the designated acceptance laboratory will be considered the second incident under 106.4.6–QCP Non-Compliance. Target values shall be as specified in the JMF. The Department will withhold reporting of the test results for the Acceptance sample until 7:00 AM, on the second working day of receipt of the sample, or after receipt of the Contractors results of the Acceptance sample split.

TABLE 14: ACCEPTANCE PROPERTIES – METHOD B & D

Properties	Point of Sampling		Test Method
	Method B	Method D	
Gradation	Paver Hopper	Paver Hopper or Truck	AASHTO T 30
PGAB Content	Paver Hopper	Paver Hopper or Truck	AASHTO T 308
% TMD (In-Place Density)	Mat behind all Rollers	Mat behind all Rollers	AASHTO T 269
Voids at N_{design}	Paver Hopper	N/A	AASHTO T 312
VMA at N_{design}	Paver Hopper	N/A	AASHTO T 312
Fines to Effective Binder	Paver Hopper	N/A	AASHTO T 312
VFB	Paver Hopper	N/A	AASHTO T 312

TABLE 15: LOT AND SUBLOT SIZES – METHOD B & D

Lot Size*	Entire mix quantity per item per contract per year
Maximum Sublot Size – Mix	250 ton (Max 4 Sublots)
Sublot Size – Density	125 ton (Max 5 Sublots)

*General – Lot and Sublot size may be adjusted to accommodate the work scope and schedule, or as otherwise agreed upon at the Prepave Meeting

If there is less than one-half of a subplot remaining at the end of production for the year, then it shall be combined with the previous subplot. If there is more than one-half subplot remaining at the end of production for the year, then it shall constitute the last subplot.

TABLE 16: ACCEPTANCE LIMITS – METHOD B & D

Property	USL and LSL	
	Method B	Method D
Percent Passing 4.75 mm and larger	Target +/- 7%	Target +/- 7%
Percent Passing 2.36 mm sieve	Target +/- 5%	Target +/- 7%
Percent Passing 1.18 mm sieve	Target +/- 5%	Target +/- 5%
Percent Passing 0.60 mm sieve	Target +/- 4%	Target +/- 4%
Percent Passing 0.30 mm sieve	Target +/- 3%	Target +/- 3%
Percent Passing 0.075 mm sieve	Target +/- 3%	Target +/- 3%
PGAB Content	Target +/- 0.5%	Target +/- 0.5%
Voids at N _{design}	4.0% +/- 2.0%	N/A
Fines to Effective Binder	0.9 +/- 0.3	N/A
VMA at N _{design}	LSL from Table 1	N/A
VFB	Table 1 plus a 4% production tolerance for USL	N/A
% TMD (In-place Density)	94.5% +/- 2.5%	LSL of 92.0%

The Contractor shall cease paving operations whenever two consecutive Method B or D tests fall outside specification limits on the same property. The Contractor will submit a corrective action plan to the Department. The Department will only allow the continuation of paving operations when it is satisfied the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production.

401.211 Pay Adjustment - Method B & D For items accepted under Method B or D, if the mix is within the tolerances listed in Table 16, the Department will pay the contract unit price. Otherwise, pay adjustments as shown in Table 17 shall be applied to the quantity of mix represented by the test. The Contractor shall cut one 6 in core per subplot unless otherwise noted in Section 403 - Hot Mix Asphalt Pavement. If the density result is not within the specified limits the disincentive shall apply. If the subplot density is less than 88.5 percent or greater than 99.0 percent of the subplot TMD, two additional cores shall be cut at random locations determined by the Department. If either of the additional cores has a density less than 88.5 percent or greater than 99.0 percent of the subplot TMD, the subplot shall be removed and replaced at no cost to the Department; otherwise, the average of the three cores will be used to determine the subplot pay adjustment.

TABLE 17: PAY ADJUSTMENTS – METHOD B & D

Property	Method B		Method D	
Percent Passing 2.36 mm sieve	N/A		-2.0%	
Percent Passing 0.30 mm sieve	N/A		-1.0%	
Percent Passing 0.075 mm sieve	-2.0%		-2.0%	
PGAB Content	-5.0%		-5.0%	
Voids at N _{design}	-3.0%		N/A	
% TMD (In-place Density)	91.5% - 91.9% or 97.1% - 97.5%	-5.0%	91.5% - 91.9%	-5.0%
	90.5% - 91.4% or 97.6% - 98.5%	-10.0%	90.5% - 91.4%	-10.0%
	89.5% - 90.4% or 98.6% - 99.0%	-20.0%	89.5% - 90.4%	-20.0%
	88.5% - 89.4%	-30.0%	88.5% - 89.4%	-30.0%
	<88.5% or >99.0%	Reject	<88.5% or >99.0%	Reject

401.30 Method of Measurement The Department will measure Hot Mix Asphalt Pavement by the ton in accordance with Section 108.1 - Measurement of Quantities for Payment.

401.40 Basis of Payment The Department will pay for the work, in place and accepted, in accordance with the applicable sections of this Section, for each type of HMA specified.

The Department will pay for the work specified in Section 401.12, for the HMA used, except that cleaning objectionable material from the pavement and furnishing and applying bituminous material to joints and contact surfaces is incidental. Payment for this work under the appropriate pay items shall be full compensation for all labor, equipment, materials, and incidentals necessary to meet all related contract requirements, including design of the JMF, implementation of the QCP, obtaining core samples, transporting cores and samples, filling core holes, applying emulsified asphalt to joints, and providing testing facilities and equipment. The Department will make a pay adjustment for quality as specified in Section 401.20 Acceptance Method A & B or 401.21 Acceptance Method C & D.

401.50 Process for Dispute Resolution At the time of Hot-Mix Asphalt sampling, the Department will obtain a split sample of each Acceptance test random sample for possible dispute resolution testing. The Contractor shall also obtain a split sample of the HMA at this same time. If the Contractor wishes to retain the option of requesting dispute testing of the initial Acceptance sample, the Contractor will test their split of the Acceptance sample in accordance with applicable AASHTO procedure and accepted supplemental practice as described in the Department's HMA Sampling and Testing Policies and Procedures manual. The Contractor shall report their results to the Resident, with a copy to Contractor.mainedot@maine.gov by 7:00 AM, on the second working day from time of QA sampling, otherwise dispute resolution will not be initiated. The Department's dispute resolution split sample will be properly labeled and stored for a period of at least two weeks after it has been reported, or until the sample is tested. The properties eligible for dispute and the respective variances are shown in Table 18.

The Contractor may dispute the Department's Acceptance results and request that the dispute resolution split sample be tested by notifying the Department's Resident and QA Engineer in writing within two working days after the results of the Acceptance test are reported. The following shall be provided in the request:

- Acceptance sample reference number
- The specific test result(s) or property(ies) being disputed, and
- The complete, signed report of the Contractor's testing (In a lab certified by the NETTCP and MaineDOT) of their split of the Acceptance sample indicating that the variances in Table 18 for the specific test result(s) or property(ies) were met or exceeded.

TABLE 18: DISPUTE RESOLUTION VARIANCE LIMITS

Property	Method A & B	Method C & D*	Variance Limits
PGAB Content	Yes	Yes	+/- 0.4%
G _{mb}	Yes	No	+/- 0.030
G _{mm}	Yes	Only if referenced to a Core	+/- 0.020
Voids at N _{design}	Only if G _{mb} or G _{mm} is not disputable	No	+/- 0.8%
VMA at N _{design}	Only if G _{mb} or G _{mm} is not disputable	No	+/- 0.8%
Percent Passing 4.75 mm and larger sieves	No	Yes^	+/- 4.0%
Percent Passing 2.36 mm to 0.60 mm sieves	No	Yes^	+/- 3.0%
Percent Passing 0.30 mm to 0.15 mm sieves	No	Yes^	+/- 2.0 %
0.075 mm sieve	Only for 9.5 mm NMAS mixes	Yes	+/- 0.8%

*Disputes will not be allowed on Item 403.209

^Disputes will only be allowed on Sieve Sizes used for pay adjustment calculations

The value of any disputed result or property reported for the initial Acceptance sample shall stand if the value reported for the dispute resolution sample is not closer to the value the Contractor reported for their split sample than to the value reported for the initial Acceptance sample. If the value reported for the dispute resolution falls precisely half-way between the other two values the value reported for the dispute resolution will replace the original acceptance value. Otherwise, the value reported for the dispute resolution sample will replace the value reported for the initial Acceptance sample and will be used to re-calculate any other affected results or properties.

SECTION 402 - PAVEMENT SMOOTHNESS

402.00 Smoothness Projects Projects to have their pavement smoothness analyzed in accordance with this Specification will be so noted in Special Provision 403 - Hot Mix Asphalt Pavement.

402.01 Pavement Smoothness The final pavement surface shall be evaluated for smoothness using a Class I or Class II profiler as defined by ASTM E950 (94). Smoothness measurements will be expressed in terms of the International Roughness Index (IRI) as defined by the World Bank, in units of inches/mile.

402.02 Lot Size Lot size for smoothness will be 3000 lane-feet. A subplot will consist of 50 lane-feet. Partial lots will be included in the previous lot if less than one-half the size of a normal lot. If equal to or greater than one-half the normal lot size, it will be tested as a separate lot.

402.03 Acceptance Testing The Department will conduct Acceptance testing following completion of the surface course. Sections to be excluded from testing include the following:

- Bridge decks and joints (no smoothness measurements will be taken within 100 ft of bridge joints)
- Acceleration and deceleration lanes
- Shoulders and ramps
- Side streets and roads
- Within 100 ft of transverse joints at the beginning and end of the project
- Within 100 ft of railroad crossings
- Urban areas with speed limits of 30 mph or lower

Each lot shall have 2 measurements made in each wheel path. The average of the 4 measurements will determine the smoothness for that lot. The smoothness measurements will be statistically evaluated for pay factors as described in Subsection 106.7 - Quality Level Analysis, using the specification limits shown below.

TABLE 1: ACCEPTANCE LIMITS

Level	USL
I	55 in/mile
II	65 in/mile
III	75 in/mile

Computation of Smoothness Pay Adjustment:

$PA = (PF - 1.0)(Q)(P)$ where:

Q = Quantity of surface course in the Lot (excluding shoulders, side streets, bridge decks, ramps, acceleration and deceleration lanes)

PF = smoothness pay factor for the Lot

P = Contract unit price for surface pavement

PA = pay adjustment

402.04 Unacceptable Work In the event that any Lot is found to have a pay factor less than 0.80, the Contractor shall take whatever remedial action is required to correct the pavement surface in that Lot at no additional expense to the Department. Such remedial action may include but is not limited to removal and replacement of the unacceptable pavement. In the event remedial action is necessary, the Contractor shall submit a written plan to the Resident outlining the scope of the remedial work. The Resident must approve this plan before the remedial work can begin. Following remedial work, the Lot shall be retested, and will be subject to the specification limits listed above. The resulting pay factor, if within the acceptable range, will be used in the final pay adjustment. The Contractor shall pay the cost of retesting the pavement following corrective action.

Localized surface tolerance defects will be subject to the provisions outlined in Section 401.11 Surface Tolerances.

Payment will be made under:

Pay Item

402.10 Incentive/Disincentive - Pavement Smoothness

Pay Unit

Lump Sum

SECTION 403 - HOT MIX ASPHALT PAVEMENT

403.01 Description This work shall consist of constructing one or more courses of Hot Mix Asphalt pavement on an approved base in accordance with these specifications, and in reasonably close conformity with the lines, grades, thickness and typical cross sections shown on the plans or established. The HMA pavement shall be composed of a mixture of aggregate, filler if required, and asphalt material.

403.02 General The materials and their use shall conform to the requirements of Section 401 - Hot Mix Asphalt Pavement.

403.03 Construction The construction requirements shall be as specified in Section 401 - Hot Mix Asphalt Pavement.

403.04 Method of Measurement Hot mix asphalt pavement will be measured as specified in Section 401.21- Method of Measurement.

403.05 Basis of Payment The accepted quantities of hot mix asphalt pavement will be paid for at the contract unit price per ton for the mixtures, including hot mix asphalt material complete in place. Method A, Method B, Method C and Method D shall be used for acceptance as specified in Section 401 - Hot Mix Asphalt Pavements. (See Complementary Notes, Section 403 - Hot Mix Asphalt Pavement, for Method location).

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
403.102 Hot Mix Asphalt Pavement for Special Areas	Ton
403.206 Hot Mix Asphalt, 25 mm Nominal Maximum Size	Ton
403.207 Hot Mix Asphalt, 19.0 mm Nominal Maximum Size	Ton
403.2071 Hot Mix Asphalt, 19.0 mm Nominal Maximum Size (Polymer Modified)	Ton
403.2072 Asphalt Rich Hot Mix Asphalt, 19.0 mm Nominal Maximum Size (Asphalt Rich Base and Intermediate course)	Ton
403.208 Hot Mix Asphalt, 12.5 mm Nominal Maximum Size	Ton
403.2081 Hot Mix Asphalt - 12.5 mm Nominal Maximum Size (Polymer Modified)	Ton
403.209 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Sidewalks, Drives, Islands & Incidentals)	Ton
403.210 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size	Ton
403.2101 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Polymer Modified)	Ton
403.2104 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Thin Lift Surface Treatment)	Ton
403.211 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Shimming)	Ton
403.2111 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Shimming, Polymer Modified))	Ton
403.212 Hot Mix Asphalt, 4.75 mm Nominal Maximum Size	Ton
403.213 Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base course)	Ton
403.2131 Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base course, Polymer Modified)	Ton
403.2132 Asphalt Rich Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base course)	Ton
403.214 Hot Mix Asphalt, 4.75 Nominal Maximum Size (5/8" Surface Treatment)	Ton

SPECIAL PROVISION
SECTION 401
SECTION 401 - HOT MIX ASPHALT PAVEMENT
(HMA Hamburg Wheel Tracker Specification)

401.03 Composition of Mixtures The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), and mineral filler if required. HMA shall be designed and tested according to AASHTO R35 and the volumetric criteria in Table 1. The Contractor shall size, uniformly grade, and combine the aggregate fractions in proportions that provide a mixture meeting the grading requirements of the Job Mix Formula (JMF). Unless otherwise noted in Special Provision 403 - Hot Mix Asphalt Pavement, the design, verification, Quality Control, and Acceptance tests for this mix will be performed at 65 gyrations.

TABLE 1: VOLUMETRIC DESIGN CRITERIA

Design ESAL's (Millions)	Required Density (Percent of G _{mm})			Voids in the Mineral Aggregate (VMA)(Minimum Percent)					Voids Filled with Binder (VFB) (Minimum %)	Fines/Eff. Binder Ratio
				Nominal Maximum Aggregate Size (mm)						
	N _{initial}	N _{design}	N _{max}	25	19	12.5	9.5	4.75		
<3	≤90.5	96.0	≤98.0	13.0	14.0	15.0	16.0	16.0	65-80*	0.6-1.2
3 to <10	≤89.0									
> 10	≤89.0									

*For 9.5 mm nominal maximum aggregate size mixtures, the maximum VFB is 82.

*For 4.75 mm nominal maximum aggregate size mixtures, the maximum VFB is 84.

The Contractor shall submit for Department approval a JMF to the Pavement Materials Engineer for each mixture to be supplied including the PG binder grade/supplier and the intended test temperature for the HWT approval. The JMF will be approved by the Department in accordance with the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual. If the Contractor is submitting a new JMF, the Contractor shall identify and make available the stockpiles of all proposed aggregates at the plant site at the time of JMF submittal. There must be a minimum of 150 ton for coarse aggregate stockpiles and 75 ton for fine aggregate stockpiles before the JMF may be submitted. The Contractor shall provide aggregate samples to the Department unless otherwise required. The Contractor shall also make available to the Department the PG Binder proposed for use in the mix in sufficient quantity to test the properties of the asphalt and to produce samples for testing of the mixture. If the Contractor is submitting a new JMF the first day's production shall be monitored, and approval may be withdrawn if the mixture exhibits undesirable characteristics such as checking, shoving or displacement. The Contractor shall be allowed to submit aim changes for a JMF as outlined in the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual: Mix Design Approval Section.

The Contractor shall submit a new JMF for approval each time a change in material source or materials properties is proposed. The same approval process shall be followed. The cold feed percentage of any aggregate may be adjusted up to 10 percentage points from the amount listed on the JMF, however no aggregate listed on the JMF shall be eliminated. The cold feed percentage for RAP may be reduced up to 10 percentage points from the amount listed on the JMF and shall not exceed the percentage of RAP approved in the JMF or for the specific application under any circumstances.

If submitting a new JMF, the Contractor shall provide the Department with eight boxes of plant produced HMA before the start of paving. The Contractor shall test its split of the sample and determine if the results meet the requirements of the Department's written policy for mix design verification (See MaineDOT Policies and Procedures for HMA Sampling and Testing). If the results are found to be acceptable, the Contractor will forward their results to the Department's Lab, which will test the Department's split of the sample. The results of the two split samples will be compared and shared between the Department and the Contractor. If the HMA meets the requirements for mix design verification, the mixture will be tested for rutting and moisture sensitivity in the Hamburg Wheel Tracker according to AASHTO T324, "Hamburg Wheel-Track Testing of Hot Mix Asphalt (HMA)." The Department will not test the mixture for HWT until the HMA meets the mix design verification requirements.

The sample will be required to meet the applicable requirements of Table 1A below for approval and will be dependent on the test temperature submitted by the Contractor. The minimum PG Binder grade required shall be as specified by the 403 Special Provision. The Contractor may submit a design with a binder grade exceeding the minimum specified to meet the HWT requirements of the 403. If the sample meets the requirements of Table 1A, an approved JMF listing the approved PG Binder Grade to meet the HWT requirements will be forwarded to the Contractor and paving may commence. The Department will have five business days from receipt of the sample at the Central Laboratory to process, test, and report the Hamburg Wheel Tracker sample. The first day's production shall be monitored, and the approval may be withdrawn if the mixture exhibits undesirable characteristics such as checking, shoving or displacement.

TABLE 1A: HAMBURG WHEEL TRACKER REQUIREMENTS

Specified PG Binder Grade	Test Temperature (°C)	Maximum Rut Depth (mm)	Minimum Number of Passes	Minimum Allowable SIP*
PG 64-28	45	12.5	20,000	15,000
PG 64E-28	48	12.5	20,000	15,000
PG 70E-28 (or greater)	50	12.5	20,000	15,000

* As calculated by the most recently published version of the MaineDOT HWT worksheet, which is available online at <https://www.maine.gov/dot/doing-business/hma-resources>

Should the Contractor choose to change their PG Binder source and/or modify the PG Binder grade after initial approval, the Department will take an additional verification sample and test the HMA to verify compliance with the Hamburg Wheel Tracker Requirements. If this sample fails to meet the criteria in Table 1A, the Contractor will be required cease production and submit a corrective action letter to the Department. HWT approval of the JMF will be suspended until the Department can verify that the submitted sample meets the requirements of Table 1A. Failure to notify the Department of a change in supplier will be treated as a second incident under 106.4.6 QCP Non-compliance.

401.19 Contractor Quality Control - Method A, B, C & D The following language has been added to Section 401.19:

The project specific QCP shall address the PG Binder source and grade, sampling, transport, and testing of Hamburg Wheel Tracker QC samples and what potential steps will be taken if QC samples do not meet the requirements in Table 1A. The project-specific QCP shall also contain a sample Hamburg Wheel Tracker test report for approval. The Contractor shall sample and test HMA Pavement in the Hamburg Wheel Tracker according to AASHTO T324 in accordance with the following minimum frequencies:

TABLE 2A: MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Hamburg Wheel Tracker	1 per 6,000 ton and at least once per Acceptance Lot	AASHTO T 324

If the Contractor is submitting a new JMF the Contractor shall sample the HMA on the first day of production and test the sample in the Hamburg Wheel Tracker according to AASHTO T324. This sample will not count towards the minimum quality control frequency specified in Table 2A.

The Contractor shall submit all Hamburg Wheel Tracker test reports in writing, signed by the appropriate technician and present them to the Department within ten working days of initial sampling, except when otherwise noted in the project specific QCP due to local restrictions. The Contractor shall make the raw Hamburg Wheel Tracker data from QC samples available to the Department upon request. If a QC sample fails to meet the criteria in Table 1A, the Contractor will be required to submit a corrective action letter to the Resident, Materials Engineer, Pavement Quality Manager, and Pavement Quality Engineer by the end of the following working day with the proposed changes to bring the mixture back into compliance. The Department will respond and either accept or reject the Contractor's proposed corrective action by the end of the following working day from when the letter was received.

401.20 & 401.21 Acceptance Method(s) A, B, C & D The following language has been added to Section(s) 401.20 & 401.21

First Day Production HWT Verification Sample for Acceptance The Department will sample the HMA on the first day of production. This sample will be considered a first day of production HWT verification sample and will not count towards the minimum HWT acceptance frequencies specified in Table 3A unless otherwise determined by the Department. This sample may be taken in conjunction with the first mix acceptance sample. The number of boxes required will be as specified in Table 3B.

If the first day of production HWT verification sample fails to meet the criteria in Table 1A or yields two consecutive inconclusive results, the Contractor shall cease paving operations and submit a verification sample to the Department. HWT approval of the JMF will be suspended until the Department can verify that the submitted sample meets the requirements of Table 1 and Table 1A.

A first day production sample will not be required for a previously approved JMF that has met HWT requirements listed in Table 1A if the following criteria have been met:

1. A minimum of one passing HWT Department issued acceptance results within the calendar year (Construction Season) of production.
2. A minimum of three consecutive passing HWT Department issued acceptance results within the past year of production (365 days). These results shall be the three most recent Department issued acceptance samples.
3. No changes in the source of the PG Binder and/or modifications to the PG Binder grade from the initial HWT approval have been made.

As part of the QCP, the Contractor shall provide in writing the request to waive the first day production sample and will include the necessary supporting documentation as specified above.

Acceptance Sampling The Department will sample at the HWT acceptance frequencies specified in Table 3A to verify the compliance with the Hamburg Wheel Tracker Requirements. The number of boxes required will be as specified in Table 3B, with two boxes reserved for retesting of inconclusive results. A mix acceptance sample within an acceptance lot will be selected at random by the Department for HWT acceptance sampling. Depending on daily production rates, the first day of production HWT verification sample and the first acceptance sample may be taken on the same day, but shall not be from the same acceptance sample unless otherwise determined by the Department.

If a HWT acceptance sample fails to meet the criteria in Table 1A and fails to exceed an average of 15,000 cycles, the Contractor shall cease paving operations and submit a verification sample to the Department. HWT approval of the JMF will be suspended until the Department can verify that the submitted sample meets the requirements of Table 1 and Table 1A. A pay factor will be determined using Table 4.

If a HWT acceptance sample fails to meet the criteria in Table 1A, but exceeds an average of 15,000 cycles, the Contractor shall cease paving operations and submit a Corrective Action to the Department. A pay factor for the failing sample will be determined using Table 4.

Inconclusive Results If a HWT acceptance sample indicates an “inconclusive result” the Department will immediately retest the sample using the additional retained 2 boxes. Should the second sample also yield an inconclusive result, the Contractor shall cease paving operations and submit a verification sample to the Department. HWT approval of the JMF will be suspended until the Department can verify that the submitted sample meets the requirements of Table 1 and Table 1A.

Informational Sampling At the Resident’s discretion, the Department may take additional informational samples and test the HMA to verify compliance with the Hamburg Wheel Tracker Requirements. If an informational sample fails to meet the criteria in Table 1 or Table 1A, the Contractor will be required to submit a corrective action letter to the Department.

TABLE 3A: MINIMUM HWT ACCEPTANCE FREQUENCIES

Test or Action	Frequency
Hamburg Wheel Tracker	1 per 6,000 ton or at least once per Acceptance Lot

TABLE 3B: MINIMUM NUMBER OF BOXES

Sample Type	Number of Boxes
First Day Production (Taken without Mix Acceptance)	8 (4 Additional)
First Day Production (Take w/ Mix Acceptance)	8 (4 Additional)
HWT Acceptance Sample	8 (4 Additional)

Cease For ALL occurrences of cease described in the sections above, the Contractor shall submit a corrective action letter to the Resident, Materials Engineer, Pavement Quality Manager, and Pavement Quality Engineer by the end of the following work day with the proposed changes to bring the mixture back into compliance. Failure to do so will be treated as a second incident under 106.4.6 QCP Non-compliance. The Department will only allow the continuation of paving operations when it is satisfied that the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production.

401.201 & 401.211 Pay Adjustments Method(s) A, B, C & D The following language has been added to Section(s) 401.201 & 401.211

For items accepted under Method(s) A, B, C & D, if the mix is within the tolerances listed in Table 1A, the Department will pay the contract unit price, otherwise pay adjustments as shown in Table 4 shall be applied to the quantity of mix represented by the test. The average passes to failure will be used to determine the number of passes.

TABLE 4: HWT PAY ADJUSTMENT

Number of Passes	Pay Adjustment
< 20,000	-1.0% for every 1000 passes below target

SPECIAL PROVISION
SECTION 401
HOT MIX ASPHALT PAVEMENT
(Material Transfer Vehicle)

Description The hot mix asphalt pavement for all leveling, base, binder and wearing courses shall be transferred to the paver by a material transfer vehicle (MTV) on mainline travelways, shoulders, and ramps as denoted in Special Provision 403 - Hot Mix Asphalt Pavement.

The MTV shall operate as an independent unit not attached to the paver. It shall be a commercially manufactured unit specifically designed to transfer the hot mix from haul trucks to the paver without depositing the mix on the roadway. A separate hopper with a capacity of 14 ton shall be inserted into the regular paver hopper. The MTV or the hopper insert shall be designed so that the mix receives additional internal mixing action either in the MTV unit or the paver hopper.

Basis of Payment The MTV and the hopper insert will not be paid for directly, but will be considered incidental to the related contract pay items.

SUPPLEMENTAL SPECIAL PROVISION
SECTION 401
HOT MIX ASPHALT PAVEMENT
(Balanced Mix Design Test Section – 12.5mm Hot Mix Asphalt)

Description The Contractor shall furnish a uniformly blended, homogeneous mixture designed using a Balanced Mix Design (BMD) approach and construct a test section of Hot Mix Asphalt Pavement (HMA) in accordance with the contract documents and in reasonably close conformity with the lines, grades, thickness, and typical cross sections shown on the plans or established by the Resident.

The test section installation shall be constructed within the limits of Exit 112 on ramp, the I -95 acceleration / deceleration lanes to Exit 113, and the Exit 113 off ramp limits as outlined in this document and the construction notes under Item 403.2085.

Approximate, minimum tonnage will be 500 tons. Exact locations and tonnage to be applied will be cooperatively determined during project construction with locations and tonnage documented so comparative performance monitoring of the test section can occur. See Special Provision 400 - Balanced Mix Design Test Section – 12.5mm Hot Mix Asphalt and Special Provision 403 for more details.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
403.2085 Hot Mix Asphalt - 12.5mm Balanced Mix Design (BMD)	Ton

SPECIAL PROVISION
SECTION 401
HOT MIX ASPHALT PAVEMENT
(Balanced Mix Design Test Section – 12.5mm Hot Mix Asphalt)

The following subsections of the most current version of Section 401 – Hot Mix Asphalt Pavements have been revised and modified by the following:

401.01 Description The Contractor shall furnish a uniformly blended, homogeneous mixture designed using a Balanced Mix Design (BMD) approach modified from an approved mix design used in the Control Section of the project and construct a test section of Hot Mix Asphalt Pavement (HMA) in accordance with the contract documents and in reasonably close conformity with the lines, grades, thickness, and typical cross sections shown on the plans or established by the Resident. The Department will accept this work under Quality Assurance provisions, in accordance with this Special Provision and the requirements of Section 106 – Quality, the provisions of AASHTO M 323 except where otherwise noted in sections 401 and 703 of these specifications, and the MaineDOT Policies and Procedures for HMA Sampling and Testing.

401.02 Materials Materials shall meet the requirements specified in Section 700 - Materials:

Asphalt Cement	702.01
Aggregates for HMA Pavement	703.07
RAP for HMA Pavement	703.08
HMA Mixture Composition	703.09*

*The Aggregate Gradation Control Points for sieve designations smaller than 9.5 mm shall not apply.

401.03 Composition of Mixtures The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), approved antistripping additive, and/or mineral filler if required. The BMD Mix Design shall be a modification of the design used in the Control Section, utilizing the same aggregate sources, of the same Nominal Maximum Aggregate Size (NMAS), and currently approved for AASHTO T 327 Hamburg Wheel. HMA shall be designed and tested according to AASHTO R 35 and the Performance Criteria in Tables 1A and 1B. The volumetric criteria in Table 1 shall not apply, but the properties shall be measured and reported with the Mix Design Submittal. The mix design submittal shall include performance data for both the BMD Mix Design and the standard mix design (Control Design) intended for the Control Section. The BMD Mix Design shall meet the performance criteria in Tables 1A and 1B for design approval. The Contractor shall size, uniformly grade, and combine the aggregate fractions in proportions that provide a mixture meeting the grading requirements of the Job Mix Formula (JMF). Unless otherwise noted in Special Provision 403 - Hot Mix Asphalt Pavement, the design, verification, Quality Control, and Acceptance tests for this mix will be performed at 65 gyrations.

TABLE 1B: BMD PERFORMANCE CRITERIA

<u>TEST METHOD</u>	<u>SPECIMENS*</u>	<u>CRITERIA</u>
ASTM D8225 Determination of Cracking Tolerance Index of Asphalt Mixture Using the Indirect Tensile Cracking Test at Intermediate Temperature (IDEAL-CT)	Average of 5	$CT_{Index} \geq 150$
	Specimens conditioned at 25°C	
ASTM D8360 Determination of Rutting Tolerance Index of Asphalt Mixture Using the Ideal Rutting Test (IDEAL-RT)	Average of 3	$RT_{Index} \geq 55$
	Specimens conditioned at 50°C	

* Lab prepared mix shall be conditioned in accordance with AASHTO R 30 prior to compaction.

The Contractor shall conduct and report the Performance Criteria testing as follows:

The Hamburg Wheel Tracker shall be conducted at the design binder content.

CT_{Index} and RT_{Index} shall be conducted at design, at 0.5% above, and 0.5% below the design binder content.

The Department will perform laboratory verification testing of new BMD HMA designs on samples of the mix trial batched by the HMA supplier according to the proposed JMF at the designated plant. The HMA Supplier shall submit trial batch verification samples to either the Freeport Laboratory or Central Laboratory, as determined by MaineDOT. The HMA supplier shall submit a minimum of eight boxes of mix to the appropriate laboratory.

Verification samples provided to the Department shall be accompanied by the corresponding recordation documentation (i.e. batch or drum ticket) for its production. The documentation shall be signed and dated by the QC person who is submitting the Verification sample for consideration. The documentation and test report shall also be emailed to the Assistant Pavement Materials Engineer and Laboratory Testing Engineer. The sample box and corresponding production documentation shall be clearly marked with the MaineDOT JMF designation and date of sampling.

The Control Section shall consist of a corresponding standard approved mix design with project limits agreed upon at or prior to the Pre-Construction Meeting. The control section shall be located within the project limits in reasonably adjacent or nearby areas, with the intention of providing a suitable comparison of performance. The acceptance tests for the control section shall be amended to include ASTM D8225 and D8360 with no pay factors or adjustments applied. The BMD performance test results as defined in Tables 1A and 1B shall exhibit an improvement over the corresponding mixture in the control section.

401.05 Performance Graded Asphalt Binder The Contractor shall utilize a PG binder grade that meets or exceeds the high and low temperatures of the grade specified in the 403 Special Provision.

401.19 Contractor Quality Control – Method A, B, C & D

TABLE 6: MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Temperature of mix	6 per day at street and plant	-
Temperature of mat	4 per day	-
%TMD (In-Place Density - Surface)	1 per 125 ton	AASHTO T 355 or AASHTO T 343
%TMD (In-Place Density - Base)	1 per 250 ton	AASHTO T 355 or AASHTO T 343
Fines / Effective Binder	1 per 500 ton	AASHTO T 312
Gradation	1 per 500 ton	AASHTO T 30
PGAB Content	1 per 500 ton	AASHTO T 164 or AASHTO T 308
Voids at N_{design}	1 per 500 ton	AASHTO T 312
VMA at N_{design}	1 per 500 ton	AASHTO T 312
Rice Specific Gravity	1 per 500 ton	AASHTO T 209
IDEAL-CT	1 per 1000 ton	ASTM D8225
IDEAL-RT	1 per 1000 ton	ASTM D8360
Percent Fractured Particles	1 per 5,000 ton	AASHTO T 335
Flat and Elongated Particles	1 Per 5,000 ton	ASTM D4791
Fine Aggregate Angularity	1 Per 5,000 ton	AASHTO T 304

TABLE 7: CONTROL LIMITS

Property	UCL and LCL
Percent Passing 4.75 mm and larger sieves	Target +/- 4.0
Percent Passing 2.36 mm sieve	Target +/- 2.5
Percent Passing 0.075 mm sieve	Target +/- 1.0
PGAB Content	Target +/- 0.25
Voids at N_{design}	JMF Target +/- 1.2
Theoretical Maximum Specific Gravity	JMF Target +/- 0.020

401.20 Acceptance Method A & C These methods utilize Quality Level Analysis and pay factor specifications. For Hot Mix Asphalt Pavement designated for acceptance under Quality Assurance provisions, the Department will sample once per subplot on a statistically random basis, test, and evaluate in accordance with the Acceptance Properties as outlined in Table 8:

TABLE 8: ACCEPTANCE PROPERTIES – METHOD A & C

Properties	Point of Sampling	Test Method
IDEAL-CT	Paver Hopper	ASTM D8225
IDEAL-RT	Paver Hopper	ASTM D8360
Gradation	Paver Hopper	AASHTO T 30
PGAB Content	Paver Hopper	AASHTO T 308
% TMD (In-Place Density)	Mat behind all Rollers	AASHTO T 269
Voids at N_{design}	Paver Hopper	AASHTO T 312
VMA at N_{design}	Paver Hopper	AASHTO T 312
Fines to Effective Binder	Paver Hopper	AASHTO T 312
VFB	Paver Hopper	AASHTO T 312

Lot sizes and subplot sizes shall be determined as outlined in Table 9.

TABLE 9: LOT AND SUBLOT SIZES – METHOD A & C

Lot Size*	Entire production per item per contract per year up to 6000 ton
Maximum Sublot Size – Mix volumetric properties and gradation	750 ton
Maximum Sublot Size – BMD Performance Tests**	1500 ton
Maximum Sublot Size – Density	Surface Layers – 250 ton Base / Intermediate Layers – 500 ton
Minimum Number of Samples – Mix	Four
Minimum Number of Samples – Density	Five

*General – Lot and Sublot size may be adjusted to accommodate the work scope and schedule, or as otherwise agreed upon at the Prepave Meeting.

**if not required by the project specific 403 an informational HWT sample shall be taken per lot

TABLE 10: ACCEPTANCE LIMITS – METHOD A & C

Property	USL and LSL	
	Method A	Method C
Percent Passing 4.75 mm and larger sieves	Target +/- 7%	Target +/- 7%
Percent Passing 2.36 mm to 1.18 mm sieves	Target +/- 4%	Target +/- 5%
Percent Passing 0.60 mm sieve	Target +/- 3%	Target +/- 4%
Percent Passing 0.30 mm to 0.075 mm sieve	Target +/- 2%	Target +/- 2%
PGAB Content	Target +/- 0.4%	Target +/- 0.4%
Voids at N _{design}	Target +/- 1.5%	N/A
IDEAL-CT	LSL from Table 1B	LSL from Table 1B
IDEAL-RT	LSL from Table 1B	LSL from Table 1B
Fines to Effective Binder	0.9 +/- 0.3	N/A
% TMD (In-place Density)	94.5% +/- 2.5%	94.5% +/- 2.5%

Cease Production The Contractor shall cease paving operations whenever one of the following occurs on a lot in progress:

TABLE 11: CEASE PRODUCTION – METHOD A & C

Property	Percent Within Limits (PWL)	
	Method A	Method C
Percent Passing NMAS sieve*	<60 PWL	<60 PWL
Percent Passing 2.36 mm sieve*		
Percent Passing 0.30 mm sieve*		
Percent Passing 0.075 mm sieve*		
PGAB Content		
Voids at N_{design}		N/A
Fines to Effective Binder*		
% TMD (In-place Density)		<60 PWL
IDEAL-CT	< LSL from Table 1B	< LSL from Table 1B
IDEAL-RT	< LSL from Table 1B	< LSL from Table 1B

*Paving operations shall not be required to cease if the mean test value is equal to the LSL or USL and $s = 0$.

401.201 Pay Adjustment - Method A & C

Mix Properties The Department will determine a pay factor (PF) using the applicable Acceptance Limits.

The following variables will be used for pay adjustment:

PA = Pay Adjustment
 Q = Quantity represented by PF in ton
 P = Contract price per ton
 PF = Pay Factor

The Department will determine a pay adjustment using Table 12: Pay Adjustment Calculations as follows:

TABLE 12: PAY ADJUSTMENT CALCULATIONS – METHOD A & C

Acceptance Method	Mix Properties / Gradation	Density
Method A	$PA = (\text{Voids @ } N_d \text{ PF} - 1.0)(Q)(P) \times 0.40 + (\text{PGAB Content PF} - 1.0)(Q)(P) \times 0.10$	$PA = (\text{density PF} - 1.0)(Q)(P) \times 0.50$
Method C	$PA = (\% \text{ Passing Nom. Max PF} - 1.0)(Q)(P) \times 0.05 + (\% \text{ passing 2.36 mm PF} - 1.0)(Q)(P) \times 0.05 + (\% \text{ passing 0.30 mm PF} - 1.0)(Q)(P) \times 0.05 + (\% \text{ passing 0.075 mm PF} - 1.0)(Q)(P) \times 0.10 + (\text{PGAB Content PF} - 1.0)(Q)(P) \times 0.25$	$PA = (\text{density PF} - 1.0)(Q)(P) \times 0.50$

TABLE 12A: PAY ADJUSTMENT CALCULATIONS – METHOD A & C

Acceptance Method	BMD Performance Criteria		Pay Adjustment
A and C	All IDEAL-CT tests in the Lot meet LSL from Table 1B	1 or more IDEAL-RT tests fail to meet LSL from Table 1B	PA= (1.02)(Q)(P)
A and C	All IDEAL-RT tests in the Lot meet LSL from Table 1B	1 or more IDEAL-CT tests fail to meet LSL from Table 1B	PA= (1.02)(Q)(P)
A and C	All IDEAL-CT and all IDEAL-RT tests in the Lot meet LSL from Table 1B		PA= (1.05)(Q)(P)

Negative pay adjustments will not be applied to the BMD test section for volumetric properties, PGAB Content, gradation, or BMD Performance Criteria. Pay adjustments for density shall apply.

401.21 Acceptance Method B & D Unless otherwise stated in the 403 special provision, the Lot shall be the entire mix quantity per item per contract per year. The Department will sample once per subplot per pay item on a statistically random basis, test, and evaluate in accordance with the Acceptance Properties in Table 14. The Department will obtain samples of Hot Mix Asphalt Pavement in conformance with AASHTO R 97, Sampling Asphalt Mixtures, and the MaineDOT Policies and Procedures for HMA Sampling and Testing. The Contractor shall transport the samples in containers provided by the Department to the designated MaineDOT Laboratory within 48 hours except when otherwise noted in the project specific QCP or as directed by the Resident. Failure to deliver an acceptance sample to the designated acceptance laboratory will be considered the second incident under 106.4.6–QCP Non-Compliance. Target values shall be as specified in the JMF. The Department will withhold reporting of the test results for the Acceptance sample until 7:00 AM, on the second working day of receipt of the sample, or after receipt of the Contractors results of the Acceptance sample split.

TABLE 14: ACCEPTANCE PROPERTIES – METHOD B & D

Properties	Point of Sampling		Test Method
	Method B	Method D	
IDEAL-CT	Paver Hopper	Paver Hopper	ASTM D8225
IDEAL-RT	Paver Hopper	Paver Hopper	ASTM D8360
Gradation	Paver Hopper	Paver Hopper or Truck	AASHTO T 30
PGAB Content	Paver Hopper	Paver Hopper or Truck	AASHTO T 308
% TMD (In-Place Density)	Mat behind all Rollers	Mat behind all Rollers	AASHTO T 269
Voids at N _{design}	Paver Hopper	N/A	AASHTO T 312
VMA at N _{design}	Paver Hopper	N/A	AASHTO T 312
Fines to Effective Binder	Paver Hopper	N/A	AASHTO T 312
VFB	Paver Hopper	N/A	AASHTO T 312

TABLE 15: LOT AND SUBLOT SIZES – METHOD B & D

Lot Size*	Entire mix quantity per item per contract per year
Maximum Sublot Size – Mix volumetric properties and gradation	250 ton (Max 4 Sublots)
Maximum Sublot Size – BMD Performance Tests**	1000 ton
Sublot Size – Density	125 ton (Max 5 Sublots)

*General – Lot and Sublot size may be adjusted to accommodate the work scope and schedule, or as otherwise agreed upon at the Prepave Meeting.

**if not required by the project specific 403 one informational HWT sample shall be taken per lot

TABLE 16: ACCEPTANCE LIMITS – METHOD B & D

Property	USL and LSL	
	Method B	Method D
Percent Passing 4.75 mm and larger	Target +/- 7%	Target +/- 7%
Percent Passing 2.36 mm sieve	Target +/- 5%	Target +/- 7%
Percent Passing 1.18 mm sieve	Target +/- 5%	Target +/- 5%
Percent Passing 0.60 mm sieve	Target +/- 4%	Target +/- 4%
Percent Passing 0.30 mm sieve	Target +/- 3%	Target +/- 3%
Percent Passing 0.075 mm sieve	Target +/- 3%	Target +/- 3%
PGAB Content	Target +/- 0.5%	Target +/- 0.5%
Voids at N _{design}	Target +/- 2.0%	N/A
Fines to Effective Binder	0.9 +/- 0.3	N/A
IDEAL-CT	LSL from Table 1B	
IDEAL-RT	LSL from Table 1B	
% TMD (In-place Density)	94.5% +/- 2.5%	LSL of 92.0%

The Contractor shall cease paving operations whenever two consecutive Method B or D tests fall outside specification limits on the same property. The Contractor will submit a corrective action plan to the Department. The Department will only allow the continuation of paving operations when it is satisfied the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production.

401.211 Pay Adjustment - Method B & D For items accepted under Method B or D, if the mix is within the tolerances listed in Table 16, the Department will pay the contract unit price, otherwise pay adjustments as shown in Table 17 shall be applied to the quantity of mix represented by the test. The Contractor shall cut one 6 in core per subplot unless otherwise noted in Section 403 - Hot Mix Asphalt Pavement. If the density result is not within the specified limits the disincentive shall apply. If the subplot density is less than 88.5 percent or greater than 99.0 percent of the subplot TMD, two additional cores shall be cut at random locations determined by the Department. If either of the additional cores has a density less than 88.5 percent or greater than 99.0 percent of the subplot TMD, the subplot shall be removed and replaced at no cost to the Department; otherwise, the average of the three cores will be used to determine the subplot pay adjustment.

TABLE 17: PAY ADJUSTMENTS – METHOD B & D

Property	Method B		Method D	
% TMD (In-place Density)	91.5% - 91.9% or 97.1% - 97.5%	-5.0%	91.5% - 91.9%	-5.0%
	90.5% - 91.4% or 97.6% - 98.5%	-10.0%	90.5% - 91.4%	-10.0%
	89.5% - 90.4% or 98.6% - 99.0%	-20.0%	89.5% - 90.4%	-20.0%
	88.5% - 89.4%	-30.0%	88.5% - 89.4%	-30.0%
	<88.5% or >99.0%	Reject	<88.5% or >99.0%	Reject

TABLE 17A: PAY ADJUSTMENT CALCULATIONS – METHOD B & D

Acceptance Method	BMD Performance Criteria		Pay Adjustment
B and D	All IDEAL-CT tests in the Lot meet LSL from Table 1B	1 or more IDEAL-RT tests fail to meet LSL from Table 1B	PA= (1.02)(Q)(P)
B and D	All IDEAL-RT tests in the Lot meet LSL from Table 1B	1 or more IDEAL-CT tests fail to meet LSL from Table 1B	PA= (1.02)(Q)(P)
B and D	All IDEAL-CT and all IDEAL-RT tests in the Lot meet LSL from Table 1B		PA= (1.05)(Q)(P)

Negative pay adjustments will not be applied to the BMD test section for volumetric properties, PGAB Content, gradation, or BMD Performance Criteria. Pay adjustments for density shall apply.

Payment will be made under:

Pay Item		Pay Unit
403.2085	Hot Mix Asphalt 12.5mm for Balanced Mix Design (BMD) Test Section	Ton

Interstate 95 Northbound & Southbound
Ultra-Thin Bonded Wearing Course, 1 ½" Mill & Fill, Reconstruction
Pavement Preservation
May 18, 2026

SPECIAL PROVISION
SECTION 403
HOT MIX ASPHALT

Desc. Of Course	Grad Design.	Item Number	Total Thick	No. Of Layers	Comp. Notes
<u>¾" Mill & UTBWC Overlay</u>					
<u>Passing Lane & Shoulders (As Indicated)</u>					
Wearing	Type C	462.301	¾"	1	2,9,24,26,28,43
<u>2 ¾" Mill & HMA Overlay - Travel Lane Only (As Indicated)</u>					
Wearing	Type C	462.301	¾"	1	2,9,24,26,28,43
Base	12.5 mm	403.2131	2"	1	2,5,7,23,24,26
<u>1 ½" Mill & HMA Overlay</u>					
<u>Bridge Decks, Ramps & Spurs (As Indicated)</u>					
Wearing	12.5 mm	403.2081	1 ½"	1	2,5,7,23,24,26,40,43,55
<u>Exit 109, Ramp F – 6" HMA Reconstruction Area (As indicated)</u>					
Wearing	12.5 mm	403.2081	1 ½"	1	2,5,7,23,24,26,40
Intermediate	12.5 mm	403.2131	2"	1	2,5,7,23,24,26
Base	12.5 mm	403.2131	2 ½"	1	2,5,7,23,24,26
<u>6 ¼" HMA -Passing and Travelway Lanes Under Ramp F Overpass - Plunge Cut Area</u>					
Wearing	Type C	462.301	¾"	1	2,9,24,26,28,43
Intermediate	12.5 mm	403.2131	2 ½"	1	2,5,7,23,24,26
Base	12.5 mm	403.2131	3"	1	2,5,7,23,24,26
<u>BMD Test Section - 1 ½" Mill & HMA Overlay</u>					
<u>Exit 112 On Ramp, I -95 Deceleration Lane, & Exit 113 Off Ramp (As indicated)</u>					
Wearing	12.5 mm	403.2085	1 ½"	1	2,5,13,23,24,26,29,40
<u>CB Adjustment, Type 1 & 5 Curb Installation Areas</u>					
<u>Shoulders (As Indicated or Directed)</u>					
Wearing	12.5 mm	403.2081	1 ½"	1	2,5,7,24,53
Base	12.5 mm	403.2131	4 ½"	2/more	2,5,8,30,32,53
<u>Spot Shim Areas (As Indicated or Directed)</u>					
Shim	9.5 mm	403.2111	variable	1/more	2,5,8,20,27,30
<u>Islands, Drives, Misc. (As Directed)</u>					
Wearing	9.5 mm	403.209	2"	1	3,20,30

COMPLEMENTARY NOTES

- The required PGAB shall be a storage-stable, homogeneous, polymer modified asphalt binder that meets or exceeds **PG 70E-28** grading requirements in AASHTO M 332. All polymer modified asphalt grades utilized on the Project shall be treated with an approved liquid anti-strip. PG binders shall be treated either at the asphalt source terminal with the required dose rate on the delivery documentation, or at the hot mix asphalt plant utilizing a system integrated with the plants controls that will introduce a minimum 0.50 percent anti-strip by weight of asphalt binder used unless a rate is otherwise recommended by the anti-strip manufacturer. The PGAB and anti-strip blend shall meet or exceed the **PG 70E-28** requirements. The Contractor shall provide supporting test data showing the PGAB and anti-strip blend meet the required criteria.

Interstate 95 Northbound & Southbound
Ultra-Thin Bonded Wearing Course, 1 ½" Mill & Fill, Reconstruction
Pavement Preservation
May 18, 2026

3. The aggregate qualities shall meet the design traffic level of <3 million ESALS for mix placed under this contract. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **65 gyrations**.
5. The aggregate qualities shall meet the design traffic level of >10 million ESALS for mix placed under this contract. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **65 gyrations**.
7. Section 106.6 Acceptance, (1) **Method A** as specified Section 401.20 - Quality Assurance Methods A and C.
8. Section 106.6 Acceptance, (2) **Method B** as specified Section 401.21 - Quality Assurance Methods B and D.
13. Section 106.6 Acceptance, (1) **Method A** as specified in Special Provision 401 - Balanced Mix Design Test Section – 12.5mm Hot Mix Asphalt, Section 401.20 - Quality Assurance Methods A and C.
20. The combined aggregate gradation required for this item shall be classified as a 9.5mm Thin Lift Mixture (TLM) mixture, using the Aggregate Gradation Control Points as defined in 703.09.
23. The mixture shall meet the minimum requirements of Special Provision 401 - HMA Hamburg Wheel Tracker Specification.
24. See Special Provision 401 - HMA with Fine Micro-Deval Requirement for project specifics.
26. The use of a Material Transfer Vehicle (MTV) shall be required on this layer. See Special Provision 401 – Material Transfer Vehicle for specifics.
27. Spot Shims **greater than 500 feet** in length shall require the **use of a Material Transfer Vehicle (MTV)**. See Special Provision 401 – Material Transfer Vehicle for specifics.
28. See Special Provision 462 – Ultra Thin Bonded Wearing Course for project specifics.
29. See Special Provision 401 – Balanced Mix Design Test Section – 12.5mm Hot Mix Asphalt
30. The incentive/disincentive provisions for density shall not apply. Rollers shall meet the requirements of this special provision. The use of an oscillating steel roller shall be required to compact all mixtures pavements placed on bridge decks.
32. Areas less than 2 feet wide shall be compacted with a minimum of a **150 pound** plate compactor. An approved release agent is required to ensure the mixture does not adhere to hand tools, rollers, pavers, and truck bodies. The use of petroleum based fuel oils, or asphalt stripping solvents will not be permitted.
40. On Ramps, the entire roadway (from curb to curb, including the shoulders) shall be considered mainline travelway for density testing purposes, according to the specified testing method.
43. The Department shall profile railroad and bridge approaches every 10 feet along the roadway center line and edge of travelways, out to a match point at a minimum of 75 feet from the structure, to determine the approach pavement taper, elevations, and pavement removal or shim requirements. This work shall be accomplished in cooperation with the Contractor by means of conventional surveying equipment or blocking and string lines as cooperatively determined by the Contractor and Department. At minimum, the survey work will be completed 10 days prior to milling and/or paving operations.
53. At the discretion of the Contractor, the use of concrete fill will be allowed in lieu of pavement and gravel to back fill around granite curbing (Type 1 & 5). When utilized, at least 3" of HMA shall be placed on top of the concrete fill for cover on the mainline edge of curb (face of curb). At minimum, the Concrete shall be a 3000 psi Class S or Class Fill Concrete. **Flowable fill shall not be permitted**. Unless otherwise specified, there will not be additional compensation for the Concrete Fill but shall be considered incidental to the 609 items.

Augusta
27498.10

Interstate 95 Northbound & Southbound
Ultra-Thin Bonded Wearing Course, 1 ½" Mill & Fill, Reconstruction
Pavement Preservation
May 18, 2026

55. On bridge decks, the vertical surface of all longitudinal joints shall be completely sealed with hot-applied asphalt sealant material, meeting the requirements of Type 4 or mastic crack seal. Sealant shall be applied to form a complete seal and shall extend up the vertical surface to within ½ inch of the top of the HMA surface layers. This work shall be considered incidental to the contract pavement items.

Tack Coat

A tack coat of emulsified asphalt, RS-1, RS-1h, CRS-1 or CRS-1h, Item 409.15 shall be applied to any existing pavement at a rate of approximately 0.030 gal/yd², and on milled pavement approximately 0.05 gal/yd² prior to placing a new course. A fog coat of emulsified asphalt shall be applied between shim /base courses and surface course as well as to any bridge membrane prior to the placement of HMA layers at a rate not to exceed 0.030 gal/yd². Tack used will be paid for at the contract unit price for Item 409.15 Bituminous Tack Coat.

SPECIAL PROVISION**SECTION 400****Pavements**

(Emulsified Asphalt Seal Coat with/without Cover Coat)

Description This work consists of furnishing and applying one or more applications of emulsified asphalt sealcoat, with or without cover coat material as described in the contract, on an approved surface in accordance with these specifications and in reasonably close conformity with the contract.

Materials The emulsified bituminous asphalt sealant shall meet the applicable requirements of Section 702 – Bituminous Materials. Liquid asphalt grades for the fog coat treatment shall meet the requirements for CSS-1, CSS-1h, CRS-2h, or CRS-2P. The emulsion type selected shall be used for the entire fog seal application areas unless otherwise approved by the Department.

The emulsified asphalt shall be produced with an approved, certified emulsion product, diluted, and thoroughly mixed into a homogenous liquid at the emulsion manufacturing facility. Each load shall be accompanied by a loading invoice listing the material supplier, emulsion type, dilution rate, total quantity loaded, and copy of the undiluted emulsified asphalt product certification. The diluted emulsion shall meet the requirements listed in Table 1 of this specification.

Table 1 – Diluted Asphalt Emulsion for Seal Coat

<u>Test requirements for diluted material</u>	<u>Range</u>
Sieve test %	0 – 0.10
Residue by distillation, %	28 - 40
Penetration	40 - 90
Application Temperature	100 - 180°F

Cover coat material, if required by the contract, shall be black or dark brown in color. Cover coat materials shall be dried and free from moisture, and be of similar type and size as aluminum oxide or silicon carbide abrasive sandblasting grit meeting the “fine” or “extra fine” gradation requirements (ref: Black Beauty abrasive or similar product).

Equipment Emulsified asphalt sealcoat material application equipment shall meet the requirements specified in Section 409 – Bituminous Tack Coat, subsection 409.05 – Equipment with the addition of the following:

The asphalt distributor shall contain suitable mechanical circulating and heating mechanisms to provide a uniform approved temperature of the entire mass of material. The distributor shall be equipped with a radar type sensor used to measure ground speed, and feed a Digital Volumetric Accumulator capable of measuring gallons applied and distance traveled.

The asphalt distributor be capable of applying asphalt material in accurately measured quantities at any rate between 0.01 to 2.0 gallons per square yard, of roadway surface, at any length of spray bar up to 16 feet. The distributor shall be capable of maintaining a uniform rate of distribution of asphalt material regardless of change in grade, width or direction of the road. It shall be equipped with an electronic control for setting asphalt pump discharge rate and on/off switching of spray for nozzles in one (1) foot, increments which shall be located in the truck cab. The spray nozzles and pressure system shall provide a sufficient and uniform fan-shaped spray of asphalt material throughout the entire length of the spray bar at all times while operating. The spray shall completely cover the roadway surface receiving the treatment.

If cover coat material is required by the contract it shall be applied by means of mechanical aggregate spreader. The aggregate spreader shall be mounted on the asphalt distributor. The spreader shall have a hopper with a minimum capacity of 2000 lbs, and shall be equipped with vibratory agitation to facilitate material flow. Aggregate spinners shall be variable speed, capable of distributing cover aggregate consistently over variable roadway widths in a single pass. All controls shall be cab-mounted and capable of being operated during the application of the asphalt emulsion by the distributor operator.

CONSTRUCTION PROCEDURES

Weather Limitations Emulsified asphalt sealcoat material with or without aggregate cover shall not to be applied when the atmospheric temperature is below 50°F, or pavement surface temperature below 50°F.

Emulsified asphalt sealcoat with or without aggregate cover shall not be applied in wet conditions, or when wet weather conditions are forecasted within a 6 hour period after application.

Preparation of Surface Before application of the emulsion seal coat material with or without aggregate cover the surface shall be thoroughly cleaned of all loose and objectionable material. Preparation of the surface shall be considered incidental to the contract. The Contractor shall be responsible for covering all utility irons just prior to application of emulsion and uncovering utilities after application.

Immediately before applying an emulsified asphalt seal coat, the pavement surface must be cleaned with a road sweeper, power broom to remove dust, dirt, and debris. The pavement surface must be clean and dry before applying the emulsified asphalt sealcoat.

Application Emulsified asphalt seal coat materials with or without aggregate cover shall be applied by a pressure distributor in a uniform, continuous spread over the area to be treated. The target application rate shall be 0.12 gallons per square yard. Emulsion application rates may be adjusted within the range of 0.10 to 0.14 gallons per square yard, as determined by the test section and as directed by the Department. No additional payment consideration or adjustment shall be made unless the required application rate varies from the rate as specified above.

The cover coat aggregate shall be applied immediately after the emulsion, prior to the emulsion break or cure, and simultaneously with the pressure distributors pass.

Equipment or traffic will not be allowed on the emulsion treated surface until the emulsion has fully cured. Emulsion materials will be applied within the temperature range specified in Section 702.05 – Application Temperatures, or as otherwise listed in this specification. No moisture shall be present on the roadway surface.

The Contractor shall provide dry cover material meeting the requirements of this specification and at a spread rate of 0.35 to 0.75 lbs./ s.y. as determined by the control section. The Contractor shall be required to apply additional cover material above the prescribed rate in the event that excessive emulsion materials are applied. Use of cover material shall be paid for by the pound, by means of verified bagged quantity, or by scaled weight of actual materials applied.

A test section shall be established to verify emulsion and cover coat material target application rates. The section shall be of sufficient length to verify the approximate emulsion use at the prescribed rate. Generally, the length of test section shall be approximately 200-500 linear feet. During emulsion seal material application, adequate provisions shall be made to prevent marring and discoloration of adjacent pavements, structures, vehicles, foliage or personal property. The use of skirting or end panels may be required to control application widths, and limit overspray.

Areas found to lack the proper emulsified asphalt seal coat application rate will require a re-application of emulsion material to meet the required rate. Areas requiring re-application will not be paid for directly but shall be considered incidental to the emulsified asphalt seal coat pay item,

In the event that excessive emulsion materials are applied, the use of cover coat material shall be used to reduce the risk of bleeding and tracking by traffic. Additional aggregate cover material, if required, will be considered incidental to the emulsified asphalt seal coat pay item.

Traffic Control The Contractor may be allowed a limited lane closure lengths if outlined in the contract. If allowed in the contract, traffic volumes shall be monitored to determine peak traffic levels, and lane closures shall be allowed outside peak traffic level times. The Traffic Control Plan will be amended to address traffic control at intersections, businesses, or other high traffic areas. Additional signage shall be used to at .5 mile intervals to warn motorists to stay out of the closed lane and off the sealant. When mainline travelway sealing work is required adequate quantity and properly spaced cones for travelway delineation along with cones or barricades shall be required. Whether treating travelway or shoulders, cones or barricades shall be placed across the treated area every 500 ft immediately after the emulsion and aggregate application to prevent vehicles from traveling through the sealant during the cure period.

All traffic shall be kept off the emulsified asphalt seal coat areas for a minimum of 4 hours or until curing is complete. The emulsified asphalt seal coat surface will be considered cured when the emulsion or cover coat material does not track off the treated surface, and no visible uncured emulsion remains on the surface. The Contractor may elect to use a polymer modified emulsion to further reduce cure time. No additional payment will be made should a polymer modified emulsion be used.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Method of Measurement The Department will measure the emulsified asphalt seal coat with or without aggregate cover (grit) by the square yard. Payment will be for the actual number of square yards applied in accordance with the contract or as directed by the Department.

Basis of Payment The Department will pay for the work, in place and accepted, in accordance with the applicable sections of the Special Provisions at the contract unit price per square yard of seal coat applied, with or without cover coat, as outlined in the contract or as directed by the Department.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
410.151 Emulsified Asphalt Seal Coat, Applied	Square Yard
410.153 Emulsified Asphalt Seal Coat with Grit, Applied	Square Yard

SPECIAL PROVISION
SECTION 424
ASPHALT RUBBER CRACK SEALER – Type 2

Description This work shall consist of furnishing all labor, equipment and materials necessary to clean, fill and seal longitudinal and transverse cracks in bituminous concrete pavement in accordance with this specification, an approved Quality Control Plan (QCP), and manufacturers recommendations as applicable. Work shall consist of crack cleaning and drying, material supply and heating, preparation and application material, material finishing or shaping, and providing and installing barrier material or curing materials as required.

Materials Asphalt Rubber Crack Sealer shall be an asphalt and rubber compound designed for a temperature range of 64-28 °C, and which improves the strength and performance of the base asphalt cement. Hot pour rubber crack sealant material shall conform to ASTM D-6690, Type 2.

Cone Penetration	90 max
Flow @ 60°C [140°F]	< 1/4 inch
Bond, non-immersed	Three ½ inch specimens pass 3 cycles @ 50% extension @ -20
Resilience, %	N/A
Asphalt Compatibility, ASTM D5329	pass*

* There shall be no failure in adhesion, formation of any oily exudate at the interface between the sealant and asphaltic concrete or other deleterious effects on the asphaltic concrete or sealant when tested at 140°F.

The Contractor shall provide the Resident or authorized representative with a copy of the material manufacturer's recommendations pertaining to heating, application, and reheating prior to the beginning of operations or any change in materials.

QUALITY CONTROL REQUIREMENTS

Quality Control The Contractor shall develop and submit a Quality Control Plan (QCP) that addresses the materials to be used, equipment to be used, methods of material usage (quantity measurements and tracking) as well as installation methods and protection of the work as it is completed. The Contractor shall control the work and operate in accordance with the approved QCP in order to install product and complete work meeting the contract requirements. The Contractor shall not begin sealing operations until the Department approves the QCP in writing.

Quality Control The QCP shall meet the requirements of Section 106.6 – Acceptance and this Section. The QCP shall address any items that affect the quality of the operation, and shall include the following personnel meeting these minimum requirements:

- a. QCP Administrator – The QCP Administrator must be a full-time employee of or a consultant engaged by the prime contractor or crack sealing subcontractor. The QCP Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the QCP. The QCP Administrator (or their designee in the QCP Administrator's absence) may not be required to be onsite during all work activities but shall be available to communicate with the Department as needed.
- b. Onsite Representative - The Onsite Representative (OR) shall be onsite and work directly with the crew as needed. The OR shall perform quality control inspections or measurements at the job site to assure that materials or installations meet the requirements of the contract.

The QCP shall detail the coordination of the activities of the Plan Administrator, and the OR. The Superintendent shall be named in the QCP if different than the OR, and the responsibilities for successful implementation of the QCP within the companies' activities shall be outlined.

The QCP shall address any items that may impact the quality of the sealant installation including, but not limited to, the following:

a. General Requirements:

- Name of QCP Administrator
- Description of corrective action processes
- Remediation of defective work

b. Quality Control Plan requirements

- Name of Onsite Representative(s)
- Material type to be used (including product data sheet)
- Heating and installation temperatures
- Procedures to clean, dry and properly prepare all cracks for installation of crack sealants / fillers.
- General sealing operation activities including equipment to be used to install sealants
- Procedures to ensure that cracks are "flush filled" and any overband width does not exceed the contract requirements.
- Procedures to protect any installed sealant from damage from traffic or construction activities.

A summary of the day's results including a quantity report, equipment used, and environmental conditions will be recorded and signed by the OR and presented to the Department's representative by 1 PM the following working day.

Failure to adhere to the QCP, replace or repair defective or non-conforming equipment, or adjust material or installation procedures in an effort to produce work that meets the contract

requirements will result in a notification of a quality control violation resulting in monetary penalties.

A letter describing the violation shall be provided to the Contractor which will result in a mandatory work suspension and a reduction in payment as shown in Table 106.4A below. The Contractor shall submit a letter to the Department that details the corrective action made to address the violation(s) in its Quality Control Plan. Work may resume when the Department is satisfied the corrective action will result in adherence to the Quality Control Plan.

Table 106.4 A - Quality Control Pay Reduction

Quality Control Plan Value*		Pay Reduction		
From More Than	To and Including	1st	2nd	3rd & Subsequent
\$0	\$500,000	\$1,000	\$2,000	\$4,000
\$500,000	\$1,000,000	\$2,000	\$4,000	\$8,000
\$1,000,000	\$3,000,000	\$5,000	\$10,000	\$20,000
\$3,000,000	and more	\$10,000	\$20,000	\$40,000

* The Quality Control Plan Value is the total Bid value of all items covered by a Quality Control Plan, as detailed in the applicable specification or Special Provision.

Pay reductions for failure to comply with the approved QCP are cumulative, and the Department will deduct any pay reductions from amounts otherwise due the Contractor. These pay reductions are intended to encourage the Contractor to comply with its approved QCP, and are not necessarily related to the quality of the work provided.

EQUIPMENT

Equipment Equipment used in the performance of the work shall be listed in the approved QCP, and subject to Department or authorized Department representative's approval. Equipment shall be maintained in a satisfactory working condition at all times. As a minimum, the equipment required will consist of the following:

- (1) Air Compressor and air wand: A portable air compressor and air wand shall be supplied to clean the cracks to be sealed prior to using a hot air lance. The air compressor shall be coupled with hose and air wand and be capable of furnishing not less than 150 CFM of air and not less than 100 psi pressure through a 5/8"- inch diameter nozzle. A ½ -inch or ¾-inch nozzle may be used with approval of the Inspector as long as the pressure requirements are being met. The compressor shall be equipped with traps that will maintain the compressed air free of oil and water. A single air compressor may be utilized to supply air to both the air wand and hot air lance with the condition that it will consistently supply the required air volume and pressures for each operation simultaneously.
- (2) Sweeper: Manually operated, gas powered air-broom or self-propelled sweeper designed especially for use in cleaning highway and airfield pavements shall be used to remove debris, dirt, and dust from the cracks.

(3) Hot Air Lance: The hot air lance shall be independent of the air wand unit. The hot air lance shall be operated with propane and compressed air in combination and provide 1000 ft/sec of heated air at 2000°F - 3000°F. The lance should draw propane from no smaller than a 100 lb tank using separate hoses for propane and air draw. The hoses shall be wrapped together with reflectorized wrap to keep them together and to protect workers in low light situations. A single air compressor may be utilized to supply air to both the air wand and hot air lance with the condition that it will consistently supply the required air volume and pressures for each operation simultaneously.

(4) Hand Tools: Hand tools shall consist of shall consist of brooms, shovels, metal bars with chisel shaped ends, and any other tools which may be satisfactorily used to prepare cracks to be sealed. Other tools such as, but not limited to, V-shaped squeegee or flat squeegee may be necessary to prevent excessive overband width and thickness.

(5) Melting Kettle: The unit used to melt the joint sealing compound shall be a double boiler, indirect fired type. The space between inner and outer shells shall be filled with a suitable heat transfer oil or substitute having a flash point of not less than 608°F. The kettle shall be equipped with a satisfactory means of agitating and mixing the joint sealer at all times. This may be accomplished by continuous stirring with mechanically operated paddles and/or a continuous circulating gear pump attached to the heating unit. The kettle must be equipped with thermostatic control calibrated between 200°F and 550°F. The Contractor shall either provide a jacketed thermometer that accurately displays the sealant temperature within the kettle or provide the Resident or authorized representative with a suitable device for verifying the sealant temperature in the kettle. Temperatures must be able to be checked at any time during the heating of material, application of material, or at the end of the application operation.

The Contractor shall inspect all equipment utilized in the crack seal operations, including the crack cleaning, crack heating, and crack drying operations as well as the crack sealant heating, mixing, crack filling and crack finishing equipment to assure the final product meets the requirements of the contract. The QCP shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one OR is required. The QCP shall include the criteria utilized by the QCT to correct or reject unsatisfactory materials.

GENERAL CONSTRUCTION REQUIREMENTS

Weather Asphalt Rubber Crack Sealer shall not be applied on a wet surface, or when the atmospheric temperature is below 50°F in a shaded area at the job site, or when weather conditions are otherwise unfavorable to proper construction procedures.

Preparations of Cracks All cracks shall be blown free of loose material, dirt, vegetation, and other debris by high pressure air prior to the used of the hot air lance. Material removed from the crack shall be removed from the pavement surface by means of compressed air, power sweeper or appropriate hand tools as required. Cracks showing evidence of vegetation after being blown out shall be additionally cleaned by appropriate hand tools and additionally blown out. All cracks must be blown clean with the high-pressure air wand in advance of the hot air lance. All cracks shall be heated via the hot air lance no more than 5 minutes prior to the crack being sealed. Distance between the hot air lance and the crack sealing unit should be no more than 50 ft to eliminate re-invasion of water, debris, and other incompressible materials. All debris, vegetation,

and water shall be removed to enhance adhesion of the crack sealing material. THIS WORK SHALL NOT BE DONE IN INCLEMENT WEATHER.

Preparation and Placement of Sealer The rubber crack sealer material shall be heated and applied at the temperature specified by the manufacturer and approved by the Resident or authorized representative. Any material that has been heated above the manufacturer's specification shall not be used. Material that is reheated or held at temperature for an extended period of time may be used as allowed by the manufacturer's specification and approval of the Resident or authorized representative. A copy of the manufacture's specification shall be provided to the Project when requested.

The Contractor shall provide the Resident or authorized representative with a suitable device for verifying the sealant temperature in the kettle and at the application site.

Any loose material on the surface or in the crack, which may contaminate the crack sealer or impede bonding of the sealant to the pavement, is to be removed by hand tools prior to crack filling. No crack filling material shall be applied in a crack that is wet or where frost, snow, or ice is present. The ambient air temperature must be 50 or higher.

Any over application or spills are to be removed to the satisfaction of the Resident or authorized representative. Any sealed areas with damaged or contaminated sealer or visible voids are to be removed, prepared and resealed. Defective or leaking valves and wands will be repaired or replaced before work continues. If repairs or replacement of defective equipment cannot be accomplished immediately then the Department may permit work to continue but deduct any excess quantities placed as it determines.

Cracks ½ inch up to 1 ½ inch in may be sealed with Type II crack seal. Generally, repairs wider than 1 ½ inches or those that extend below the surface layer may require a change to different sealant material type or treatment method in order repair cracks.

For projects where sealants will be covered and a hot mix asphalt overlay is being installed over the sealant all cracks will be **“flush filled”**, meaning cracks are filled to a point that the sealant is flush with the existing pavement surface. If the work scope requires a flush fill a nozzle sized to fill the cracks shall be used. Minimal to no overbanding will be permitted. The applicator shoe width shall be a maximum of 2 inches and produce a sealer width range from 1 inch – 1.5 inch. Overall width of the sealant may vary from the range specified depending on the width and severity of the cracks with approval from the Department.

For projects where the sealants are left un-covered with a hot mix overlay and traffic will be permitted to travel over the sealants for the anticipated sealant life, some overband may be permitted. If the work scope required crack filling and sealing with overband, then a shoe sized to meet the overband width shall be used. The applicator shoe width shall be a maximum of 2 inches and produce a sealer overband range from 1 inch – 1.5 inch. Overbanding width may vary from the range specified depending on the width and severity of the cracks with approval from the Department.

Sealer shall be delivered to the crack while the cracks are still hot from the hot air lance preparation through a pressure hose line and applicator nozzle or shoe.

The applicator shall be followed by a V-shaped squeegee to minimize the thickness of any overband. The sealer shall be applied at a rate that produces a coating thickness of 1/8 - inch, typical.

If the sealed area is to be opened to traffic immediately, a barrier material (de-tackifier) such as Glenzoi, Black Beauty grit, or an equivalent product approved by the Resident shall be provided by the Contractor and shall be applied to the crack sealer to prevent pickup as directed by the Resident or authorized representative.

If sealed areas are to be paved over with a hot mix asphalt treatment a 48 hour minimum cure time and use of barrier material (de-tackifier) will be required. Cure times may be extended if excessive pick-up of the crack sealants occurs.

Quality of Work Any excess of sealer, spilled or overapplied, shall be removed from the pavement by approved methods and discarded. Any quality of work determined to be below normal acceptable standards will not be accepted and will be corrected and/or replaced as directed by the Resident or authorized representative.

Method of Measurement Asphalt Rubber Crack Sealer will be measured by the pound of sealant used. The manufacturer's weights of the sealant for each block (pill), counted as they are loaded, will be accepted as a basis for measurement.

Should tank checks be approved to verify material usage or calculate initial or final gallons remaining in the tanker, a calibrated tank gauge or tank stick shall be used to measure the tank gallons. Volume corrections shall be calculated using Table:1 to correct the gallon volume to 60 ° F.

For those approved cases the Department has determined the weight of this material to be 9.7 pounds per gallon. The Department will use this conversion value for all materials measured by the gallon and converted to pounds. The corrected volume and resultant pounds shall be made part of the method of measurement, with consideration given to blocks (pills) added during the day and applied in an acceptable manner

Basis of Payment The accepted quantity of Asphalt Rubber Crack Sealer will be paid for at the contract unit price per pound complete in place. This price shall be full compensation for furnishing and placing crack sealer, including cleaning cracks and furnishing and placing barrier materials if necessary.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
424.22 Asphalt Rubber Crack Sealer Type 2, Applied	Pound

Conversion Table:1

t	M	t	M	t	M	t	M	t	M	t	M
100	0.9861	135	0.9740	170	0.9621	205	0.9503	240	0.9385	275	0.9269
101	0.9857	136	0.9737	171	0.9618	206	0.9499	241	0.9382	276	0.9266
102	0.9854	137	0.9734	172	0.9614	207	0.9496	242	0.9379	277	0.9263
103	0.9851	138	0.9730	173	0.9611	208	0.9493	243	0.9375	278	0.9259
104	0.9847	139	0.9727	174	0.9607	209	0.9489	244	0.9372	279	0.9256
105	0.9844	140	0.9723	175	0.9604	210	0.9486	245	0.9369	280	0.9253
106	0.9840	141	0.9720	176	0.9601	211	0.9483	246	0.9365	281	0.9250
107	0.9837	142	0.9716	177	0.9597	212	0.9479	247	0.9362	282	0.9246
108	0.9833	143	0.9713	178	0.9594	213	0.9476	248	0.9359	283	0.9243
109	0.9830	144	0.9710	179	0.9590	214	0.9472	249	0.9356	284	0.9240
110	0.9826	145	0.9706	180	0.9587	215	0.9469	250	0.9352	285	0.9236
111	0.9823	146	0.9703	181	0.9584	216	0.9466	251	0.9349	286	0.9233
112	0.9819	147	0.9699	182	0.9580	217	0.9462	252	0.9346	287	0.9230
113	0.9816	148	0.9696	183	0.9577	218	0.9459	253	0.9342	288	0.9227
114	0.9813	149	0.9693	184	0.9574	219	0.9456	254	0.9339	289	0.9223
115	0.9809	150	0.9689	185	0.9570	220	0.9452	255	0.9336	290	0.9220
116	0.9806	151	0.9686	186	0.9567	221	0.9449	256	0.9332	291	0.9217
117	0.9802	152	0.9682	187	0.9563	222	0.9446	257	0.9329	292	0.9213
118	0.9799	153	0.9679	188	0.9560	223	0.9442	258	0.9326	293	0.9210
119	0.9795	154	0.9675	189	0.9557	224	0.9439	259	0.9322	294	0.9207
120	0.9792	155	0.9672	190	0.9553	225	0.9436	260	0.9319	295	0.9204
121	0.9788	156	0.9669	191	0.9550	226	0.9432	261	0.9316	296	0.9200
122	0.9785	157	0.9665	192	0.9547	227	0.9429	262	0.9312	297	0.9197
123	0.9782	158	0.9662	193	0.9543	228	0.9426	263	0.9309	298	0.9194
124	0.9778	159	0.9658	194	0.9540	229	0.9422	264	0.9306	299	0.9190
125	0.9775	160	0.9655	195	0.9536	230	0.9419	265	0.9302	300	0.9187
126	0.9771	161	0.9652	196	0.9533	231	0.9416	266	0.9299	301	0.9184
127	0.9768	162	0.9648	197	0.9530	232	0.9412	267	0.9296	302	0.9181
128	0.9764	163	0.9645	198	0.9526	233	0.9409	268	0.9293	303	0.9177
129	0.9761	164	0.9641	199	0.9523	234	0.9405	269	0.9289	304	0.9174
130	0.9758	165	0.9638	200	0.9520	235	0.9402	270	0.9286	305	0.9171
131	0.9754	166	0.9635	201	0.9516	236	0.9399	271	0.9283	306	0.9167
132	0.9751	167	0.9631	202	0.9513	237	0.9395	272	0.9279	307	0.9164
133	0.9747	168	0.9628	203	0.9509	238	0.9392	273	0.9276	308	0.9161
134	0.9744	169	0.9624	204	0.9505	239	0.9389	274	0.9273	309	0.9158

Legend: t = observed temperature in degrees Fahrenheit.
M = multiplier for reducing volumes to the basis of 60° F.

Conversion Table:1

t	M	t	M	t	M	t	M	t	M
310	0.9154	350	0.9024	390	0.8896	430	0.8768	470	0.8643
311	0.9151	351	0.9021	391	0.8892	431	0.8765	471	0.8640
312	0.9148	352	0.9018	392	0.8889	432	0.8762	472	0.8636
313	0.9145	353	0.9015	393	0.8886	433	0.8759	473	0.8633
314	0.9141	354	0.9011	394	0.8883	434	0.8756	474	0.8630
315	0.9138	355	0.9008	395	0.8880	435	0.8753	475	0.8627
316	0.9135	356	0.9005	396	0.8876	436	0.8749	476	0.8624
317	0.9132	357	0.9002	397	0.8873	437	0.8746	477	0.8621
318	0.9128	358	0.8998	398	0.8870	438	0.8743	478	0.8618
319	0.9125	359	0.8995	399	0.8867	439	0.8740	479	0.8615
320	0.9122	360	0.8992	400	0.8864	440	0.8737	480	0.8611
321	0.9118	361	0.8989	401	0.8861	441	0.8734	481	0.8608
322	0.9115	362	0.8986	402	0.8857	442	0.8731	482	0.8605
323	0.9112	363	0.8982	403	0.8854	443	0.8727	483	0.8602
324	0.9109	364	0.8979	404	0.8851	444	0.8724	484	0.8599
325	0.9105	365	0.8976	405	0.8848	445	0.8721	485	0.8596
326	0.9102	366	0.8973	406	0.8845	446	0.8718	486	0.8593
327	0.9099	367	0.8969	407	0.8841	447	0.8715	487	0.8590
328	0.9096	368	0.8966	408	0.8838	448	0.8712	488	0.8587
329	0.9092	369	0.8963	409	0.8835	449	0.8709	489	0.8583
330	0.9089	370	0.8960	410	0.8832	450	0.8705	490	0.8580
331	0.9086	371	0.8957	411	0.8829	451	0.8702	491	0.8577
332	0.9083	372	0.8953	412	0.8826	452	0.8699	492	0.8574
333	0.9079	373	0.8950	413	0.8822	453	0.8696	493	0.8571
334	0.9076	374	0.8947	414	0.8819	454	0.8693	494	0.8568
335	0.9073	375	0.8944	415	0.8816	455	0.8690	495	0.8565
336	0.9070	376	0.8941	416	0.8813	456	0.8687	496	0.8562
337	0.9066	377	0.8937	417	0.8810	457	0.8683	497	0.8559
338	0.9063	378	0.8934	418	0.8806	458	0.8680	498	0.8556
339	0.9060	379	0.8931	419	0.8803	459	0.8677	499	0.8552
340	0.9057	380	0.8928	420	0.8800	460	0.8674		
341	0.9053	381	0.8924	421	0.8797	461	0.8671		
342	0.9050	382	0.8921	422	0.8794	462	0.8668		
343	0.9047	383	0.8918	423	0.8791	463	0.8665		
344	0.9044	384	0.8915	424	0.8989	464	0.8661		
345	0.9040	385	0.8912	425	0.8984	465	0.8658		
346	0.9037	386	0.8908	426	0.8781	466	0.8655		
347	0.9034	387	0.8905	427	0.8778	467	0.8652		
348	0.9031	388	0.8902	428	0.8775	468	0.8649		
349	0.9028	389	0.8899	429	0.8772	469	0.8646		

Legend: t = observed temperature in degrees Fahrenheit.
M = multiplier for reducing volumes to the basis of 60° F.

SPECIAL PROVISION
SECTION 424
Mastic-Based Crack Sealing

Description This work shall consist of furnishing all labor, equipment and materials necessary to clean, fill and seal longitudinal and transverse cracks in bituminous concrete pavement courses. Materials are to be thoroughly applied to seal the cracks. This work shall consist of the furnishing and placement of mastic-based crack sealing material in the cracks of existing bituminous concrete pavement in accordance with these Special Provisions. This work shall consist of crack cleaning and drying, material supply and heating, preparation and application material, material finishing or shaping, and providing and installing barrier material or curing materials as required.

The Department will allow mastic-based sealing materials as an option for Ultra-Thin Bonded Wearing Course (UTBWC) and other treatments that specify Type 2 or Type 4 sealants in the contract. If the option to utilize Mastic based sealing materials is requested the change shall be subject to approval by the Department prior to the start of work, and sealant and equipment requirements shall meet the following criteria.

MATERIALS

The mastic-based materials are hot-applied, pourable, self-adhesive mastics designed for maintenance and repair of asphalt and Portland cement concrete pavements. Hot pour mastic materials are composed of highly modified polymer asphalt binder and up to 2% synthetic fiber (by weight) as required by the application and approved by the Department.

Mastic based sealing materials shall be delivered in the manufacturer’s original container. Mastic material based sealing materials shall be pre-packaged with the manufacturers name and product name marked on each container. The materials shall conform to the following requirements:

<u>Parameter</u>	
Color	Black
Pourability @ 400F (PTM1)*	1000-1400 gm
Stability @ 158F (PTM2)	.6in. max
Flexibility @ Low Temperature (PTM3)	Pass @ -20F
Adhesion @77F (PTM4)	15psi min.
Specific Gravity (ASTM D792)	1.35max.
Skid Resistance, BPN (ASTM E303)	40 min.
Minimum Application Temperature	375°F
Maximum Application Temperature	410°F

QUALITY CONTROL REQUIREMENTS

Quality Control The Contractor shall develop and submit a Quality Control Plan (QCP) that addresses the materials to be used, equipment to be used, methods of material usage (quantity measurements and tracking) as well as installation methods and protection of the work as it is completed. The Contractor shall control the work and operate in accordance with the approved QCP in order to install product and complete work meeting the contract requirements. The Contractor shall not begin sealing operations until the Department approves the QCP in writing.

Quality Control The QCP shall meet the requirements of Section 106.6 – Acceptance and this Section. The QCP shall address any items that affect the quality of the operation, and shall include the following personnel meeting these minimum requirements:

- a. QCP Administrator – The QCP Administrator must be a full-time employee of or a consultant engaged by the prime contractor or crack sealing subcontractor. The QCP Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the QCP. The QCP Administrator (or their designee in the QCP Administrator's absence) may not be required to be onsite during all work activities but shall be available to communicate with the Department as needed.
- b. Onsite Representative - The Onsite Representative (OR) shall be onsite and work directly with the crew as needed. The OR shall perform quality control inspections or measurements at the job site to assure that materials or installations meet the requirements of the contract.

The QCP shall detail the coordination of the activities of the Plan Administrator, and the OR. The Superintendent shall be named in the QCP if different than the OR, and the responsibilities for successful implementation of the QCP within the companies' activities shall be outlined.

The QCP shall address any items that may impact the quality of the sealant installation including, but not limited to, the following:

- a. General Requirements:
 - Name of QCP Administrator
 - Description of corrective action processes
 - Remediation of defective work
- b. Quality Control Plan requirements
 - Name of Onsite Representative(s)
 - Material type to be used (including product data sheet)
 - Heating and installation temperatures

- Procedures to clean, dry and properly prepare all cracks for installation of crack sealants / fillers.
- General sealing operation activities including equipment to be used to install sealants
- Procedures to ensure that cracks are “flush filled” and any overband width does not exceed the contract requirements.
- Procedures to protect any installed sealant from damage from traffic or construction activities.

A summary of the day’s results including a quantity report, equipment used, and environmental conditions will be recorded and signed by the OR and presented to the Department’s representative by 1 PM the following working day.

Failure to adhere to the QCP, replace or repair defective or non-conforming equipment, or adjust material or installation procedures in an effort to produce work that meets the contract requirements will result in a notification of a quality control violation resulting in monetary penalties.

A letter describing the violation shall be provided to the Contractor which will result in a mandatory work suspension and a reduction in payment as shown in Table 106.4A below. The Contractor shall submit a letter to the Department that details the corrective action made to address the violation(s) in its Quality Control Plan. Work may resume when the Department is satisfied the corrective action will result in adherence to the Quality Control Plan.

Table 106.4 A - Quality Control Pay Reduction

Quality Control Plan Value*		Pay Reduction		
From More Than	To and Including	1st	2nd	3rd & Subsequent
\$0	\$500,000	\$1,000	\$2,000	\$4,000
\$500,000	\$1,000,000	\$2,000	\$4,000	\$8,000
\$1,000,000	\$3,000,000	\$5,000	\$10,000	\$20,000
\$3,000,000	and more	\$10,000	\$20,000	\$40,000

* The Quality Control Plan Value is the total Bid value of all items covered by a Quality Control Plan, as detailed in the applicable specification or Special Provision.

Pay reductions for failure to comply with the approved QCP are cumulative, and the Department will deduct any pay reductions from amounts otherwise due the Contractor. These pay reductions are intended to encourage the Contractor to comply with its approved QCP, and are not necessarily related to the quality of the work provided.

EQUIPMENT

Equipment Equipment used in the performance of the work shall be subject to the Resident's or authorized representative's approval and shall be maintained in a satisfactory working condition at all times. As a minimum, the equipment required will consist of the following:

(1) Air Compressor and air wand: A portable air compressor and air wand shall be supplied to clean the cracks to be sealed prior to using a hot air lance. The air compressor shall be coupled with hose and air wand and be capable of furnishing not less than 150 CFM of air and not less than 100 psi pressure through a 5/8"- inch diameter nozzle. A ½ - inch or ¾-inch nozzle may be used with approval of the Inspector as long as the pressure requirements are being met. The compressor shall be equipped with traps that will maintain the compressed air free of oil and water. A single air compressor may be utilized to supply air to both the air wand and hot air lance with the condition that it will consistently supply the required air volume and pressures for each operation simultaneously.

(2) Sweeper: Manually operated, gas powered air-broom or self-propelled sweeper designed especially for use in cleaning highway and airfield pavements shall be used to remove debris, dirt, and dust from the cracks.

(3) Hot Air Lance: The hot air lance shall be independent of the air wand unit. The hot air lance shall be operated with propane and compressed air in combination and provide 1000 ft/sec of heated air at 2000°F - 3000°F. The lance should draw propane from no smaller than a 100 lb tank using separate hoses for propane and air draw. The hoses shall be wrapped together with reflectorized wrap to keep them together and to protect workers in low light situations. A single air compressor may be utilized to supply air to both the air wand and hot air lance with the condition that it will consistently supply the required air volume and pressures for each operation simultaneously.

(4) Hand Tools: Hand tools shall consist of shall consist of brooms, shovels, metal bars with chisel shaped ends, and any other tools which may be satisfactorily used to prepare cracks to be sealed. Other tools such as, but not limited to, V-shaped squeegee or flat squeegee may be necessary to prevent excessive overband width and thickness.

(5) Melting Kettle: The unit used to melt the mastic-based crack sealing material shall be a double boiler, indirect fired type. The space between inner and outer shells shall be filled with a suitable heat transfer oil or substitute having a flash point of not less than 608°F. The kettle shall be equipped with a satisfactory means of agitating and mixing the joint sealer at all times. This may be accomplished by continuous stirring with mechanically operated paddles and/or a continuous circulating gear pump attached to the heating unit. The kettle must be equipped with thermostatic control calibrated between 200°F and 550°F. The Contractor shall either provide a jacketed thermometer that accurately displays the sealant temperature within the kettle or provide the Resident or

authorized representative with a suitable device for verifying the sealant temperature in the kettle. Temperatures must be able to be checked at any time during the heating of material, application of material, or at the end of the application operation.

GENERAL CONSTRUCTION REQUIREMENTS

Weather Mastic based crack sealing materials shall not be applied on a wet surface, or when the atmospheric temperature is below 45 °F in a shaded area at the job site, or when weather conditions are otherwise unfavorable to proper construction procedures.

Preparations of Cracks All cracks shall be blown free of loose material, dirt, vegetation, and other debris by high pressure air prior to the used of the hot air lance. Material removed from the crack shall be removed from the pavement surface by means of compressed air, power sweeper or appropriate hand tools as required. Cracks showing evidence of vegetation after being blown out shall be additionally cleaned by appropriate hand tools and additionally blown out. All cracks must be blown clean with the high-pressure air wand in advance of the hot air lance. All cracks shall be heated via the hot air lance no more than 5 minutes prior to the crack being sealed. Distance between the hot air lance and the crack sealing unit should be no more than 50 ft to eliminate re-invasion of water, debris, and other incompressible materials. All debris, vegetation, and water shall be removed to enhance adhesion of the crack sealing material. THIS WORK SHALL NOT BE DONE IN INCLEMENT WEATHER.

Preparation and Placement of Sealer Mastic based crack sealing material shall be heated and applied at the temperature specified by the manufacturer and approved by the Resident or authorized representative. Any material that has been heated above the manufacturer's specification shall not be used. Material that is reheated or held at temperature for an extended period of time may be used as allowed by the manufacturer's specification and approval of the Resident or authorized representative. A copy of the manufacture's specification shall be provided to the Project when requested.

The Contractor shall provide the Resident or authorized representative with a suitable device for verifying the sealant temperature in the kettle and at the application site.

Any loose material on the surface or in the crack, which may contaminate the crack sealer or impede bonding of the sealant to the pavement, is to be removed by hand tools prior to crack filling. No crack filling material shall be applied in a crack that is wet or where frost, snow, or ice is present. The ambient air temperature must be 50 or higher.

Any over application or spills are to be removed to the satisfaction of the Resident or authorized representative. Any sealed areas with damaged or contaminated sealer or visible voids are to be removed, prepared and resealed. Defective or leaking valves and wands will be repaired or replaced before work continues. If repairs or replacement of defective equipment cannot be accomplished immediately then the Department may permit work to continue but deduct any excess quantities placed as it determines.

Cracks ½ inch up to 1 ½ inch in may be sealed with mastic-based crack seal. Generally, repairs wider than 1 ½ inches or those that extend below the surface layer may require a change to different mastic material type or treatment method in order repair cracks.

For projects where mastic-based crack sealing materials will be covered and a hot mix asphalt overlay is being installed over the sealant all cracks will be “**flush filled**”, meaning cracks are filled to a point that the sealant is flush with the existing pavement surface. If the work scope requires a flush fill a nozzle sized to fill the cracks shall be used. Minimal to no overbanding will be permitted.

For projects where the mastic-based crack sealing materials are left un-covered with a hot mix overlay and traffic will be permitted to travel over the sealants for the anticipated sealant life, some overband may be permitted.

If the work scope allows crack filling and sealing with overband, then a shoe sized to meet the overband width shall be used. Generally, the shoe width and the sealer overbanding area shall range from 1 inch – 1.5 inch. Overbanding width may vary from the range specified depending on the width and severity of the cracks.

Sealer shall be delivered to the crack while the cracks are still hot from the hot air lance preparation through a pressure hose line and applicator nozzle or shoe.

The applicator shall be followed by a V-shaped squeegee to minimize the thickness of any overband. The sealer shall be applied at a rate that produces a coating thickness of 3/32 - inch, typical.

If the sealed area is to be opened to traffic immediately, a barrier material (de-tackifier) such as Glenzoil, Black Beauty grit, or an equivalent product approved by the Resident shall be provided by the Contractor and shall be applied to the crack sealer to prevent pickup as directed by the Resident or authorized representative.

If sealed areas are to be paved over with a hot mix asphalt treatment then a 48 hour minimum cure time and use of barrier material (de-tackifier) will be required. Cure times may be extended if excessive pick-up of the crack sealants occurs.

Quality of Work Any excess of sealer, spilled or overapplied, shall be removed from the pavement by approved methods and discarded. Any quality of work determined to be below normal acceptable standards will not be accepted and will be corrected and/or replaced as directed by the Resident or authorized representative.

Method of Measurement Mastic based crack sealing materials will be measured by the pound of sealant used. The manufacturer’s weights of the sealant for each block (pill), counted as they are loaded, will be accepted as a basis for measurement.

Should tank checks be approved to verify material usage or calculate initial or final gallons remaining in the tanker, a calibrated tank gauge or tank stick shall be used to

measure the tank gallons. Volume corrections shall be calculated using Table:1 to correct the gallon volume to 60 ° F.

For those approved cases the Department has determined the weight of this material to be 10.63 pounds per gallon. The Department will use this conversion value for all materials measured by the gallon and converted to pounds. The corrected volume and resultant pounds shall be made part of the method of measurement, with consideration given to blocks (pills) added during the day and applied in an acceptable manner

Basis of Payment The accepted quantity of Mastic-Based Crack Sealing will be paid for at the contract unit price per pound complete in place. This price shall be full compensation for furnishing and placing crack sealer, including cleaning cracks and furnishing and placing barrier materials if necessary.

Conversion Table:1

t	M	t	M	t	M	t	M	t	M	t	M
100	0.9861	135	0.9740	170	0.9621	205	0.9503	240	0.9385	275	0.9269
101	0.9857	136	0.9737	171	0.9618	206	0.9499	241	0.9382	276	0.9266
102	0.9854	137	0.9734	172	0.9614	207	0.9496	242	0.9379	277	0.9263
103	0.9851	138	0.9730	173	0.9611	208	0.9493	243	0.9375	278	0.9259
104	0.9847	139	0.9727	174	0.9607	209	0.9489	244	0.9372	279	0.9256
105	0.9844	140	0.9723	175	0.9604	210	0.9486	245	0.9369	280	0.9253
106	0.9840	141	0.9720	176	0.9601	211	0.9483	246	0.9365	281	0.9250
107	0.9837	142	0.9716	177	0.9597	212	0.9479	247	0.9362	282	0.9246
108	0.9833	143	0.9713	178	0.9594	213	0.9476	248	0.9359	283	0.9243
109	0.9830	144	0.9710	179	0.9590	214	0.9472	249	0.9356	284	0.9240
110	0.9826	145	0.9706	180	0.9587	215	0.9469	250	0.9352	285	0.9236
111	0.9823	146	0.9703	181	0.9584	216	0.9466	251	0.9349	286	0.9233
112	0.9819	147	0.9699	182	0.9580	217	0.9462	252	0.9346	287	0.9230
113	0.9816	148	0.9696	183	0.9577	218	0.9459	253	0.9342	288	0.9227
114	0.9813	149	0.9693	184	0.9574	219	0.9456	254	0.9339	289	0.9223
115	0.9809	150	0.9689	185	0.9570	220	0.9452	255	0.9336	290	0.9220
116	0.9806	151	0.9686	186	0.9567	221	0.9449	256	0.9332	291	0.9217
117	0.9802	152	0.9682	187	0.9563	222	0.9446	257	0.9329	292	0.9213
118	0.9799	153	0.9679	188	0.9560	223	0.9442	258	0.9326	293	0.9210
119	0.9795	154	0.9675	189	0.9557	224	0.9439	259	0.9322	294	0.9207
120	0.9792	155	0.9672	190	0.9553	225	0.9436	260	0.9319	295	0.9204
121	0.9788	156	0.9669	191	0.9550	226	0.9432	261	0.9316	296	0.9200
122	0.9785	157	0.9665	192	0.9547	227	0.9429	262	0.9312	297	0.9197
123	0.9782	158	0.9662	193	0.9543	228	0.9426	263	0.9309	298	0.9194
124	0.9778	159	0.9658	194	0.9540	229	0.9422	264	0.9306	299	0.9190
125	0.9775	160	0.9655	195	0.9536	230	0.9419	265	0.9302	300	0.9187
126	0.9771	161	0.9652	196	0.9533	231	0.9416	266	0.9299	301	0.9184
127	0.9768	162	0.9648	197	0.9530	232	0.9412	267	0.9296	302	0.9181
128	0.9764	163	0.9645	198	0.9526	233	0.9409	268	0.9293	303	0.9177
129	0.9761	164	0.9641	199	0.9523	234	0.9405	269	0.9289	304	0.9174
130	0.9758	165	0.9638	200	0.9520	235	0.9402	270	0.9286	305	0.9171
131	0.9754	166	0.9635	201	0.9516	236	0.9399	271	0.9283	306	0.9167
132	0.9751	167	0.9631	202	0.9513	237	0.9395	272	0.9279	307	0.9164
133	0.9747	168	0.9628	203	0.9509	238	0.9392	273	0.9276	308	0.9161
134	0.9744	169	0.9624	204	0.9505	239	0.9389	274	0.9273	309	0.9158

Legend: t = observed temperature in degrees Fahrenheit.
M = multiplier for reducing volumes to the basis of 60° F.

Conversion Table:1

t	M	t	M	t	M	t	M	t	M
310	0.9154	350	0.9024	390	0.8896	430	0.8768	470	0.8643
311	0.9151	351	0.9021	391	0.8892	431	0.8765	471	0.8640
312	0.9148	352	0.9018	392	0.8889	432	0.8762	472	0.8636
313	0.9145	353	0.9015	393	0.8886	433	0.8759	473	0.8633
314	0.9141	354	0.9011	394	0.8883	434	0.8756	474	0.8630
315	0.9138	355	0.9008	395	0.8880	435	0.8753	475	0.8627
316	0.9135	356	0.9005	396	0.8876	436	0.8749	476	0.8624
317	0.9132	357	0.9002	397	0.8873	437	0.8746	477	0.8621
318	0.9128	358	0.8998	398	0.8870	438	0.8743	478	0.8618
319	0.9125	359	0.8995	399	0.8867	439	0.8740	479	0.8615
320	0.9122	360	0.8992	400	0.8864	440	0.8737	480	0.8611
321	0.9118	361	0.8989	401	0.8861	441	0.8734	481	0.8608
322	0.9115	362	0.8986	402	0.8857	442	0.8731	482	0.8605
323	0.9112	363	0.8982	403	0.8854	443	0.8727	483	0.8602
324	0.9109	364	0.8979	404	0.8851	444	0.8724	484	0.8599
325	0.9105	365	0.8976	405	0.8848	445	0.8721	485	0.8596
326	0.9102	366	0.8973	406	0.8845	446	0.8718	486	0.8593
327	0.9099	367	0.8969	407	0.8841	447	0.8715	487	0.8590
328	0.9096	368	0.8966	408	0.8838	448	0.8712	488	0.8587
329	0.9092	369	0.8963	409	0.8835	449	0.8709	489	0.8583
330	0.9089	370	0.8960	410	0.8832	450	0.8705	490	0.8580
331	0.9086	371	0.8957	411	0.8829	451	0.8702	491	0.8577
332	0.9083	372	0.8953	412	0.8826	452	0.8699	492	0.8574
333	0.9079	373	0.8950	413	0.8822	453	0.8696	493	0.8571
334	0.9076	374	0.8947	414	0.8819	454	0.8693	494	0.8568
335	0.9073	375	0.8944	415	0.8816	455	0.8690	495	0.8565
336	0.9070	376	0.8941	416	0.8813	456	0.8687	496	0.8562
337	0.9066	377	0.8937	417	0.8810	457	0.8683	497	0.8559
338	0.9063	378	0.8934	418	0.8806	458	0.8680	498	0.8556
339	0.9060	379	0.8931	419	0.8803	459	0.8677	499	0.8552
340	0.9057	380	0.8928	420	0.8800	460	0.8674		
341	0.9053	381	0.8924	421	0.8797	461	0.8671		
342	0.9050	382	0.8921	422	0.8794	462	0.8668		
343	0.9047	383	0.8918	423	0.8791	463	0.8665		
344	0.9044	384	0.8915	424	0.8989	464	0.8661		
345	0.9040	385	0.8912	425	0.8984	465	0.8658		
346	0.9037	386	0.8908	426	0.8781	466	0.8655		
347	0.9034	387	0.8905	427	0.8778	467	0.8652		
348	0.9031	388	0.8902	428	0.8775	468	0.8649		
349	0.9028	389	0.8899	429	0.8772	469	0.8646		

Legend: t = observed temperature in degrees Fahrenheit.
M = multiplier for reducing volumes to the basis of 60° F.

SPECIAL PROVISION
SECTION 424
 POLYMER MODIFIED ASPHALT CRACK SEALANT w/ FIBER

Description This work shall consist of crack cleaning utilizing compressed air and hand tools as required to prepare cracks for sealant installation, drying of the prepared cracks, material supply and heating, preparation and application of material, material finishing or shaping, and providing and installing barrier material or curing materials used to seal longitudinal and transverse cracks in bituminous concrete pavements as directed and in accordance with these Special Provisions.

The Department will allow Polymer Modified Asphalt Crack Sealant with fiber as an option for Ultra-Thin Bonded Wearing Course (UTBWC) and other treatments that specify Type 2 or Type 4 sealants in the contract. If the option to utilize Polymer Modified Asphalt Crack Sealant with fiber is selected the sealant and equipment requirements shall meet the following criteria and shall be subject to approval by the Department prior to the start of work.

MATERIALS

Polymer Modified Asphalt Crack Sealant with fiber (PMACS) shall be a polymer modified asphalt-fiber compound designed specifically for improving the strength and performance of the parent asphalt used in the sealant.

The asphalt binder shall consist of a blend of neat asphalt binder, crumb rubber, and SBS polymer and meet the following specifications:

- Modification at a minimum shall consist 7% crumb rubber and 3-4% SBS polymer. The maximum particle size for the crumb rubber shall be 80 mesh
- The performance grade of the base asphalt binder prior to modification shall be a PG 58-28
- OB DSR (AASHTO T315) @ 76: Min 1.00 kPa
- MSCR (AASHTO T350) @ 64 JnR3.2 < 0.50

As a minimum the sealant will meet PG 64E-28 requirements after modification. The asphalt supplier shall provide testing results for both the neat and modified asphalt binders

Fiber reinforcing materials shall be short-length polyester fibers having the following properties:

Length*	0.25 in. ± 0.02 in.
Elongation at Break (ASTM D2256-90)	35% ± 3%
Melting Point (ASTM D3418-82)	>475°F
Crimps/Inch (ASTM 03937-90)	None
Cross-Section	Round
Denier (ASTM D1577-90)	4.5 Nominal dpf
Tensile Strength (ASTM D2256-90)	>70,000 psi
Diameter	0.0008 in.**
Specific Gravity (ASTM D792-91)	1.32 to 1.40

* At temperatures ranging from ambient to maximum finished product mix temperature

** Subject to normal variations

The modified asphalt-fiber compound shall be mixed with a minimum of 6% and a maximum of 8% fiber (weight to weight) to asphalt cement unless otherwise approved by the Department.

The polymer modified asphalt-fiber compound shall be thoroughly mixed for a minimum of one hour at the required temperature range of 320°F to 375°F before application can begin. To ensure a uniform fiber distribution in the sealant, and also to limit fluctuations in the application temperature of the blended material, the contractor must have a full tanker of sealant mixed, heated to the proper application temperature, and ready for testing at the start of each work day. Once that batch of sealant is emptied from the tanker, crack sealing operations will cease for the remainder of the day.

No new material will be allowed to be added to the tanker during the workday under any circumstances. Bulk tankers shall be filled at the approved asphalt supplier's facility, and accompanied by a bill of lading, material data sheet, and total pounds of material loaded.

A Manufacturer's certificate of material compliance will be furnished to the Department certifying conformance to the above material specifications, including the following:

- Performance Grade of Unmodified Asphalt: PG 58-28 (standard) AASHTO M-320, Table 1
- 7% chemically-modified crumb rubber (CMCR) Composed of 100% 80-mesh recycled tire rubber
- Specially formulated polymer package to include 3-4% polymer
- Performance Grade of Modified Asphalt: PG 64E-28
- A minimum of 6%, and maximum of 8% polyester reinforcing fibers

Blending of the fibers with the modified asphalt binder shall be in accordance with the recommendations of the manufacturer of the fibers and supplier of the polymer modified asphalt, with final approval made by the Department.

The contractor shall provide the Resident or authorized representative with a copy of the material manufacturer's recommendations for the sealant material being provided pertaining to heating, mixing, application, and reheating prior to the beginning of operations, or the changing of materials.

Material Temperatures Minimum polymer modified asphalt-fiber sealant application temperature shall be 320°F and not exceed 375°F.

QUALITY CONTROL REQUIREMENTS

Quality Control The Contractor shall develop and submit a Quality Control Plan (QCP) that addresses the materials to be used, equipment to be used, methods of material usage (quantity measurements and tracking) as well as installation methods and protection of the work as it is completed. The Contractor shall control the work and operate in accordance with the approved QCP in order to install product and complete work meeting the contract requirements. The Contractor shall not begin sealing operations until the Department approves the QCP in writing.

Quality Control The QCP shall meet the requirements of Section 106.6 – Acceptance and this Section. The QCP shall address any items that affect the quality of the operation, and shall include the following personnel meeting these minimum requirements:

- a. QCP Administrator – The QCP Administrator must be a full-time employee of or a consultant engaged by the prime contractor or crack sealing subcontractor. The QCP Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the QCP. The QCP Administrator (or their designee in the QCP Administrator’s absence) may not be required to be onsite during all work activities but shall be available to communicate with the Department as needed.
- b. Onsite Representative - The Onsite Representative (OR) shall be onsite and work directly with the crew as needed. The OR shall perform quality control inspections or measurements at the job site to assure that materials or installations meet the requirements of the contract.

The QCP shall detail the coordination of the activities of the Plan Administrator, and the OR. The Superintendent shall be named in the QCP if different than the OR, and the responsibilities for successful implementation of the QCP within the companies’ activities shall be outlined.

The QCP shall address any items that may impact the quality of the sealant installation including, but not limited to, the following:

a. General Requirements:

- Name of QCP Administrator
- Description of corrective action processes
- Remediation of defective work

b. Quality Control Plan requirements

- Name of Onsite Representative(s)
- Material type to be used (including product data sheet)
- Heating and installation temperatures
- Procedures to clean, dry and properly prepare all cracks for installation of crack sealants / fillers.
- General sealing operation activities including equipment to be used to install sealants
- Procedures to ensure that cracks are “flush filled” and any overband width does not exceed the contract requirements.
- Procedures to protect any installed sealant from damage from traffic or construction activities.

A summary of the day’s results including a quantity report, equipment used, and environmental conditions will be recorded and signed by the OR and presented to the Department’s representative by 1 PM the following working day.

Failure to adhere to the QCP, replace or repair defective or non-conforming equipment, or adjust material or installation procedures in an effort to produce work that meets the contract requirements will result in a notification of a quality control violation resulting in monetary penalties.

A letter describing the violation shall be provided to the Contractor which will result in a mandatory work suspension and a reduction in payment as shown in Table 106.4A below. The Contractor shall submit a letter to the Department that details the corrective action made to address the violation(s) in its Quality Control Plan. Work may resume when the Department is satisfied the corrective action will result in adherence to the Quality Control Plan.

Table 106.4 A - Quality Control Pay Reduction

Quality Control Plan Value*		Pay Reduction		
From More Than	To and Including	1st	2nd	3rd & Subsequent
\$0	\$500,000	\$1,000	\$2,000	\$4,000
\$500,000	\$1,000,000	\$2,000	\$4,000	\$8,000
\$1,000,000	\$3,000,000	\$5,000	\$10,000	\$20,000
\$3,000,000	and more	\$10,000	\$20,000	\$40,000

* The Quality Control Plan Value is the total Bid value of all items covered by a Quality Control Plan, as detailed in the applicable specification or Special Provision.

Pay reductions for failure to comply with the approved QCP are cumulative, and the Department will deduct any pay reductions from amounts otherwise due the Contractor. These pay reductions are intended to encourage the Contractor to comply with its approved QCP, and are not necessarily related to the quality of the work provided.

EQUIPMENT

Equipment used in the performance of the work shall be subject to the Resident's or authorized representative's approval and shall be maintained in a satisfactory working condition at all times. As a minimum, the equipment required will consist of the following:

(1) Air Compressor and air wand A portable air compressor and air wand shall be supplied to clean the cracks to be sealed prior to using a hot air lance. The air compressor shall be coupled with hose and air wand and be capable of furnishing not less than 150 CFM of air at not less than 100 psi pressure through a 5/8"- inch diameter nozzle. A 1/2 -inch or 3/4-inch nozzle may be used with approval of the Inspector as long as the pressure requirements are being met. The compressor shall be equipped with traps that will maintain the compressed air free of oil and water. A single air compressor may be utilized to supply air to both the air wand and hot air lance with the condition that it will consistently supply the required air volume and pressures for each operation simultaneously.

(2) Sweeper Manually operated, gas powered air-broom or self-propelled sweeper designed especially for use in cleaning highway and airfield pavements shall be used to remove debris, dirt and dust from the cracks.

(3) Hot Air Lance The hot air lance shall be independent of the air wand unit. The hot air lance shall be operated with propane and compressed air in combination and provide 1000 ft/sec of heated air at 2000°F - 3000°F, at not less than 120 psi. The lance should draw propane from no smaller than a 100 lb. tank using separate hoses for propane and air draw. The hoses shall be wrapped together with reflectorized wrap to keep them together and to protect workers in low light situations. A single air compressor may be utilized to supply air to both the air wand and hot air lance with the condition that it will consistently supply the required air volume and pressures for each operation simultaneously.

(4) Application Wand The application wand shall apply a controlled flow of material via an insulated or heated hose. The nozzle shall distribute the material as called for in this specification. A pressure regulator shall be provided to regulate pressure at the nozzle. Sealant shall be installed using a nozzle for flush filled applications, or a small to medium application disc for overband permitted installations selected to give a narrow overband over the cracks being sealed and minimize final overband thickness above the pavement surface.

(5) Hand Tools Hand tools shall consist of shall consist of brooms, shovels, metal bars with chisel shaped ends, and any other tools which may be satisfactorily used to prepare cracks to be sealed. Other tools such as, but not limited to, V-shaped squeegee or flat squeegee may be necessary to prevent excessive overband width and thickness.

(6) Melter: The unit used to melt or maintain the modified asphalt crack sealant compound shall have an approximate capacity of 1,000 gallons and be equipped to maintain the sealant compound at the recommended application temperature. The unit shall be of the indirect fired type, shall be equipped with a remote heat exchanger and hot oil circulation pump capable of maintaining a consistent temperature of the heat transfer oil. The heat transfer oil shall be circulated to all sides and the bottom of the tank containing the crack sealant compound making a continuous loop back to the heat exchanger and having a flash point of not less than 600°F. The melter shall be equipped with a satisfactory means of agitating the crack sealant at all times. This may be accomplished by continuous stirring with mechanically operated paddles and/or by a circulating gear pump attached to the melter. The melter must be equipped with a thermostatic control calibrated between 200°F and 550°F and must be capable of pumping a 6 - 8% fiber content blend.

7) Bulk Tanker: The bulk tanker unit used to heat and maintain the modified asphalt crack sealant compound shall have an approximate capacity of 3,000 to 5,000 gallons and be equipped to maintain the sealant compound at the recommended application temperature.

Documentation shall be provided for each tanker use with verified gallons or pounds of material that each tanker holds. If full tankers are provided on a daily basis, and each tanker is emptied daily, then the verified gallons or pounds each tanker holds may be used for calculation of payment.

If partial loads are supplied, or material remains in the tanker at the end of the day or contract, a means to calculated material usage must be provided in the form of either calibrated tank checks corrected to 60°F, or certified scale weights of the material load at the beginning or end of the day as applicable.

GENERAL CONSTRUCTION REQUIREMENTS

Weather Crack Sealant Material shall not be applied on a wet surface, when the atmospheric temperature is below 50°F in a shaded area at the job site, or when weather conditions are otherwise unfavorable to proper construction procedures.

Equipment Equipment used in the performance of the work shall meet the requirements of the material and equipment section of this special provision and approved by the Department. Equipment shall be maintained in a satisfactory working condition at all times.

Preparation All cracks to be sealed shall be blown free of loose material, dirt, vegetation, and other debris by the high pressure air wand. Material removed from the crack shall be removed from the pavement surface by means of a power sweeper or appropriate hand tools as required. Cracks showing evidence of vegetation after being blown out shall be additionally cleaned by appropriate hand tools and additionally blown out. All cracks must be blown clean with the high-pressure air wand in advance of the hot air lance. All cracks shall be heated via the hot air lance a maximum of 5 minutes prior to the crack sealant being applied. Distance between the hot air lance and the crack sealing unit should be no more than 50 ft to eliminate reinvasion of water, debris, and other incompressible material. All debris, vegetation, and water shall be removed to enhance adhesion of the crack sealing material. THIS WORK SHALL NOT BE DONE IN INCLEMENT WEATHER.

Preparation and Placement of Sealer The polymer modified asphalt-fiber material shall be heated, mixed and applied at the temperature specified by the manufacturer and approved by the Resident or authorized representative. The polymer modified asphalt-fiber compound shall be thoroughly mixed for a minimum of one hour before application can begin. Any material that has been heated above the manufacturer's specification shall not be used. and approval of the Resident or authorized representative. The Contractor shall provide the Resident or authorized representative with a suitable device for verifying the sealant temperature in the kettle and at the application site. Any over application or spills are to be removed to the satisfaction of the Resident or authorized representative. Any sealed areas with damaged or contaminated sealer or visible voids are to be removed, prepared and resealed at no additional cost to the Department.

Sealer shall be delivered to the crack while cracks are still hot from the hot air lance preparation through a pressure hose line, applicator nozzle or applicator shoe depending on crack filling requirements.

For projects where sealants will be covered and a hot mix asphalt overlay is being installed over the sealant all cracks will be **“flush filled”**, meaning cracks are filled to a point that the sealant is flush with the existing pavement surface. If the work scope requires a flush fill a nozzle sized to fill the cracks shall be used. Minimal to no overbanding will be permitted. The applicator shoe width shall be a maximum of 2 inch internal disc dimension and produce a sealer width range from 1 inch – 1.5 inch. Overall width of the sealant may vary from the range specified depending on the width and severity of the cracks with approval from the Department.

For projects where the sealants are left un-covered with a hot mix overlay and traffic will be permitted to travel over the sealants for the anticipated sealant life, some overband may be permitted. If the work scope required crack filling and sealing with overband, then a shoe sized to meet the overband width shall be used. The applicator shoe width shall be a maximum of 2 inch internal dimension and produce a sealer overband range from 1 inch – 1.5 inch. Overbanding width may vary from the range specified depending on the width and severity of the cracks with approval from the Department.

Generally, overband will be kept to a minimum and not exceed a maximum of 1 1/2-inch-wide and 3/32 inch thick. The applicator may be followed by a squeegee to minimize the thickness of the overband.

Any loose material on the surface or in the crack which may contaminate the crack sealer or impede bonding of the sealant to the pavement, is to be removed by hand tools prior to crack filling. No crack filling material shall be applied in a crack that is wet or where frost, snow, or ice is present.

Minimum polymer modified asphalt-fiber sealant_application temperature shall be 320°F and not exceed 375°F.

If the sealed area is to be opened to traffic immediately, a barrier material (de-tackifier) such as Glenzoi, Black Beauty grit, or an equivalent product approved by the Resident shall be provided by the Contractor be applied to the crack sealer to prevent pickup as directed by the Resident or authorized representative.

If the sealed areas are to be paved over with a hot mix treatment, then a 48-hour minimum cure time and use of barrier material (de-tackifier) will be required. Cure times may be extended if excessive pick-up of the crack sealants occurs.

Quality of Work Excess of spilled sealer shall be removed from the pavement by approved methods and discarded. Any quality of work determined to be below normal acceptable standards will not be accepted, and will be corrected and/or replaced as directed by the Resident or authorized representative at no additional cost to the Department.

Method of Measurement Polymer modified asphalt-fiber sealant will be measured by the pound of sealant used. The manufacturer's weight per tanker of sealant will be accepted as the basis for measurement. Materials supplied by weight will be accompanied by a bill of lading and material certification.

The Department may, at their discretion, verify the manufacturers weights provided by re-weighing the tankers at independent scale facilities.

The Department may, on a case-by-case basis, approve and perform tank checks to measure the sealant by the gallon and convert to pounds.

Should tank checks be approved to verify material usage or calculate initial or final gallons remaining in the tanker, a calibrated tank gauge or tank stick shall be used to measure the tank gallons. Volume corrections shall be calculated using Table:1 to correct the gallon volume to 60 ° F.

For those approved cases the Department has determined the weight of this material to be 8.37 pounds per gallon. The Department will use this conversion value for all materials measured by the gallon and converted to pounds.

Basis of Payment The accepted quantity of polymer modified asphalt-fiber sealant will be paid for at the contract unit price per pound for the item listed in the contract schedule of items, complete in place. This price shall be full compensation for furnishing and placing crack sealer, including cleaning cracks, heating and drying cracks, all labor, and furnishing and placing barrier or blotter materials as necessary.

Conversion Table:1

t	M	t	M	t	M	t	M	t	M	t	M
100	0.9861	135	0.9740	170	0.9621	205	0.9503	240	0.9385	275	0.9269
101	0.9857	136	0.9737	171	0.9618	206	0.9499	241	0.9382	276	0.9266
102	0.9854	137	0.9734	172	0.9614	207	0.9496	242	0.9379	277	0.9263
103	0.9851	138	0.9730	173	0.9611	208	0.9493	243	0.9375	278	0.9259
104	0.9847	139	0.9727	174	0.9607	209	0.9489	244	0.9372	279	0.9256
105	0.9844	140	0.9723	175	0.9604	210	0.9486	245	0.9369	280	0.9253
106	0.9840	141	0.9720	176	0.9601	211	0.9483	246	0.9365	281	0.9250
107	0.9837	142	0.9716	177	0.9597	212	0.9479	247	0.9362	282	0.9246
108	0.9833	143	0.9713	178	0.9594	213	0.9476	248	0.9359	283	0.9243
109	0.9830	144	0.9710	179	0.9590	214	0.9472	249	0.9356	284	0.9240
110	0.9826	145	0.9706	180	0.9587	215	0.9469	250	0.9352	285	0.9236
111	0.9823	146	0.9703	181	0.9584	216	0.9466	251	0.9349	286	0.9233
112	0.9819	147	0.9699	182	0.9580	217	0.9462	252	0.9346	287	0.9230
113	0.9816	148	0.9696	183	0.9577	218	0.9459	253	0.9342	288	0.9227
114	0.9813	149	0.9693	184	0.9574	219	0.9456	254	0.9339	289	0.9223
115	0.9809	150	0.9689	185	0.9570	220	0.9452	255	0.9336	290	0.9220
116	0.9806	151	0.9686	186	0.9567	221	0.9449	256	0.9332	291	0.9217
117	0.9802	152	0.9682	187	0.9563	222	0.9446	257	0.9329	292	0.9213
118	0.9799	153	0.9679	188	0.9560	223	0.9442	258	0.9326	293	0.9210
119	0.9795	154	0.9675	189	0.9557	224	0.9439	259	0.9322	294	0.9207
120	0.9792	155	0.9672	190	0.9553	225	0.9436	260	0.9319	295	0.9204
121	0.9788	156	0.9669	191	0.9550	226	0.9432	261	0.9316	296	0.9200
122	0.9785	157	0.9665	192	0.9547	227	0.9429	262	0.9312	297	0.9197
123	0.9782	158	0.9662	193	0.9543	228	0.9426	263	0.9309	298	0.9194
124	0.9778	159	0.9658	194	0.9540	229	0.9422	264	0.9306	299	0.9190
125	0.9775	160	0.9655	195	0.9536	230	0.9419	265	0.9302	300	0.9187
126	0.9771	161	0.9652	196	0.9533	231	0.9416	266	0.9299	301	0.9184
127	0.9768	162	0.9648	197	0.9530	232	0.9412	267	0.9296	302	0.9181
128	0.9764	163	0.9645	198	0.9526	233	0.9409	268	0.9293	303	0.9177
129	0.9761	164	0.9641	199	0.9523	234	0.9405	269	0.9289	304	0.9174
130	0.9758	165	0.9638	200	0.9520	235	0.9402	270	0.9286	305	0.9171
131	0.9754	166	0.9635	201	0.9516	236	0.9399	271	0.9283	306	0.9167
132	0.9751	167	0.9631	202	0.9513	237	0.9395	272	0.9279	307	0.9164
133	0.9747	168	0.9628	203	0.9509	238	0.9392	273	0.9276	308	0.9161
134	0.9744	169	0.9624	204	0.9505	239	0.9389	274	0.9273	309	0.9158

Legend: t = observed temperature in degrees Fahrenheit.

M = multiplier for reducing volumes to the basis of 60° F.

Conversion Table:1

t	M	t	M	t	M	t	M	t	M
310	0.9154	350	0.9024	390	0.8896	430	0.8768	470	0.8643
311	0.9151	351	0.9021	391	0.8892	431	0.8765	471	0.8640
312	0.9148	352	0.9018	392	0.8889	432	0.8762	472	0.8636
313	0.9145	353	0.9015	393	0.8886	433	0.8759	473	0.8633
314	0.9141	354	0.9011	394	0.8883	434	0.8756	474	0.8630
315	0.9138	355	0.9008	395	0.8880	435	0.8753	475	0.8627
316	0.9135	356	0.9005	396	0.8876	436	0.8749	476	0.8624
317	0.9132	357	0.9002	397	0.8873	437	0.8746	477	0.8621
318	0.9128	358	0.8998	398	0.8870	438	0.8743	478	0.8618
319	0.9125	359	0.8995	399	0.8867	439	0.8740	479	0.8615
320	0.9122	360	0.8992	400	0.8864	440	0.8737	480	0.8611
321	0.9118	361	0.8989	401	0.8861	441	0.8734	481	0.8608
322	0.9115	362	0.8986	402	0.8857	442	0.8731	482	0.8605
323	0.9112	363	0.8982	403	0.8854	443	0.8727	483	0.8602
324	0.9109	364	0.8979	404	0.8851	444	0.8724	484	0.8599
325	0.9105	365	0.8976	405	0.8848	445	0.8721	485	0.8596
326	0.9102	366	0.8973	406	0.8845	446	0.8718	486	0.8593
327	0.9099	367	0.8969	407	0.8841	447	0.8715	487	0.8590
328	0.9096	368	0.8966	408	0.8838	448	0.8712	488	0.8587
329	0.9092	369	0.8963	409	0.8835	449	0.8709	489	0.8583
330	0.9089	370	0.8960	410	0.8832	450	0.8705	490	0.8580
331	0.9086	371	0.8957	411	0.8829	451	0.8702	491	0.8577
332	0.9083	372	0.8953	412	0.8826	452	0.8699	492	0.8574
333	0.9079	373	0.8950	413	0.8822	453	0.8696	493	0.8571
334	0.9076	374	0.8947	414	0.8819	454	0.8693	494	0.8568
335	0.9073	375	0.8944	415	0.8816	455	0.8690	495	0.8565
336	0.9070	376	0.8941	416	0.8813	456	0.8687	496	0.8562
337	0.9066	377	0.8937	417	0.8810	457	0.8683	497	0.8559
338	0.9063	378	0.8934	418	0.8806	458	0.8680	498	0.8556
339	0.9060	379	0.8931	419	0.8803	459	0.8677	499	0.8552
340	0.9057	380	0.8928	420	0.8800	460	0.8674		
341	0.9053	381	0.8924	421	0.8797	461	0.8671		
342	0.9050	382	0.8921	422	0.8794	462	0.8668		
343	0.9047	383	0.8918	423	0.8791	463	0.8665		
344	0.9044	384	0.8915	424	0.8989	464	0.8661		
345	0.9040	385	0.8912	425	0.8984	465	0.8658		
346	0.9037	386	0.8908	426	0.8781	466	0.8655		
347	0.9034	387	0.8905	427	0.8778	467	0.8652		
348	0.9031	388	0.8902	428	0.8775	468	0.8649		
349	0.9028	389	0.8899	429	0.8772	469	0.8646		

Legend: t = observed temperature in degrees Fahrenheit.

M = multiplier for reducing volumes to the basis of 60° F.

SPECIAL PROVISION
SECTION 424
 CRACK REPAIR with HOT POUR MASTIC

Description This work shall consist of preparing and repairing areas identified for crack repair in existing bituminous or concrete pavement layers using hot pour mastic. The hot pour mastic shall be supplied in solid form in boxes containing pre-measured binder blended with aggregates. Products to be used will be subject to approval by the Department. Repair areas will be free of sand, vegetation, water, and any previously placed rubber crack seal or crack repair materials, including cold patch. Preparation, such as cleaning and drying of the cracks by use of oil free compressed air and hot air lance shall be considered included the price per pound of crack repair mastic. Any pavement removal required will be paid for under the appropriate item as described in this Special Provision.

MATERIALS

The hot pour mastic materials are hot-applied, pourable, self-adhesive mastics blended with aggregates designed for maintenance and repair of asphalt and Portland cement concrete pavements. The hot pour mastic materials are composed of highly modified polymer asphalt binder and standard weight aggregates as required by the application.

The mastic materials shall be delivered in the manufacturer's original container. The material shall be pre-packaged with the manufacturers name and product name marked on each container. The materials shall conform to the following requirements:

Parameter

Color	Black
Pourability @ 400F (PTM1)*	1000-1400 gm
Stability @ 158F (PTM2)	.6in. max
Flexibility @ Low Temperature (PTM3)	Pass @ -20F
Adhesion @77F (PTM4)	15psi min.
Specific Gravity (ASTM D792)	1.35max.
Skid Resistance, BPN (ASTM E303)	40 min.
Minimum Application Temperature	375°F
Maximum Application Temperature	410°F

QUALITY CONTROL REQUIREMENTS

Quality Control The Contractor shall develop and submit a Quality Control Plan (QCP) that addresses the materials to be used, equipment to be used, methods of material usage (quantity measurements and tracking) as well as installation methods and protection of the work as it is completed. The Contractor shall control the work and operate in accordance with the approved QCP in order to install product and complete work meeting the contract requirements. The Contractor shall not begin sealing operations until the Department approves the QCP in writing.

Quality Control The QCP shall meet the requirements of Section 106.6 – Acceptance and this Section. The QCP shall address any items that affect the quality of the operation, and shall include the following personnel meeting these minimum requirements:

- a. QCP Administrator – The QCP Administrator must be a full-time employee of or a consultant engaged by the prime contractor or crack sealing subcontractor. The QCP Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the QCP. The QCP Administrator (or their designee in the QCP Administrator’s absence) may not be required to be onsite during all work activities but shall be available to communicate with the Department as needed.
- b. Onsite Representative - The Onsite Representative (OR) shall be onsite and work directly with the crew as needed. The OR shall perform quality control inspections or measurements at the job site to assure that materials or installations meet the requirements of the contract.

The QCP shall detail the coordination of the activities of the Plan Administrator, and the OR. The Superintendent shall be named in the QCP if different than the OR, and the responsibilities for successful implementation of the QCP within the companies’ activities shall be outlined.

The QCP shall address any items that may impact the quality of the sealant installation including, but not limited to, the following:

a. General Requirements:

- Name of QCP Administrator
- Description of corrective action processes
- Remediation of defective work

b. Quality Control Plan requirements

- Name of Onsite Representative(s)
- Material type to be used (including product data sheet)
- Heating and installation temperatures
- Procedures to clean, dry and properly prepare all cracks for installation of crack sealants / fillers.
- General sealing operation activities including equipment to be used to install sealants
- Procedures to ensure that cracks are “flush filled” and any overband width does not exceed the contract requirements.
- Procedures to protect any installed sealant from damage from traffic or construction activities.

A summary of the day's results including a quantity report, equipment used, and environmental conditions will be recorded and signed by the OR and presented to the Department's representative by 1 PM the following working day.

Failure to adhere to the QCP, replace or repair defective or non-conforming equipment, or adjust material or installation procedures in an effort to produce work that meets the contract requirements will result in a notification of a quality control violation resulting in monetary penalties.

A letter describing the violation shall be provided to the Contractor which will result in a mandatory work suspension and a reduction in payment as shown in Table 106.4A below. The Contractor shall submit a letter to the Department that details the corrective action made to address the violation(s) in its Quality Control Plan. Work may resume when the Department is satisfied the corrective action will result in adherence to the Quality Control Plan.

Table 106.4 A - Quality Control Pay Reduction

Quality Control Plan Value*		Pay Reduction		
From More Than	To and Including	1st	2nd	3rd & Subsequent
\$0	\$500,000	\$1,000	\$2,000	\$4,000
\$500,000	\$1,000,000	\$2,000	\$4,000	\$8,000
\$1,000,000	\$3,000,000	\$5,000	\$10,000	\$20,000
\$3,000,000	and more	\$10,000	\$20,000	\$40,000

* The Quality Control Plan Value is the total Bid value of all items covered by a Quality Control Plan, as detailed in the applicable specification or Special Provision.

Pay reductions for failure to comply with the approved QCP are cumulative, and the Department will deduct any pay reductions from amounts otherwise due the Contractor. These pay reductions are intended to encourage the Contractor to comply with its approved QCP, and are not necessarily related to the quality of the work provided.

EQUIPMENT

Equipment Equipment used in the performance of the work shall be subject to the Departments or authorized representative's approval and shall be maintained in a satisfactory working condition at all times.

(a) Air Compressor Air compressors shall be portable and capable of furnishing not less than 4 yd³ of air per minute at not less than 90 psi pressure at the nozzle. The compressor shall be equipped with traps that will maintain the compressed air free of oil and water.

(b) Sweeper Manually operated, gas powered air-broom or self-propelled sweeper designed especially for use in cleaning pavements shall be used to remove debris, dirt, and dust from the cracks.

(c) Hot Air Lance Should operate with propane and compressed air in combination at 2000°F - 3000°F, exit air heated at 1000 ft/s. The lance should draw propane from no smaller than a 100 lb tank using separate hoses for propane and air draw. The hoses shall be wrapped together with reflectorized wrap to keep them together and to protect workers in low light situations.

(d) Hand Tools Shall consist of Boxed or V-shaped squeegee, brooms, shovels, metal bars with chisel shaped ends, and any other tools which may be satisfactorily used to accomplish this work.

(e) Melting Kettle The unit used to heat the mastics shall be a double boiler unit equipped with continuous horizontal full sweep agitation and have separate thermostatic control devices that will automatically regulate hot oil and material temperature. Separate digital readouts shall display the temperatures of the hot oil and material. The kettle shall be equipped with mixing paddles, blending augers, or other satisfactory means of agitating, mixing, and blending the aggregates and mastic together. The kettle must be equipped with thermostatic control calibrated between 200°F and 550°F.

If required in the contract the router or crack saw equipment for preparing cracks shall be of a rotary impact type cutter, equipped with a carbide bit or a diamond-blade crack saw which will provide a reservoir of specified dimensions.

CONSTRUCTION REQUIREMENTS

Weather Hot Pour Mastics shall not be applied on a wet or damp surface, or when the atmospheric temperature is below 45°F in a shaded area at the job site, or when weather conditions are otherwise unfavorable to proper crack repair procedures.

Preparation All cracks shall be prepared to receive the mastic material. All cracks must be cleaned of debris, dried and heated to ensure optimal bonding of the sealant material to the existing pavement and crack edges. All cracks shall be flush filled with pre-blended mastic with minimal overband in the same workday as directed by the Resident or authorized representative.

Cracks greater than 1 inch in width shall be thoroughly cleaned by use of compressed air and dried by use of a hot air lance. Any loose or broken materials will be removed from the repair area before placing mastic materials. If it is determined that additional pavement removal or preparation is needed by means of milling, sawing, or cutting of existing pavement the work will be paid under an appropriate pay item. All materials routed, sawn, cut, or otherwise removed from the areas to be repaired shall immediately be removed from the crack and surrounding paved area by use of compressed air sweeping, or combination of both.

Cracks 1 inch in width to 6 inch width, or repairs that are more structural in nature, such as potholes, depressions, fills or repairs around utility adjustments shall be filled with mastic pre-blended with standard weight aggregates. Generally repairs wider than 6 inches, or those that extend below the surface layer may require additional pavement removal or change in crack treatment type.

All mastic materials shall be heated to between 380°F and 410°F and thoroughly agitated prior to application. A non-contact infrared thermometer shall be used periodically to monitor the temperature of the material as it exits the kettle. Material may not be used if it is heated beyond the safe heating temperature of 410°F, exceeds the recommended pot life, or is reheated more than one time.

Mastics may be applied to large or excessive slope repair areas when the material has been heated to the lower end of the temperature range, or with the addition of 1% of an approved synthetic fiber to minimize material flow and cooling time.

Mastics shall be applied to the repair areas directly from the melting kettle chute, wand or other conveyance method filled from the kettle. If bucketed, material cooling during transfer must be minimized.

The repair area shall be filled flush to the pavement surface. The material shall be poured into the repair area and worked using boxed or v-shaped squeegees, tools, lutes or heated irons. Care should be taken not to over work the material and cause unequal dispersion of the aggregate within the repair. The material may be applied in multiple lifts to accommodate material shrinkage or flow during cooling.

After materials have been applied to the repair, indirect heating by torch or hot air lance can be used to heat the edges and ensure a watertight seal. Do not burn, scorch or ignite the mastic or adjoining pavement when heating.

Do not allow traffic on the repaired areas for one ½ hour, or until the material has cooled enough to support traffic and tracking is minimal.

Quality of Work Excess mastic shall be removed from the pavement by approved methods and discarded. Any work determined to be below normal acceptable standards will not be accepted, and will be corrected and/or replaced as directed by the Resident or authorized representative.

Method of Measurement Crack Repair with Hot Pour Mastic will be measured by the pound of mastic used. The manufacturer's weights of the mastic for each block (pill), counted as they are loaded, will be accepted as a basis for measurement.

Should tank checks be approved to verify material usage or calculate initial or final gallons remaining in the kettle, a calibrated kettle gauge or tank stick shall be used to measure the kettle gallons. Volume corrections shall be calculated using Table:1 to correct the gallon volume to 60 ° F.

For those approved cases the Department has determined the weight of this material to be 15.5 pounds per gallon. The Department will use this conversion value for all materials measured by the gallon and converted to pounds. The corrected volume and resultant pounds shall be made part of the method of measurement, with consideration given to blocks (pills) added during the day and applied in an acceptable manner

Basis of Payment The accepted quantity of Crack Repair with Hot Pour Mastic will be paid for at the contract unit price per pound. This price will be full compensation for furnishing the appropriate material type for the repair being done, heating, placing and finishing the mastic materials, as well as cleaning and preparing the areas for installation of the mastic, including the use of compressed air, hot air lance, and any sweeping required to remove contaminants from and dry the areas to be treated. Areas identified as requiring pavement removal by means of cutting, sawing, grinding, or routing will be paid under an appropriate contract item.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
424.38 Crack Repair, Hot Pour Mastic	Pound

Conversion Table:1

t	M	t	M	t	M	t	M	t	M	t	M
100	0.9861	135	0.9740	170	0.9621	205	0.9503	240	0.9385	275	0.9269
101	0.9857	136	0.9737	171	0.9618	206	0.9499	241	0.9382	276	0.9266
102	0.9854	137	0.9734	172	0.9614	207	0.9496	242	0.9379	277	0.9263
103	0.9851	138	0.9730	173	0.9611	208	0.9493	243	0.9375	278	0.9259
104	0.9847	139	0.9727	174	0.9607	209	0.9489	244	0.9372	279	0.9256
105	0.9844	140	0.9723	175	0.9604	210	0.9486	245	0.9369	280	0.9253
106	0.9840	141	0.9720	176	0.9601	211	0.9483	246	0.9365	281	0.9250
107	0.9837	142	0.9716	177	0.9597	212	0.9479	247	0.9362	282	0.9246
108	0.9833	143	0.9713	178	0.9594	213	0.9476	248	0.9359	283	0.9243
109	0.9830	144	0.9710	179	0.9590	214	0.9472	249	0.9356	284	0.9240
110	0.9826	145	0.9706	180	0.9587	215	0.9469	250	0.9352	285	0.9236
111	0.9823	146	0.9703	181	0.9584	216	0.9466	251	0.9349	286	0.9233
112	0.9819	147	0.9699	182	0.9580	217	0.9462	252	0.9346	287	0.9230
113	0.9816	148	0.9696	183	0.9577	218	0.9459	253	0.9342	288	0.9227
114	0.9813	149	0.9693	184	0.9574	219	0.9456	254	0.9339	289	0.9223
115	0.9809	150	0.9689	185	0.9570	220	0.9452	255	0.9336	290	0.9220
116	0.9806	151	0.9686	186	0.9567	221	0.9449	256	0.9332	291	0.9217
117	0.9802	152	0.9682	187	0.9563	222	0.9446	257	0.9329	292	0.9213
118	0.9799	153	0.9679	188	0.9560	223	0.9442	258	0.9326	293	0.9210
119	0.9795	154	0.9675	189	0.9557	224	0.9439	259	0.9322	294	0.9207
120	0.9792	155	0.9672	190	0.9553	225	0.9436	260	0.9319	295	0.9204
121	0.9788	156	0.9669	191	0.9550	226	0.9432	261	0.9316	296	0.9200
122	0.9785	157	0.9665	192	0.9547	227	0.9429	262	0.9312	297	0.9197
123	0.9782	158	0.9662	193	0.9543	228	0.9426	263	0.9309	298	0.9194
124	0.9778	159	0.9658	194	0.9540	229	0.9422	264	0.9306	299	0.9190
125	0.9775	160	0.9655	195	0.9536	230	0.9419	265	0.9302	300	0.9187
126	0.9771	161	0.9652	196	0.9533	231	0.9416	266	0.9299	301	0.9184
127	0.9768	162	0.9648	197	0.9530	232	0.9412	267	0.9296	302	0.9181
128	0.9764	163	0.9645	198	0.9526	233	0.9409	268	0.9293	303	0.9177
129	0.9761	164	0.9641	199	0.9523	234	0.9405	269	0.9289	304	0.9174
130	0.9758	165	0.9638	200	0.9520	235	0.9402	270	0.9286	305	0.9171
131	0.9754	166	0.9635	201	0.9516	236	0.9399	271	0.9283	306	0.9167
132	0.9751	167	0.9631	202	0.9513	237	0.9395	272	0.9279	307	0.9164
133	0.9747	168	0.9628	203	0.9509	238	0.9392	273	0.9276	308	0.9161
134	0.9744	169	0.9624	204	0.9505	239	0.9389	274	0.9273	309	0.9158

Legend: t = observed temperature in degrees Fahrenheit.
M = multiplier for reducing volumes to the basis of 60° F.

Conversion Table:1

t	M	t	M	t	M	t	M	t	M
310	0.9154	350	0.9024	390	0.8896	430	0.8768	470	0.8643
311	0.9151	351	0.9021	391	0.8892	431	0.8765	471	0.8640
312	0.9148	352	0.9018	392	0.8889	432	0.8762	472	0.8636
313	0.9145	353	0.9015	393	0.8886	433	0.8759	473	0.8633
314	0.9141	354	0.9011	394	0.8883	434	0.8756	474	0.8630
315	0.9138	355	0.9008	395	0.8880	435	0.8753	475	0.8627
316	0.9135	356	0.9005	396	0.8876	436	0.8749	476	0.8624
317	0.9132	357	0.9002	397	0.8873	437	0.8746	477	0.8621
318	0.9128	358	0.8998	398	0.8870	438	0.8743	478	0.8618
319	0.9125	359	0.8995	399	0.8867	439	0.8740	479	0.8615
320	0.9122	360	0.8992	400	0.8864	440	0.8737	480	0.8611
321	0.9118	361	0.8989	401	0.8861	441	0.8734	481	0.8608
322	0.9115	362	0.8986	402	0.8857	442	0.8731	482	0.8605
323	0.9112	363	0.8982	403	0.8854	443	0.8727	483	0.8602
324	0.9109	364	0.8979	404	0.8851	444	0.8724	484	0.8599
325	0.9105	365	0.8976	405	0.8848	445	0.8721	485	0.8596
326	0.9102	366	0.8973	406	0.8845	446	0.8718	486	0.8593
327	0.9099	367	0.8969	407	0.8841	447	0.8715	487	0.8590
328	0.9096	368	0.8966	408	0.8838	448	0.8712	488	0.8587
329	0.9092	369	0.8963	409	0.8835	449	0.8709	489	0.8583
330	0.9089	370	0.8960	410	0.8832	450	0.8705	490	0.8580
331	0.9086	371	0.8957	411	0.8829	451	0.8702	491	0.8577
332	0.9083	372	0.8953	412	0.8826	452	0.8699	492	0.8574
333	0.9079	373	0.8950	413	0.8822	453	0.8696	493	0.8571
334	0.9076	374	0.8947	414	0.8819	454	0.8693	494	0.8568
335	0.9073	375	0.8944	415	0.8816	455	0.8690	495	0.8565
336	0.9070	376	0.8941	416	0.8813	456	0.8687	496	0.8562
337	0.9066	377	0.8937	417	0.8810	457	0.8683	497	0.8559
338	0.9063	378	0.8934	418	0.8806	458	0.8680	498	0.8556
339	0.9060	379	0.8931	419	0.8803	459	0.8677	499	0.8552
340	0.9057	380	0.8928	420	0.8800	460	0.8674		
341	0.9053	381	0.8924	421	0.8797	461	0.8671		
342	0.9050	382	0.8921	422	0.8794	462	0.8668		
343	0.9047	383	0.8918	423	0.8791	463	0.8665		
344	0.9044	384	0.8915	424	0.8989	464	0.8661		
345	0.9040	385	0.8912	425	0.8984	465	0.8658		
346	0.9037	386	0.8908	426	0.8781	466	0.8655		
347	0.9034	387	0.8905	427	0.8778	467	0.8652		
348	0.9031	388	0.8902	428	0.8775	468	0.8649		
349	0.9028	389	0.8899	429	0.8772	469	0.8646		

Legend: t = observed temperature in degrees Fahrenheit.
M = multiplier for reducing volumes to the basis of 60° F.

SPECIAL PROVISION
SECTION 424

Mastic for Asphaltic Plug Joint Replacement

Description This work consists of the preparation, cleaning, furnishing and installing of asphaltic mastic materials in one or more layers over prior installed asphaltic plug joint (APJ) systems or in new locations as indicated in the contract documents, or shown on the Plans, in accordance with these Specifications or as directed by the Department.

This work will include the removal of any existing pavement over the prior existing APJ or bridge joint to a width of 24 inches, or as otherwise described in the contract. It shall also include any required trimming, cleaning or drying of the pavement, supply, installation and finishing of asphaltic mastic materials to the required depth, grade and cross slope. This work may include the installation of headers or templates before the placement of the surrounding pavement surface layers with the intent to form an area above the existing asphaltic plug joint channel and provide an installation reservoir for the asphaltic mastic materials without the need to remove pavement layers.

MATERIALS

The hot pour mastic materials required are hot-applied, pourable, self-adhesive type mastics blended with aggregates designed for maintenance and repair of asphalt and Portland cement concrete pavements. Hot pour mastic materials are composed of highly modified polymer asphalt binder and fine graded aggregates as required by the application.

The mastic materials shall be delivered in the manufacturer's original container. The material shall be pre-packaged with the manufacturers name and product name marked on each container. The materials shall conform to the following requirements:

Parameter

Color	Black
Pourability @ 400F (PTM1)*	1000-1400 gm
Stability @ 158F (PTM2)	.6in. max
Flexibility @ Low Temperature (PTM3)	Pass @ -20F
Adhesion @77F (PTM4)	15psi min.
Specific Gravity (ASTM D792)	1.35max.
Skid Resistance, BPN (ASTM E303)	40 min.
Minimum Application Temperature	375°F
Maximum Application Temperature	410°F

The density of the mastic with aggregate weight per gallon is 15.5 lbs/gal at 60°F.

EQUIPMENT

Equipment Equipment used in the performance of the work shall be subject to the Departments or authorized representative's approval and shall be maintained in a satisfactory working condition at all times.

(a) Air Compressor: Air compressors shall be portable and capable of furnishing not less than 4 yd³ of air per minute at not less than 90 psi pressure at the nozzle. The compressor shall be equipped with traps that will maintain the compressed air free of oil and water.

(b) Sweeper: Manually operated, gas powered air-broom or self-propelled sweeper designed especially for use in cleaning pavements shall be used to remove debris, dirt, and dust from the cracks.

(c) Hot Air Lance: Should operate with propane and compressed air in combination at 2000°F - 3000°F, exit air heated at 1000 ft/s. The lance should draw propane from no smaller than a 100 lb tank using separate hoses for propane and air draw. The hoses shall be wrapped together with reflectorized wrap to keep them together and to protect workers in low light situations.

(d) Hand Tools: Shall consist of Boxed or V-shaped squeegee, brooms, shovels, metal bars with chisel shaped ends, and any other tools which may be satisfactorily used to accomplish this work.

(e) Melting Kettle: The unit used to heat asphaltic mastics shall be a double boiler unit equipped with continuous horizontal full sweep agitation and have separate thermostatic control devices that will automatically regulate hot oil and material temperature. Separate digital readouts shall display the temperatures of the hot oil and material. The kettle shall be equipped with mixing paddles, blending augers, or other satisfactory means of agitating, mixing, and blending the aggregates and mastic together. The kettle must be equipped with thermostatic control calibrated between 200°F and 550°F.

An application wand may be required for the work type, and shall apply a controlled flow of material via an insulated or heated hose. The nozzle shall distribute the material as called for in this specification. A pressure regulator shall be provided to regulate pressure at the nozzle. A bypass line into the holding tank is required for use when the nozzle is shut off.

CONSTRUCTION REQUIREMENTS

Weather Asphaltic mastics shall not be applied on a wet or damp surface, or when the atmospheric temperature is below 40°F in a shaded area at the job site, or when weather conditions are otherwise unfavorable to proper crack repair procedures.

Preparation All reservoirs shall be prepared to receive the asphaltic mastic material. All cracks must be cleaned of debris, dried and heated to ensure optimal bonding of the sealant material to the existing pavement and crack edges.

Reservoirs shall be thoroughly cleaned by use of compressed air, hand tools and brooms as needed, and dried by use of a hot air lance. The area shall be free of any moisture, pavement debris, dirt, dust, moisture, petroleum or solvents that might contaminate the mastic materials, or

reduce the bond of the joint system to the substrate or vertical faces. Any loose or broken materials will be removed from the repair area before placing asphaltic mastic materials.

Installation Asphaltic mastic materials shall be installed in accordance with manufacturer's latest instructions and this specification.

Asphalt pavement layers shall be removed to a 24 inch width centered over the previously installed APJ location, visible bridge joint, or as otherwise described in the contract. The asphalt pavement shall be sawcut or milled to the required surface layer depth, but not to a depth that will damage the underlying existing APJ material or HMA layer. The pavement layer shall be removed in a manner that will not damage any existing APJ material or underlying HMA layer.

Interlayers, fabrics, or headers may be used as required to form an installation reservoir and protect the existing APJ channel from damage. Vertical surfaces of the asphalt pavement layers shall be trimmed as needed to provide a straight, uniform width reservoir and shall be cleaned to remove all water, dust, or other contaminants.

All reservoirs shall be flush filled with pre-blended mastic with minimal overband in the same workday as directed by the Resident or authorized representative. The mastic material shall be poured into the repair area and worked using boxed or v-shaped squeegees, tools, lutes or heated irons. Care should be taken not to over work the material and cause unequal dispersion of the aggregate within the repair. The material may be applied in multiple lifts to accommodate material shrinkage or flow during cooling.

Mastics shall be applied in one or more layers to prepared areas directly from the melting kettle chute, wand or other conveyance method filled from the kettle. If bucketed, material cooling during transfer must be minimized.

All asphaltic mastic materials shall be heated to between 380°F and 410°F and thoroughly agitated prior to application. A non-contact infrared thermometer shall be used periodically to monitor the temperature of the material as it exits the kettle. Material may not be used if it is heated beyond the safe heating temperature of 410°F, exceeds the recommended pot life, or is reheated more than one time. Mastics may be applied to prepared areas when the material has been heated to the lower end of the temperature range to minimize material flow and cooling time.

After the material has been applied to the areas, indirect heating by torch or hot air lance can be used to heat the edges and ensure a watertight seal. Do not burn, scorch or ignite the mastic or adjoining pavement when heating.

Traffic will not be allowed on the filled area for one ½ hour, or until the material has cooled enough to support traffic, divots do not occur, and tracking is minimal. Vehicular traffic may pass over finished joints two-hours after completion.

Quality of Work Excess mastic shall be removed from the pavement by approved methods and discarded. Any work determined to be below normal acceptable standards will not be accepted, and will be corrected and / or replaced as directed by the Resident or authorized representative.

Method of Measurement Mastic for Asphaltic Plug Joint Replacement will be measured by the linear foot along the top surface of the installation to the required limits. Preparation of surfaces for the proposed joint system including cutting, grinding, trimming, drying and cleaning will not be measured separately for payment, but shall be incidental to the Asphaltic Plug Joint Replacement.

Basis of Payment Mastic for Asphaltic Plug Joint Replacement will be paid for at the Contract unit price per linear foot which will be full compensation for furnishing the mastic material, heating, placing and finishing the mastic materials, as well as cleaning and preparing the areas for installation of the mastic, including the use of compressed air, hot air lance, grinding, trimming or saw cutting, any sweeping required to remove contaminates from and drying the areas to be treated.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
424.385 Mastic for Asphaltic Plug Joint Replacement , 0.75 – 1.25 inch	Linear Foot
424.386 Mastic for Asphaltic Plug Joint Replacement , >1.25 inch	Linear Foot

SPECIAL PROVISION
SECTION 462
GAP-GRADED HMA
(Ultra-Thin Bonded Wearing Course)

The following subsections of the most current version of Specification 401 – Hot Mix Asphalt Pavements have been revised and modified by the following:

Description This work shall be constructed in accordance with the applicable referenced sections of Division 400 – Pavements; Section 401 – Hot Mix Asphalt Pavement, and the requirements of Section 106 – Quality. All sections not revised by this Special Provision shall be as outlined in the Special Provision 400 Pavements, Section 401 – Hot Mix Asphalt Pavement. References to Standard Specifications, Special Provisions, or other documents, shall be determined as the most current version available at the time of bid, or as amended. The Ultra-Thin Bonded Wearing Course consists of a warm polymer modified asphalt emulsion tack coat followed immediately with an Ultra-Thin hot mix asphalt wearing course. The tack coat is spray applied immediately prior to the application of the wearing course to produce a durable wearing surface that can be opened to traffic. The finished surface treatment has a nominal thickness of ½ inch, for Type A, ⅝ inch for Type B, and ¾ inch for Type C.

MATERIALS

The Contractor shall formulate and submit to the Department, a job mix formula (JMF) that satisfies the design general limits listed in Table 1 – Mixture requirements. The JMF aims shall not fall outside the general design limits.

TABLE 1: COMPOSITE GRADATION

AASHTO Standard Sieve Size	Total % Passing by Weight		
	Type A - ¼"	Type B - ⅜"	Type C - ½"
19 mm (¾")	-	-	100
12.5 mm (½")	-	100	85-100
9.5 mm (⅜")	97-100	85-100	45-85
4.75 mm (#4)	40-60	24-41	24-41
2.36 mm (#8)	21-33	21-33	21-33
1.18 mm (#16)	15-26	15-26	15-26
0.60 mm (#30)	11-20	11-20	11-20
0.30 mm (#50)	8-16	8-16	7-16
0.15 mm (#100)	5-10	5-10	5-10
0.075 mm (#200)	4.0-7.0	4.0-7.0	4.0-7.0
Minimum % PGAB	5.1	5.0	5.0

*All aggregate percentages are based on the total weight of the aggregate. The composite gradation for each individual type of mixture shall meet the gradation requirements of Table 1.

The estimated PG binder film thickness shall be calculated for the submitted mix design. Designs with estimated film thickness less than 10 microns may be approved pending successful placement in the field. The estimated film thickness of asphalt shall be calculated using the effective asphalt content in conjunction with the surface area for the aggregates in the JMF according to the following formula and the factors in Table 2:

$$FT = \frac{AC \cdot 1000}{SA \cdot SG}$$

where: *FT* = film thickness (microns)
AC = asphalt content of mix design (%)
SA = total surface area of aggregate (SM/Kg)*
SG = specific gravity of asphalt

* Surface area is calculated by multiplying the percent passing for the design by the factors in the table below for each sieve size and summing the resultant values.

TABLE 2: SURFACE AREA FACTORS

AASHTO Standard Sieve Size	Surface Area Factors (SM/Kg)		
	Type A - ¼"	Type B - ⅜"	Type C - ½"
19 mm (¾")	-	-	0.41
12.5 mm (½")	-	0.41	0
9.5 mm (⅜")	0.41	0	0
4.75 mm (#4)	0.41	0.41	0.41
2.36 mm (#8)	0.82	0.82	0.82
1.18 mm (#16)	1.64	1.64	1.64
0.60 mm (#30)	2.87	2.87	2.87
0.30 mm (#50)	6.14	6.14	6.14
0.15 mm (#100)	12.29	12.29	12.29
0.075 mm (#200)	32.77	32.77	32.77

Aggregates used shall be from an approved source and shall meet the requirements of section 703.07 for 3.0 to < 10 million ESALs, and as modified by items 1 through 7 listed below.

1. Individual coarse aggregates sources shall meet a Micro-Deval (AASHTO T 327) value of 18 or less.
2. Individual coarse aggregates sources shall have a maximum LA Abrasion (AASHTO T96) of 30.
3. Absorption by AASHTO T 84 shall be less than 2.0% for fine aggregate blends.
4. Absorption by AASHTO T 85 shall be less than 2.0% for coarse aggregate blends.
5. Aggregates shall have a minimum sand equivalent of 45, (AASHTO T 176), and the fine aggregate shall be 100% crushed.
6. 95 % of the aggregate shall have at least a single face crushed and 85% shall have 2 or more crushed.
7. Percent by weight of Flat and Elongated particles shall be (5:1 ratio) with 10% maximum.
8. Coarse aggregates, when measured in any dimension, shall not contain particles larger than the lift being placed or ¾ inch, whichever is less.

The Contractor shall test all materials and provide copies of all test results to the Department for materials utilized in the completion of the work. The Contractors' test results shall be submitted to the Department along with the mix design submittal in accordance with the MaineDOT HMA Policy and Procedures Manual.

Performance Graded Asphalt Binder Unless otherwise shown in the contract bid items or noted in Special Provision 403 - Hot Bituminous Pavement, all asphalt binders shall meet a 64-28 PGAB grade. The Contractor shall use an approved chemical or wax based warm mix additive when producing UTBWC mixtures using modified PGABs such as 64E-28 or 70E-28.

Emulsified Tack Coat Tack Coat shall be modified with latex, natural or synthetic, and shall be certified as meeting the requirements of ASTM D2397 except as modified in Table 3 – Tack Coat Material Properties. It is required that the latex be co-milled at the bulk emulsion facility, to ensure complete and balanced blending. CRS-1P asphalt grade emulsions shall have a minimum asphalt content ratio of 63%.

TABLE 3: TACK COAT MATERIAL PROPERTIES

Property	Method	Minimum	Maximum
Latex Content, % Mass of Total Residue		3.0	
Viscosity at 25°C, (Sec.)	ASTM D244	20	100
Setting Time, Minutes	Observation	3	7
Demulsibility, % by wt. Residue	ASTM D244	40	
Penetration, 25°C (77°F)	T 49	60	150

Deliveries of the emulsified tack coat shall be accompanied by a loading invoice, delivery ticket, or slip, as required under Section 108.1.3 f in addition to the Certificate of Analysis. The emulsified tack coat loading invoice/delivery ticket and Certificate of Analysis shall be provided to the Resident. In the event an intermediate hauler of the asphalt material is involved, a copy of their own delivery slip shall be furnished, as well as a copy of the supplier's loading invoice. The hauler's delivery slip and the supplier's loading invoice shall be cross-referenced by use of their respective serial numbers.

EQUIPMENT

Spray Pavers The spray paver shall be configured to spray tack at the specified rate, and apply hot mix asphalt seconds later. The spray bar shall be located just ahead of the paver's auger, and distribute the liquid through computer-controlled, self-cleaning valves. An onboard microprocessor shall be capable of precisely controlling the rate of flow interlocked to the paver speed. Spray valves shall also be controlled manually if needed. The paver shall have a receiving hopper with sufficient capacity for a uniform spreading operation and a mixture distribution system to place the mixture uniformly, without segregation. The screed assembly shall produce a finished surface of the uniform texture without tearing, shoving, or gouging the mixture.

The self-priming spray paver must be capable of spraying the tack coat, applying the hot asphalt overlay and smoothing the surface of the mat being paved in one pass, at the rate of 33-98 feet per minute. The self-priming spray paver must incorporate a receiving hopper, feed conveyor, heated or insulated storage tank for emulsion, metered tack coat spray bar and a variable width, heated, ironing type screed. The self-priming spray paver shall be a track or rubber tire mounted highway class paver with a minimum combined tractor and screed weight of 44,000 pounds, and a minimum main screed width of 8 feet. All paver screeds shall be outfitted with auger and tunnel extensions as required to distribute the mix within two feet of the end gate. All pavers shall have power extendible, activated, and heated screed extensions designed by the manufacturer for highway paving. Screeds shall be configured to place mixtures to the required width, crown, and breakpoints as directed by the Department. The paver must have a material receiving hopper size capable of accepting haul trucks, and be of sufficient size and weight to maintain the required rate of placement, line of travel, depth, and cross section while engaged with a loaded tri-axle or trailer haul unit. The screed must be sized to place the mixture over the entire lane width being paved in one pass. It shall also have the ability to be positively crowned at the center of lane and have adjustable extensions to accommodate the desired pavement width and cross-sectional profile. The Contractor shall operate the paver in such a manner as to produce a visually uniform textured surface. Any UTBWC that becomes visually unacceptable due to mixture cooling, checking, segregation or deformation as a result of an interruption in mix delivery, or excessive delays in re-charging the emulsion tanks shall be removed and replaced with material that meets contract specifications at no cost to the Department.

Rollers The Contractor shall use 7 foot wide double drum steel wheeled rollers weighing at least 8 to 10 ton, that are equipped with functioning water systems and scrapers to prevent the fresh mix from adhering to the roller drums. If the rollers narrower than 7 foot are to be used, the Contractor will be required to use additional rollers or slow placement speed of the paver to ensure full mat coverage is made immediately behind the spray paver.

CONSTRUCTION DETAILS

Weather and Seasonal Limitations All work shall be in accordance with Section 401 – Hot Mix Asphalt Pavement, subsection 401.06 - Weather and Seasonal Limitations with the following exceptions:

1. For travelway paving, the seasonal limits are extended to the Saturday following September 15th for surface courses placed less than 1 inch during conditions defined as night work, and October 1st for surface courses less than 1 inch during conditions defined as day work.
2. Shoulder surface courses that are less than 1 inch and are paved separately from the travelway shall be completed by the Saturday following October 15th.

Surface Preparation For Contracts requiring milling, the Contractor shall mill the existing pavement surface to the depth and widths described in the contract documents, remove any painted striping within the pavement removal limits, clean and crack seal as required by the contract documents, and sweep the roadway as needed prior to the surface treatment. Stripe removal, milling and crack seal will be paid for under the appropriate contract items. Shoulders less than or equal to 3 feet will be milled to match the travelway.

For Contracts requiring full width leveling courses or spot shims, the HMA shim shall be paid for under the appropriate 403.211 or 403.2111- 9.5mm shim unit price as included in the contract.

Crack sealing and crack repair will be installed and paid in accordance with the appropriate items provided within the contract documents. The Contractor shall crack seal and crack repair transverse and longitudinal cracks as considered appropriate.

Sweeping will not be paid for directly but shall be included in the 462.30 or 462.301 - Ultra-Thin Bonded Wearing Course contract price.

Application The screed on the paver shall be heated to a temperature between 275°F-335°F before placing Ultra-Thin Bonded Wearing Course on the roadway. Apply the tack coat meeting the requirements of Table 3 at a temperature of 120° - 180° F. The application of tack coat shall be uniform across the entire width to be overlaid, at a rate of 0.22 - 0.25 gallons per square yard, depending upon the existing surface texture. Field adjustments to the target application rate of tack coat shall be determined based upon the existing surface condition of the pavement. The tack coat application rate may be adjusted to 0.17 - 0.22 gallons per square yard if used over newly placed HMA levelling course. Adjustments to the tack coat target application rate shall be approved by the Department. All changes to the emulsified tack coat application shall be located with station references, recorded, and included in the daily QC report.

The Ultra-Thin Bonded Wearing Course compacted depth shall be $\frac{3}{4}$ inch. Placement depths may vary slightly, but mixes shall be placed at an approximate $\frac{7}{8}$ inch uncompacted depth prior to being compacted.

The Department and Contractor shall monitor tonnage placement yield. Placement yield shall be in the range of 78 to 83 pounds per square yard when placing a $\frac{7}{8}$ inch uncompacted depth, resulting in a $\frac{3}{4}$ inch compacted depth.

The Contractor may propose to adjust the tonnage placement yield range to accommodate differing mix compositions, but those adjustment would only be allowed after verification cores are taken from the newly placed and compacted Ultra-Thin Bonded Wearing Course layer. If core depth measurements of the Ultra-Thin Bonded Wearing Course indicate the required yield range results in a compacted depth consistently greater than $\frac{3}{4}$ inch, then the placement depth and yield range may be adjusted to accomplish the $\frac{3}{4}$ inch compacted depth required.

The Contractor shall make all efforts to minimize walking on the unrolled mat. Displacement, marring, or depressions that result from walking on or across the mat will require immediate repair before rolling. Repeated incidences of irreparable surface defects may result in work stoppage until the issue is resolved.

A tack coat of CRS-1P shall be applied to the vertical transverse joint surface and the underlying roadway at each transverse joint takeoff. Should the spray paver be unable to apply tack coat to the vertical transverse joint when paving a tack coat of CRS-1P or RS-1 shall be applied to the vertical joint and adjacent surfaces for at least the first 10 feet. The application rate shall be a minimum of 0.05 gal/sy for the tack application at transverse joints. The Contractor shall continuously monitor the rate of spray. No equipment shall come in contact with the tack coat before the hot mix asphalt wearing course is applied. Immediately after applying the tack coat, the contractor shall apply the hot mix asphalt overlay across the full width of the tack coat at a temperature of 290° - 335° F.

Compaction The Contractor shall begin compaction immediately behind the spray paver after the application of wearing course. The roller(s) shall make a minimum of two passes. The roller(s) will not be allowed to stop on the freshly placed wearing course. The Contractor shall use an adequate number of rollers to complete compaction and aggregate seating before the pavement surface temperature falls below 185° F for 64-28 PGABs, or below 210° F for PG 64E-28. The Contractor shall provide an additional roller if the Contractor elects to pave travelway and adjacent shoulder concurrently and the adjacent shoulder exceeds four feet in width. The Contractor shall protect the wearing course from traffic until the rolling operation is complete and the material has cooled sufficiently to resist damage.

Shoulder Paving Shoulders that are less than or equal to 5 feet in width and are specified in the Contract Documents or directed by the Resident to receive a wearing surface shall be paved with UTBWC in the same operation as the travelway.

UTBWC Documentation The Contractor and the Department shall agree on the amount of UTBWC, measured in square yards, that has been placed each day. The Contractor and the Department shall agree on the amount of emulsified tack coat (in gallons) and HMA (in tons) that have been placed each day. All delivery slips shall conform to the requirements of 401.073.

Quality Control All work shall be in accordance with Division 400 – Pavements; Section 401 – Hot Mix Asphalt Pavement , subsection 401.19- Quality Control Method A, B & C, with the exception of the following revisions;

The Contractor shall sample, test, and evaluate Hot Mix Asphalt Pavement in accordance with the following minimum frequencies per each approved mix design:

TABLE 4: MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Temperature of mix	6 per day at street and plant	-
Temperature of mat	4 per day	-
Emulsified tack coat application rate & yield*	1 per 10,000 SY (minimum of 2 per day)	-
Gradation	1 per 500 ton	AASHTO T 30
PGAB content	1 per 500 ton	AASHTO T 164 or T 308
Rice Specific Gravity	1 per 500 ton	AASHTO T 209
Coarse Aggregate Angularity	1 per 5000 ton	ASTM D5821
Flat and Elongated Particles	1 Per 5000 ton	ASTM D4791
Fine Aggregate Angularity	1 Per 5000 ton	AASHTO T 304

* Emulsified tack coat application rate and yield shall be verified independent of the rate displayed on the paver

The Contractor shall monitor plant production on each approved mix design using running average of three control charts as specified in Section 106 - Quality. Control limits shall be as noted in Table 5 below.

TABLE 5: CONTROL LIMITS

Property	UCL and LCL
Passing NMAS sieve	Target +/-4.0 [∇]
Passing 4.75 mm and larger sieves	Target +/-4.0
Passing 2.36 mm sieve	Target +/-2.5
Passing 0.075 mm sieve	Target +/-1.0 [^]
PGAB Content*	Target +/-0.25
Theoretical Maximum Specific Gravity	JMF Target +/-0.020

[∇] The mixture shall be produced to comply with the control points outlined in Table 1.

* Based on AASHTO T 308

[^] The minimum LCL shall be 3.0% and the maximum UCL shall be 7.0%.

Acceptance Acceptance shall be in accordance with this Special Provision. The Lot size will be the entire production per JMF for the project, or if so agreed at the Pre-paving Conference, equal lots of up to 4,500 tons (120,000 square yards). Remaining tonnage (square yards) may be rolled into the last lot allowed up to a maximum size of 6,000 tons (160,000 square yards). Sublot sizes shall be 750 tons (20,000 square yards) for mixture properties, with unanticipated over-runs of up to one-half of the sublot rolled into the last sublot. The minimum number of sublots per Lot for mixture properties shall be five.

TABLE 6: UTBWC ACCEPTANCE CRITERIA

Property	Point of Sampling	Test Method
Gradation	Paver Hopper	AASHTO T 30
PGAB Content	Paver Hopper	AASHTO T 308

TABLE 7: UTBWC ACCEPTANCE LIMITS

Property	USL and LSL
Passing NMA sieve	Target +/-5%*
Passing 4.75 mm and larger sieves	Target +/-5%
Passing 2.36 mm to 1.18 mm sieves	Target +/-3%
Passing 0.60 mm	Target +/-3%
Passing 0.30 mm to 0.15 mm sieve	Target +/-2%
Passing 0.075 mm sieve	Target +/-2%^
PGAB Content	LSL = Target - 0.3% USL = Target + 0.4%

* The mixture shall be produced to comply with the control points outlined in Table 1.

^ The minimum LSL shall be 3.0% and the maximum USL shall be 7.0%.

Pay Adjustment The Department will sample, test, and evaluate Hot Mix Asphalt Pavement in accordance with Section 106 – Quality, and Section 401.20 – Acceptance Method A & C of Division 400 – Pavements, and this Special Provision.

The Department will use Performance Graded Asphalt Binder content, and the screen sieve sizes listed in this specification for the type of mixture represented in the JMF. If the pay factor for any single property falls below 0.85, the Contractor shall cease production and submit a corrective action plan to the Department at the HMA plant. If any the pay factor for any single property falls below 0.80, the Contractor shall also provide a passing verification sample to the Department before production can resume. Production may resume when the Department is satisfied the corrective action proposed will provide an improvement in results.

PGAB Content and Gradation The Department will determine a pay factor for each square yard using Table 7: Acceptance Limits. The Department will calculate the price adjustment for Mixture Properties as follows:

$$PA = 0.70[(\% \text{ Passing Nom. Max PF}-1.0)(Q)(P)X0.05+(\% \text{ passing 2.36 mm PF}-1.0)(Q)(P)X0.05+(\% \text{ passing 0.30 mm PF}-1.0)(Q)(P)X0.05+(\% \text{ passing 0.075 mm PF}-1.0)(Q)(P)X0.10+(PGAB \text{ PF}-1.0)(Q)(P)X0.25]$$

Dispute Resolution All work shall be in accordance with Division 400 – Pavements; Section 401 – Hot Mix Asphalt Pavement , subsection 401.50 - Process for Dispute Resolution.

Method of Measurement Ultra-Thin Bonded Wearing Course shall be measured by the square yard.

Basis of Payment The accepted quantity of Ultra-Thin Bonded Wearing Course will be paid for at the contract unit price per square yard, complete in-place which price will be full compensation for furnishing all equipment, material, labor, and all incidentals necessary to complete the work. Pay adjustments may be made as outlined in this specification.

Payments will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
462.30 Ultra-Thin Bonded Wearing Course	Square Yard
462.301 Polymer-Modified Ultra-Thin Bonded Wearing Course	Square Yard

SPECIAL PROVISION
SECTION 527
ENERGY ABSORBING UNIT
(Truck Mounted Attenuator)

Description: This work consists of furnishing, maintaining and deploying a truck mounted attenuator (TMA) and a shadow or barrier truck in accordance with this specification and as directed. A Truck Mounted Attenuator must comply with NCHRP Report 350.

Materials: The energy absorbing system shall be from the Department's Qualified Product List (QPL). The TMA shall be mounted in accordance with the manufactures specifications to a truck with a gross vehicle weight of at least 10,000 pounds.

Installation: The chart below identifies the distance from the work zone or hazard where the TMA shall be deployed. If the work zone is within a marked lane closure, the barrier truck distances shall apply and if the work is mobile, then shadow truck distances shall apply. When used as a barrier, the barrier truck shall be parked in low gear with brakes applied and the front wheels turned away from the work zone and the adjacent traffic lane. For placement details, reference the Manual of Uniform Traffic Control Devices (MUTCD).

Weight of Truck	Barrier Truck Distance from Work Zone of Hazard	Shadow Truck Distance from Work Vehicle or Work Zone
10,000 lbs	250 ft	300 ft
15,000 lbs	200 ft	250 ft
>24,000 lbs	150 ft	200 ft

Note - On Interstate and Control of Access roadways the minimum weight of the truck shall be 24,000 lbs.

On Intestate and Control of Access roadways, the TMA shall be equipped with GREEN flashing strobes and will have a connected arrow board. The connected arrow board criteria shall be as follows:

The connected arrow boards once activated shall transmit a GPS location, connection to the HAAS network and GPS navigation providers.

Activated arrow boards shall transmit the status of the of the arrow panel to the HAAS network, and GPS navigation providers.

Arrow status update a minimum of every 15 minutes, retransmits the location and status of the arrow panel if the TMA moves more than 300 feet.

Once deactivated the unit stops transmitting to the networks.

The Contractor shall provide the specific manufacturer, product specific details of the connected arrow board system for the Department's review and will be made part of the Contractor's Traffic Control Plan.

Method of Measurement: Truck mounted attenuator will be considered incidental to Item 652.36.

Basis of Payment: The accepted quantity of truck mounted attenuator will be paid for at the contract unit price of Item 652.36 which includes furnishing and all costs of attaching, retrofitting and system operation of the truck. Daily maintenance, deployment, moving, storing and of the TMA, including the cost of the truck, shall be considered incidental.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
652.36	Maintenance of Traffic Control Devices	CD

SPECIAL PROVISION
SECTION 606
CRASH CUSHION

Description: This work shall consist of furnishing and installing a crash cushion in accordance with these specifications at locations shown on the Plans or as directed by the Resident.

Materials: The crash cushion shall be in compliance with NCHRP 350 Test Level 3 and meet Federal Highway Administration eligibility requirements for reimbursement under the Federal-aid highway program. The system selected shall be one that is currently listed on MaineDOT's Qualified Products List of Crash Cushions/Attenuators.

Installation: A set of installation drawings shall be submitted to the Resident for the system installed. The system shall be installed according to the manufacturer's installation drawings and recommendations.

Method of Measurement: Crash cushions shall be measured by each unit, complete, in place, and accepted.

Basis of Payment: The accepted quantity of crash cushions shall be paid for at the contract unit price, such payment being full compensation for all labor, materials, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>		<u>Unit</u>
606.93	Sacrificial Crash Cushion	Each
606.94	Reusable Crash Cushion	Each
606.95	Low Maintenance/Self Restoring Crash Cushion	Each

**SPECIAL PROVISION
SECTION - 627
GROOVING FOR PAVEMENT MARKING**

627.30 Description

This work shall consist of furnishing and installing a groove in the pavement for placement of pavement markings as shown on the Plans or as directed by the Resident.

627.30.1 Construction Requirements

Prior to grooving any recessed lines, the Contractor shall layout the proposed pavement markings on the surface course with a chalk line or other suitable method so that the Resident can inspect the locations. Once the Resident has inspected and approved the proposed striping layout, the grooves for the proposed pavement markings may be ground. No pavement grooving shall be done without the prior approval of the Resident.

The Contractor shall use gang stacked diamond tipped cutting blades that will produce a smooth texture at the bottom of the groove that will be a flat, uniform texture with minimal variation in height so that the rise in the finished groove between each bottom of the cutting blade does not exceed 10 mils in depth. The acceptability of the surface texture will be decided by the Resident and/or Manufacturer's Technical Representative.

The final depth of the groove shall be 105 mils $\pm$ 5 mils for paint applications, the final depth of groove shall be 125 mils $\pm$ 5 mils for any tape application. The width of the groove shall be one (1) $\pm$ ¼ inch wider than the width of the painted lines indicated in the Contract or as directed by the Resident. A two (2) inch offset from the edge of the recessed groove to the longitudinal surface course pavement joint is desirable. Lengths of grooves shall be determined in the Contract. Depth plates shall be provided by the contractor to assure that desired groove depth is achieved.

Grooves shall be clean, dry with no visible moisture, free of laitance, oil, dirt, grease, paint or other foreign contaminants. Prior to the installation of the pavement marking the grooves shall be air blasted to remove any remaining dirt and residue. The Contractor shall prevent traffic from traversing and damaging the grooves and re-groove or re-clean grooves as necessary prior to application of any pavement markings. All debris resulting from the installation of the grooves shall be removed and disposed of by the contractor.

All grooved locations shall be constructed in accordance with this specification and any additional manufacturer's recommended procedures.

627.30.2 Method of Measurement

The quantity of grooving for markings measured for payment will be the number of Square Feet (ft²) as shown in the Schedule of Items in the Contract. Additional measurement will not be made except for authorized changes during construction or where significant errors are found in the contract quantity. The revision or correction in quantity will be measured, computed and added to or deducted from the contract quantity. When required, grooves will be measured separately and made to the nearest square foot.

When grooving is used for sections of broken lines for acceleration/deceleration, auxiliary lanes and passing zones the length measured for payment shall include only the grooved areas. Breaks or gaps will not be included in the length measured for payment.

627.30.3 Basis of Payment

The accepted quantity of grooving will be paid for at the contract unit price per each of the pay items included in the contract. Payment will be considered full compensation for all labor, equipment, necessary material to complete the described work, including cleaning, loading, hauling, stockpiling and disposal of material; and any other incidental items.

<u>Pay Item</u>		<u>Pay Unit</u>
627.30	Grooving for Pavement Marking	Square Foot (ft ²)

SPECIAL PROVISION
SECTION 627- PAVEMENT MARKINGS
POLYUREA PAVEMENT MARKING

627.01 Description This work shall consist of furnishing and placing reflectorized pavement lines and markings, removing pavement lines and markings, and furnishing and applying reflectorized paint to curbing in reasonably close conformity with the Plans and as designated. The liquid marking material shall be applied by spray method onto asphalt cement concrete and Portland cement concrete surfaces. Following an application of retroreflective optics, and upon curing, the resulting marking shall be an adherent reflectorized stripe during dry and wet conditions of the specified thickness and width that is capable of resisting deformation by traffic.

Work under these items shall consist of the furnishing and installation of white and lead-free yellow polyurea reflectorized pavement markings (including edge lines, center lines, skip lines, cross walks, stop bars and symbols) on all pavement surfaces noted on the Plans.

627.02 Materials Polyurea Material shall conform to the following requirements:
The Contractor shall use a polyurea paint that is classified as **very fast curing polyurea traffic paint** (no-track times < 10 minutes). The polyurea paint used shall be listed on the Department's Qualified Products List (QPL) or approved equal.

At least one component shall be composed of secondary amines, pigments and fillers as needed to meet performance requirements of this specification.

These films shall be manufactured without the use of lead chromate pigments or other similar, lead-containing chemicals.

The white polyurea shall contain not less than 13% by weight rutile titanium dioxide pigment to ensure adequate opacity, hiding power and reflective properties.

The reflective media must include a first drop of 3M CR AW 90 Series elements and second drop of Swarco 18/50 beads (former Utah Performance) bead blend based on manufacturers recommended drop rates. These beads and elements shall be for drop-on application applied simultaneously with paint by pressurized or mechanical means.

627.03 General The pavement markings shall be applied in accordance with the Manual on Uniform Traffic Control Devices.

Longitudinal lines placed on tangent roadway segments shall be straight and true. Longitudinal lines placed on curves shall be continuous smoothly curved lines consistent with the roadway alignment. All pavement markings placed shall meet the tolerance limits shown on the Plans. Broken lines shall consist of alternate 10- foot painted line segments and 30 -foot gaps on non-Interstate or expressway. Broken lines on Interstate and expressway shall consist of alternate 15-foot painted line segments and 25- foot gaps.

Newly painted lines shall be protected from traffic using cones, stationary vehicles or other approved methods until the paint is dry.

627.02.1 Polyurea Marking Polyurea Marking equipment shall be certified by the manufacturer as suitable for the application of the polyurea and reflective media. The striping equipment shall bear a decal identifying it as manufacturer certified.

At any time throughout the duration of the project, the Contractor shall provide free access to his application equipment for inspection by the Resident, his authorized representative, or the materials representative.

627.04 Polyurea Performance Requirements The Polyurea marking material shall consist of white and yellow films with pigments selected and blended to conform to standard highway colors.

The mixed polyurea compound, both white and yellow, when applied to a 144 in² aluminum panel at 15±3 mil in thickness with no glass beads and exposed for 500 hours in a Q.U.V. Environmental Testing Chamber, as described in ASTM G-154, Cycle #1, shall conform to the following minimum requirements. The color of the white polyurea system shall not be darker than Federal Standard No. 595A-17778. The color of the yellow polyurea system shall be reasonably close to Federal Standard No. 595A-13538.

The surface of the retroreflective marking shall provide an initial average skid resistance value of 45 BPN when tested according to ASTM E303.

When tested in accordance with ASTM D-711 the polyurea marking material shall reach a track-free condition in 7 minutes or less at 15 mils with no retroreflective material.

When installed at 77° F, at a wet film thickness of 22 ± 1 mils and reflectorized with glass beads, the polyurea markings shall reach a no-track condition in less than 6 minutes. Dry to “no-tracking” shall be considered as the condition where no visual deposition of the polyurea marking to the pavement surface is observed when viewed from a distance of 50 feet, after a traveling vehicle’s tires have passed over the line.

The polyurea pavement marking materials, when tested according to ACI Method 503, shall demonstrate 100% concrete failure in the performance of this test. The prepared specimens shall be conditioned at room temperature ($75^\circ \pm 2^\circ$ F) for a minimum of 24 hours and maximum of 72 hours prior to the performance of the tests indicated.

The polyurea pavement marking materials, when tested according to ACI Method 503, shall demonstrate 100% asphalt failure in the performance of this test. The prepared specimens shall be conditioned at room temperature ($75^\circ \pm 2^\circ$ F) for a minimum of 24 hours and maximum of 72 hours prior to the performance of the tests indicated.

The material shall have a minimum Shore D Hardness of between 70 and 100 when tested in accordance with ASTM D 2240.

The material shall have a maximum abrasion resistance of 150 mg at 15 ± 1 mil (0.375 ± 0.025 mm) when tested in accordance with ASTM D-4060 (formally ASTM C 501).

The Contractor shall furnish a certificate of compliance showing the Polyurea material conforms to all requirements of this specification.

627.05 Preparation of Surface At the time of Polyurea application all pavement surfaces shall be grooved to create a recess for the paint that shall be in accordance with specification 627.30 Grooving for Pavement Markings in addition any polyurea manufacturer’s recommended procedures. The acceptability of the surface texture will be decided by the Resident and/or Manufacturer’s Technical Representative prior to application.

The pavement surface temperature and the ambient temperature shall be above 32° F at the time of application. The Resident shall determine the atmospheric conditions and pavement surface conditions that produce satisfactory results.

627.06 Application All work shall be done in accordance with the Material Suppliers specifications and the following:

1. The polyurea binder shall be applied at rates to achieve a minimum uniform wet thickness of 25 ± 2 mils.
2. Marking Performance: The typical dry average initial retro reflectance of the markings shall be 600 [(mcd(ft-2)(fc-1)] for white and 400 [(mcd(ft-2)(fc-1)] for yellow per ASTM E1710. The typical wet average initial retro reflectance of the markings shall be 375 [(mcd(ft-2)(fc-1)] for white and 275 [(mcd(ft-2)(fc-1)] for yellow per ASTM E2177.

The average initial retro reflectance shall be determined according to the measurement and sampling procedures outlined in ASTM D 6359, using a 30 meter retro reflectometer. The 30 meter retro reflectometer shall measure the coefficient of retroreflected luminance, RL, at an observation angle of 1.05 degrees and an entrance angle of 88.76 degrees. RL shall be expressed in units of millicandelas per square foot per foot-candle [(mcd(ft-2)(fc-1)]. The metric equivalent shall be expressed in units of millicandelas per square yard per lux [mcd(m-2)(lux-1)].

627.07 Installation The Contractor shall provide equipment containing a Data Logging System (DLS) for long line paint striping trucks. No separate or additional payment will be made for the use of DLS. The costs to furnish and operate the DLS, all manufacturer representation, labor, equipment, reports, documentation, and materials necessary for striping operations will not be paid for directly, but will be considered incidental to items 627.734, 627.745 and 627.751. The DLS details and specification requirements are found in appendix A of this special provision.

The Department will measure initial performance of the pavement markings within fourteen (14) days after application. Measurements shall also be made six (6) and twelve (12) months after application for data purposes only.

627.09 Removing Lines and Markings When it is necessary to remove pavement lines and markings, it shall be done by high pressure water, sand blasting, or other acceptable means approved by the Department. The method chosen must be capable of completely eradicating the existing line or marking without damage to the pavement. Burning or the use of solvents is not permitted.

627.10 Method of Measurement The quantity of permanent pavement marking lines measured for payment will be the number of feet measured in place and accepted.

Polyurea Pavement Marking Lines (Recessed) shall be measured by the linear foot. Double yellow centerline, broken or solid, will be considered one line for measurement purposes. Any broken or dotted white lines measurement will not include the gaps. All other pavement markings will be measured by the square foot for work completed in accordance with the contract. The Data Logging System (DLS) shall be made part of the unit price in the contract.

627.11 Basis of Payment The accepted quantity of permanent pavement marking lines will be paid for at the contract unit price per foot. No adjustment will be made to the quantity for payment, except as described under Method of Measurement above. All other permanent pavement markings will be paid for at the contract unit price per square foot.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
627.744 6" White or Yellow Polyurea Pavement Marking Line	Linear Foot
627.745 6" White or Yellow Polyurea Pavement Marking Line (Recessed)	Linear Foot

Appendix A

Description: This work shall consist of providing equipment containing a Data Logging System (DLS) for long line paint striping trucks. No separate or additional payment will be made for the use of DLS. The costs to furnish and operate the DLS, all manufacturer representation, labor, equipment, reports, documentation, and materials necessary for striping operations will not be paid for directly, but will be considered incidental to items 627.734, 627.745 and 627.751.

Equipment and System Requirements: Long line paint striping trucks for this project shall be equipped with a DLS that meets the following requirements:

- (1) Measuring and recording the application vehicle speed to the nearest 0.1 mile per hour (mph).
- (2) Measuring and recording the weight in pounds (lbs) and/or volume in gallons (gals) of binder. Measurement shall be made with a positive displacement pump mechanism, a flow meter, or load cells under the material tanks.
- (3) Measuring and recording the weight in pounds of reflective glass beads or elements used. Measurement shall be made with load cells under the bead or element tanks.
- (4) Measuring and recording the pavement surface temperature (Degrees F).
- (5) Measuring and recording the air temperature (Degrees F).
- (6) Measuring and recording the dew point (Degrees F).
- (7) Measuring and recording the humidity (Percent).
- (8) Calculating and recording the average material application rates and film thicknesses over each segment painted.
- (9) Providing the Project WIN, town name, with the beginning and ending reference points rounded to the nearest thousandth of a mile, the beginning and ending coordinates determined by a Global Positioning System receiver with an accuracy of 16 feet, and the direction of travel in terms of increasing or decreasing reference points.
- (10) Providing cellular capabilities for field data transport to website.
- (11) Providing a GPS mapping system that is capable of real time (within 20 minutes) tracking of material application rates, film thickness, bead pounds per gallon, vehicle speed, time, date, project numbers, operator manual data, and color coded alarms for film thickness. Film thickness alarms shall have a tolerance of ± 0.5 mils.

Documentation and Reporting Requirements: The system must record and report the average material application rates for paint and beads with each application. Each road (segment) will be calculated over an entire control section (CS) in increments of 5 miles. When the CS is less than 5 miles long, it will be evaluated over its entire length and considered a segment. Control sections greater than 5 miles long will be broken into 5 mile segments, (e.g. a CS that is 20 miles long would have four 5 mile long segments, a CS that is 17 miles long would have three 5 mile long segments and one 2 mile long segment). At the beginning and end of each CS, the Contractor shall ensure that the material is settled in the tanks prior to logging the system information.

The DLS system shall store data and export to the Resident or Department designee on a daily basis. The data shall be in Microsoft Excel format, containing data identified below. Two versions of the DLS Report are contained in each Excel file: DLS Short Report and DLS Full Report, which are on separate sheet tabs. The DLS Short Report is an abbreviated format containing only critical application information which can be easily printed on 8.5 x 11 paper. DLS Full Reports contain all project application and environmental data.

The DLS reports shall include the following information:

- (1) Date and beginning and ending time of application.
- (2) Vendor and product (binder and reflective material).
- (3) Lot numbers of product used.
- (4) Specific weight of binder lots used in pounds per gallon (lbs/gal).
- (5) Striping Contractor.
- (6) Designation of the marking being applied (LEL = Left Edge Line, REL = Right Edge Line, CL = Centerline, LL = Lane Line).
- (7) Width of marking being applied.
- (8) Application vehicle speed to the nearest 0.1 mph.
- (9) Weight in pounds or volume in gallons of binder used by color, measured per the requirements in Subsection 2.(a)(2) of this special provision.
- (10) Weight in pounds of reflective glass beads or elements used, measured per the requirements in Subsection 2.(a)(3) of this special provision.
- (11) Pavement surface temperature (Degrees F).
- (12) Air temperature (Degrees F).
- (13) Dew point (Degrees F).
- (14) Humidity (Percent).
- (15) Average material application rates and film thicknesses over each segment painted.
- (16) Total linear feet painted for each segment, broken down by line color and width (e.g. total 4" yellow in segment, total 6" white in segment, etc.).
- (17) The highway number, highway name, and town name, with the beginning and ending reference points rounded to the nearest thousandth of a mile, the beginning and ending coordinates determined by a Global Positioning System receiver to an accuracy of 16 feet, and the direction of travel in terms of increasing or decreasing reference points.

The DLS reports shall be available to the Resident within 24 hours of the striping work and will be submitted to the Resident or designated field personnel for inclusion with project documentation records. The electronic records shall be produced in their final form prior to the records being removed from the pavement marking equipment.

Paint Application: The Department may randomly perform field verifications of the DLS operation and calibration at any time to ensure the accuracy of the DLS printouts. If the Resident or Department designee believe that the DLS printouts are not accurate, then additional checks may be performed. The DLS shall be operational, calibrated and in use during all pavement marking operations. Data shall be collected for any non-handwork longitudinal pavement marking application of 300 feet (drive length) or greater.

The Contractor shall provide the resident with the DLS manufacturer's recommendations for equipment calibration frequency and provide certification that the equipment meets the manufacturer's recommended calibration. Every DLS shall be calibrated annually, prior to being used. A signed DLS calibration sticker shall be present in the driver's door and shall carry a date from the current calendar year.

In the event the DLS equipment fails, the Contractor shall notify the Resident of DLS failure before proceeding with any paint application. The Department will allow the completion of work for the individual day of a DLS failure. The Contractor shall document the application and material usage quantities from the time of the DLS failure and make calculations to determine the gallons of binder per mile and pounds of beads per mile.

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC

Approaches. Approach signing for the work on the Interstate shall include the following signs

Road Work 3 Miles	Road Work 500 Feet
Road Work 2 Miles	Road Work Next x Miles
Road Work 1 Mile	End Road Work

Work Areas Interstate. At the work sites, signs, flashing arrow boards and channeling devices as shown on the Work Zone Signing details shall be used as directed by the Resident.

Signs Include:

Right or Left Lane Closed 2 Miles
Lane Ends 1 mile Merge Right or Left Now
Right or Left Lane Closed 1/2 Mile
Speed Limit 55*** ¹ (Existing speed limit signs will be covered when in use)
Speed Limit 45*** ¹ (Existing speed limit signs will be covered when in use)
Fines Doubled*
Work Zone ¹
Do Not Pass*
Right/Left Merge Symbol (W 4-2)
End Work Zone ¹
Resume Speed
Exit (green with white legend and border)
Road Work Ahead ¹
Merging Traffic Symbol (At on-ramp in right lane closure)
Stop Ahead (At on-ramp in right lane closure)
Single Lane Ahead (At on-ramp in left lane closure)
Stop (At on-ramp in right lane closure)
Directional Arrows (At on-ramp in right lane closure)

Detour

End Detour

Bump
Trucks Entering
Stay In Lane*
Left Turning Trucks with 500 Feet Advisory Plate
Flagger Sign
Grooved Pavement
Caution Rumble Strip
Uneven Lanes
Motorcycles Use Caution

* White with black legend and border

¹ In addition to work zone package these signs will also be required at the end of any on ramps that are within the lane closure

The preceding list of Approach signs and Work Area signs are representative of the contract requirements. Other sign legends may be required.

General Requirements-Interstate.

The Contractor shall provide a minimum traveled way width of 14 feet through an expressway lane closure.

Lane closures shall not be set up until work in the area is to be performed and must be removed when no work is being performed. See Special Provision 105 and 107.

Lane closures shall be separated by at least 2 miles.

All construction work shall be confined to the lane closed to traffic.

Slow moving construction equipment may travel the closed lane for short distances, ALL vehicles shall be orientated with the flow of traffic unless otherwise authorized by the Resident.

Any vehicle using LED Lights shall have them angled as to not impeded or disrupt normal traffic flow at any time as determined by the Resident. Vehicles unable to manipulate these devices shall be removed from the project immediately.

All trucking shall be done in the lane open to traffic.

No equipment or vehicles of the Contractor, his Subcontractor 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.

The Contractor shall keep all paved areas of the roadway as clear as possible at all times. The Contractor's personnel and equipment shall avoid crossing traffic lanes whenever possible. "Road Work Ahead" signs shall be used on roads adjacent to the interstate when the Contractor is working on or near an on-ramp or when the on-ramp enters a lane closure area.

All temporary pavement marking lines or markers will be paid under Item 627.781 Temporary 6 Inch Painted Pavement Marking Line, White or Yellow or Item 627.78 Temporary 4 Inch Painted Pavement Marking Line, White or Yellow. TOM's will not be permitted.

A minimum of a 12:1 paved tapers constructed of Hot Mix Asphalt shall be placed at all ramps immediately following milling and paving. Millings shall not be used.

The Contractor and employees shall conduct all work in a safe and professional manner as it relates to the traveling public (i.e. not adversely disrupting the flow of traffic in an unsafe manner when exiting or entering a lane closure or crossover, negative verbal or physical gestures).

Attenuator vehicles are to be used at all stationary operations and all mobile operations. The attenuator vehicles shall be rated for highway speeds and used in accordance with manufacturers' recommendations. The use of these vehicles shall be written into the contractor's traffic control plan. The cost for these vehicles shall be considered incidental to the traffic control plan. An example would be culvert work or guardrail replacement. Maximum distance between operations and attenuator vehicles will be 500'. Attenuators shall be present at the beginning of paving and milling operations. The cost for these vehicles shall be considered incidental to Item 652.36.

Item 652.47 Temporary Portable Rumble Strips shall be deployed during approach sign set up.

Channelization. Channelization devices shall include the following:

Flashing Arrow Boards

Vertical Panel Markers

Drums (To be used in tapers and as directed by the Resident.)

Cones (In lane closures, the contractor shall place 3 drums across a closed lane every 1500'.)

Channelization devices shall be installed and maintained at the spacing determined by the MUTCD to delineate travel lanes through the project. Vertical Panel markers shall be placed 2 feet from the outside edge of the shoulder on the passing lane at 600 feet intervals when the travel lane is closed in overnight lane closures. The vertical panel marker size shall be 12 inches x 36 inches. The bottom of these panels shall be 4' from the ground below. When directed by the Engineer, drums or other channelization devices shall be placed in the closed lane at a maximum spacing of 2 x speed limit.

Temporary Centerline or Edge Line. A temporary painted centerline and edge line shall be marked each day on all milled surfaces or new pavement to be used by traffic. The temporary line shall conform to the standard marking patterns used for permanent markings and will be paid for under Section 627. Failure to apply a temporary line daily will result in suspension of milling or paving until temporary markings are applied to all previously milled surfaces or placed pavement. In the event of inclement weather that would prevent markings to be applied, MaineDOT will determine the procedure to be followed and whether additional pavement may be removed or placed based upon safety, traffic volumes and patterns.

Item 627.30 Grooving for Pavement Markings must have a temporary painted centerline and edge line applied within according to the following guidelines:

One line grooved	48 hours of grooving
Two or more lines grooved	24 hours of grooving

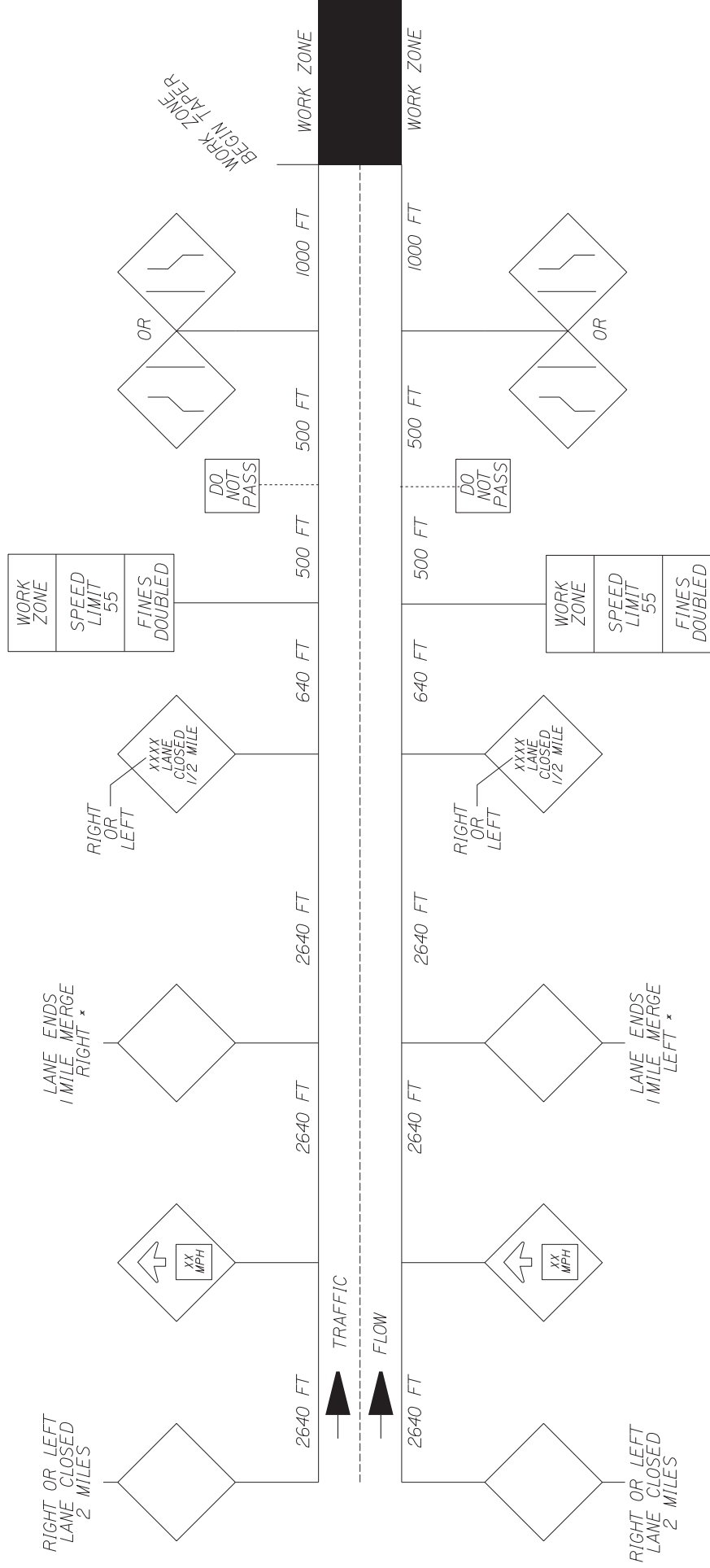
Under no circumstances shall this time span over a weekend or a no work period. Failure to comply with this will result in a traffic control violation until such line has been marked.

Roadside Recovery Area. The Contractor shall not store material nor park equipment within 15 feet of the edge of the established travel lanes.

No long term storage of equipment or material will be allowed within 30 feet of the edge of the established travel lanes. Short term storage of equipment or material less than 30 feet from the edge of the established travel lanes must be approved by the Department and shall be clearly marked by drums and cones. Short term storage shall be defined as less than 12 hours. No equipment or material will be allowed within 30 feet of the edge of the established travel lanes at night.

Speed Limits in Work Zones. The Contractor shall sign all approved reduced speed limits on construction project according to APM #431 - A Policy on the Establishment of Speed Limits in Work Zones.

WORK ZONE SIGNING



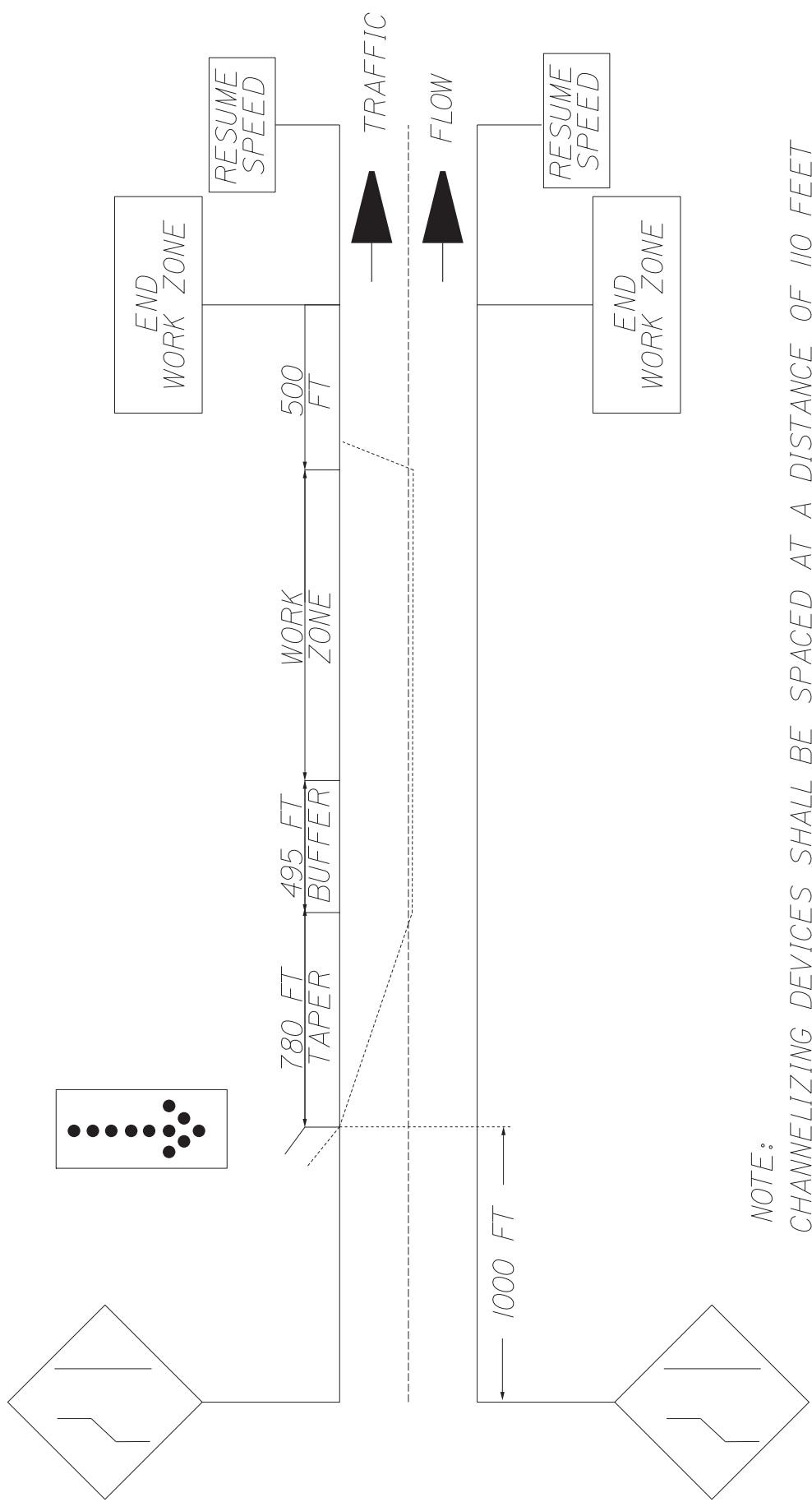
A "ROAD WORK 3 MILES" MAY BE REQUIRED AT THE DEPARTMENT'S OPTION

* LANE ENDS 1 MILE MERGE RIGHT OR LEFT SIGNS SHALL ONLY BE PLACED ON SIDE OF ROAD THAT NEEDS TO MERGE

NOT TO SCALE

MAINTENANCE OF TRAFFIC INTERSTATE SYSTEM TYPICAL SECTIONS	STATE OF MAINE DEPARTMENT OF TRANSPORTATION	
	REVISED DECEMBER 28, 2021	SECTION 652
SHEET NUMBER 1 OF 4		HIGHWAY PLANS

WORK ZONE

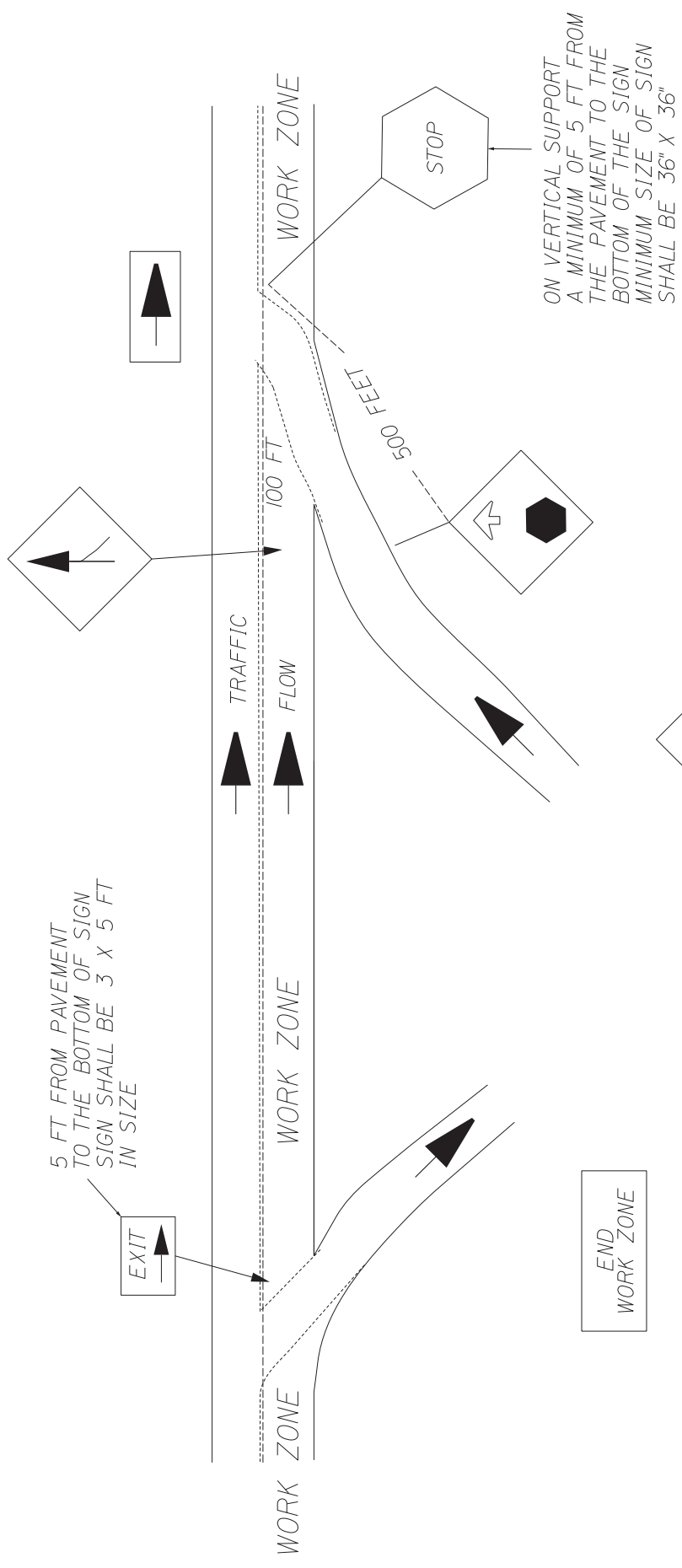


NOTE:

CHANNELIZING DEVICES SHALL BE SPACED AT A DISTANCE OF 110 FEET APART WITH 3 DEVICES ACROSS THE CLOSED LANE EVERY 1500 FEET. DEVICES IN THE TAPER SHALL BE SPACED AT 55 FEET APART.

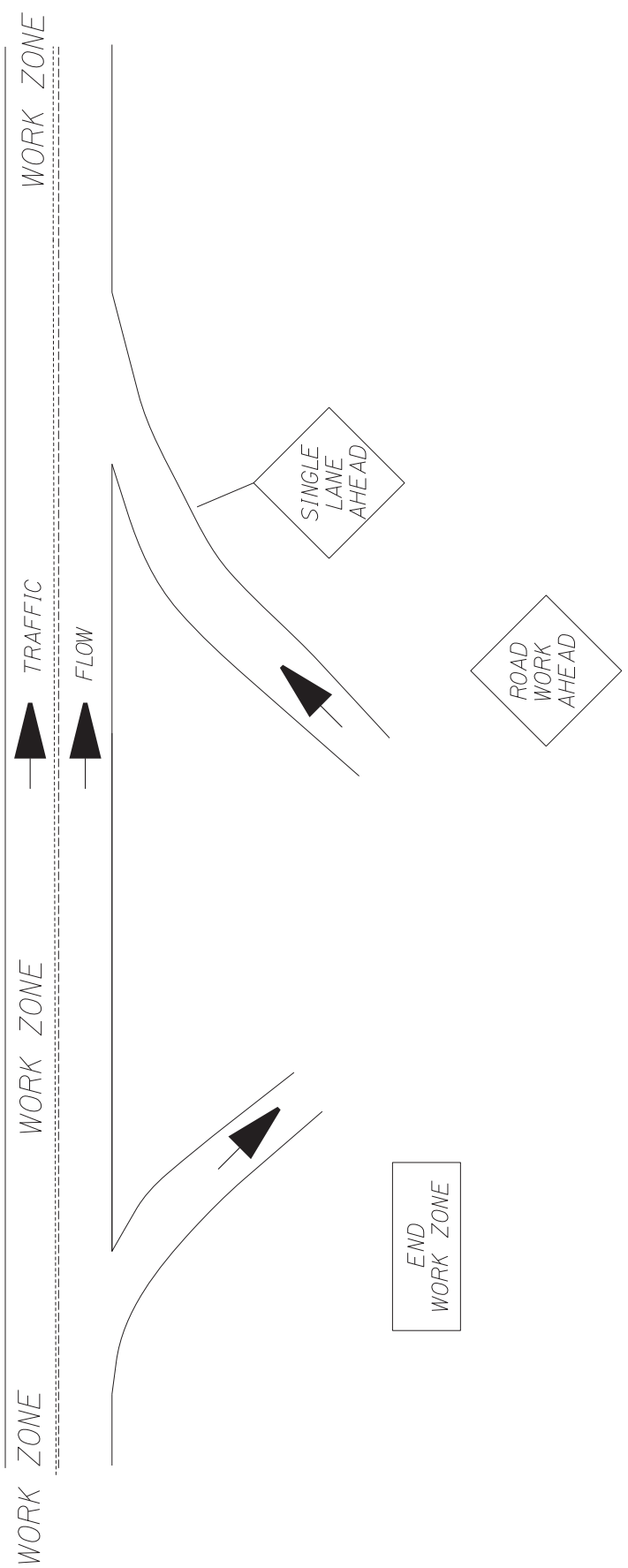
MAINTENANCE OF TRAFFIC INTERSTATE SYSTEM TYPICAL SECTIONS	REVISED DECEMBER 28, 2021	STATE OF MAINE DEPARTMENT OF TRANSPORTATION SECTION 652	HIGHWAY PLANS	NOT TO SCALE
				SHEET NUMBER
				2 OF 4

RAMPS - RIGHT LANE CLOSED



21		NOT TO SCALE		
MAINTENANCE OF TRAFFIC INTERSTATE SYSTEM		STATE OF MAINE DEPARTMENT OF TRANSPORTATION		SHEET NUMBER 3 OF 4
TYPICAL SECTIONS		SECTION 652 HIGHWAY PLANS		
		REVISED DECEMBER 28, 2021		

RAMPS - LEFT LANE CLOSED



NOT TO SCALE		SHEET NUMBER 4 OF 4	
MAINTENANCE OF TRAFFIC INTERSTATE SYSTEM		STATE OF MAINE DEPARTMENT OF TRANSPORTATION	
TYPICAL SECTIONS		REVISED DECEMBER 28, 2021	SECTION 652 HIGHWAY PLANS

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC

Approaches. Approach signing shall include the following signs at a minimum. Field conditions may warrant the use of additional signs as determined by the Resident.

Road Work Next X* Miles
Road Work 500 Feet (Ahead)
End Road Work

Work Areas. At each work site, signs and channelizing devices shall be used as directed by the Resident.

Signs include:

Road Work xxxx¹.
One Lane Road Ahead
Flagger Sign

Other typical signs include:

Be Prepared to Stop
Low Shoulder
Bump
Pavement Ends

The above lists of Approach signs and Work Area signs are representative of the contract requirements. Other sign legends may be required.

Unless otherwise defined in Special Provision 105/107 or submitted and approved in the Traffic Control Plan, the following shall apply:

- The Contractor shall conduct their operations in such a manner that the roadway will not be restricted to one lane for more than 2,500 feet at each work area and no more than 4,000 feet for paving, milling, and crack seal/repair work areas.
- Where more than one work area restricts traffic to one lane operation, these work areas shall be separated by at least 1 mile of two-way operation.

Temporary Centerline A temporary centerline shall be placed each day on all new pavement to be used by traffic. The temporary centerline, when specified of reflectorized traffic paint, shall conform to the standard marking patterns used for permanent markings. Failure to apply a temporary centerline daily will result in a Traffic Control Violation and suspension of paving operations until temporary markers are applied to all previously placed pavement.

¹ "Road Work Ahead" to be used in short duration operations and "Road Work xx feet" to be used in stationary operations as directed by the Resident.

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC
Smart Work Zone System
Automated end of queue warning system

652.1 Description This work shall consist of furnishing, installing, operating, servicing, maintaining, relocating, and removing an automated end of queue warning system, known as a Smart Work Zone System (SWZS). This work will be in place for duration of the Project.

SWZ systems will be classified in two distinct uses:

Type 1 will be a temporary automated end of queue warning system used when the expected traffic queue length is 3 miles or less.

Type 2 will be a temporary automated end of queue warning system used when the expected traffic queue length is 7 miles or less.

652.1.1 Smart Work Zone Submittals

The Contractor shall submit to the Resident for approval which shall detail the SWZS system, including the following information:

The Contractor shall identify the supplier of the SWZS, which has successfully completed at least five (5) smart work zone projects similar in concept and scope to the proposed system in the past five (5) years.

The proposed supplier shall also provide the credentials of a qualified technician who shall install, operate and train Contractor's personal on the use of the system.

The Contractor shall include names, addresses, and telephone numbers of the similar project's owner's representatives for verification.

The submittal for the SWZS shall be submitted in accordance with 105.7.2 of the latest versions of the Standard Specifications.

The Contractor's Traffic Control Plan shall discuss intended use and project specific applications and reference the SWZS submittals.

Once the SWZS have been reviewed and accepted, the Contractor shall submit brochures and cut sheets on all units of the SWZS, with details of how and which communications systems shall be used, and all technical specifications. The Contractor shall also include the submittal the actual SWZS device, operation, maintenance, monitoring and including a SWZS layout map for each work zone. The Contractor and shall update the Traffic Control Plan as needed.

At the completion of the project, the Contractor will attend a post construction debriefing to discuss positive and negative aspects of the system and potential ways to improve its operational effectiveness and project applicability.

652.2 Smart Work Zone Equipment

Type 1 SWZS shall consist of a controller, a minimum 4 traffic sensors and a minimum of 1 PCMS.

Type 2 SWZS shall consist of a controller, a minimum 8 traffic sensors and a minimum of 2 PCMS.

Type 1 and Type 2 SWZS shall include a complete communication system, hardware, software, and support necessary to make a complete and operating system that provides advance traffic information to motorists when there is a slowing of traffic due to congestion resulting from lane reductions or other conditions. The condition-responsive notification to the motorist occurs with the use of PCMS activated through real-time traffic data collected by portable traffic sensors downstream of the PCMS location.

The system shall be capable of storing ad-hoc messages created by the System Coordinator and logging this action when overriding any default or automatic advisory message. The SWZS communication system shall incorporate an error detection/correction mechanism to ensure the integrity of all traffic conditions data and motorist information messages. Any required configuration of the SWZS communication system shall be performed automatically during system initialization.

System operator local control functions and remote management operations shall be password protected. The SWZS shall be capable of acquiring traffic information and selecting messages automatically without operator intervention after system initialization. The lag time between changes in threshold ranges and the posting of the appropriate PCMS messages shall be no greater than 15 seconds. The system operation and accuracy shall not be appreciably degraded by inclement weather or degraded visibility conditions including precipitation, fog, darkness, excessive dust, and road debris.

The portable traffic sensors shall be capable of collecting traffic speed data. The processed data is used to remotely control the PCMS to display user definable and locally stored messages. The message trigger thresholds shall be user configurable. The format of the data feed shall be extensible Markup Language (XML), with a known schema shared with the purchaser and made available to the Department. The XML data shall be made available for Department access (including project staff and the Department's Traffic Management Center) through standard Internet connectivity and services, with the provision of a data feed address, port (if applicable), and authentication/sign-on parameters.

The system shall have basic field and network security to protect the system against vandalism and unauthorized use.

The Contractor shall obtain cellular telephone service, FCC licensing, wireless data networks, satellite and internet subscriptions, and other requirements as necessary to operate the system continuously.

Provide an on-site System Coordinator for the SWZS the system components, monitor and adjust the portable devices as necessary, provide documentation in the form of a written weekly report about the system and respond to emergency situations. The System Coordinator shall either be a system vendor representative or shall have received training on the set-up and operation of the system from the system vendor or manufacturer. Provide certification of any such training to the Resident prior to system set-up. The System Coordinator shall work with the Resident on the operation of the SWZS including when to deploy or relocate the field devices, how the system is operating, and when to remove the system. The System Coordinator shall attend the pre-construction meeting and progress meetings. Secure approval from the Department on all PCMS messages prior to use. Be available 7 days a week and 24 hours a day while the system is deployed. Provide the 24/7 contact information for the System Coordinator and others responsible for maintenance of the system prior to installation of the system.

652.3 Smart Work Zone General Operation

The SWZS shall provide required functionality when the traffic sensors are located approximately as follows.

Type 1: The first sensor shall be located at the lane closure, second sensor 0.5 mile back from lane closure, third sensor 1 mile from lane closure, and a fourth sensor located 2 miles from lane closure. The PCMS shall be located 2.5 miles from lane closure. The system shall provide full functionality when the sensors and PCMS are relocated, and field adjusted as needed to provide adequate warning to the motoring public of traffic congestion ahead. Adjust the spacing of the devices and portable PCMS as needed.

Type 2: The Type 2 will utilize the same layout as the Type 1 system for the first 2.5 miles, then expanding the system by adding sensors at each mile and an additional PCMS located at 7 miles from the lane closure.

On entrance ramps within the SWZS operational area, BE PREPARED TO STOP sign downstream from the ROAD WORK AHEAD sign shall be installed and maintained for the duration of the SWZS.

The SWZS shall be installed and operational prior to the start of the placement of the channelizing devices to close any travel lanes. Verify that the system is operating prior to initiating the actual lane closure. The SWZS shall remain in place and operational until after the travel lane is reopened. The system shall constantly monitor traffic and update the messages on the portable PCMS within 15 seconds of a traffic condition requiring a system update. Each message shall be displayed on the portable PCMS for a minimum of 3 minutes.

The SWZS shall be in a constant “data collection” mode. In the event communication is lost between any field equipment, provide a means and staff to manually program a PCMS message. If communication is lost for more than 10 consecutive minutes, the system shall revert to a fail-safe ROAD/WORK/AHEAD message displayed on the PCMS until communication is restored.

The SWZS shall be monitored throughout any period of deployment and the Contractor shall submit a weekly report that will include the following activities during the project:

1. Confirm/note device layout/placement.
2. Confirm/note system data collection parameters that were set and adjusted.
3. Confirm/note startup and validation activities.
4. Note any changes/modifications made throughout the day or any unusual events that may impact the integrity of the data.
5. Confirm/note system shutdown processes and identify any changes that may be needed.
6. Observe device packing processes for relocation to the next work zone area and note any improvements that may be needed to improve the efficiency of the system deployment.
7. Number of and types of activations the system performed.
8. Construction work zone deployments
9. What if any field adjustments were made.
10. Maintain an adequate inventory of parts to support maintenance and repair of the SWZS.
11. The effectiveness of the adjustments made as well as comments from the flagging staff on each end of the active work zone (with and without the SWZS).
12. Public reaction and behavior when in the traffic control.
13. System start up and testing procedures
14. System operational procedures
15. System maintenance procedures
16. System shutdown procedures

SWZS will not be used if there is no queue.

652.7 Method of Measurement the SWZS will be measured based on uninterrupted operation of the complete system per each unit.

- a) The payment of each unit will be payable in installments as follows:
30% payment will be made once the final SWZS is approved and in operation.
The remaining 70% balance to be paid as the work progresses at a rate proportional to the use and operation of the complete system.
- b) If the operation of the SWZS is down for more than five (5) total accumulative days, payment will be reduced by 10% and the Contractor will prepare and submit a plan to restore uninterrupted operations of the SWZ system.

652.8 Basis of Payment Accepted SWZS will be at the Contract unit price per each for uninterrupted operation that shall include furnishing, installing, operating, servicing, maintaining, cleaning, repair, all materials, equipment, tools, labor, relocating and removing an automated SWZS. All operational and service costs, FCC licensing, wireless data networks, satellite and internet subscriptions, and other requirements as necessary to operate the system continuously.

Payment will be made under:

<u>Item Number</u>	<u>Description</u>	<u>Unit</u>
652.441	Type 1 Smart Work Zone System	EA
652.442	Type 2 Smart Work Zone System	EA

**SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC
(Automated Speed Limit Sign)**

Item 652.45 – Automated Trailer-Mounted Speed Limit Sign

652.1 Description This special provision provides for furnishing, operating, and maintaining an Automated Trailer Mounted Radar Speed Limit Sign for project use. The Contractor shall furnish, operate, and maintain the Automated Trailer Mounted radar Speed Limit Signs during the project operations.

652.1.1 Instruction and maintenance manuals shall be provided.

652.2 Materials

Automated Trailer Mounted Speed Limit Sign

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, a construction sign stating “Work Zone Speed Limit When Flashing” and power supply specifically constructed to operate as a trailer-mounted sign. The preferred color of the unit shall be “construction orange”.

Signs Base material for the regulatory speed limit signs shall be weather proof, 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.

The regulatory sign should have changeable speed limit numbers.

“Work Zone” construction signs shall be mounted on the trailer unit above and below the regulatory speed limit sign. (see attached detail). The “When Flashing” construction sign shall be added to the trailer, if the Resident deems the sign necessary.

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

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

Flashing Lights 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, either strobe, halogen, or incandescent lamps, 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.

Radar 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.

Data Collection Units shall obtain traffic data, statistics, to include location, speeds, and times. This information shall be capable of being downloaded from the sign location with Bluetooth, wireless connection, or be accessed remotely via cellular data link. Units shall also have the capability to download this information via a USB port. Software to interface with PC or MAC Operating Systems shall be provided to the Department.

CONSTRUCTION REQUIREMENTS

652.3.2 Responsibility of the Contractor The Contractor shall furnish the automated Trailer Mounted Speed Limit Sign as described in 2.1 for this project.

All existing speed limit signs, which conflict with the construction zone trailer mounted speed limit signs shall be covered completely during the operation of the flashing lights. These signs shall be immediately uncovered when the use of the flashing lights is discontinued.

Automated Trailer Mounted Speed Limit Signs shall be used only during the Contractor’s actual work hours, unless specifically authorized by the Engineer.

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.

Automated Trailer Mounted Speed Limit Signs shall be located as directed by the Resident. Placement of additional “Reminder” signs may be ordered by the Resident.

Automated Trailer Mounted Speed Limit Signs shall be placed outside the clear zone whenever practical and possible. The signs shall be removed outside the clear zone of the traveled way as specified in the Traffic Control Plan when not in use unless protected by portable barrier or equivalent. The 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 Department, 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 Department.

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.

METHOD OF MEASUREMENT

652.7 Method of Measurement Each Automated Trailer Mounted Speed Limit Sign will be measured as a unit.

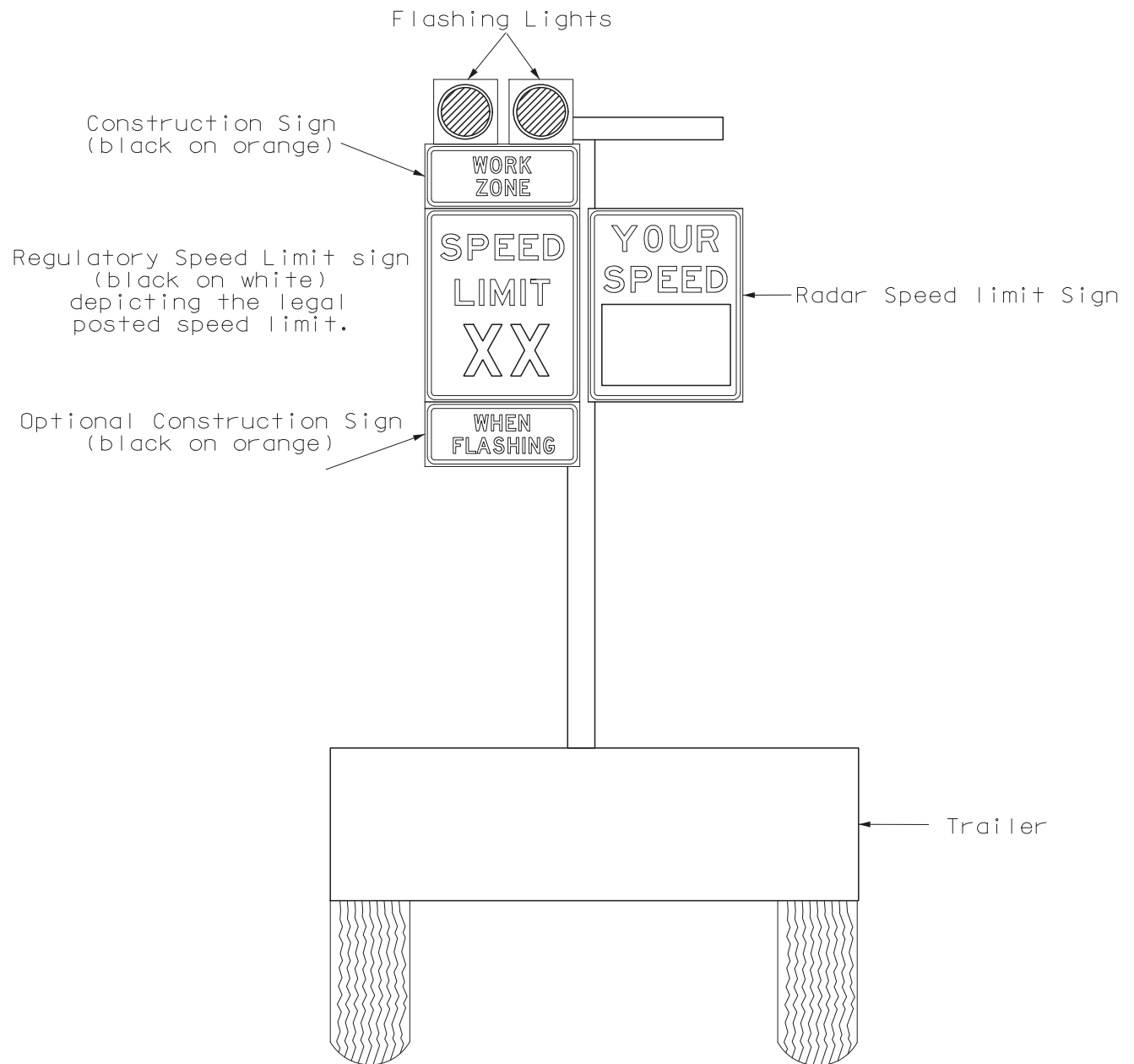
A unit will include the unit as described in 2.1, the trailer, radar Speed Limit Sign, flashing beacon amber lights, regulatory speed limit sign, "Work Zone Speed limit when flashing" construction sign, fuel, necessary maintenance, and all checking of radar Speed Limit Signs by manufacturer. Also included are all project moves including the transporting and delivery of each unit.

BASIS OF PAYMENT

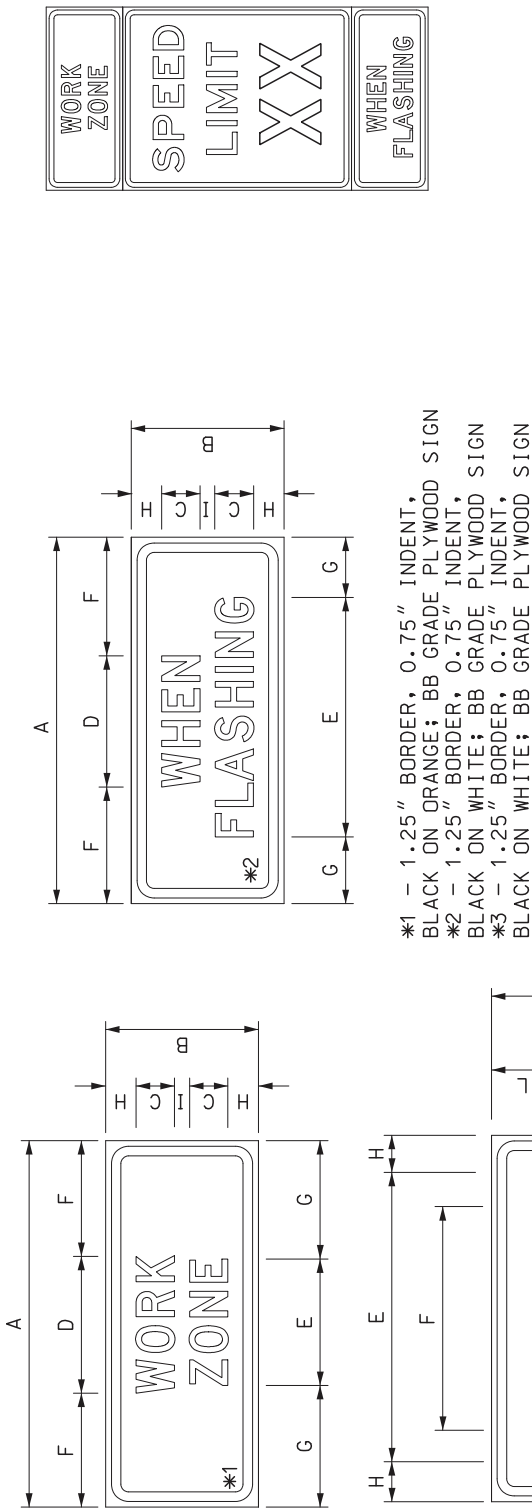
652.8 Basis of Payment The accepted quantity of Automated Trailer Mounted Speed Limit Sign will be paid for at the contract price per unit for the number of units used and accepted.

Payment will be made under:

Pay Item	Pay Unit
652.45 Automated Trailer Mounted Speed Limit Sign	Unit



Automated Trailer Mounted Speed Limit Sign
note: not to scale



*1 - 1.25" BORDER, 0.75" INDENT, BLACK ON ORANGE; BB GRADE PLYWOOD SIGN
*2 - 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; BB GRADE PLYWOOD SIGN
*3 - 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; BB GRADE PLYWOOD SIGN

DIMENSIONS (inches)/LETTER FONTS												
	A	B	C	D	E	F	G	H	I	J	K	L
*1	48	20	5D	18 ¹ / ₈	16 ⁵ / ₈	14 ⁷ / ₈	15 ⁵ / ₈	4	2	N/A	N/A	N/A
*2	48	20	5D	17 ¹ / ₄	31 ³ / ₈	15 ¹ / ₂	8 ¹ / ₄	4	2	N/A	N/A	N/A
*3	48	60	8E	16E	38 ¹ / ₄	29 ¹ / ₄	29 ¹ / ₂	4 ⁷ / ₈	9 ³ / ₈	9 ¹ / ₄	8	6

CONSTRUCTION SIGN/REGULATORY SIGNS

TRAILER MOUNTED CONSTRUCTION ZONE
SPEED LIMIT SIGN

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC

SEQUENTIAL FLASHING WARNING LIGHTS

Description Furnish and install Sequential Flashing Warning Lights on drums used for merging tapers during nightly work activities on interstates and freeways with speed limits greater than 55 MPH and or facilities that have significant traffic volumes.

The purpose of these lights is to assist the motorist in determining which direction to merge when approaching a lane closure. It's also designed 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 merging taper to the downstream end of the merging taper in order to identify the desired vehicle path.

Materials The Sequential Flashing Warning Lights shall meet all of the requirements for warning lights within the current edition of the Manual of Uniform Traffic Control Devices (MUTCD).

Each light unit shall be capable of operating fully and continuously for a minimum of 200 hours when equipped with a standard battery set.

Each light in the sequence shall be flashed at a rate of not less than 55 times per minute and not more than 75 times per minute. The flash rate and flash duration shall be consistent throughout the sequence.

Supply a Type 3 Certification (Independent Test Lab results) documenting all actual test results for the specified parameters contained in the Institute of Transportation Engineer's (ITE's) *Purchase Specification for Flashing and Steady Burn Warning Lights*. The laboratory shall also identify all manufacturer codes and part numbers for the incandescent lamp or LED clusters, lenses, battery, and circuitry, and the total width of the light with the battery in place. The complete assembly shall be certified as crashworthy when firmly affixed to the channelizing device.

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

Construction Requirement Sequential Flashing Warning Lights are to be used for night time lane closures.

These lights shall flash sequentially beginning with the first light and continuing until the final light.

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

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 allowed to mount sequential flashing warning lights.

The Sequential Flashing Warning Lights shall be weather independent and visual obstructions 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 10 to 100 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. If more than 2 lights fail, all of the lights are to be automatically turned to the "off" mode. Non-sequential flashing is prohibited.

When lane closures are not in effect, the Sequential Flashing Warning Lights shall be deactivated.

Method of Measurement Sequential Flashing Warning Lights will be measured as the maximum number of sequential flashing warning lights satisfactorily installed and properly functioning at any one time during the life of the project.

This includes all materials and labor to install, maintain and remove all Sequential Flashing Warning Lights.

Pay Item		Pay Unit
652.46	Sequential Flashing Warning Lights	Each

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC

TEMPORARY PORTABLE RUMBLE STRIPS

Description This special provision describes providing, relocating, maintaining, and removing temporary portable rumble strips.

Materials Furnish a portable rumble strip system to be used in a transverse installation used within a travel lane. The color of the rumble strip shall only be white, black, or orange and shall not match the color of the pavement. The Contractor will be allowed at their option to use a combination of the color options (i.e. orange, black, orange or white, black, white etc.) or a continuous solid color that does not match the color of the pavement in each transverse installation to delineate the rumble strips to the traveling public. The Contractor shall submit for approval, literature and all necessary certifications to the Department prior to procurement of the product.

Construction Requirement

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

1. Prior to placing rumble strips, clean the roadway of sand and other materials that may cause slippage.
2. 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. Spacing of the rumble strip strips will be per the manufactures recommendation.
3. Only one group 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 group of rumble strips. Each lane shall use one group of temporary rumble strips.
4. The use of rumble strips will require an additional work zone sign stating “Caution Rumble Strips” in the approach sign package meeting all applicable MUTCD guidelines. The use of the temporary rumble strips and work zone signage will be discussed in the Contractor’s traffic control plan.

Maintain rumble strips as follows:

1. 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.
2. Repair or replace damaged rumble strips immediately.

Method of Measurement The Department will measure temporary portable rumble strips as one group, per lane. A group shall be considered 3 full lane width of rumble strips.

Basis of Payment The accepted quantity of temporary portable rumble strips will be paid for at the contract unit price per group. Payment is full compensation for providing, relocating, maintaining or replacing, and removing temporary portable rumble strips.

Pay Item

Pay Unit

652.47 Temporary Portable Rumble Strip

Group

2020 STANDARD DETAIL UPDATES

Standard Details and Standard Detail updates are available at:
<http://maine.gov/mdot/contractors/publications/standarddetail/>

<u>Detail #</u>	<u>Description</u>	<u>Posted Date</u>
502(06)	Concrete Sidewalk on Bridges	9/22/2025
502(19)	Bridge Drains	3/17/2023
502(15)	Bridge Drains	3/17/2023
502(20)	Bridge Drains	3/17/2023
502(23)	Bridge Drains	3/17/2023
502(24)	Bridge Drains	3/17/2023
502(25)	Bridge Drains	3/17/2023
502(26)	Bridge Drains	3/17/2023
504(07)	Diaphragm & Crossframe Notes	3/17/2023
507(04)	Steel Bridge Railing	9/22/2025
507(05)	Steel Bridge Railing	9/22/2025
507(06)	Steel Bridge Railing	9/22/2025
507(07)	Steel Bridge Railing	9/22/2025
507(14)	Steel Bridge Railing	9/22/2025
507(15)	Steel Bridge Railing	9/22/2025
507(20)	Steel Approach Railing 3-Bar	2/11/2021
507(21)	Steel Approach Railing 3-Bar	2/11/2021
507(22)	Steel Approach Railing, 3 Bar	9/22/2025
507(23)	Steel Approach Railing, 3 Bar	9/22/2025
507(26)	Steel Approach Railing, 3 Bar	9/22/2025
507(27)	Steel Approach Railing	9/22/2025
507(39)	Barrier – Mounted Steel Bridge Rail	9/22/2025
526(01)	Portable Concrete Barrier	1/14/2021
526(01A)	Portable Concrete Barrier	1/14/2021
526(01B)	Portable Concrete Barrier	1/14/2021
526(02)	Portable Concrete Barrier	1/14/2021
526(02A)	Portable Concrete Barrier	1/14/2021
526(03)	Portable Concrete Barrier	1/14/2021
526(04)	Portable Concrete Barrier	1/14/2021

526(04A)	Portable Concrete Barrier	1/14/2021
526(04B)	Portable Concrete Barrier	1/14/2021
526(05)	Permanent Concrete Barrier	3/17/2023
526(21)	Permanent Concrete Barrier	3/17/2023
526(22)	Concrete Transition Barrier	9/22/2025
526(23)	Concrete Transition Barrier	9/22/2025
526(23)A	Concrete Transition Barrier	9/22/2025
526(34)	Concrete Transition Barrier	9/22/2025
526(35)	Concrete Transition Barrier	9/22/2025
526(36)	Concrete Transition Barrier	9/22/2025
526(37)	Concrete Transition Barrier	9/22/2025
526(37) A	Concrete Transition Barrier	9/22/2025
526(38)	Concrete Transition Barrier	9/22/2025
526(39)	Texas Classic Rail	3/17/2023
526(55)	Texas Classic Rail	3/17/2023
603(10)	Concrete Pipe Ties	6/10/2021
605(01)	Underdrain	7/8/2022
605(01)	Underdrain Notes	7/8/2022
606(17)	Midway Splice Guardrail Transition	6/10/2022
606(21)	Guardrail Type 3 – Single Rail Bridge Mounted	9/22/2025
606(22)	Guardrail Treatment over Buried Structures	9/22/2025
606(23)	Standard Bridge Transition – Type “1”	2/11/2021
606(24)	Bridge Transition – Type “1A”	9/22/2025
606(25)	Bridge Transition – Type “2”	9/22/2025
607(10)	Snow Fence Details (New Detail)	9/22/2025
607(11)	Snow Fence Details (New Detail)	9/22/2025
607(12)	Snow Fence Details (New Detail)	9/22/2025
607(13)	Snow Fence Details (New Detail)	9/22/2025
607(14)	Snow Fence Details (New Detail)	9/22/2025
607(15)	Snow Fence Details (New Detail)	9/22/2025
607(16)	Snow Fence Details (New Detail)	9/22/2025
608(02)	Detectable Warnings	6/10/2021
609(08)	Precast Concrete Transition Curb	9/22/2025
609(09)	Precast Concrete Vertical Curb	9/22/2025
627(07)	Crosswalk	2/22/2022
627(08)	Crosswalk	2/22/2022

643(11)	ATCC Cabinet	12/14/2020
645(06)	H Beam Posts Highway Signing	12/17/2024
645(21)	Overpass Mounted Sign Support Highway Signing	9/22/2025
645 (22)	Overpass Mounted Sign Support Highway Signing	9/22/2025
<u>801(10) Pavement Transition at Bridge</u> DISCONTINUE THIS STD DETAIL		9/22/2025
801(11)	Pedestrian Ramp Notes	11/20/2023
801(12)	Pedestrian Ramp Requirements	11/20/2023
801(13)	Ramp Length Table	11/20/2023
801(14)	Parallel Pedestrian Ramp	11/20/2023
801(15)	Perpendicular Pedestrian Ramp – Option 1	11/20/2023
801(16)	Parallel Pedestrian Ramp – Option 2A	11/20/2023
801(17)	Perpendicular Pedestrian Ramp – Option 2A	11/20/2023
801(18)	Parallel Pedestrian Ramp – Option 2B	11/20/2023
801(19)	Perpendicular Pedestrian Ramp – Option 2B	11/20/2023
801(20)	Parallel Pedestrian Ramp – Option 3	11/20/2023
801(21)	Perpendicular Pedestrian Ramp – Option 3	11/20/2023
801(22)	Side Street Pedestrian Ramp	11/20/2023
801(23)	Parallel Pedestrian Ramp – Esplanade	11/20/2023
801(24)	Perpendicular Pedestrian Ramp – Esplanade	11/20/2023
801(25)	Island Crossings	11/20/2023
801(26)	Blended Transition	11/20/2023
801(26)	Blended Transition	1/19/2024
801(27)	Pedestrian Ramp Adjacent to Driveway or Entrance	11/20/2023
802(05)	Roadway Culvert End Slope Treatment	1/03/2017
802(05)	Roadway Culvert End Slope Treatment	11/01/2024

SUPPLEMENTAL SPECIFICATIONS
(Corrections, Additions, & Revisions to Standard Specifications – March 2020)

SECTION 101
CONTRACT INTERPRETATION

101.2 Definitions

Construction Easement revise this definition by removing it in its entirety and replace with:
“A right acquired by the Department for a specific use of private property outside of the established Right-of-Way. Examples include but are not limited to Drainage Easements, Construction and Maintenance Easements, and Slope Easements. Construction Easement areas, including Temporary Construction Limits and Temporary Road Limits, outside of the Right-of-Way remain private property. No use other than to access and perform the specified work activity is permitted without written permission of the owner.”

Construction Limit Line Remove this definition in its entirety.

Holidays Amend this paragraph by adding “**Juneteenth**” between ‘Memorial Day’ and ‘Independence Day’.

Plans Revise this paragraph by removing “**Standard Details, Supplemental Standard Details**” from the first sentence.

Project Limits Revise this definition by removing it in its entirety and replacing it with:
“Areas within the Right-of-Way, Construction Easements, or Temporary Construction Limits shown on the Plans or otherwise indicated in the Contract. If no Project Limits are indicated in the Contract, the Project Limits shall be determined by the Department. For a related Maine statute, see 23 MRSA § 653. “

Right-Of-Way Revise this definition by removing it in its entirety and replacing it with:
“The area of land, property, or interest therein, acquired for or devoted to the Project or other purposes. Portions of the Right-of-Way may be used for storage of materials and equipment and the location of engineering facilities, subject to written approval by the Department.”

Amend this Section by adding the following two definitions (that replace Construction Limit Line);

Temporary Construction Limits The area within which the Contractor may access and perform the Physical Work and outside of which Work may not be performed without written authorization by the property owner.

Temporary Road Limits The area within which the Contractor may construct and maintain a temporary detour for maintenance of traffic.

SECTION 102 BIDDING

102.11 Bid Responsiveness Revise the paragraph that states
“The Bid is not signed by a duly authorized representative of the Bidder.” So that it reads:

“The Bid is not signed by a duly authorized representative of the Bidder.

- Properly submitted electronic bids meet this requirement.
- Paper bids must include at least one signed copy of the Contract Agreement Offer & Award form.”

SECTION 103 AWARD AND CONTRACTING

103.3.1 Qualification Requirement for Award Revise this subsection so that it reads:

“**103.3.1 Qualification Requirement for Award** If the Notice to Contractors lists a Prequalification requirement, the Apparent Successful Bidder must successfully complete the Prequalification process as a condition of Award. The Apparent Successful Bidder who does not already hold an Annual Prequalification shall have 21 days to provide the Department with their Prequal documents or the Department may move on to the next low bidder.”

SECTION 104 GENERAL RIGHTS AND RESPONSIBILITIES

104.2.1 Furnishing of Right-of-Way Revise this subsection by removing it in its entirety and replace with the new subsection:

“**104.2.1 Furnishing of Property Rights** The Department will secure all necessary rights to real property within the Project Limits shown on the Right-of-Way Plans that are provided with the Bid Documents. For related provisions, see Sections 104.3.2 – Furnishing of Other Property Rights, Licenses and Permits and 105.4.5 - Maintenance of Existing Structures. For related definitions, see Construction Easements and Right-of-Way.”

104.3.2 Furnishing of Other Property Rights, Licenses and Permits Revise this subsection by replacing “104.2.1 Furnishing of Right-of-Way” with “**104.2.1 Furnishing of Property Rights**”.

SECTION 105 GENERAL SCOPE OF WORK

Amend this Section by adding this new sub-section:

105.8.8 Protected Species If the Contractor witnesses a bat (dead or alive), any activities that may injure any live bats must cease immediately and the Contractor shall contact the

Resident. Dead and/or injured bats will be collected by the Department. Work in the vicinity of the live/dead bat sighting will not resume until the Department confirms it is acceptable to do so.

If the Contractor observes an active bird nest within the project limits, any activities that may disturb the nest or injure birds (i.e., nesting adults, chicks, eggs) must cease immediately, and the Contractor shall contact the Resident.

Amend this Section by adding this new sub-section to cover incidents in the field:

105.6.5 Survey Control Markers If a survey control marker will be disturbed by Work on a project, the Resident shall be informed a minimum of 2 weeks prior to performing any Work that may disturb the marker. If a survey control marker is accidentally disturbed by Work on a project, the Resident shall be informed immediately. A disturbed marker will remain the property of the Department.

105.10.1.4 Race-conscious Project Goals Revise the second paragraph of this section so it reads as follows:

“At the time of the bid opening, all Bidders shall submit with their bid a Disadvantaged Business Enterprise (DBE) Commitment Form provided by the Department. This form will list the DBE and non-DBE firms that are proposed to be used during the execution of the Work. This form must be filled out in its entirety. The dollar total of each commitment shall be totaled and a percentage determined.”

105.10.2 Requirements Applicable to All Contracts Under section A, number 2, in the first sentence of the first paragraph, revise this Section by replacing the word “handicap” in two places with the word “disability” so it now reads:

“2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, State that all qualified applicants will receive consideration for employment without regard to race, color, sexual orientation, religious creed, sex, national origin, ancestry, age, physical disability, or mental disability.”

105.10.1.6 Bidders’ List Survey This section shall be revised to meet the May 9, 2024 CFR changes as follows:

Revise the title of this Section to “Bidders’ List**” by removing the word “**Survey**”.**

Revise the current information required to:

- (i) Firm name;**
- (ii) Firm address including ZIP code;**
- (iii) Firm's status as a DBE or non-DBE;**
- (iv) Race and gender information for the firm's majority owner;**
- (v) NAICS code applicable to each scope of work the firm sought to perform in its bid;**
- (vi) Age of the firm; and**

(vii) The annual gross receipts of the firm. You may obtain this information by asking each firm to indicate into what gross receipts bracket they fit (*e.g.*, less than \$1 million; \$1-3 million; \$3-6 million; \$6-10 million; etc.) rather than requesting an exact figure from the firm.

Revise this section by removing the paragraph beginning with “This information...” and replacing it with the following:

“This data is required from all bidders for federally assisted contracts to be submitted with their bids as this information is critical in determining the availability of DBE Businesses relative to other businesses that do similar work.”

SECTION 106 QUALITY

106.6 Acceptance Revise this Subsection by replacing the paragraph beginning with “Acceptance of Hot Mix Asphalt Pavement will be based” with:

“Acceptance of Hot Mix Asphalt Pavement will be based on Method A or C Statistical Acceptance, or Method B or D Acceptance as specified. The method of acceptance for each item is defined in Special Provision, Section 403, Hot Mix Asphalt Pavement. When items of Hot Mix Asphalt Pavement are not so designated, Method A will be utilized whenever there are more than 1000 tons per Hot Mix Asphalt Pavement item, and Method B will be utilized when there are less than or equal to 1000 tons per Hot Mix Asphalt Pavement item.”

Revise Subsection “B” by removing it and replacing it with:

“B. Items not designated for Statistical Acceptance will utilize Method B or D Acceptance testing to validate the quality of the material incorporated into the Project. For material paid under Item 403.209 – Method D, or designated to be visually accepted, the Contractor shall provide the Department with a Certification Letter that indicates that the material supplied complies with the Specifications. Test results representative of the certified material shall be attached to the letter.

The Department will randomly sample and test the certified Material for properties noted in Table 1 of Section 502 - Structural Concrete or Table 14 of Section –401.21 Acceptance Method B & D. Material will be subject to rejection as noted in Structural Concrete Section 502.195 - Quality Assurance Method C Concrete or Hot Mix Asphalt, Section 401.2022 Pay Adjustment – Method B & D.”

106.7.1 Standard Deviation Method Revise 106.7.1, subsection H by removing the following from the first paragraph:

“Method B: $PF = [70 + (Quality\ Level * 0.33)] * 0.01$ ”

106.9.1 Warranty by Contractor Revise the third paragraph of this section so that it reads:

“For a related provision regarding obligations regarding plantings, see section 621.36 – Maintenance Period. “

SECTION 107
TIME

107.3.1 General Amend this paragraph by adding “**Juneteenth**” between ‘Patriot’s Day’ and ‘the Friday after Thanksgiving’.

SECTION 108
PAYMENT

108.2.3 Mobilization Payments Replace Standard Specification 108.2.3 – Mobilization Payments with the following:

“108.2.3 Mobilization Payments “Mobilization” includes the mobilization and demobilization of all resources as many times as necessary during the Work.

Percent Mobilization Bid will be determined by taking the amount Bid for Mobilization and dividing by the Total Contract Amount less Mobilization. Mob/(Total Contract – Mob).

Payment will be made at the following intervals:

% Mobilization Bid	% Mobilization Paid at Contract Award	% Mobilization Paid after the Department determines 50% of the work is Complete	% Mobilization Paid at Final Acceptance
10% or less	50%	50%	
More than 10% to 15%	33%	33%	34%
More than 15% to 20%	25%	25%	50%
More than 20% to 30%	15%	15%	70%
Greater than 30%	10%	10%	80%

108.3 Retainage Revise the third paragraph of this section so that it reads:

“Upon Final Acceptance, and determination by the department that there are no claims either by or on the Contractor or Subcontractors; no over payments by the department; no LDs due; and no disincentives due, the Department will reduce Retent to 1% of the original Contract Award amount, or \$100,000, whichever is less, as it deems desirable and prudent.”

108.4.1 Price Adjustment for Hot Mix Asphalt Revise this section by removing it in its entirety and replacing it with the following:

“108.4.1 Price Adjustment for Hot Mix Asphalt: For each Contract, a price adjustment for performance graded binder will be made for the following pay items, when the total quantity of Hot Mix Asphalt included in these items is in excess of 500 tons, based on the estimated quantities of these items at the time of bid.

Item 403.102	Hot Mix Asphalt – Special Areas
Item 403.207	Hot Mix Asphalt - 19 mm
Item 403.2071	Hot Mix Asphalt - 19 mm (Polymer Modified)
Item 403.2072	Hot Mix Asphalt - 19 mm (Asphalt Rich Base)
Item 403.208	Hot Mix Asphalt - 12.5 mm
Item 403.2081	Hot Mix Asphalt - 12.5 mm (Polymer Modified)
Item 403.2084	Hot Mix Asphalt - 12.5 mm (Highly Modified HiMAP)
Item 403.209	Hot Mix Asphalt - 9.5 mm (sidewalks, drives, & incidentals)
Item 403.210	Hot Mix Asphalt - 9.5 mm
Item 403.2101	Hot Mix Asphalt - 9.5 mm (Polymer Modified)
Item 403.2104	Hot Mix Asphalt - 9.5 mm (Thin Lift Surface Treatment)
Item 403.21041	Hot Mix Asphalt - 9.5 mm (Polymer Modified Thin Lift Surface Treatment)
Item 403.211	Hot Mix Asphalt – Shim
Item 403.2111	Hot Mix Asphalt – Shim (Polymer Modified)
Item 403.212	Hot Mix Asphalt - 4.75 mm (Shim)
Item 403.213	Hot Mix Asphalt - 12.5 mm (base and intermediate course)
Item 403.2131	Hot Mix Asphalt - 12.5 mm (base and intermediate course Polymer Modified)
Item 403.2132	Hot Mix Asphalt - 12.5 mm (Asphalt Rich Base and intermediate course)
Item 403.301	Hot Mix Asphalt (Asphalt Rubber Gap-Graded)
Item 461.13	Light Capital Pavement
Item 461.210	9.5 mm HMA - Paver Placed Surface
Item 461.2101	Hot Mix Asphalt - 9.5 mm (Polymer Modified)
Item 461.216	Hot Mix Asphalt (Shim)
Item 462.30	Ultra-Thin Bonded Wearing Course
Item 462.301	Polymer Modified Ultra-Thin Bonded Wearing Course

Price adjustments will be based on the variance in costs for the performance graded binder component of hot mix asphalt. They will be determined as follows:

The quantity of hot mix asphalt for each pay item will be multiplied by the performance graded binder percentages given in the table below times the difference in price between the base price and the period price of asphalt cement. Adjustments will be made upward or downward, as prices increase or decrease.

Item 403.102–6.2%
Item 403.207–5.2%
Item 403.2071–5.2%
Item 403.2072–5.8%
Item 403.208–5.6%
Item 403.2081–5.6%
Item 403.2084 – 6.2%
Item 403.209–6.2%
Item 403.210–6.2%
Item 403.2101–6.2%
Item 403.2104–6.2%
Item 403.21041–6.2%
Item 403.211–6.2%
Item 403.2111–6.2%
Item 403.212–6.8%
Item 403.213–5.6%
Item 403.2131–5.6%
Item 403.2132–6.2%
Item 403.301–6.2%
Item 461.13–6.7%
Item 461.210 – 6.4%
Item 461.2101 – 6.4%
Item 461.216 – 6.7%
Item 462.30–0.0021 tons/SY
Item 462.301–0.0021 tons/SY”

SECTION 110 INDEMNIFICATION, BONDING, AND INSURANCE

110.3.2 Commercial General Liability Revise the last sentence in this Section that starts with “The coverage shall also...” and add a sentence to the end so that it reads:

“The coverage shall also include protection against damage claims due to explosives, collapse, and underground coverage. No endorsement excluding damage caused by subsidence, earth movement, and/or earth pressure shall be permitted.”

110.3.9 Administrative & General Provisions Amend this subsection by adding “**Automobile Liability**” under letter A) Additional Insured to the list of exceptions.

10. Assurance Required by 49 CFR: 26.13(a)(b) Revise this section by removing it in its entirety and replacing it with the following:

“a. MaineDOT shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT-assisted contract or in the administration of its DBE Program or the requirements of 49 CFR part 26. MaineDOT shall take all necessary and reasonable steps under 49 CFR part 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts. MaineDOT’s DBE Program, as required by 49 CFR part 26 and as approved by DOT, is incorporated by reference in this agreement. The implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the MaineDOT of its failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the MaineDOT of its failure to carry out its approved program, the Department may impose sanctions as provided for under 49 CFR Part 26, and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Remedies Act of 1986 (31 U.S.C. 3801 et seq.). This language will appear in financial assistance agreements with sub-recipients.

b. The contractor, sub-recipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, including, but not limited to:

- 1. Withholding monthly progress payments;**
- 2. Assessing sanctions;**
- 3. Liquidated damages; and/or**
- 4. Disqualifying the contractor from future bidding as non-responsible.”**

SECTION 206 STRUCTURAL EXCAVATION

206.01 Description – *Structural Earth Excavation, Below Grade* delete the entire sentence and replace with **“shall consist of the removal of excavation required for unknown or unanticipated subsurface condition. See 206.04 – Method of Measurement for pay limits.”**

206.04 Method of Measurement – Drainage and Minor Structures Paragraph 1, sentence 2, delete the remainder of the sentence beginning with “...provided the maximum allowable...” And replace with: **“...in accordance with the following limits:”**

- Vertical pay limits:**

- Below a plane parallel with and 12 inches below the bottom of the drainage or minor structure or
 - Below the excavation limits shown in the Bid Documents; whichever is greater.
- **Horizontal pay limits** – The maximum allowable horizontal dimensions shall not exceed those bounded by vertical surfaces 18 inches outside the base, or extreme limits of, the structure, and to the vertical neat lines of underdrain trenches, as shown in the Contract Documents.

SECTION 401 HOT MIX ASPHALT PAVEMENT

401.19 Contractor Quality Control Amend this Section by adding the following to the end:
“Failure to comply with the approved QCP will result in work suspension and pay reductions as outlined in Section 106.4.6. The Quality Control Plan Value shall be the total bid value for all items covered by the QCP as identified in Special Provision 403.”

SECTION 501 FOUNDATION PILES

501.044 Special Requirements for Steel Pipe Piles and Steel Casings Amend this section by deleting it in its entirety and replacing with:

Pipe piles shall be driven closed ended, unless otherwise specified. When open-ended pipe piles are specified or when the ends are not completely closed ended when driven, the inside of the pile shall be thoroughly cleaned out, and the inside walls cleaned by jetting or other means approved by the Resident. The sediment control required for the cleaning operations shall be covered in the Contractor’s SEWPCP.

Pipe piles shall be inspected and approved by the Resident immediately before concrete is placed in them. They shall be free from rupture and undue deformation and shall be free from water unless the Resident determines that the concrete can be placed without damage to the pile and such that the discharged water will be contained. The Contractor shall provide lights and other equipment necessary to enable the Resident to inspect each pipe pile.

Portland cement concrete for filling the pipe piles shall be placed in one continuous operation to fill the pile completely without causing water contamination. An internal type vibrator shall be used in the top 25 feet. Pile heads shall be protected and cured in accordance with Section 502, Structural Concrete.

The placing of concrete and the driving of piles shall be scheduled so that fresh and setting concrete will not be injured by the pile driving.

Concrete shall not be placed in pipe piles until pile driving has progressed beyond a radius of 15 feet from the pile to be concreted. If pile heave is detected for pipe piles that have been filled with concrete, the piles shall be redriven to the original position after the concrete has attained sufficient strength and a proper hammer-pile cushion system, is in place and is satisfactory to the Resident.

When a reinforcing steel cage is specified, it shall be placed inside the piles to allow for a minimum of 2 inches of concrete cover and the piles shall be filled with concrete to the elevation shown on the Plans.

Full-length pipe piles and steel casings shall be used wherever practicable; however, splicing may be permitted when approved by the Resident. The method of splicing shall be as follows:

- a. Steel pipe piles and steel casings shall be spliced by full penetration butt joint welds.
- b. When the pipe piles and steel casings are to be spliced while in a vertical position, splicing shall be accomplished utilizing single-bevel groove welds with the use of back-up rings. When the pipe piles and steel casings are to be spliced while in a horizontal position, splicing shall be accomplished utilizing single-vee groove welds with the use of back-up rings.
- c. Welded joints shall conform to the Standard Details.

501.047 Splicing Piles Amend this section by deleting it in its entirety and replacing it with:

Full-length piles shall always be used wherever practicable. When full-length piles cannot be used, the number of splices, locations, and details shall be noted in the QCP. Piles fabricated from multiple pieces will be acceptable only if they comply with the following:

H-Beam Piles ^a		Pipe Piles and Steel Casings ^{a,b}	
Lengths	Maximum No. Field Splices	Lengths	Maximum No. Field Splices
Less than 20 ft.	0	Less than 20 ft.	0
Over 20 – 35 ft.	1	Over 20 – 40 ft.	1
Over 35 – 79 ft.	2	Over 40 – 60 ft.	2
Over 79 ft.	1 per 40 ft.	Over 60 – 80 ft.	3
		Over 80 ft.	1 per 20 ft.
^a Pile lengths less than 10 feet will not be spliced, except as the final (top) section of the pile. ^b Where pipe piles are used for pile bent piers, no splices will be allowed in the length of pile from the cutoff elevation to 2 feet below the channel bottom.			

When pre-planned splicing is approved, the pile piece of lesser length shall be placed at the tip of the pile (the first part of the pile that enters the ground).

When splicing is allowed, the work shall be done in accordance with the following:

- A. Welding shall be done in accordance with the requirements of the AWS D1.1 welding code.
- B. Qualify welders in accordance with the most recent edition of the AWS D1.5 code.
- C. Submit a written Weld Procedure Specification (WPS) for each joint to be included as part of the QCP. The WPSs shall be provided to the Fabrication Engineer for review and approval prior to beginning welding. Provide copies of the approved WPSs to the welder, QC Inspector and Resident prior to beginning welding. Welding performed without an approved WPS and approved QCP will be considered Unacceptable Work.
- D. Provide a list of qualified welders with copies of their AWS certifications to the Fabrication Engineer for review prior to beginning welding. Welders shall have in their possession, at the time of welding, a valid certification for the process and position to be used in production from the AWS. The welder shall show the Resident their credentials upon request.
- E. The Contractor shall only use electrodes that are on the Department's Qualified Products List for Welding Electrodes or shall submit alternative electrodes for review and approval by the Fabrication Engineer. Electrodes used shall match those approved for use in the WPS.
- F. Welding shall not be done: When the temperature in the immediate vicinity of the weld is below 0°F; when the surfaces are damp or exposed to rain, snow, or high wind; or when the welders or welding operators are exposed to inclement conditions.
- G. The pile shall be preheated to and maintained at 150°F minimum, within 6 inches from the joint during welding.
- H. Power sources for welders shall have meters indicating amperage/voltage that have been calibrated within 1 year at the time of welding.
- I. The Contractor shall provide the Department with notice, a minimum of, 7 Days prior to the start of any welding.
- J. The Contractor shall provide a QC Inspector to perform QC for the welds in accordance with the AWS D1.1 welding code. The QC Inspector shall be an AWS Certified Welding Inspector (CWI) in conformance with the requirements of AWS QC1, Standard for AWS Certifications of Welding Inspectors. The Contractor may submit, in lieu of a CWI, an alternative QC Inspector with documented training and experience in metals fabrication, inspection, and testing for approval by the Fabrication Engineer. The QC Inspector shall be someone other than the welder performing the welds to be inspected.
- K. The QC Inspector shall inspect all production stages of the welded splice to ensure that workmanship and materials meet the requirements of the AWS D1.1 welding code and the Contract. The QC Inspector shall submit a signed record of all weld inspection documentation to the Resident after welding is completed.

Record of weld inspection shall include, but not be limited to, the following:

- 1. Name of QC Inspector
- 2. Project WIN and Location
- 3. Date
- 4. Weather conditions
- 5. Type, size, length, and location of welds.

6. Confirmation of appropriate equipment and materials used, including proper handling of welding electrodes.
7. Confirmation that welder has approved WPS onsite, and welding is performed in accordance with approved WPS.
8. Confirmation that welder is qualified to perform work per approved WPS. Include name and certifications of qualified welder who performed the work.
9. Confirm that 100% visual testing, in accordance with AWS D1.1 Table 8.1, has been conducted and any subsequent repairs are made prior to non-destructive testing (NDT).
10. Document NDT testing including name of NDT technician, NDT personnel qualifications, type and extent of NDT testing performed, and include NDT testing reports provided by the NDT testing technician.

L. Piles shall not be driven until all pile welding has been inspected and accepted by the Department.

501.0471 Specific Requirements for Splicing H-Beam Piles

- A. Damaged material shall be removed from the end of the driven pile. Lifting holes shall be repaired or trimmed off. The ends of both pieces to be spliced shall be cut off square with the longitudinal axis of the pile and beveled per the approved WPS. All cutting shall be done with the use of a mechanical guide, except that minor trimming may be allowed, as approved by the Resident.
- B. The Contractor shall use an approved mechanical splicer or a full penetration butt weld for the entire cross section of the pile. Mechanical splicers shall be installed per the manufacturer's recommendations, except that the flanges shall be welded using a complete joint penetration weld, per the AWS D1.1 welding code.
- C. In addition to the 100% visual testing (VT) performed by the QC Inspector, the Contractor shall perform NDT on the first two welded splices of the same type/size. The welds shall be radiographically (RT) or ultrasonically (UT) tested for their full length for acceptance per Table 8.2 of AWS D1.1. If both RT/UT-tested splices are determined to be acceptable, no further NDT will be required. If either of the first two RT/UT-tested splices contain defects warranting rejection, RT/UT testing of splices shall continue until two consecutive splices are found to be acceptable.
- D. Should the Department determine that the Quality Control of the Contractor is not producing welds with acceptable quality, then the Department may request the Contractor to perform additional NDT, such as RT or UT of any or all welds. Should the NDT testing identify defects warranting rejection, the welds shall be repaired and retested. The Contractor shall perform the NDT and weld repair work at no additional cost to the Department. If the NDT does not identify defects warranting rejection, then the Department will pay for the cost of the NDT testing. RT and UT defect indications will be evaluated according to the statically loaded criteria of AWS D1.1.

501.0472 Specific Requirements for Splicing Steel Pipe Piles and Steel Casings

- A. Damaged material shall be removed from the end of the driven pile. Lifting holes shall be trimmed off. The ends of both pieces to be spliced shall be cut off square with the

longitudinal axis of the pile and beveled per the approved WPS. All cutting shall be done with the use of a mechanical guide, except that minor trimming may be allowed, as approved by the Resident.

B. Splices shall be welded using an AWS D1.1 Complete Joint Penetration butt weld with a backer ring.

C. In addition to the 100% VT performed by the QC Inspector, the Contractor shall perform NDT on the first two welded splices of the same type/size. The welds shall be RT or UT tested for their full length for acceptance per Table 8.2 of AWS D1.1. If both RT/UT-tested splices are determined to be acceptable, no further NDT will be required. If either of the first two RT/UT-tested splices contain defects warranting rejection, RT/UT testing of splices shall continue until two consecutive splices are found to be acceptable.

D. Should the Department determine that the Quality Control of the Contractor is not producing welds with acceptable quality, then the Department may request the Contractor to perform additional NDT, such as RT or UT of any or all welds. Should the NDT testing identify defects warranting rejection, the welds shall be repaired and retested. The Contractor shall perform the NDT and weld repair work at no additional cost to the Department. If the NDT does not identify defects warranting rejection, then the Department will pay for the cost of the NDT testing. RT and UT defect indications will be evaluated according to the statically loaded criteria of AWS D1.1.

501.048 Prefabricated Pile Tips Amend this section by deleting it in its entirety and replacing it with:

Welding of pile tips shall be done in accordance with the following:

A. Welding shall be done in accordance with the requirements of the AWS D1.1 welding code.

B. Qualify welders in accordance with the most recent edition of the AWS D1.5 code.

C. Submit a written WPS for each tip to be included as part of the QCP. The WPSs shall be provided to the Fabrication Engineer for review and approval prior to beginning welding. Provide copies of the approved the WPS to the welder and Resident prior to beginning welding. Welding performed without an approved WPS and approved QCP will be considered Unacceptable Work.

D. Provide a list of qualified welders with copies of their AWS certifications to the Fabrication Engineer for review prior to beginning welding. Welders shall have in their possession, at the time of welding, a valid certification for the process and position to be used in production from the AWS or other organization acceptable to the Resident. The welder shall show the Resident their credentials upon request.

E. The Contractor shall only use electrodes that are on the Department's Qualified Products List for Welding Electrodes or shall submit alternative electrodes for review and approval by the Fabrication Engineer. Electrodes used shall match those approved for use in the WPS.

F. Pile tips shall be approved by the Resident.

G. Welding shall not be done: When the temperature in the immediate vicinity of the weld is below 0°F; when the surfaces are damp or exposed to rain, snow, or high wind; or when the welders or welding operators are exposed to inclement conditions.

H. The pile shall be preheated to and maintained at 150°F minimum within 6 inches from the joint during welding.

I. Power sources for welders shall have meters indicating amperage/voltage that have been calibrated within 1 year at the time of welding.

J. Pile tips may be welded to the piles by the pile supplier upon approval by the Department. Approval is contingent upon submission of the following: A welding QC Plan; proof that the proposed welder(s) is certified per AWS D1.5; and an AWS D1.1 WPS, with base metal preheated to a minimum of 150°F. The Contractor shall provide notice a minimum of 14 Days prior to the start of any welding by the pile supplier. At a minimum, welds shall be 100% visually inspected by the pile supplier's QC representative.

K. The Contractor shall provide a QC Inspector to perform QC for the welds in accordance with the AWS D1.1 welding code. The QC Inspector shall be an CWI in conformance with the requirements of AWS QC1, Standard for AWS Certifications of Welding Inspectors. The Contractor may submit, in lieu of a CWI, an alternative QC Inspector with documented training and experience in metals fabrication, inspection, and testing for approval by the Fabrication Engineer. The QC Inspector shall be someone other than the welder performing the welds to be inspected.

L. The QC Inspector shall inspect all production stages of the welded splice to ensure that workmanship and materials meet the requirements of the AWS D1.1 welding code and the Contract. The QC Inspector shall submit a signed record of all weld inspection documentation to the Resident after welding is completed.

M.

Record of weld inspection shall include, but not be limited to, the following:

- 1. Name of QC Inspector**
- 2. Project WIN and Location**
- 3. Date**
- 4. Weather conditions**
- 5. Type, size, length, and location of welds.**
- 6. Confirmation of appropriate equipment and materials used, including proper handling of welding electrodes.**
- 7. Confirmation that welder has approved WPS onsite, and welding is performed in accordance with approved WPS.**
- 8. Confirmation that welder is qualified to perform work per approved WPS. Include name and certifications of qualified welder who performed the work.**
- 9. Confirm that 100% VT, in accordance with AWS D1.1 Table 8.1, has been conducted and any subsequent repairs are made prior to NDT.**
- 10. Document NDT testing including name of NDT technician, NDT personnel qualifications, type and extent of NDT testing performed, and include NDT testing reports provided by the NDT testing technician.**

N. The Contractor shall provide notice a minimum of 7 Days prior to the start of any field welding.

- O. Piles shall not be driven until all pile welding has been inspected and accepted by the Department.

501.0481 Specific Requirements for Installing H-Beam Pile Tips

- A. Damaged material shall be removed from the end of the driven pile, as applicable. Lifting holes shall be trimmed off. The end of the pile to which the tip is to be attached shall be cut off square with the longitudinal axis of the pile and prepared per the approved WPS. All cutting shall be done with the use of a mechanical guide, except that minor trimming may be allowed, as approved by the Resident.
- B. Regarding weld size, prefabricated pile tips shall be attached to H-beam piles with 5/16-inch groove welds along each flange, or as recommended by the manufacturer of the pile tips, whichever weld size is larger.
- C. The QC Inspector shall, at a minimum, perform 100% VT on each pile tip weld.
- D. Should the Department determine that the Quality Control of the Contractor is not producing welds with acceptable quality, then the Department may request the Contractor to perform additional NDT, such as RT or UT of any or all welds. Should the NDT testing identify defects warranting rejection, the welds shall be repaired and retested. The Contractor shall perform the NDT and weld repair work at no additional cost to the Department. If the NDT does not identify defects warranting rejection, then the Department will pay for the cost of the NDT testing. RT and UT defect indications will be evaluated according to the statically loaded criteria of AWS D1.1.

501.0482 Specific Requirements for Installing Steel Pipe Pile Tips

- A. Damaged material shall be removed from the end of the driven pile, as applicable. Lifting holes shall be trimmed off. The end of the pile to which the tip is to be attached shall be cut off square with the longitudinal axis of the pile and prepared per the approved WPS. All cutting shall be done with the use of a mechanical guide, except that minor trimming may be allowed, as approved by the Resident.
- B. Unless otherwise shown on the Plans, steel pipe piles shall have pointed cast steel pile tips.
- C. Regarding weld size, prefabricated pile tips shall be attached to steel pipe piles with a continuous 5/16-inch groove weld along the full perimeter of the pile, or as recommended by the manufacturer of the pile tips, whichever weld size is larger.
- D. The QC Inspector shall, at a minimum, perform 100% VT on each pile tip weld.
- E. Should the Department determine that the Quality Control of the Contractor is not producing welds with acceptable quality, then the Department may request the Contractor to perform additional NDT, such as RT or UT of any or all welds. Should the NDT testing identify defects warranting rejection, the welds shall be repaired and retested. The Contractor shall perform the NDT and weld repair work at no additional cost to the Department. If the NDT does not identify defects warranting rejection, then the Department will pay for the cost of the NDT testing. RT and UT defect indications will be evaluated according to the statically loaded criteria of AWS D1.1.

501.05 Method of Measurement

c. Piles in Place Revise the third paragraph by replacing the “10” with “20” so that it reads:

Unused pile cutoffs **20** feet or more in length, except those required to accommodate the Contractor’s construction method, as discussed herein, will remain the property of the Department and will be stored at a bridge maintenance yard nearest the project. Hauling and unloading of piles will be done by the Contractor or by the Department, depending upon availability of services.

SECTION 502
STRUCTURAL CONCRETE

502.03 Materials Amend this section by adding the following to the list of materials:

Combined Aggregate Grading for Concrete 703.03

502.07 Mixing and Delivery Remove the last sentence in Paragraph A that starts with “With prior approval... and replace with the following:

“An approved hydration stabilizing admixture may be used to increase the discharge time. Justification for the need for a hydration stabilizing admixture shall be provided in the QC Plan. When a hydration stabilizing admixture is used, the manufacturer, dosage rate and discharge time, from the time cement is added to the aggregate, shall be documented in the approved QC Plan. The proposed discharge time(s) shall be based on the manufacturer’s written recommendations, the anticipated concrete temperatures and anticipated ambient conditions at the time of placement(s). Discharge time(s) shall be adjusted when conditions change or are not as anticipated as outlined in the approved QC Plan. The discharge time(s) approved by the Department shall be subject to change at any time, and discharge of concrete into the permanent work shall cease immediately if the concrete is determined to have attained Accelerated Hydration Gain. Accelerated Hydration Gain being the condition where the fresh concrete has hydrated to the point where the workability and finishability is detrimental to the quality of the final product. Determination of when concrete has attained Accelerated Hydration Gain shall be made by the Contractor’s Quality Control Technician(s) and shall be based on parameters proposed by the Contractor in the QC Plan, such as, but not limited to, loss of slump, plasticity, or workability, an increase in concrete temperature, or a change in the percentage of entrained air.”

502.09 Forms and Falsework Amend this subsection by adding the subsection title “**502.10 Placing Concrete**” after section “D” Removal of Forms and False work” and after the paragraph beginning with “2. Forms and False work, including blocking...”. So that a new subsection starts and reads:

“502.10 Placing Concrete

A. General Concrete shall not be placed until forms”

502.1701 Quality Control, Method A and B Revise this Section so that the first paragraph and the first sentence of the second paragraph read:

“502.17 Quality Control The Contractor shall control the quality of the concrete through testing, inspection, and practices which shall be described in the QCP, sufficient to assure a product meeting the Contract requirements. The QCP shall meet the requirements of Section 106, Quality, and this specification. No work under this item shall proceed until the QCP is submitted to and approved by the Department. Failure to comply with the approved QCP will result in work suspension and pay reductions as outlined in Section 106.4.6. The Quality Control Plan Value shall be the total bid value for all cast-in-place items covered by the QCP, using the P value listed in Special Provision 502. If no P value is listed, a value of \$350, or bid value per cubic yard, whichever is less, shall be used.

502.1701 Quality Control, Method A and B The QCP shall address all elements that affect the quality of the structural concrete including, but not limited to, the following: “

Under the list with the heading, “The QCP shall address all elements that affect the quality of the structural concrete including, but not limited to, the following.”:

Replace “F” to read: “**Mix and Transportation, including Time from Batching to Completion of Delivery, as well as manufacturer, product name, proposed dosage(s) and discharge time(s) if a hydration stabilizing admixture is used.**”

Replace “H” to read: “**Process QC Testing, including monitoring for attainment of Accelerated Hydration Gain when a hydration stabilizing admixture is used.**”

Revise this section by replacing the paragraph before Table 4 that starts out “The Contractor shall maintain...” to read:

“The Contractor shall maintain records of all QC tests and calculations. All QC test data shall be signed by the person who performed the test. The representative gradation test results shall be reported to the Department before the placement they represent. This initial representative gradation test shall be sampled a maximum of 30 days prior to the production day. The Contractor or supplier shall retain split samples of the most recent QC gradations for possible testing by the Department. In addition, the Department will sample the aggregates at the plant monthly to determine compliance with 703.03 Combined Aggregate Grading for Concrete. The Combined Aggregate Grading will be calculated by mathematically blending the individual aggregate gradations using the batch percentages from the approved mix design. If the Department’s gradation tests determine that the aggregate does not meet the specified gradation limits, the current procedure mentioned in MaineDOT PCC Policies and Procedures Manual shall be followed. The compressive strength test results shall be reported to the Department by 10:00 A.M. of the first working day following the test. The Contractor shall record all onsite QC test data and calculations at the time of the placement and present this information, on a form acceptable to the Department, to the Department by 10:00 A.M. of the first working day following the concrete placement. Batch tickets shall be representative of that day’s total moisture in aggregate value, QC test data for total moisture in aggregate shall be provided to the

Department by 10:00 A.M. of the first working day following the concrete placement. All Method A and B QC testing shall meet the minimum requirements found in Table 4.”

Section 502.1701, Quality Control, Revise Table 4 of this Subsection by removing it in its entirety and replacing it with:

**TABLE 4
METHOD A & B MINIMUM QUALITY CONTROL TESTING REQUIREMENTS***

TEST	TEST METHOD	SAMPLING LOCATION	FREQUENCY
Gradation	AASHTO T 27 & T 11	Stockpile	One representative set per proposed grading before production One set every 100 yd ³ (Min. 1 set per month)
Organic Impurities	AASHTO T 21	Stockpile	Once per fine aggregate per year**
% Absorption	AASHTO T 84 & T 85	Stockpile	Once per aggregate per year
Specific Gravity	AASHTO T 84 & T 85	Stockpile	Once per aggregate per year
Total Moisture in Aggregate	AASHTO T 255	Stockpile	One set per day's production
Free Water and Aggregate Wt.	N/A		One per day's production
% Entrained Air	AASHTO T 152	On Project	On first two loads and every third load thereafter provided consistent results are achieved
Compressive Strength	AASHTO T 22	On Project	One set per subplot
Compressive Strength	AASHTO T 22	On Project	One set per subplot

*Additional QC testing will be required any time a process change occurs during a placement, including changes in type or dosage of admixture. Additional testing shall include, but is not limited to, entrained air testing.

**If the color produced is a laboratory designation Plate III, then the fine aggregate shall be tested once per month

502.1702 Quality Control, Method C Remove this sub section and replace it with:

“The Contractor shall submit a QCP listing the mix design(s) to be used, the name and location of the production facility, a brief description of the placement and curing process and the name and qualifications of any QCT to be used. When a hydration stabilizing admixture is proposed for use, the manufacturer, product name, dosage rate and discharge time, from the time cement is added to the aggregate, shall be included, as well as procedures for monitoring attainment of Accelerated Hydration Gain. A QCT will be required. The Contractor shall provide a Certificate of Compliance for each truckload of concrete to the Department at the time of the load placement.”

502.18, Method of Measurement, Revise Subsection ‘F’ by removing the word ‘transverse’ so that it reads: **“Saw cut grooving of concrete wearing surfaces, complete and accepted, will be measured for payment as one lump sum.”**

502.19, Basis of Payment, Revise the third paragraph by removing the word ‘transverse’ so that it reads: **“Saw cut grooving of concrete wearing surfaces will be paid for at the Contract Lump Sum Price, which shall be payment for furnishing all materials, labor, and equipment, including depth gauges and all incidentals, to satisfactorily complete the work.”**
(Also see 535.24 and 535.25 for related changes)

SECTION 503 REINFORCING STEEL

Section 503.07 Splicing Revise this section by removing the table and following footnote and replacing them with:

Minimum Lap Splice Length (inches)									
Bar Type	Bar Size								
	#3	#4	#5	#6	#7	#8	#9	#10	#11
Plain or Galvanized	16	20	24	29	38	47	59	72	85
Epoxy or Dual Coated	17	24	36	43	56	71	88	107	128
Stainless	19	24	30	36	47	59	73	89	107
Low-carbon Chromium	24	32	39	47	63	78	97	119	142

“The minimum lap splice lengths in the table above are based on the parameters below. When any of these parameters are altered, appropriate minimum lap splice lengths will be as shown on the Plans.

- Normal weight concrete
- Minimum 28-day concrete compressive strength from 4,000 psi to 10,000 psi

- **Class B tension lap splice**
- **Minimum center-to-center spacing between bars of 6 inches**
- **Minimum clear cover of 2 inches**
- **Nominal reinforcing steel yield strengths**
 - **Low-carbon Chromium = 100 ksi**
 - **Stainless = 75 ksi**
 - **All others = 60 ksi**
- **Reinforcement with yield strengths greater than 75 ksi shall have beam transverse reinforcement and column ties provided over the required lap splice length in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications**

When lap splices are placed horizontally in an element where the concrete depth below the splice will be 12 inches, or more, the indicated lap splice lengths shall be multiplied by a factor of 1.3.”

Amend the Paragraph starting with Welded Splices may be made...” by adding to the last sentence beginning so that it reads **“The Contractor shall submit complete details of their proposed method of making welded splices for the Resident's approval at least 10 days prior to use.”**

504.12 Protective Coatings Revise this subsection by removing the paragraph beginning with “When galvanizing is specified” and replacing it with:

“When galvanizing is specified, clean the steel in accordance with SSPC-SP 6 prior to galvanizing. Galvanize in accordance with AASHTO M 111 (ASTM A123). Galvanize fasteners in accordance with AASHTO M 232 (ASTM A153), ASTM F2329, or ASTM B695, Class 50, Type I. Galvanized nuts shall be lubricated with a water-soluble lubricant containing a dye that contrasts with the color of the galvanizing.”

SECTION 506

SHOP APPLIED PROTECTIVE COATING – STEEL

506.10 Description Revise this subsection by removing the entire paragraph in its entirety and replacing it with:

“This work shall consist of surface preparation and application of coating systems in accordance with the Plans and this Specification. The color of structural steel painted in its entirety shall comply with SAE AMS-STD-595 – Colors Used in Government Procurement Color No. 14272 (Green), unless otherwise specified in the Contract. The color of partially painted weathering steel shall comply with SAE AMS-STD-595 – Colors Used in Government Procurement Color No. 30045 (Brown), unless otherwise specified in the Contract. All other coating colors shall be as specified in the Contract.”

506.13 Surface Preparation Amend this section by adding this paragraph to the end:

“Steel shall meet the requirements of SSPC SP8 Pickling prior to being immersed in the zinc tanks. Verification of the surface preparation shall be included in the QC documentation.”

SECTION 518 STRUCTURAL CONCRETE REPAIR

518.02 Repair Materials Replace the paragraph beginning with “Where the depth of placement...” with the following:

“Where the depth of placement is equal to or greater than 1 inch, the Contractor may use concrete as the repair material. When concrete is used, the coarse aggregate shall conform to the requirements of the table below and Standard Specification Section 703.02, Coarse Aggregate for Concrete, or 703.03, Combined Aggregate Grading for Concrete.”

Remove the second table with the heading, “Sieve Designation Percent by Weight Passing a Square Mesh Sieve”

SECTION 523 BEARINGS

523.051 Protective Coating Revise this subsection by removing the paragraph beginning with “Anchor rods shall be galvanized...” and replacing with:

“Anchor rods shall be galvanized. When anchor rods are designated to secure bare unpainted steel or painted steel, a dielectric coating (epoxy or bituminous type coatings are acceptable) shall be applied to the anchor rod and/or adjacent steel to prevent contact between galvanized surfaces and painted or unpainted steel.”

523.22 Fabrication Amend this subsection by adding the following: **“Elastomeric Bearings shall be fabricated in accordance with AASHTO M251.”**

SECTION 526 CONCRETE BARRIER

Amend this section by deleting it in its entirety and replacing it with:

“526.01 Description This work shall consist of the furnishing, constructing, erecting, setting, resetting, and removal of concrete barrier and associated elements in accordance with these specifications, the Standard Details, and the lines and grades shown on the Plans or established by the Resident.

The types of concrete barrier are designated as follows:

Portable Concrete Barrier Type I Double faced removable barrier in accordance with the Standard Details.

Permanent Concrete Barrier Type II Double faced barrier as shown on the Plans.

Permanent Concrete Barrier Type IIIa Single faced barrier 32 inches high in accordance with the Standard Details or as shown on the Plans.

Permanent Concrete Barrier Type IIIb Single faced barrier 42 inches high in accordance with the Standard Details or as shown on the Plans.

Permanent Concrete Transition Barrier Barrier of various heights joining steel bridge rail to steel guardrail in accordance with the Standard Details or as shown on the Plans.

Permanent Texas Classic Rail Barrier Traffic rail or sidewalk rail, in accordance with the Standard Details or as shown on the Plans.

526.02 Materials

a. **Concrete** Concrete for barriers, both permanent and portable, shall have a design strength of 5,000 psi.

For cast-in-place barrier: The concrete shall be Class LP, in accordance with Standard Specification Section 502, Structural Concrete.

For precast barrier: The concrete shall meet the requirements of Standard Specification 712.061, Structural Precast Concrete Units, except that the stripping strength for precast barriers is 4,000 psi.

b. **Reinforcing Steel** Reinforcing steel shall meet the requirements of Section 503, Reinforcing Steel.

c. **Structural Steel** Plates and barrier connections shall meet the requirements specified in Standard Specification 504 - Structural Steel and shall be hot dip galvanized after fabrication in accordance with Standard Specification 506, Shop Applied Protective Coating – Steel

d. **Bolts** Bolts shall meet the requirements specified in Section 713.02, High Strength Bolts.

e. **Connecting Pins for Portable Concrete Barrier** Portable concrete barriers must be connected using a 1- inch diameter pin. The connecting pin must be smooth, not deformed, i.e., reinforcing bar may not be used, and shall meet the strength requirements of ASTM A449 steel. Materials with greater strength may be used with the approval of the Department.

f. Anchor Pins for Portable Concrete Barrier Anchoring to concrete or asphalt will be required when specified on the Plans. When required, portable concrete barriers must be anchored using a 1 ½ - inch diameter anchor pin. The anchor pin must be smooth, not deformed, i.e., reinforcing bar may not be used, and shall meet the strength requirements of ASTM A36 steel. Materials with greater strength may be used with the approval of the Department.

g. Device Crashworthiness MaineDOT is transitioning to MASH2016 criteria for Portable Concrete Barrier on the following schedule:

New Portable Concrete Barrier shall be crash tested and/or evaluated to MASH2016 criteria.

Current Portable Concrete Barrier in useful serviceable condition that is successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029.

Other current Portable Concrete Barrier that is deemed acceptable by the Department may be utilized on projects off the National Highway System through December 31, 2024.

526.03 Construction Requirements

Cast-in-place barriers shall be fabricated in accordance with Standard Specification Section 502, Structural Concrete. Precast barriers shall be fabricated in accordance with Standard Specification 534, Precast Structural Concrete.

Concrete finish for permanent barrier shall be rubbed as defined in Standard Specification Section 502, Structural Concrete, 502.13 D2 or an approved equal.

Portable concrete barrier shall be generally free from fins and porous areas and shall present a neat and uniform appearance.

Permanent barrier shall have a protective coating applied in accordance with Standard Specification Section 515, Protective Coating for Concrete Surfaces.

Reflective delineators for concrete median barrier shall meet the requirements of Special Provision 645, Highway Signing.

Preformed Joint Filler shall meet the requirements specified in Subsection 705.01, Preformed Expansion Joint Filler.

Permissible dimensional tolerances for all concrete barriers shall be as follows:

a. Cross-sectional dimensions shall not vary from design dimensions by more than ¼ inch. The vertical centerline shall not be out of plumb by more than ¼ inch.

b. Longitudinal dimensions shall not vary from the design dimensions by more than $\frac{1}{4}$ inch per 10 feet of barrier section and shall not exceed $\frac{3}{4}$ inches per section.

c. Location of anchoring holes shall not vary by more than $\frac{1}{2}$ inch from the dimensions shown in the concrete barrier details on the Plans.

d. Surface straightness shall not vary more than $\frac{1}{4}$ inch under a 10-foot straightedge.

e. The barrier shall have no significant cracking. Significant cracking is defined as fractures or cracks passing through the section, or any continuous crack extending for a length of 12 inches or more, regardless of position in the section.

526.04 Method of Measurement Permanent Concrete Barrier Type II, IIIa, IIIb, Texas Classic Rail, and Precast Median Barrier will be measured for payment by lump sum, complete in place.

Portable concrete barrier, both anchored and unanchored will be measured for payment by lump sum. Lump sum measurement will include verification of the installation and removal of all portable concrete at the completion of the Contractor's operations.

The Contractor shall replace sections of portable concrete barrier, including anchored barrier damaged by the traveling public when directed by the Resident. Replacement sections will be measured for payment in accordance with Standard Specification 109.7, Equitable Adjustments to Compensation and Time.

Transition barrier will be measured by each, complete in place.

526.05 Basis of Payment The accepted quantities of Concrete Barrier Type II, IIIa, IIIb, Texas Classic Rail, and Precast Median Barrier will be paid for at the Contract lump sum price for the type specified, complete in place.

The accepted quantities of Portable Concrete Barrier Type I, both anchored and unanchored will be paid for at the Contract lump sum price. Such payment shall be full compensation for furnishing all materials, assembling, moving, resetting, transporting, temporarily storing, removing barrier, furnishing new parts as necessary, and all incidentals necessary to complete the work.

Portable barrier shall become the property of the Contractor upon completion of the use of the barrier on the project and shall be removed from the project site by the Contractor.

Transition barrier will be paid for at the Contract price each, complete in place.

The accepted quantity of all types of concrete barrier, whether portable or permanent, will be paid for at the lump sum or per each price, as applicable, which payment shall be full compensation for all materials, including reinforcing steel, protective coating, reflective

delineators, steel plates and hardware, equipment, labor and incidentals required, as necessary, to complete the work.

Payment will be made under:

	<u>Pay Item</u>	<u>Pay Unit</u>
526.301	Portable Concrete Barrier, Type I	Lump Sum
526.304	Portable Concrete Barrier, Anchored Type I	Lump Sum
526.312	Permanent Concrete Barrier Type II	Lump Sum
526.321	Permanent Concrete Barrier Type IIIa	Lump Sum
526.323	Texas Classic Rail	Lump Sum
526.331	Permanent Concrete Barrier Type IIIb	Lump Sum
526.34	Permanent Concrete Transition Barrier	Each
526.502	Precast Concrete Median Barrier	Lump Sum”

SECTION 527 ENERGY ABSORBING UNIT

527.02 Materials Amend this section by deleting it in its entirety and replacing it with:

“MaineDOT is transitioning to MASH2016 criteria for Work Zone Traffic Control Devices on the following schedule:

Portable Crash Cushions will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 3 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029.

Work Zone Crash Cushions shall be selected from the Department’s Qualified Products List of Crash Cushions/Impact Attenuators or approved equal.”

SECTION 535 PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE

535.02 Materials Replace the description of “Coarse Aggregate for Concrete (Class A, AA, or Latex) in its entirety with: **“Coarse Aggregate for Concrete (Class A, AA, or SP-1-7)”**

535.22 Tolerances Amend this section by deleting it in its entirety and replacing it with: **“Product dimensional tolerances shall be in conformance with the latest edition of PCI MNL-135, Tolerance Manual for Precast and Prestressed Concrete Construction, as applicable to the particular product (e.g., slab, I-girder, box beam), the Plans, and this Specification. Use Box**

Beam fabrication tolerances for voided or solid slab beams and use Double Tee tolerances for NEXT beams. In case of dispute, the Fabrication Engineer shall determine the allowable tolerance.”

535.24 Installation of Slabs, Beams, and Girders Revise the 5th paragraph by replacing “6.0 and 9.0” to “5.0 and 8.0” so it reads: **“Ready mixed grout shall achieve a design compressive strength of 6,000 psi at 28 days, have an entrained air content of between 5.0 and 8.0 percent, be non-shrink, flowable, and contain a non-shrink additive listed on the Department QPL for expansive cements.”**

535.25, Installation of Precast/Prestressed Deck Panels Revise the 2nd paragraph by replacing “6.0 and 9.0” to “5.0 and 8.0” so it reads: **“Ready mixed grout shall achieve a design compressive strength of 6,000 psi at 28 days, have an entrained air content of between 5.0 and 8.0 percent, be non-shrink, flowable, and contain a non-shrink additive listed on the Department QPL for expansive cements.”**

SECTION 606 GUARDRAIL

Amend this section by replacing it with the following:

606.01 Description This work shall consist of furnishing and installing guardrail components in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans or as established. Guardrail is designated as:

31” W-Beam Guardrail - Mid-Way Splice

Galvanized steel w-beam, 8” wood or composite offset blocks, galvanized steel posts

Thrie Beam

Galvanized steel thrie beam, 8” wood or composite offset blocks, galvanized steel posts

Median guardrail shall consist of two beams of the above types, mounted on single posts.

Bridge mounted guardrail shall consist of furnishing all labor, materials, and equipment necessary to install guardrail as shown on the plans. This work shall also include drilling for and installation of offset blocks if specified, and incidental hardware necessary for satisfactory completion of the work.

Remove and Reset and Remove, Modify, and Reset guardrail shall consist of removing the existing designated guardrail and resetting in a new location as shown on the plans or directed by the Resident. Remove, Modify, and Reset guardrail and Modify guardrail include the following guardrail modifications: Removing plate washers at all posts, except at anchorage assemblies as noted on the Standard Details, adding offset blocks, and other modifications as listed in the Construction Notes or General Notes. Modifications shall conform to the guardrail Standard Details.

Bridge Connection shall consist of the installation and attachment of beam guardrail to the existing bridge. This work shall consist of constructing a concrete end post or modifying an existing end post as required, furnishing, and installing a terminal connector, necessary hardware, and incidentals required to complete the work as shown on the plans. Bridge Transition shall consist of a bridge connection and furnishing and installing guardrail components as shown in the Standard Details.

606.02 Materials Materials shall meet the requirements specified in the following Sections of Division 700 - Materials:

Timber Preservative	708.05
Metal Beam Rail	710.04
Guardrail Posts	710.07
Guardrail Hardware	710.08

Guardrail components shall meet the applicable standards of "A Guide to Standardized Highway Barrier Hardware" prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Task Force 13 Report.

Posts for underdrain delineators shall be "U" channel steel, 8 ft long, 2 ½ lb/ft minimum and have 3/8-inch round holes, 1-inch center to center for a minimum distance of 2 ft from the top of the post.

Reflectorized Flexible Guardrail Markers shall be mounted on all guardrails. A marker shall be mounted onto guardrail posts at the flared guardrail terminal end point and tangent point, both at the leading and trailing ends of each run of guardrail. The marker's flexible posts shall be gray with either silver-white or yellow reflectors (to match the edge line striping) at the tangents, red at leading ends, and green at trailing ends. Whenever the guardrail terminal is not flared, markers will only be required at the terminal end point. These shall be red or green as appropriate. Markers shall be installed on the protected side of guardrail posts unless otherwise approved by the Resident. Reflectorized flexible guardrail markers shall be from the Department's Qualified Products List of Delineators. The marker shall be gray, flexible, durable, and of a non-discoloring material to which 3-inch by 9-inch reflectors shall be applied, and capable of recovering from repeated impacts and meeting MASH 16 requirements. Reflective material shall meet the requirements of Section 719.01 for ASTM D 4956 Type III reflective sheeting. The marker shall be secured to the guardrail post with two fasteners, as shown in the Standard Details.

Reflectorized beam guardrail reflectors shall be mounted on all "w" beam guardrail and shall be either the "butterfly" type or linear delineation system panels. "Butterfly" or linear delineation panels shall be installed at approximately 62.5 foot intervals on tangents (after every tenth post) and 31.25 feet on curves (after every fifth post), and shall be centered on the guardrail beam. On Divided highways, the left-hand delineators shall be yellow and the right-hand delineators shall be silver/ white. On two-way directional highways, the right-hand side will have silver / white reflectors and no reflectorized delineator used on the left. Delineators shall have reflective sheeting that meets or exceeds the requirements of Section 719.01.

“Butterfly” reflectors shall be fabricated from high-impact, ultraviolet & weather resistant thermoplastic. Aluminum, galvanized metal or other materials shall not be used. Reflective sheeting will be applied to only one side of the delineator facing the direction of traffic and shall be centered vertically on the guardrail beam as shown in the Standard Detail 606(7).

Linear delineation system panels shall be 1.5 inches wide by approximately 11 inches nominal length, with a minimum of 5 raised lateral ridges spaced at approximately 2.25 inches. The height of each ridge shall be 0.34 inches with a 45 degree profile and a 0.28 inches radius at the top. Sheeting shall be laminated to thin gauge aluminum with a pre-applied adhesive tape on the back. Panels shall not be installed over seams or bolt heads and shall be centered horizontally on the guardrail beam; linear delineation panels shall be attached to only one guardrail beam. The guardrail beam surface shall be cleaned and prepared according to the manufacturer’s instructions. Air temperature and guardrail surface temperature must be a minimum of 50 degrees F (10 C) with rising temperature at the time of installation.

Exact locations of the either the “butterfly” type or the linear delineation panels shall be approved by the Resident prior to installation.

Single wood post shall be of cedar, white oak, or tamarack, well-seasoned, straight, and sound and have been cut from live trees. The outer and inner bark shall be removed, and all knots trimmed flush with the surface of the post. Posts shall be uniform taper and free of kinks and bends.

Single steel post shall conform to the requirements of Section 710.07 b.

Single steel pipe post shall be galvanized, seamless steel pipe conforming to the requirements of ASTM A120, Schedule No. 40, Standard Weight.

Acceptable multiple mailbox assemblies shall be listed on the Department’s Qualified Products List and shall be MASH 16 tested and approved.

Flared and Tangent w-beam guardrail terminals and guardrail offset blocks shall be from the Department’s Qualified Products List. Flared terminals shall be installed with a 4 ft offset as shown in the Manufacturer’s installation instructions.

Anchorage assemblies used to anchor trailing ends, radius guardrail, or other ends not exposed to traffic shall meet the applicable standards of "A Guide to Standardized Highway Barrier Hardware" prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Task Force 13 Report, Drawing SEW02a.

Existing materials damaged or lost during adjusting, removing and resetting, or removing, modifying, and resetting, shall be replaced by the Contractor without additional compensation. Existing guardrail posts and guardrail beams found to be unfit for reuse shall be replaced when directed by the Resident.

606.03 Posts Posts for guardrail shall be set plumb in holes or they may be driven if suitable driving equipment is used to prevent battering and distorting the post. When posts are driven

through pavement, the damaged area around the post shall be repaired with approved bituminous patching. Damage to lighting and signal conduit and conductors shall be repaired by the Contractor.

When set in holes, posts shall be on a stable foundation and the space around the posts, backfilled in layers with suitable material, thoroughly tamped.

The reflectorized flexible guardrail markers shall be set plumb with the reflective surface facing the oncoming traffic. Markers shall be installed on the protected side of guardrail posts. Markers, which become bent or otherwise damaged, shall be removed and replaced with new markers.

Single wood posts shall be set plumb in holes and backfilled in layers with suitable material, thoroughly tamped. The Resident will designate the elevation and shape of the top. The posts, that are not pressure treated, shall be painted two coats of good quality oil base exterior house paint.

Single steel posts shall be set plumb in holes as specified for single wood posts or they may be driven if suitable driving equipment is used to prevent battering and distorting the post.

Additional bolt holes required in existing posts shall be drilled or punched, but the size of the holes shall not exceed the dimensions given in the Standard Details. Metal around the holes shall be thoroughly cleaned and painted with two coats of approved aluminum rust resistant paint. Holes shall not be burned.

606.04 Rails Brackets and fittings shall be placed and fastened as shown on the plans. Rail beams shall be erected and aligned to provide a smooth, continuous barrier. Beams shall be lapped with the exposed end away from approaching traffic.

End assemblies shall be installed as shown on the plans and shall be securely attached to the rail section and end post.

All bolts shall be of sufficient length to extend beyond the nuts but not more than ½ inch. Nuts shall be drawn tight.

Additional bolt holes required in existing beams shall be drilled or punched, but the size of the holes shall not exceed the dimensions given in the Standard Details. Metal around the holes shall be thoroughly cleaned and painted with two coats of approved aluminum rust resistant paint. Holes shall not be burned.

606.045 Offset Blocks The same offset block material is to be provided for the entire project unless otherwise specified.

606.05 Shoulder Widening At designated locations the existing shoulder of the roadway shall be widened as shown on the plans. All grading, paving, seeding, and other necessary work shall be in accordance with the Specifications for the type work being done.

606.06 Mail Box Post Single wood post shall be installed at the designated location for the support of the mailbox. The multiple mailbox assemblies shall be installed at the designated location in

accordance with the Standard Details and as recommended by the Manufacturer. Attachment of the mailbox to the post will be the responsibility of the home or business owner.

606.07 Abraded Surfaces All galvanized surfaces of new guardrail and posts, which have been abraded so that the base metal is exposed, and the threaded portions of all fittings and fasteners and cut ends of bolts shall be cleaned and painted with two coats of approved rust resistant paint.

606.08 Method of Measurement Guardrail will be measured by the linear foot from center to center of end posts along the gradient of the rail except where end connections are made to masonry or steel structures, in which case measurement will be as shown on the plans. When connected to radius rail, measurement will be to the end of the last tangent beam.

Guardrail terminal, reflectorized flexible guardrail marker, terminal end, anchorage assembly, bridge transition, bridge connection, multiple mailbox post, and single post will be measured by each unit of the kind specified and installed.

Widened shoulder will be measured as a unit of grading within the limits shown on the plans.

Excavation in solid rock for placement of posts will be paid under force account unless otherwise indicated in the Bid Documents.

Reflectorized beam guardrail reflectors ("butterfly" type or linear delineation system panels) when identified by pay item, will be measured for payment by each.

606.09 Basis of Payment The accepted quantities of guardrail will be paid for at the contract unit price per linear foot for the type specified, complete in place. Reflectorized beam guardrail ("butterfly"-type) delineators will not be paid for directly but will be considered incidental to guardrail items. Reflectorized flexible guardrail marker, terminal end, anchorage assembly, bridge transition, bridge connection, multiple mailbox post, and single post will be paid for at the contract unit price each for the kind specified complete in place.

Guardrail terminals will be paid for at the contract price each, complete in place which price shall be full payment for furnishing and installing all components including the terminal section, posts, offset blocks, "w" beam, cable foundation posts, plates and for all incidentals necessary to complete the installation within the limits as shown on the Standard Details or the Manufacturer's installation instructions. Pay limits for a flared terminal will be 37.5 feet. Pay limits for a tangent terminal will be 50 feet. Each guardrail terminal will be clearly marked with the Manufacturer's name and model number to facilitate any future needed repair. Such payment shall also be full compensation for furnishing all material, excavating, backfilling holes, assembling, and all incidentals necessary to complete the work, except that for excavation for posts or anchorages in solid ledge rock, payment will be made under 109.7.5 – Force Account. Type III Retroreflective Adhesive Sheeting shall be applied to the approach buffer end sections and sized to substantially cover the end section. On all roadways, the ends shall be marked with alternating black and retroreflective yellow stripes. The stripes shall be 3 in wide and sloped down at an angle of 45 degrees toward the side on which traffic is to pass the end section. Guardrail terminals shall also include a set of installation drawings supplied to the Resident.

Anchorage to bridge end posts will be part of the bridge work. Connections thereto will be considered included in the unit bid price for guardrail.

Guardrail to be placed on a radius of curvature of 150 ft or less will be paid for under the designated radius pay item for the type guardrail being placed.

Widened shoulder will be paid for at the contract unit price each complete in place and will be full compensation for furnishing and placing, grading and compaction of aggregate subbase and any required fill material.

Adjust guardrail will be paid for at the contract unit price per linear foot and will be full compensation for adjusting to grade. Payment shall also include adjusting guardrail terminals where required.

Modify guardrail will be paid for at the contract unit price per linear foot and will be full compensation for furnishing and installing offset blocks, additional posts, and other specified modifications; removing, modifying, installing, and adjusting to grade existing posts and beams; removing plate washers and backup plates, and all incidentals necessary to complete the work. Payment shall also include removing and resetting guardrail terminals where required.

Remove and Reset guardrail will be paid for at the contract unit price per linear foot and will be full compensation for removing, transporting, storing, reassembling all parts, necessary cutting, furnishing new parts when necessary, reinstalling at the new location, and all other incidentals necessary to complete the work. Payment shall also include removing and resetting guardrail terminals when required.

Remove, Modify, and Reset guardrail will be paid for at the contract unit price per foot and will be full compensation for the requirements listed in Modify guardrail and Remove and Reset guardrail.

Bridge Connections will be paid for at the contract unit price each. Payment shall include, attaching the connection to the endpost including furnishing and placing concrete and reinforcing steel necessary to construct new endposts if required, furnishing and installing the terminal connector, and all miscellaneous hardware, labor, equipment, and incidentals necessary to complete the work.

Bridge Transitions will be paid for at the contract unit price each. Payment shall include furnishing and installing the thrie beam or "w"-beam terminal connector, doubled beam section, and transition section, where called for, posts, hardware, precast concrete transition and vertical curb, and any other necessary materials and labor, including the bridge connection as stated in the previous paragraph.

No payment will be made for guardrail removed, but not reset and all costs for such removal shall be considered incidental to the various contract pay items.

Reflectorized beam guardrail reflectors ("butterfly" type and the linear delineation panels) will not be paid for directly but will be considered incidental to all new guardrail items. The Contractor shall

furnish and install either the “butterfly” type or linear delineation panels, at its discretion, for new guardrail items.

Reflectorized beam guardrail reflectors (either “butterfly” type or linear delineation system panels) will be paid for under the applicable pay items for installation in conjunction with Adjust, Modify, Remove and Reset, Remove Modify and Reset guardrail items. The accepted quantity of “butterfly” type or linear delineation system panels will be paid for at the contract unit price each for all work and materials furnished to install, complete in place, including all incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
606.1301 31” W-Beam Guardrail - Mid-Way Splice – Single Faced	Linear Foot
606.1302 31” W-Beam Guardrail - Mid-Way Splice – Double Faced	Linear Foot
606.1303 31” W-Beam Guardrail - Mid-Way Splice, 15’ Radius and Less	Linear Foot
606.1304 31” W-Beam Guardrail - Mid-Way Splice, Over 15’ Radius	Linear Foot
606.1305 31” W-Beam Guardrail - Mid-Way Splice Flared Terminal	Each
606.1306 31” W-Beam Guardrail - Mid-Way Splice Tangent Terminal	Each
606.1307 Bridge Transition (Asymmetrical) – Type IA	Each
606.1721 Bridge Transition - Type I	Each
606.1722 Bridge Transition - Type II	Each
606.1731 Bridge Connection - Type I	Each
606.1732 Bridge Connection - Type II	Each
606.178 Guardrail Beam	Linear Foot
606.25 Terminal Connector	Each
606.257 Terminal Connector - Thrie Beam	Each
606.259 Anchorage Assembly	Each
606.265 Terminal End-Single Rail - Galvanized Steel	Each
606.266 Terminal End-Single Rail - Corrosion Resistant Steel	Each
606.275 Terminal End-Double Rail - Galvanized Steel	Each
606.276 Terminal End-Double Rail - Corrosion Resistant Steel	Each
606.352 Reflectorized Beam Guardrail Delineators (“Butterfly” type)	Each
606.3521 Linear Delineation System Panel	Each
606.353 Reflectorized Flexible Guardrail Marker	Each
606.354 Remove and Reset Reflectorized Flexible Guardrail Marker	Each
606.356 Underdrain Delineator Post	Each
606.358 Guardrail, Modify	Linear Foot
606.362 Guardrail, Adjust	Linear Foot
606.365 Guardrail, Remove, Modify, and Reset	Linear Foot
606.366 Guardrail, Remove and Reset	Linear Foot
606.367 Replace Unusable Existing Guardrail Posts	Each
606.3671 Replace Unusable Offset Blocks	Each
606.47 Single Wood Post	Each
606.48 Single Galvanized Steel Post	Each

606.50	Single Steel Pipe Post	Each
606.51	Multiple Mailbox Support	Each
606.568	Guardrail, Modify - Double Rail	Linear Foot
606.63	Thrie Beam Rail Beam	Linear Foot
606.64	Guardrail Thrie Beam - Double Rail	Linear Foot
606.65	Guardrail Thrie Beam - Single Rail	Linear Foot
606.66	Terminal End Thrie Beam	Each
606.70	Transition Section - Thrie Beam	Each
606.71	Guardrail Thrie Beam - 15 ft radius and less	Linear Foot
606.72	Guardrail Thrie Beam - over 15 ft radius	Linear Foot
606.73	Guardrail Thrie Beam - Single Rail Bridge Mounted	Linear Foot
606.74	Guardrail - Single Rail Bridge Mounted	Linear Foot
606.753	Widen Shoulder for Low Volume Guardrail End	Each
606.754	Widen Shoulder for Flared Guardrail Terminal	Each
606.78	Low Volume Guardrail End	Each
606.80	Buried-in-Slope Guardrail End	Each

SECTION 608 SIDEWALKS

Section 608.022 Detectable Warning Materials Standard Revise this section by removing the last sentence of this section beginning with “Concrete...” and replacing it with “**Concrete shall meet the requirements of Section 608.021, Sidewalk Materials, of this specification or may be a prepackaged concrete mix from the Department’s Qualified Products List (QPL).**”

SECTION 609 CURB

Remove this section in its entirety and replace with the following:

609.01 Description Construct or reset curb, gutter, or combination curb and gutter, paved ditch, and paved flume. The types of curb are designated as follows:

- Type 1 - Stone curbing of quarried granite stone
- Type 2 – Concrete Curbing
- Type 3 - Bituminous curbing
- Type 5 - Stone edging of quarried granite stone

609.02 Materials Except as provided below, the materials used shall meet the requirements of the following Sections of Division 700 - Materials:

Portland Cement and Portland Pozzolan Cement	701.01
Water	701.02
Air Entraining Chemical Admixture	701.03
Fine Aggregate for Concrete	703.01

Coarse Aggregate for Concrete	703.02
Joint Mortar	705.02
Reinforcing Steel	709.01
Stone Curbing and Edging	712.04
Epoxy Resin	712.35
Hot Mix Asphalt Curbing	712.36
Structural Precast Concrete Units (Concrete Curb)	712.061

The Contractor shall submit a concrete mix design for the Portland Cement Concrete to the Resident, for the uses specified below or in accordance with the Contract Documents.

Circular curb, terminal sections and transition sections shall be in reasonably close conformity with the shape and dimensions shown on the Plans and to the applicable material requirements herein for the type of curb specified.

Dowels shall be reinforcing steel deformed bars.

Concrete for Slipform Concrete Curb shall meet the requirements below:

- a. Class A, with the exception that permeability requirements shall be waived.
- b. Entrained air content of Slipform Concrete Curb shall be 4.0% to 7.0%
- c. Concrete temperature, prior to discharge, shall not exceed 90 F.
- d. Proposed mix designs may contain polypropylene fibers.
- e. Partially discharged loads may be retempered with water provided the maximum water to cement ratio is not exceeded.

609.03 Vertical Stone Curb, Terminal Section and Transition Sections and Portland Cement Concrete Curb, Terminal Sections and Transition Sections

a. Installation The curb stone shall be set on a compacted foundation so that the front top arris line conforms to the lines and grades required. The foundation shall be prepared in advance of setting the stone by grading the proper elevation and shaping to conform as closely as possible to the shape of the bottom of the stone. The required spacing between stones shall be assured by the use of an approved spacing device to provide an open joint between stones of at least ¼ inch and no greater than ⅝ inch.

b. Backfilling All remaining spaces under the curb shall be filled with approved material and thoroughly hand tamped so the stones will have a firm uniform bearing on the foundation for the entire length and width. Any remaining excavated areas surrounding the curb shall be filled to the required grade with approved materials. This material shall be placed in layers not exceeding 8 inches in depth, loose measure and thoroughly tamped.

When backfill material infiltrates through the joints between the stones, small amounts of joint mortar or other approved material shall be placed in the back portion of the joint to prevent such infiltrating.

c. Protection The curb shall be protected and kept in good condition. All exposed surfaces smeared or discolored shall be cleaned and restored to a satisfactory condition or the curb stone removed and replaced.

d. Curb Inlets Curb placed adjacent to curb inlets shall be installed with steel dowels cemented into each stone with epoxy grout as shown in the Standard Details.

The epoxy grout shall be used in accordance with the manufacturer's instructions. The grout shall be forced into the hole, after which the dowel shall be coated with grout for one-half its length and inserted into the grout filled hole. The hole shall be completely filled with grout around the dowel. All tools and containers must be clean before using.

The Contractor may elect to substitute concrete to backfill Stone Curbing or Stone Edging at their option. If the concrete backfill option is elected, the Concrete Fill shall meet the requirements of 609.02. The Contractor shall submit a concrete design for the Portland Cement Concrete, with a minimum designated compressive strength of 3000 PSI meeting the requirements of Class S or Class Fill Concrete. The Contractor may elect to choose a Prepackaged Concrete Mix from the Departments Qualified Products list (QPL). Concrete backfill shall be completed in conformance with a Department supplied concrete backfill detail.

609.04 Bituminous Curb

a. Preparation of Base Before placing the curb, the foundation course shall be thoroughly cleaned of all foreign and objectionable material. String or chalk lines shall be positioned on the prepared base to provide guidelines. The foundation shall be uniformly painted with tack coat at a rate of 0.04 to 0.14 gal/yd².

b. Placing The curb shall be placed by an approved power operated extruding type machine using the shape mold called for. A tight bond shall be obtained between the base and the curb. The Resident may permit the placing of curbing by other than mechanical curb placing machines when short sections or sections with short radii are required. The resulting curbing shall conform in all respects to the curbing produced by the machine.

c. When required, the curb shall be painted and coated with glass beads in accordance with Section 627 - Pavement Marking. Curb designated to be painted shall not be sealed with bituminous sealing compound.

d. Acceptance Curb may be accepted or rejected based on appearance concerning texture, alignment, or both. All damaged curb shall be removed and replaced at the Contractor's expense.

e. Polyester fibers shall be uniformly incorporated into the dry mix at a rate of 0.25 percent of the total batch weight. Certification shall be provided from the supplier with each shipment meeting the following requirements:

Average Length	0.25 inches $\pm$ 0.005
Average Diameter	0.0008 inches $\pm$ 0.0001
Specific Gravity	1.32-1.40
Melting Temperature	480 °F Minimum

609.05 Slipform Concrete Curb

a. Preparation of Base Before placing the curb, the foundation course shall be thoroughly cleaned of all foreign and objectionable material. The Contractor shall not place Slipform Concrete Curb on a wet or frozen foundation. The foundation (HMA or concrete) may be in a Saturated Surface Dry condition, but no standing water shall be allowed. String or chalk lines shall be positioned on the prepared foundation to provide guidelines. Prior to placing the curb, the foundation shall be uniformly coated with an epoxy resin adhesive that meets the requirements of AASHTO M 235, Type I, II, III, IV or V and has been tested by AASHTO Product Evaluation & Audit Solutions. The Contractor shall submit the epoxy resin adhesive that they propose to utilize with the concrete mix design. The epoxy resin adhesive must be approved prior to placement and used in accordance with manufacturer's recommendations.

b. Placing Concrete shall be placed with an approved Slipform machine that will produce a finished product according to the design specified in the Plans. For cold weather slip forming, the outside temperature must be at least 36°F and rising. The curb shall be placed on a firm, uniform foundation, shall conform to the section profile specified in the Plans, and shall match the appropriate grade. Expansion joints shall be placed in the curb where it meets rigid structures such as but not limited to building foundations, catch basin headers or fire hydrants. Contraction joints will be placed at 10-foot intervals using sawing methods, which shall cut 1 to 3 inches into the concrete. Contraction joints shall be cut between 1 and 7 days after placement of the concrete. Joints shall be constructed perpendicular to the subgrade and match other joints in roadways, sidewalks, or other structures when applicable.

c. Curing and Sealing Proper curing shall be provided using either a combination curing/sealing compound spray that meets ASTM 1315 Type 1-Class A, or a curing compound spray that meets ASTM 309 Type 1-D – Class A. Curing may also be accomplished by the methods specified in Standard Specification Section 502.14, Curing Concrete.

If a combination curing/sealing compound spray is not used, a separate sealing compound from the MaineDOT Qualified Products List for a Type 1c sealer shall be applied after the concrete has cured.

d. Protection Slipform curb must be adequately protected after placement. The concrete shall be allowed to cure for at least 72 hours. During cold weather conditions, when temperatures drop below the required temperature of 36°F after placement, curbing shall be protected by concrete blankets or a combination of plastic sheeting and straw. After any

placement of Slipform curb, regardless of weather conditions, the placed curb shall be adequately protected by traffic control devices as necessary.

e. Marking When required, the curb shall be painted and coated with glass beads in accordance with Section 627 - Pavement Marking. Curb designated to be painted shall not be sealed unless a combination curing/sealing compound is used.

f. Acceptance Curb shall be accepted or rejected based on finish, alignment, entrained air content, and compressive strength. Concrete Quality Control and Acceptance shall be done in accordance with Standard Specification Section 502, Method C. All damaged curb shall be removed and replaced at the Contractor's expense.

609.06 Stone Edging The curb shall be installed, backfilled and protected in accordance with Section 609.03, except as follows:

a. Slope The edging shall be set on a slope as shown on the Plans or as directed.

b. Joints Joints shall be open and not greater than 1½ inch in width.

609.07 Stone Bridge Curb

a. Installation Each stone and the bed upon which it is to be placed shall be cleaned and thoroughly wetted with water before placing the mortar for bedding and setting the stone. The stone shall be set on a fresh bed of joint mortar and well bedded before the mortar has set so that the front top arris line conforms to the line and grade required. Whenever temporary supporting wedges or other devices are used in setting the stones, they shall be removed before the mortar in the bed has become set, and the holes left by them shall be filled with mortar. Concrete behind the stones shall not be placed until the stones have been in place at least two days. Bedding and pointing mortar for joints shall be cured as required under Section 502 - Structural Concrete.

b. Joints Vertical joints shall be ½ inch in width plus or minus ⅛ inch. Whenever possible, the face and top of the joint shall be pointed with joint mortar to a depth of 1½ inch, before the bedding mortar has set. Joints which cannot be so pointed, shall be prepared for pointing by raking them to a depth of 1½ inch before the mortar has set. Joints not pointed at the time the stone is laid shall be thoroughly wetted with clean water and filled with mortar. The mortar shall be well driven into the joint and finished with an approved pointing tool, flush with the pitch line of the stones.

609.08 Resetting Stone or Portland Cement Concrete Curb, Including Terminal Sections and Transitions

The curb shall be installed, backfilled and protected in accordance with Section 609.03, except as follows:

a. Removal of Curbing The Contractor shall carefully remove and store curb specified on the Plans or designated for resetting. Curb damaged or destroyed, because of the

Contractor's operations or because of their failure to store and protect it in a manner that would prevent its loss or damage, shall be replaced with curbing of equal quality at the Contractor's expense.

b. Cutting and Fitting Cutting or fitting necessary in order to install the curbing at the locations directed shall be done by the Contractor.

609.09 Method of Measurement Curb, both new and reset, will be measured by the linear foot along the front face of the curb at the elevation of the finished pavement, complete in place and accepted. Curb inlets at catch basins, including doweling, will not be measured for payment but shall be considered included in the cost of the catch basin. New transition sections and terminal curb will be measured by the unit. Reset transition sections and terminal curb will be included in the measurement for resetting curb.

Concrete Slipform Curb and terminal ends will be measured by the linear foot along the front face of the curb at the elevation of the finished pavement, complete in place and accepted.

609.10 Basis of Payment The accepted quantities of curbing will be paid for at the contract unit price per linear foot for each kind and type of curbing as specified.

Payment for terminal curb shall include only that portion of the curbing modified for installation at ends of curb runs shown in the Standard Details. Curb adjacent to terminal ends shall be paid for at the contract unit price per linear foot for the type of curb installed.

Vertical Curb Type 1 is required to have a radius of 60 feet or less, will be paid for as Vertical Curb Type 1 - Circular.

Curb, Type 5 required to have a radius of 30 feet or less will be paid for as Curb Type 5 - Circular.

There will be no separate payment for concrete fill, mortar, reinforcing steel, anchors, tack coat, drilling for and grouting anchors, pointing and bedding of curbing, and for cutting and fitting, but these will be considered included in the work of the related curb.

Removal of existing curb and necessary excavation for installing new or reset curbing will not be paid for directly but shall be considered to be included in the appropriate new or reset curb pay item. Base and Subbase material will be paid for under Section 304 - Aggregate Base and Subbase Course. Backing up bituminous curb is incidental to the curb items. Loam, as directed, will be paid under 615 - Loam.

Payment will be made under:

	<u>Pay Item</u>	<u>Pay Unit</u>
609.11	Vertical Curb Type 1	Linear Foot
609.12	Vertical Curb Type 1 - Circular	Linear Foot
609.13	Vertical Bridge Curb Type 1	Linear Foot
609.131	Vertical Bridge Curb Type 1A	Linear Foot
609.132	Vertical Bridge Curb Type 1B	Linear Foot
609.142	Vertical Bridge Curb Type 1B - Circular	Linear Foot
609.15	Sloped Curb Type 1	Linear Foot
609.151	Sloped Curb Type 1 - Circular	Linear Foot
609.161	Concrete Slipform Curb – Vertical Type 2	Linear Foot
609.21	Concrete Slipform Curb Type 2	Linear Foot
609.219	Concrete Slipform Terminal End Type 2	Linear Foot
609.23	Terminal Curb Type 1	Each
609.234	Terminal Curb Type 1 - 4 foot	Each
609.237	Terminal Curb Type 1 - 7 foot	Each
609.2371	Terminal Curb Type 1 - 7 foot – Circular	Each
609.238	Terminal Curb Type 1 - 8 foot	Each
609.26	Curb Transition Section B Type 1	Each
609.31	Curb Type 3	Linear Foot
609.34	Curb Type 5	Linear Foot
609.35	Curb-Type 5 - Circular	Linear Foot
609.38	Reset Curb Type 1	Linear Foot
609.39	Reset Curb Type 2	Linear Foot
609.40	Reset Curb Type 5	Linear Foot

SECTION 610

STONE FILL, RIPRAP, STONE BLANKET, AND STONE DITCH PROTECTION

610.02 Materials Amend this subsection by adding the following to the end of the material list:
“Stone Ditch Protection 703.29”

SECTION 618

SEEDING

618.08 Mulching Revise this Section so that the third sentence reads: “Mulch for Seeding Method Number 1 shall only be cellulous fiber mulch Section 619.04 **(b)** or straw mulch Section 619.04 **(a)**.”

SECTION 619 MULCH

619.03 General Amend this Section by adding the following sentence to the end: **“Straw mulch shall be used in all wetland areas.”**

SECTION 626 FOUNDATIONS, CONDUIT, AND JUNCTION BOXES FOR HIGHWAY SIGNING, LIGHTING, AND SIGNALS

Section 626.021 Miscellaneous Materials Revise this section by removing the fourth paragraph beginning with “ All Concrete for concrete encasement...” and replace it with **“All concrete for concrete encasement of conduit shall be Class S or Class Fill concrete in accordance with the applicable requirements of Section 502 – Structural Concrete, or a Prepackaged Concrete Mix from the Department’s Qualified Products List (QPL).”**

Section 626.031 Conduit Revise the fifth paragraph beginning with “After the trench has been...” by removing the last sentence beginning with “Where concrete encasement...” and replacing it with **“Where concrete encasement is required around the conduit, the concrete shall meet Class S, Class Fill in accordance with the applicable requirements of Section 502 – Structural Concrete, or a Prepackaged Concrete Mix from the Department’s Qualified Products List (QPL).”**

626.034 Concrete Foundations Revise this Section by changing ‘626.037’ to ‘**626.036**’ in the Second Paragraph which begins with “Foundations shall consist of cast-in-place...”.

Revise the 10th paragraph beginning with “Before placing concrete, the required elbows...” by removing “...in accordance with **Standard Specification 633.**”

626.036 Precast Foundations Revise the last sentence of paragraph one so that it reads: **“Construction of precast foundations shall conform to the Standard Details and all requirements of 712.061.”**

SECTION 627 PAVEMENT MARKINGS

627.02 Materials Amend this section by adding the following to the existing Specification:

“When pavement marking paint must be applied on pavement with an air temperature between 35 °F and 50 °F, a low temperature waterborne paint may be used upon the Department’s approval as noted below.

The Contractor shall submit the following information for Department review and approval at least 10 calendar days prior to application:

The manufacturer and product name of the low temperature waterborne paint

The manufacturer's technical product data sheets

The product's SDS sheets

All required and recommended application specifications for the product

The manufacturer's requirements for temperature, surface preparation, paint thickness and the bead application shall be followed. No additional payment will be made for the use of low temperature waterborne paint. “

627.06 Application Revise this subsection by replacing the paragraph beginning with “ On other final pavement markings...” with the following:

“On other final pavement markings and on curb, where the paint is applied by hand painting or spraying, application shall be one uniform covering coat at least 16 mils thick. Before the paint has dried, the glass beads shall be applied by a pressure system that will force the glass beads onto the undried paint as uniformly as possible.

Painted lines and markings shall be applied in accordance with the manufacturer's published recommendations. These recommendations will be supplied to the Resident prior to installation.”

Revise this subsection by replacing the paragraph beginning with “ If the final reflectivity values are less...” with the following:

“The final reflectivity will be acceptable if 90 percent or more of the painted pavement lines and markings meet the specified minimum value. If less than 90 percent of the painted pavement lines and markings meet the specified minimum final reflectivity values, the Contractor shall repaint those areas not meeting required reflectivity at no cost to the Department.

If, after repainting, analysis of the final reflectivity values results in the need for a second repainting, the Contractor will submit in writing a plan of action to meet the reflectivity minimums prior to continuing any work. Once the plan has been reviewed and approved by the Department, the Contractor shall reapply at no cost to the Department.”

SECTION 634

HIGHWAY LIGHTING

634.021 Materials Revise this subsection by removing the paragraph beginning with “All bolts for mounting lighting fixtures” and replacing with:

“All bolts for mounting lighting fixtures under bridge structures shall conform to the requirements of ASTM A307. These bolts and other fastening hardware shall be galvanized in

accordance with AASHTO M 232 (ASTM A153), ASTM F2329, or ASTM B695, Class 50, Type I.”

SECTION 637 DUST CONTROL

Revise this section by removing it in its entirety.

SECTION 643 TRAFFIC SIGNALS

643.021 Materials Amend this subsection by adding the following at the end:

“MaineDOT is transitioning to MASH2016 criteria for Work Zone Traffic Control Devices on the following schedule:

Temporary Traffic Control Signals will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 4 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029.”

643.023 Traffic Signal Structures Remove the third paragraph and replace it with the following:

“Traffic signal support structures shall be classified as Fatigue Category III if they are located on roads with a speed limit of 35 mph or less, Fatigue Category II if they are located on roads with a speed limit of greater than 35 mph, and Fatigue Category I if noted on the Contract Plans. Fatigue Importance Factors shall be as specified in Table 11.6-1 (Fatigue Importance Factors). Fatigue analyses are not required for span-wire (strain) pole traffic signal support structures with heights of 55 feet or less unless required by the current edition of AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals”.

643.09 Service Connection Revise this subsection by removing the paragraph that begins with “Traffic signal services shall have...”.

And by removing the paragraphs beginning with “ A service ground rod shall be installed...” and “A total of 4, 10’ service...” and replace them with **“A total of 4, 10’ service ground rods shall be installed and properly connected together on the outside of the cabinet foundation. One ground rod shall be located at each corner and shall be either flush or slightly below finished grade. The connection between the ground rod and the ground wire shall be an**

exothermic connection such as a Cadweld. The ground wire from the interconnected ground rods shall be routed through a conduit in the foundation and into the base of the cabinet”.

SECTION 645 HIGHWAY SIGNING

Section 645.023 Sign Support Structures. Under letter “c.”, revise the fifth paragraph beginning with “In addition to the required details...” by removing the words **”and foundation”** from the 5th sentence.

Section 645.08 Method of Measurement. Revise the second paragraph beginning with “Bridge-type, cantilever and...” by removing the words **”including the foundation”** .

Section 645.09 Basis of Payment. Revise the third paragraph beginning with “The accepted bridge-type, cantilever and...” by removing the word **”foundation”** from the second sentence. Add the following sentence to the end of the paragraph **“Conduits, Junction Boxes, and Foundations will be paid for under Section 626.”**

SECTION 652 MAINTENANCE OF TRAFFIC

652.2.5 Portable Changeable Message Sign Revise the fifth paragraph so it reads:

“The control system shall include a display screen upon which messages can be reviewed before being displayed on the message sign. The control system shall be capable of maintaining memory when power is unavailable. Messages must be changeable with either a portable electronic device like a notebook computer or an on-board keypad. The controller shall have the capability to store a minimum of 200 user-defined and 200 pre-programmed messages. Controller and battery compartments shall be enclosed in lockable, weather-tight boxes. The cabinet shall be locked at all times that the Contractor is not actively changing the message. The Contractor shall change the password for the controller prior to stationing the PCMS and shall provide the password to the Resident. The password shall be unique per PCMS and secure and shall not be written anywhere in, on, around, or stored in the PCMS.”

Amend this Section by adding the following new subsection:

“652.2.6 Device Crashworthiness **MaineDOT is transitioning to MASH2016 criteria for Work Zone Traffic Control Devices on the following schedule:**

Category 1 (Cones, Drums, Tubular Markers, Flexible Delineators, and similar devices that have little chance if causing windshield penetration, tire damage, or other significant effect on the control or trajectory of a vehicle) – All Category 1 devices will be manufacturer self-certified as MASH2016 by January 1, 2025. Current Category 1 devices in useful serviceable condition that are not self-certified as MASH2016 compliant may be utilized through December 31, 2024.

Category 2 (Barricades, Portable Sign Supports, Category 1 devices with attachments, and similar devices that are not expected to produce significant vehicular velocity change but may be otherwise hazardous) – All Category 2 devices will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2025. Current Category 2 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2024.

Category 3 (Portable Concrete Barrier, Portable Crash Cushions, Truck Mounted Attenuators, Category 2 devices weighing more than 100 pounds, and similar devices that are expected to produce significant vehicular velocity change or other harmful reactions) – All Category 3 devices will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 3 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029. (See Standard Specification 526 for additional Portable Concrete Barrier information).

Category 4 (Trailer Mounted Devices: Arrow Boards, Temporary Traffic Control Signals, Area Lighting, Portable Changeable Message Sign, and other similar devices.) – All Category 4 devices will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 4 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029.”

652.3.3 Submittal of Traffic Control Plan Amend this section by adding:

“n. A security plan for any PCMS shall be included. The Contractor shall provide a plan for secure access to the PCMS and protection from unauthorized users. The plan shall have details on securing the cabinets via a lock and password from unauthorized users, password changing protocols, and where the access information will be kept so it can be used in the event of emergency. The Contractor shall not Identify or store passwords in the TCP.”

652.4 Flaggers Revise the first paragraph of this section so that it reads:

“The Contractor shall furnish flaggers as required by the TCP or as otherwise specified by the Resident. All flaggers must have successfully completed a flagger test approved by the Department and administered by a Department-approved Flagger-Certifier who is employing that flagger. All flaggers must carry an official certification card with them while flagging that has been issued by their employer.”

SECTION 681

PRECAST AGGREGATE-FILLED, CONCRETE BLOCK GRAVITY WALL

681.08 Basis of Payment Amend this section by adding the Item Number “**681.10**” in front of the item “Precast Aggregate-Filled Concrete Block Gravity Wall” at the end of the section.

SECTION 701 STRUCTURAL CONCRETE RELATED MATERIAL

701.01 Portland Cement and Portland Pozzolan Cement Amend the first sentence of Paragraph 3 by adding “**or Type 1L Portland Limestone cement**” so that it reads:

“A Type IP (MS) Portland-pozzolan cement (blended hydraulic cement with moderate sulfate resistance) or Type 1L Portland Limestone cement meeting the requirements of AASHTO M 240, may be used instead of Type II or where Type I Portland cement, meeting the requirements of AASHTO M 85, is allowed.”

SECTION 703 AGGREGATES

Add the following to Section 703 - Aggregates

703.01 Fine Aggregate for Concrete Fine aggregate for concrete shall consist of natural sand or, when approved by the Resident, other inert materials with similar characteristics or combinations thereof, having strong, durable particles. Fine aggregate from different sources of supply shall not be mixed or stored in the same pile nor used alternately in the same class of construction or mix without permission of the Resident.

All fine aggregate shall be free from injurious amounts of organic impurities. Should the fine aggregate, when subjected to the colorimetric test for organic impurities, AASHTO T 21, produce a color darker than the reference standard color solution (laboratory designation Plate III), the fine aggregate shall be rejected.

Fine aggregate shall have a sand equivalent value of not less than 75 when tested in accordance with AASHTO T 176.

Fine aggregate sources shall meet the Alkali Silica Reactivity (ASR) requirements of Section 703.0201.

The fineness modulus shall not be less than 2.26 or more than 3.14. If this value is exceeded, the fine aggregate will be rejected unless suitable adjustments are made in proportions of coarse and fine aggregate. The fineness modulus of fine aggregate shall be determined by adding the cumulative percentages of material by weight retained on the following sieves: Nos. 4, 8, 16, 30, 50, 100 and dividing by 100.

Fine aggregate, from an individual source when tested for absorption as specified in AASHTO T 84, shall show an absorption of not more than 2.3 percent.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
¾ inch	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10
No. 200	0-5.0

703.02 Coarse Aggregate for Concrete Coarse aggregate for concrete shall consist of crushed stone or gravel having hard, strong, durable pieces, free from adherent coatings and of which the composite blend retained on the ¾ inch sieve shall contain no more than 15 percent, by weight of flat and elongated particles when performed in accordance with test method ASTM D 4791, Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate, using a dimensional ratio of 1:5.

The coarse aggregate from an individual source shall have an absorption no greater than 2.0 percent by weight determined in accordance with AASHTO T 85 modified for weight of sample.

The composite blend shall have a Micro-Deval value of 18.0 percent or less as determined by AASHTO T 327 or not exceed 40 percent loss as determined by AASHTO T 96.

Coarse aggregate sources shall meet the Alkali Silica Reactivity (ASR) requirements of Section 703.0201.

Coarse aggregate shall conform to the requirements of the following table for the size or sizes designated and shall be well graded between the limits specified.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves						
Grading	S	A	AA	SP-1-7	SP-1-78	SP-2-8	SP-2-89
Aggregate Size	1 ½ inch	1 inch	¾ inch	½ inch	½ inch	⅜ inch	⅜ inch
2 inch	100						
1 ½ inch	95-100	100					
1 inch	-	95-100	100				
¾ inch	35-70	-	90-100	100	100		
½ inch	-	25-60	-	90-100	90-100	100	100
⅜ inch	10-30	-	20-55	40-70	40-75	85-100	90-100
No. 4	0-5	0-10	0-10	0-15	5-25	10-30	20-55
No. 8	-	0-5	0-5	0-5	0-10	0-10	5-30
No. 16	-	-	-	-	0-5	0-5	0-10
No. 50	-	-	-	-	-	-	0-5
No. 200*	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5

*This limit will be 0-2.0 for Department production samples. Yearly quality samples will be held to 0-1.5.

703.0201 Alkali Silica Reactive Aggregates All coarse and fine aggregates proposed for use in concrete shall be tested for Alkali Silica Reactivity (ASR) potential under AASHTO T 303 (ASTM C 1260), Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali-Silica Reaction, prior to being accepted for use. Acceptance will be based on testing performed by an accredited independent lab submitted to the Department. Aggregate submittals will be required on a 5-year cycle, unless the source or character of the aggregate in question has changed within 5 years from the last test date.

As per AASHTO T 303 (ASTM C 1260): Use of a particular coarse or fine aggregate will be allowed with no restrictions when the mortar bars made with this aggregate expand less than or equal to 0.10 percent at 30 days from casting. Use of a particular coarse or fine aggregate will be classified as potentially reactive when the mortar bars made with this aggregate expand greater than 0.10 percent at 30 days from casting. Use of this aggregate will only be allowed with the use of cement-pozzolan blends and/or chemical admixtures that result in mortar bar expansion of less than 0.10 percent at 30 days from casting as tested under ASTM C 1567.

Acceptable pozzolans and chemical admixtures that may be used when an aggregate is classified as potentially reactive include, but are not limited to the following:

- Class F Coal Fly Ash meeting the requirements of AASHTO M 295
- Ground Granulated Blast Furnace Slag (Grade 100 or 120) meeting the requirements of AASHTO M 302
- Densified Silica Fume meeting the requirements of AASHTO M 307
- Lithium-based admixtures
- Metakaolin

Pozzolans or chemical admixtures required to offset the effects of potentially reactive aggregates will be incorporated into the concrete at no additional cost to the Department.

Amend this section by adding the new sub section:

“703.03 Combined Aggregate Grading for Concrete The combined gradation of the fine and coarse aggregates when mathematically blended using the mix design percentages shall conform to the requirements of the following table for the size or sizes designated and shall be well graded between the limits specified.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves						
Grading	S	A	AA	SP-1-7	SP-1-78	SP-2-8	SP-2-89
Aggregate Size	1½ inch	1 inch	¾ inch	½ inch	½ inch	⅜ inch	⅜ inch
2 inch	100						
1½ inch	95–100	100					
1 inch	80–100	95–100	100				
¾ inch	55–90	90–100	93–100	100	100		
½ inch	45–80	55–80	60–90	90–100	90–100	100	100
⅜ inch	40–65	40–65	50–80	55–85	65–90	90–100	90–100
No. 4	35–55	35–55	35–60	30–60	40–70	45–75	50–80
No. 8	25–53	28–50	30–55	25–55	30–65	35–65	35–75
No. 16	15–40	18–45	19–45	18–50	20–55	20–55	20–55
No. 30	7–30	9–30	10–33	8–32	10–38	10–38	10–40
No. 50	3–14	4–14	4–16	3–16	4–20	4–20	4–20
No. 100	0–6	0–6	0–6	0–6	0–7	0–8	0–8
No. 200	0–3.5*	0–3.5*	0–3.5*	0–3.5*	0–3.5*	0–3.5*	0–3.5*

***The percent passing the No. 200 sieve shall not exceed 6.0 percent for any fine aggregate. The percent passing the No. 200 sieve shall not exceed 2.0 percent for any single coarse aggregate. The percent passing the No. 200 sieve shall not exceed 4.0 percent for the combined gradation of self-consolidating concrete (SCC) mix designs.”**

703.05 Aggregate for Sand Leveling Aggregate for sand leveling shall be sand of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The aggregate shall meet the grading requirements of the following table.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
⅜ inch	85-100
No. 200	0-5.0

703.06 Aggregate for Base and Subbase The following shall apply to Sections (a.) and (c.) below. The material shall have a Micro-Deval value of 25.0 or less as determined by AASHTO T 327. If the Micro-Deval value exceeds 25.0, the Washington State Degradation DOT Test Method T113, Method of Test for Determination of Degradation Value (January 2009 version) shall be performed, except that the test shall be performed on the portion of the sample that passes the ½ in sieve and is retained on the No. 10 sieve. If the material has a Washington Degradation value of less than 15, the material shall be rejected. The material used in Section (b.) below shall have a Micro-Deval value of 25.0 or less as determined by AASHTO T 327. If the Micro-Deval value exceeds 25.0 the material may be used if it does not exceed 25 percent loss on AASHTO T 96, Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

Recycled Asphalt Pavement (RAP) shall not be used for or blended with aggregate base or subbase.

- a. Aggregate for base, Type A and B shall be crushed ledge or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of the part that passes a 3 inch sieve shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Type A	Type B
½ inch	45-70	35-75
¼ inch	30-55	25-60
No. 40	0-20	0-25
No. 200	0-6.0	0-6.0

At least 50 percent by weight of the material retained on the No. 4 sieve shall have at least one fractured face as tested by AASHTO T 335.

Type A aggregate for base shall only contain particles of rock that will pass the 2 inch square mesh sieve.

Type B aggregate for base shall only contain particles of rock that will pass the 4 inch square mesh sieve.

- b. Aggregate for base, Type C shall be crushed ledge or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The material shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
	Type C
4 inches	100
3 inches	90-100
2 inches	75-100
1 inch	50-80
½ inch	30-60
No. 4	15-40
No. 200	0-6.0

At least 50 percent by weight of the material coarser than the No. 4 sieve shall have at least one fractured face as tested by AASHTO T 335.

c. Aggregate for subbase shall be sand or gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of the part that passes a 3 inch sieve shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Type D	Type E
½ in	35-80	
¼ inch	25-65	25-100
No. 40	0-30	0-50
No. 200	0-7.0	0-7.0

Type D aggregate for subbase gravel may contain up to 50 percent by weight Recycled Concrete Aggregate (RCA). When RCA is used, the portion of the resulting blend of gravel and RCA retained on a ½" square mesh sieve shall contain a total of no more than 5 percent by weight of other recycled materials such as brick, concrete masonry block, or asphalt pavement as determined by visual inspection.

RCA shall be substantially free of wood, metal, plaster, and gypsum board as defined in Note 9 in Section 7.4 of AASHTO M 319. RCA shall also be free of all substances that fall under the category of solid waste or hazardous materials.

Aggregate for subbase shall not contain particles of rock which will not pass the 6 inch square mesh sieve.

703.08 Recycled Asphalt Pavement Recycled asphalt pavement shall consist of salvaged asphalt materials from milled pavements or production waste that has been processed before use to meet the requirements of the job mix formula. It shall be free of winter sand, granular fill, construction debris, or other materials not generally considered asphalt pavement.

703.081 RAP for Asphalt Pavement Recycled Asphalt Pavement (RAP) may be introduced into hot-mix asphalt pavement at percentages approved by the Department according to the MaineDOT Policies and Procedures for HMA Sampling and Testing.

If approved by the Department, the Contractor shall provide documentation stating the source, test results for average residual asphalt content, and stockpile gradations showing RAP materials have been sized to meet the maximum aggregate size requirements of each mix designation. The Department will obtain samples for verification and approval prior to its use.

The maximum allowable percent of RAP shall be determined by the asphalt content, the percent passing the 0.075 mm sieve, the ratio between the percent passing the 0.075 mm sieve and the asphalt content, and Coarse Micro-Deval loss values as tested by the Department.

The maximum percentage of RAP allowable shall be the lowest percentage as determined according to Table 4 below:

Classification	Maximum RAP Percentage Allowed	Asphalt content standard deviation	Percent passing 0.075 mm sieve standard deviation	Percent passing 0.075 mm sieve / asphalt content ratio	Residual aggregate M-D loss value
Class III	10%	≤ 1.0	N/A	≤ 4.0	≤ 18
Class II	20%	≤ 0.5	≤ 1.0	≤ 2.8	
Class I	30%	≤ 0.3	≤ 0.5	≤ 1.8	

Table 4: Maximum Percent RAP According to Test Results

The Department will monitor RAP asphalt content and gradation during production by testing samples from the stockpile at approximately 15,000 T intervals (in terms of mix production). The allowable variance limits (from the numerical average values used for mix designs) for this testing are determined based upon the maximum allowable RAP percentage and are shown below in Table 5.

Table 5: RAP Verification Limits

Classification	Asphalt content (compared to aim)	Percent passing 0.075 mm sieve (compared to aim)
Class III	± 1.5	± 2.0
Class II	± 1.0	± 1.5
Class I	± 0.5	± 0.7

For specification purposes, RAP will be categorized as follows:

Class III – A maximum of 10.0 percent of Class III RAP may be used in any base, intermediate base, surface, or shim mixture. A maximum of 20.0 percent of Class III RAP may be used in hand-placed mixes for item 403.209.

Class II – A maximum of 20.0 percent Class II RAP in any base, binder, surface, or shim course.

Class I – A maximum of 20.0 percent Class I RAP may be used in any base, intermediate base, surface, or shim mixture without requiring a change to the specified asphalt binder. A maximum of 30.0 percent Class I RAP may be used in in any base or intermediate base mixture provided that a PG 58-28 or PG 58-34 asphalt binder is used. A maximum of 30.0 percent Class I RAP may be used in any surface or shim mixture provided that PG 58-34 asphalt binder is used. Mixtures exceeding 20.0 percent Class I RAP must be evaluated and approved by the Department.

The Contractor may use up to two different RAP sources in any one mix design. The total RAP percentage of the mix shall not exceed the maximum allowed for the highest classification RAP source used (i.e. if a Class I & Class III used, total RAP must not exceed 30.0%). The blended RAP material must meet all the requirements of the classification for which the RAP is entered (i.e. 10% Class III with 20% Class I, blend must meet Class I criteria). The Department may take belt cuts of the blended RAP to verify the material meets these requirements. If the Contractor elects to use more than one RAP source in a design, the Contractor shall provide an acceptable point of sampling blended RAP material from the feed belt.

In the event that RAP source or properties change, the Contractor shall notify the Department of the change and submit new documentation stating the new source or properties a minimum of 72 hours prior to the change to allow for obtaining new samples and approval.

Revise this Section by removing 703.7 and 703.9 in its entirety and replace with the following:

703.07 Aggregates for HMA Pavements Coarse and fine aggregate for hot mix asphalt pavements shall be of such gradation that when combined in the proper proportions, including filler, if required, the resultant blend will meet the composition of mixture for the type of pavement specified.

Coarse aggregate, that material retained on the No. 4 sieve, shall be crushed stone or crushed gravel and, unless otherwise stipulated, shall consist of clean, tough, durable fragments free from an excess of soft or disintegrated pieces and free from stone coated with dirt or other objectionable matter. Coarse aggregate shall not exceed an absorption of 2.0 percent by weight as determined by AASHTO T 85.

Fine aggregate, material that passes the No. 4 sieve, shall consist of natural sand, manufactured sand, or a combination of these. It shall consist of hard, tough grains, free from injurious amounts of clay, loam, or other deleterious substances. Fine aggregate shall not exceed an absorption of 2.3 percent by weight as determined by AASHTO T 84.

All individual aggregates for hot mix asphalt pavements shall meet Table 3 requirements (excluding LCP) unless otherwise noted. The Department reserves the right to sample and test the aggregate for any of the following properties at any time:

TABLE 3: Aggregate Consensus Properties Criteria

Estimated Traffic, Million 18 kip ESALs	AASHTO T 335 (minimum %)	AASHTO T 304 Method A **	ASTM D 4791 Method B	AASHTO T 176	Aggregate shall meet at least one of these:		
					AASHTO T 327	AASHTO T 96	WSDOT T 113*
< 3.0	75/60	≥ 40%	≤ 10%	≥ 45	≤ 18.0%	≤ 40%	≥ 30
3.0 to < 10	90/80	≥ 45%		≥ 50		≤ 35%	
≥ 10	95/90					≤ 30%	N/A

* As determined by Washington State DOT Test Method T 113, Method of Test for Determination of Degradation Value except that the reported degradation value will be the result of testing a single composite specimen from that portion of the sample that passes the ½ inch sieve and is retained on the No. 10 sieve.

** Property will be evaluated on a mix design basis by calculating a weighted average based upon individual aggregate values (weighted average by the percentage proportion of the aggregate within the design).

AASHTO T 335 - “90/80” denotes that 90 percent of the coarse aggregate has one fractured face and 80 percent has two fractured faces.

AASHTO T 304 - Criteria are presented as percent air voids in loosely compacted fine aggregate, (U).

ASTM D4791 - Criteria are presented as maximum percent by weight of flat and elongated particles (5:1 ratio).

The entire HMA wearing course shall come from the same source of material and the same job mix formula, except when permission is obtained from the Department to change sources.

703.09 HMA Mixture Composition The coarse and fine aggregate shall meet the requirements of Section 703.07. The several aggregate fractions for mixtures shall be sized, graded, and combined in such proportions that the resulting composite blends, including RAP aggregate will meet the grading requirements of the following table:

Aggregate Gradation Control Points						
Nominal Maximum Aggregate Size---Control Points (Percent Passing)						
Sieve Designation	Type 25 mm	Type 19 mm	Type 12.5 mm	Type 9.5 mm	Type 9.5 mm Thin Lift Mixture (TLM)	Type 4.75 mm
Percent By Weight Passing - Combined Aggregate						
37.5 mm	100					
25 mm	90-100	100				
19 mm	-90	90-100	100			
12.5 mm	-	-90	90-100	100	100	100
9.5 mm	-	-	-90	90-100	95-100	95-100
4.75 mm	-	-	-	-90	60-95	80-100
2.36 mm	19-45	23-49	28-58	32-67	47-65	40 - 80
1.18 mm	-	-	-	-	-	-
0.60 mm	-	-	-	-	-	-
0.30 mm	-	-	-	-	-	-
0.075 mm	2.0-6.0	2.0-6.0	2.0-6.0	2.0-7.0*	2.0-7.0*	2.0-7.0

* For 9.5 mm nominal maximum aggregate size mixtures, the maximum design aim for the percent passing the 75 µm sieve is 6.5%.

SECTION 709 REINFORCING STEEL AND WELDED STEEL WIRE FABRIC

709.01 Reinforcing Steel Remove the second paragraph of Section 709.01 of the standard specification beginning with “Low-Carbon, Chromium,...” and replace with the following:

“ Low-carbon, chromium, reinforcing steel shall be deformed bars conforming to the requirements of ASTM A1035. Bars shall be Grade 100 and alloy Type CS unless otherwise specified on the Plans. “

SECTION 710 FENCE AND GUARDRAIL

710.06 Fence Posts and Braces Revise the first Paragraph so that it reads:

“Wood posts shall be of cedar, white oak, or tamarack or other AWP approved species, of the diameter or section and length shown on the plans.”

Remove the fourth paragraph which starts “ That portion of wood posts...”.

Revise the paragraph beginning with “Braces shall be of spruce, eastern hemlock ... so that it now reads:

“Braces shall be of spruce, eastern hemlock, Norway pine, pitch pine, or tamarack timbers or other AWP approved species, or spruce, cedar, tamarack or other AWP approved species round posts of sufficient length to make a diagonal brace between adjacent posts. All wood posts and braces shall be pressure-treated in accordance with AASHTO M 133 and AWP U1, UC4A Commodity Specification B: Posts. “

710.07 Guardrail Posts Revise this section so that the first sentence of section a. reads:

“a. Wood posts shall be of Norway pine, southern yellow pine, pitch pine, Douglas fir, red pine, white pine, or eastern hemlock or other AWP approved species.”

Revise the next paragraph so that it reads:

Wood posts and offset brackets shall be preservative treated in accordance with the requirements of AASHTO M 133 and AWP U1, UC4A Commodity Specification B: Posts.

710.08 Guardrail Hardware Revise this subsection by replacing “AASHTO M 298” with “ASTM B695”

SECTION 711 MISCELLANEOUS BRIDGE MATERIAL

711.06 Stud Shear Connector Anchors and Fasteners Amend this section by deleting it in its entirety and replacing it with:

“Shear connectors shall meet the dimensional tolerances of Figure 9.1 of the ANSI/AASHTO/AWS D1.5 Bridge Welding Code (D1.5 Code). Shear connectors, anchors and fasteners shall meet the material requirements of Section 9 of the D1.5 Code. Shear connectors shall meet the mechanical property requirements of Table 9.1, Type B of the D1.5 Code. Anchors and fasteners shall meet the mechanical property requirements of Table 9.1 of the D1.5 Code, Type A.”

SECTION 712 MISCELLANEOUS HIGHWAY MATERIAL

712.061 Structural Precast Units Amend this section by adding the following sentence to the end of the first paragraph of the Construction subsection:

“Facilities certified by NPCA or PCI shall provide to the Fabrication Engineer a copy of their annual audit to include deficiency reports and corrective actions.”

Revise this section by changing the letter “b” of ASTM C1611 of the Concrete Testing subsection so that it reads:

“b. Air content shall be 5.0% to 8.0%.”

SECTION 713 STRUCTURAL STEEL AND RELATED MATERIAL

Section 713.01 Structural Steel Replace paragraph two in its entirety with the following:

“Main load-carrying components subject to tensile stresses or stress reversal shall meet the notch toughness requirements in AASHTO M 270M, Table 11, Zone 2, for non-fracture critical steel or Table 12, Zone 2 for fracture critical steel. Frequency of tension tests shall comply with the requirements of S1.”

Section 713.02 High Strength Bolts Revise this subsection by removing the portion from the beginning up to and including TABLE 1 – Test Schedule*, and replace it with:

“Bolts shall conform to the requirements of ASTM F3125, Grade A325, Type 1 or Type 3. Type 3 bolts shall be supplied for all structures utilizing unpainted AASHTO M 270M weathering steel. Type 1 galvanized bolts shall be used for all structures utilizing metallized or galvanized steel.

Nuts shall meet the requirements of ASTM A563.

Circular and beveled washers shall conform to the requirements of ASTM F436.

Direct Tension Indicators (DTI’S) shall conform to the requirements of ASTM F959. DTI’s for use with painted steel shall have a plain “as fabricated” finish. DTI’s for use with unpainted steel shall be galvanized to the requirements of ASTM B695 Class 50, Type I and have a fusion-bonded epoxy coating. DTI’s used with galvanized steel, metallized steel and steel coated with a zinc-rich primer shall be galvanized to the requirements of ASTM B695 Class 50, Type I.

“Twist Off” Type Tension Control Structural Bolt/Nut/Washer Assemblies shall meet the requirements of ASTM F3125, Grade F1852.

Bolts, nuts and washers specified to be galvanized, shall be galvanized in accordance with AASHTO M 232 (ASTM A153), ASTM F2329, or ASTM B695 Class 50, Type I.

All fastener (bolts and nuts), whether black or galvanized, shall be coated with a suitable lubricant. Galvanized nuts shall be lubricated with a lubricant containing a visible dye.

Each lot of bolts, nuts, washers and DTI's shall be tested by the manufacturer in accordance with the tests tabulated in Table 1 - Test Schedule. The testing frequency for bolts, nuts and washers from each shipping lot of fasteners shall be as specified in the applicable AASHTO/ASTM Standard Specifications. The testing frequency for each production lot of DTI's shall be as specified in ASTM F959.

TABLE 1 - Test Schedule*

Bolts	Tensile Strength (Wedge Test)	ASTM F606
	Proof Load	ASTM F606
	Hardness	ASTM F606
	Coating Thickness	ASTM B695
Nuts	Proof Load	ASTM F606
	Hardness	ASTM F606
	Coating Thickness	ASTM B695
Washers	Hardness	ASTM F606
	Coating Thickness	ASTM B695
DTI's	Coating Thickness	ASTM B695
	Compression Load	ASTM F959

Section 716

STRUCTURAL ALUMINUM AND RELATED MATERIAL

716.01 Aluminum Railings: Revise this subsection by removing section d. and replacing with:

d. Steel Anchor Assembly Steel spacers for post anchors shall conform to the requirements of ASTM A36. Nuts embedded in concrete shall conform to the requirements of ASTM A307.

Anchor bolts, exposed nuts and washers shall conform to the requirements of ASTM A449 or ASTM F1554, Grade 55 and shall be galvanized in accordance with AASHTO M 232 (ASTM A153), ASTM F2329, or ASTM B695, Class 50, Type I.

SECTION 718

TRAFFIC SIGNALS MATERIAL

718.03 Signal Mounting Amend the paragraph beginning with “All trunions, brackets and...” by adding “**For polycarbonate signal heads with more than 3 sections or requiring mounting extensions greater than 12 inches in length, reinforcing plates shall be used to reinforce the housings at the point of attachment.**” to the end of the paragraph.

718.08 Controller Cabinet Revise this subsection by replacing the paragraph beginning with “The cabinet shall be supplied with LED light panels...” on or about page 7-66 with **“The cabinet shall be supplied with white LED light panels which shall automatically illuminate via a door open switch whenever one of the four main cabinet doors are opened for the ground mount cabinet or two main doors for the side of pole cabinet. The ground mounted cabinet shall contain four LED light panels per side totaling eight panels for the cabinet; one panel each at the top and bottom portion of the front side and back side on the Control side and Power/Auxiliary side of the cabinet. Each light panel shall produce a minimum of 250 lumens for a total minimum lumen output of 2000 lumens with all eight panels illuminated. The minimum output per side would be 1000 lumens. The LED panels shall be protected by a clear shatterproof shield. The side of pole mounted cabinet shall contain four light panels; one at the top of the rack assembly and one at the bottom rack assembly on each side of the cabinet.**

A second door open status switch per door shall activate a controller input to log a report event that one of the doors was opened. All door open status switches shall be connected to the same controller input. For the ground mount cabinet, there shall be two switches on each of the four main doors. For the side-of-pole mount cabinet, there shall be two switches on each of the two main doors.”

Revise this subsection by replacing the paragraph beginning with “The cabinet shall be supplied with a generator panel ...” on or about page 7-68 with:

“The cabinet shall be supplied with a generator panel. The generator panel shall consist of a manual transfer switch and a twist-lock connector for generator hookup. The transfer switch knob and twist-lock connector shall be located inside a stainless steel enclosure with a separate lockable door accessed with a Corbin #2 key. The unit shall be mounted on the left, exterior of the control side wall of the ground mount cabinet a minimum of 36” above the surrounding grade and on the lower left side of the pole mounted cabinet. The generator transfer switch shall be a Reliance C30A1N Signa Series or approved equal. “

Revise this subsection by removing the following from the paragraph beginning with “The ground mounted cabinet shall be supplied and installed with an electric service meter socket trim and electrical service disconnect switch ...” on or about page 7-69: **“(removed: thus preventing that space from being used either by equipment supplied as part of the project, or future equipment that would be installed in the rack system. Joe indicated that he would add this language to the detail so it is covered.)”**.

Revise this subsection by replacing the following in the paragraph beginning with “The Contractor shall reconfigure the default user name...” on or around page 7-70; “MaineDOT IT” with **“MaineDOT Traffic Division”**.

In the paragraph beginning with “Tests shall be conducted by the contractor...” on or around page 7-73, amend this subsection by removing **“in the state of Maine and”** after “The facility shall be”.

Amend this Section by adding the following subsection:

718.13 Field Monitoring Unit (FMU) This item of work shall conform to this specification. This item shall consist of furnishing and installing a Field Monitoring Unit (FMU) and software, as well as all needed accessories required for a full and complete installation, including but not limited to power adapters, Ethernet cables, and interface cables, as described herein.

Where applicable, communications from MaineDOT's cloud-based Central Management System (CMS) to the on-street traffic signal controllers shall be made through fiber optic interconnect cable connected back to existing internet connections and/or the Field Monitoring Unit (FMU). The Contractor shall furnish and install all materials necessary for a complete and operational fiber optic interconnection to all project intersections as shown on the plans. All connections to the CMS cloud-based system shall be via a secure VPN network.

The FMU shall be the only remote connection device used by isolated intersections to connect to the cloud-based system. All connections shall be encrypted VPN tunnels. The Contractor shall coordinate all configuration settings with MaineDOT IT and the Engineer.

The FMU central web based interface shall be a separate element from the CMS.

MATERIALS: The materials for this work shall conform to the following requirements:

1. The work under this item specifies the requirements for the FMU. The FMU shall operate independent of the brand/type of intersection controller deployed in the ATC traffic cabinet.
2. The FMU shall conform to the following requirements:
 - 2.1 The FMU shall function correctly between -34 degrees C and +74 degrees C.
 - 2.2 The FMU shall be provided with appropriately rated connectors that allows the FMU to be exchanged by unplugging connectors, without tools.
 - 2.3 The FMU shall monitor and log all ATC Controller and ATC cabinet faults and or alarms.
 - 2.4 The FMU shall be wired directly to the ATC cabinet.
 - 2.5 The FMU shall have an internal cellular modem running at 4G LTE.
 - 2.5.1 The Cellular modem shall be designed to be replaced / upgraded to 5G service when available.
 - 2.6 The FMU shall incorporate an integrated GPS and cell modem.
 - 2.7 The configuration of the FMU shall be accomplished by accessing the internal web server with a browser. It shall be possible to configure the FMU without any special software.
 - 2.8 The FMU shall be powered via a standard 120V input power.

- 2.9 The FMU shall allow for the routing of the controller configuration packets to and from the controller (either by Ethernet or serial communications) for any type of controller utilized by the MaineDOT. In this way it shall be possible to configure the controller and utilize the controller specific software to interrogate the controller, and the FMU shall provide the communications pipe which allows this to be accomplished.
- 2.10 The FMU shall, within the size limitations above, include a battery and battery charging/monitoring circuit, to allow the FMU to function correctly even when all power to the intersection has failed. The battery shall continue to power the FMU for a minimum of 5 hours after all power has failed to the intersection.
- 2.11 The FMU shall incorporate an integrated GPS which will allow the FMU to geo-locate itself on the FMU management software map, without configuration.
- 2.12 The FMU shall operate without requiring a static IP address. The only configuration required at the FMU is to enter the URL of where the FMU management software is hosted.
- 2.13 In the event that the cell service is interrupted or is not available, the FMU shall store any events that occur in internal memory and forward these events automatically to the FMU management software when the cell service is restored. In this way, a complete record of events at the device can be maintained even if cell service is interrupted for a period. The system will store 5000 events.
- 2.14 The FMU shall utilize HTTP and HTTPS protocols, and XML data structures, for communication with the FMU management software. In this way the data will be open for future expansion and competition. The use of secret proprietary protocols is not permitted.
- 2.15 The FMU shall include Ethernet communications via an Ethernet Port with RJ45 connector.
- 2.16 The FMU shall include weather proof antennas.

3. Map Display FMU Management Software

- 3.1 The FMU shall include a scrollable, zoomable map display, with the intersections and other monitored devices shown as representative icons on the map. The map shall include the ability to see the intersections using Google Streetview.
- 3.2 The alarm status of the intersection shall be clearly indicated on the icon on the map, so that the user can see at a glance which intersections are in alarm.
- 3.3 The map display shall also include a list of intersections, with the number and priority of alarms indicated on the list. Intersections in high priority alarm shall be moved to the top

of the list, followed by medium priority, low priority and then finally by intersections not in alarm.

- 3.4 The icons shall change to be able to clearly indicate if an intersection is offline.
- 3.5 Clicking on the icon on the map shall expose a box with the current parameters of the intersection shown.
- 3.6 The default map display position and zoom shall be configurable by user, so that the user's view will default to show the intersections that the user is responsible for managing.
- 3.7 The map view shall have the ability to show Google traffic overlays on the map.

4. Intersection Detail Display FMU Management Software

- 4.1 It shall be possible to drill down, either from the map icon or from the list, to a device level detail for the intersection, which as a minimum shall display the following parameters:
 - 4.1.1 The alarm status, with priority indicated, and a text description of the alarm (if an alarm is present for this device).
 - 4.1.2 The time since the last communication with the device
 - 4.1.3 The following parameters (real time now values, minimum for the day values, maximum for the day values, and average for the day values)
 - 4.1.3.1 The AC mains voltage (value)
 - 4.1.3.2 The battery back-up voltage (value)
 - 4.1.3.3 The cabinet temperature (value)
 - 4.1.3.4 The cabinet humidity (value)
 - 4.1.3.5 The presence of AC power (OK or Fail)
 - 4.1.3.6 The flashing status of the intersection (OK or Flashing)
 - 4.1.3.7 Stop Time status (OK or Stop Time Active)
 - 4.1.3.8 The cabinet door status (Open or Closed)
 - 4.1.3.9 The intersection fan status (Fan On or Fan off)

4.1.4 It shall be possible to view graphs of each of the value parameters in graphical form, over the recent two-week period. This includes real time graphs of:

4.1.4.1 The AC mains voltage

4.1.4.2 The battery back-up voltage

4.1.4.3 The cabinet temperature

4.1.4.4 The cabinet humidity

5. Diagnostics and Log Display FMU Management Software

5.1 From the device level detail within the FMU management software, it shall be possible to drill down to get the raw data; the error logs; and the communications logs to allow a technician to fault-find problems.

5.2 It shall be possible to filter the logs by Device; by Device Type and/or by Group as well as between dates.

5.3 It shall be possible to print these selected logs to a local printer or a PDF file.

5.4 It shall be possible to export these logs to Excel on the local computer for further analysis.

6. Alarms FMU Management Software

6.1 The FMU management software shall have a comprehensive alarm generation capability

6.2 It shall be possible to configure alarms to be generated on any parameter becoming out of tolerance, including analog values, digital values and enumerated values.

6.3 Alarms shall be configurable to be of Low, High or Critical Priority.

6.4 The alarm priority shall be displayed throughout the FMU management software, on all displays, using color codes such as red-critical; yellow – high; and amber-low to indicate the priority of the alarm.

6.5 The current active alarms shall be accessible for view via an expandable window, to see which alarms are active and when the alarm occurred. The highest priority alarms shall rise to the top of the list.

7. Alerts FMU Management Software

7.1 The FMU management software shall have comprehensive alerting capability, to enable the response personnel to be notified when an abnormal situation has occurred.

- 7.2 It shall be possible to configure alerts to one or more personnel for each alarm. This will cause, as selected, an SMS and/or an email to be sent to the person when an alarm occurs.
- 7.3 The alert shall be configurable to optionally send via email and/or via SMS a message when an alarm clears.
- 7.4 The intention is that the FMU management software provides the alerts to the user in near real time. The SMS and email shall be issued within 30 seconds of the occurrence of event which results in an alert being issued.

8. Hosting and Connectivity and Service FMU / FMU Management Software

- 8.1 The contractor shall supply the FMU with the FMU manufacturers 10 year options for Connectivity and Service, as part of the purchase price. The Connectivity and Service agreement shall include at a minimum:
- 8.1.1 Cellular Connectivity
 - 8.1.2 No cellular overage charges
 - 8.1.3 Extended warranty on the hardware for the period of the Connectivity and Service Agreement
 - 8.1.4 Over-the-air software updates
 - 8.1.5 Over-the-air security updates
 - 8.1.6 Future Connected Vehicles Service

Section 719 **SIGNING MATERIAL**

719.072 Overhead Signing: Revise this subsection by replacing it in entirety with:

“Sign panels mounted to independent sign support structures and support structure components mounted to bridges passing over the highway are considered to be overhead signing. Overhead signing shall be mounted on W6 by 9 steel beams conforming to the requirements of ASTM A992/A992M, galvanized in accordance with AASHTO M 111 (ASTM A123), or the same size aluminum beams conforming to ASTM B221M, alloys and tempers of 6061-T6, 6063-T6 or 6005-T5. These components shall be horizontally spaced a maximum of 5¼ feet on center, extending from the bottom of sign panel to the top. If supplemental signs are included in the contract, these beams will extend from the bottom of the main sign panel to the top of the supplemental sign panel. The maximum distance from the edge of the sign to the center of the W6 by 9 shall not exceed approximately 3¼ feet.

On independent sign support structures, these W6 by 9 beam components shall be fastened to chords with a pair of appropriately sized U-bolts on each side of the web at each fastening

location. A similar pair of U-bolt assemblies shall be used in attaching each chord of an overhead component to upright supports. U-bolts for steel support structures shall conform to ASTM A449, Type 1. U-bolt hardware, which includes nuts, flat washers, and helical lock washers, shall be galvanized in accordance with AASHTO M 232 (ASTM A153), ASTM F2329, or ASTM B695, Class 50, Type I. Washers shall conform to the requirements of ASTM F436. The U-bolt material for aluminum support structures, or a combination of steel and aluminum structural components, shall be stainless steel conforming to the requirements of ASTM F593, alloy group 1, with a minimum yield strength of 45 ksi. Steel support structures may also utilize stainless steel hardware assemblies as an alternative to galvanized steel. Nuts shall be of the locking type with nylon inserts. Washers shall conform to the requirements of ASTM A276, Type 302. Flat washers, without helical lock washers, will be acceptable in this stainless steel assembly.

On bridge mounted structures, the fastener configurations shall be depicted in the contract documents. “

SECTION 720 STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS

720.03 Steel Supports: Revise this subsection by removing the paragraph beginning with “Chord flange splice fastener” and replacing with:

“Chord flange splice fastener assemblies shall conform to ASTM A325, Type 1, and galvanized in accordance with AASHTO M 232 (ASTM A153), ASTM F2329, or ASTM B695, Class 50, Type I. Other fastener assemblies shall be as specified in Section 719.07, or as approved by the Fabrication Engineer.”

720.06 Steel H-beam: Revise this subsection by replacing it in its entirety with:

“Steel H-beam Post shall conform to the requirements of ASTM A992. All work shall conform to the applicable provisions of Section 504 – Structural Steel. Steel shall be hot-dip galvanized in accordance with AASHTO M 111 (ASTM A123). All steel hardware for use with H-beam poles shall be galvanized in accordance with AASHTO M 232 (ASTM A153), ASTM F2329, or ASTM B695, Class 50, Type I.”

720.07 Anchor Bolts: Revise this subsection by replacing it in its entirety with:

“Anchor bolts and nuts supplied for aluminum and/or steel supports shall conform to ASTM A449, Type 1, or ASTM F1554, Grade 55, both with a minimum yield strength of 55 ksi. Anchor bolts shall be supplied with 2 heavy hex nuts and 2 hardened washers and unless otherwise specified the anchor bolts shall have a 90° bend with a 6 inch minimum leg length at the lower end. The anchor bolts, nuts and hardened washers shall be galvanized in accordance with AASHTO M 232 (ASTM A153), ASTM F2329, or ASTM B695, Class 50, Type I. The bolt

shall be zinc-coated 12 inches from the exposed end, unless otherwise specified. If the anchor bolts are to be used with breakaway devices incorporating the function of a nut, for example, longitudinally grooved breakaway couplings, nuts or washers will not be required.

Alternate materials, grades, and designs may be used for anchor bolts subject to approval of the Fabrication Engineer.”

720.09 Wood Ornamental Light Standard: Revise this subsection by removing the paragraph beginning with “All bolts shall be” and replacing it with:

“All bolts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), ASTM F2329, or ASTM B695, Class 50, Type I.”

720.12 Wood Sign Posts Revise the first sentence so that it reads:

“Wood sign posts shall be rectangular, straight and sound timber, cut from live growing native spruce, red pine, hemlock, cedar trees or other AWWA approved species, free from loose knots or other structurally weakening defects of importance, such as shake or holes or heart rot.”

Revise the third paragraph that starts with “When pressure treated...” so that it reads:

“All sign posts shall be pressure-treated in accordance with AASHTO M 133 and AWWA Standard U1, UC4A, Commodity Specification A: Sawn Products.”

APPENDIX A TO DIVISION 100

SECTION 1 - BIDDING PROVISIONS

A. Federally Required Certifications By signing and delivering a Bid, the Bidder certifies as provided in all certifications set forth in this Appendix A - Federal Contract Provisions Supplement including:

- Certification Regarding No Kickbacks to Procure Contract as provided on this page 1 below.
- Certification Regarding Non-collusion as provided on page 1 below.
- Certification Regarding Non-segregated Facilities as provided by FHWA Form 1273, section III set forth on page 21 below.
- "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion" as provided by FHWA Form 1273, section XI set forth on page 32 below.
- "Certification Regarding Use of Contract Funds for Lobbying" as provided by FHWA Form 1273, section XII set forth on page 35 below.

Unless otherwise provided below, the term "Bidder", for the purposes of these certifications, includes the Bidder, its principals, and the person(s) signing the Bid. Upon execution of the Contract, the Bidder (then called the Contractor) will again make all the certifications indicated in this paragraph above.

CERTIFICATION REGARDING NO KICKBACKS TO PROCURE CONTRACT Except expressly stated by the Bidder on sheets submitted with the Bid (if any), the Bidder hereby certifies, to the best of its knowledge and belief, that it has not:

(A) employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other than a bona fide employee working solely for me) to solicit or secure this contract;

(B) agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the contract, or;

(C) paid, or agreed to pay, to any firm, organization, or person (other than a bona fide employee working solely for me) any fee, contribution, donation, or consideration of any kind for, or in connection with, procuring or carrying out the contract;

By signing and submitting a Bid, the Bidder acknowledges that this certification is to be furnished to the Maine Department of Transportation and the Federal Highway Administration, U.S. Department of Transportation in connection with this contract in anticipation of federal aid highway funds and is subject to applicable state and federal laws, both criminal and civil.

CERTIFICATION REGARDING NONCOLLUSION Under penalty of perjury as provided by federal law (28 U.S.C. §1746), the Bidder hereby certifies, to the best of its knowledge and belief, that:

the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with the Contract.

For a related provisions, see Section 102.7.2 (C) of the Standard Specifications - "Effects of Signing and Delivery of Bids" - "Certifications", Section 3 of this Appendix A entitled "Other Federal Requirements" including section XI - "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion" and section XII. - "Certification Regarding Use of Contract Funds for Lobbying."

B. Bid Rigging Hotline To report bid rigging activities call: **1-800-424-9071**

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

SECTION 2 - FEDERAL EEO AND CIVIL RIGHTS REQUIREMENTS

Unless expressly otherwise provided in the Bid Documents, the provisions contained in this Section 2 of this "Federal Contract Provisions Supplement" are hereby incorporated into the Bid Documents and Contract.

A. Nondiscrimination & Civil Rights - Title VI The Contractor and its subcontractors shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Department deems appropriate. The Contractor and subcontractors shall comply with Title VI of the Civil Rights Act of 1964, as amended, and with all State of Maine and other Federal Civil Rights laws.

For related provisions, see Subsection B - "Nondiscrimination and Affirmative Action - Executive Order 11246" of this Section 2 and Section 3 - Other Federal Requirements of this "Federal Contract Provisions Supplement" including section II - "Nondiscrimination" of the "Required Contract Provisions, Federal Aid Construction Contracts", FHWA-1273.

B. Nondiscrimination and Affirmative Action - Executive Order 11246 Pursuant to Executive Order 11246, which was issued by President Johnson in 1965 and amended in 1967 and 1978, this Contract provides as follows.

The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be

based upon its efforts to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

Ensure and maintain a working environment free of harassment, intimidations, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all forepersons, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its union have employment opportunities available, and to maintain a record of the organization's responses.

Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

Provide immediate written notification to the Department's Civil Rights Office when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Design-Builder's efforts to meet its obligations.

Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under B above.

Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligation; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring,

assignment, layoff, termination, or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Forepersons, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractor's and Subcontractors with whom the Contractor does or anticipates doing business.

Direct its recruitment efforts, both orally and written to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above describing the openings, screenings, procedures, and test to be used in the selection process.

Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth, both on the site and in other areas of a Contractor's workforce.

Validate all tests and other selection requirements.

Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction Contractor's and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

C. Goals for Employment of Women and Minorities Per Executive Order 11246, craft tradesperson goals are 6.9% women and .5% minorities employed. However, goals may be adjusted upward at the mutual agreement of the Contractor and the Department. Calculation of these percentages shall not include On-the-Job Training Program trainees, and shall not include clerical or field clerk position employees.

For a more complete presentation of requirements for such Goals, see the federally required document "Goals for Employment of Females and Minorities" set forth in the next 6 pages below.

Start of GOALS FOR EMPLOYMENT OF FEMALES AND MINORITIES
Federally Required Contract Document

§60-4.2 Solicitations

- (d) The following notice shall be included in, and shall be part of, all solicitations for offers and bids on all Federal and federally assisted construction contracts or subcontracts in excess of \$10,000 to be performed in geographical areas designated by the Director pursuant to §60-4.6 of this part (see 41 CFR 60-4.2(a)):

Notice of Requirement for Affirmative Action to Ensure Equal Opportunity (Executive Order 11246)

1. The Offeror's or bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

<u>Goals for female participation in each trade</u>	6.9%

Goals for minority participation for each trade

Maine

001 Bangor, ME	0.8%

Non-SMSA Counties (Aroostook, Hancock, Penobscot, Piscataquis, Waldo, Washington)

002 Portland-Lewiston, ME

SMSA Counties: 4243 Lewiston-Auburn, ME (Androscoggin)	0.5%

6403 Portland, ME (Cumberland, Sagadahoc)	0.6%

Non-SMSA Counties: (Franklin, Kennebec, Knox, Lincoln, Oxford, Somerset, York)	0.5%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non federally involved construction.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be in violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor, estimated dollar amount of the subcontract; estimated started and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the Contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

- a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
- b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
- c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department form 941;
- d. "Minority" includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

- (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of the North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
 3. If the contractor, is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors for Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
 4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a. through p. of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical areas where the work is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specific.
 5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant, thereto.
 6. In order for the non working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the

apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as expensive as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation, coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, when possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.
 - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment sources or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
 - d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.
 - f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific

review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment, efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing prior to the date for the acceptance of applications for apprenticeship or the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on site and in other areas of a Contractor's work force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of

solicitation to minority and female contractor associations and other business associations.

- p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7 a through p.). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7 a through p. of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program and reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions take on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, specific minority group of women is underutilized.)
10. The Contractor shall not use the goals and timetables or affirmative action even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if standards to discriminate against any person because of race, color, religion, sex, or national origin.
11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementation regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the

requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.6.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and location at which the work was performed. Records be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

End of GOALS FOR EMPLOYMENT OF FEMALES AND MINORITIES
Federally Required Contract Document

D. Section '**D Disadvantaged Business Enterprise (DBE) Requirements**' is removed in its entirety. The DBE material is in:

Section 105.10 EQUAL OPPORTUNITY AND CIVIL RIGHTS.

SECTION 3 - OTHER FEDERAL REQUIREMENTS

Unless expressly otherwise provided in the Bid Documents, the provisions contained in this Section 3 of this "Federal Contract Provisions Supplement" are hereby incorporated into the Bid Documents and Contract.

A. Buy America

If the cost of products purchased for permanent use in this project which are manufactured of steel, iron or the application of any coating to products of these materials exceeds 0.1 percent of the contract amount, or \$2,500.00, whichever is greater, the products shall have been manufactured and the coating applied in the United States. The coating materials are not subject to this clause, only the application of the coating. In computing that amount, only the cost of the product and coating application cost will be included.

Ore, for the manufacture of steel or iron, may be from outside the United States; however, all other manufacturing processes of steel or iron must be in the United States to qualify as having been manufactured in the United States.

United States includes the 50 United States and any place subject to the jurisdiction thereof.

Products of steel include, but are not limited to, such products as structural steel, piles, guardrail, steel culverts, reinforcing steel, structural plate and steel supports for signs, luminaries and signals.

Products of iron include, but are not limited to, such products as cast iron grates.

Application of coatings include, but are not limited to, such applications as epoxy, galvanized and paint.

To assure compliance with this section, the Contractor shall submit a certification letter on its letterhead to the Department stating the following:

“This is to certify that products made of steel, iron or the application of any coating to products of these materials whose costs are in excess of \$2,500.00 or 0.1 percent of the original contract amount, whichever is greater, were manufactured and the coating, if one was required, was applied in the United States.”

B. Materials

a. Convict Produced Materials References: 23 U.S.C. 114(b)(2), 23 CFR 635.417

Applicability: FHWA's prohibition against the use of convict material only applies to Federal-aid highways. Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal-aid highway construction project if: 1) such materials have been produced by convicts who are on parole, supervised release, or probation from a prison; or 2) such material has been produced in a qualified prison facility, e.g., prison industry, with the amount produced during any 12-month period, for use in Federal-aid projects, not exceeding the amount produced, for such use, during the 12-month period ending July 1, 1987.

Materials obtained from prison facilities (e.g., prison industries) are subject to the same requirements for Federal-aid participation that are imposed upon materials acquired from other sources. Materials manufactured or produced by convict labor will be given no preferential treatment.

The preferred method of obtaining materials for a project is through normal contracting procedures which require the contractor to furnish all materials to be incorporated in the work. The contractor selects the source, public or private, from which the materials are to be obtained (23 CFR 635.407). Prison industries are prohibited from bidding on projects directly (23 CFR 635.112e), but may act as material supplier to construction contractors.

Prison materials may also be approved as State-furnished material. However, since public agencies may not bid in competition with private firms, direct acquisition of materials from a prison industry for use as State-furnished material is subject to a public interest finding with the Division Administrator's concurrence (23 CFR 635.407d). Selection of materials produced by convict labor as State-furnished materials for mandatory use should be cleared prior to the submittal of the Plans Specifications & Estimates (PS&E).

b. Patented/Proprietary Products References: 23 U.S.C. 112, 23 CFR 635.411

FHWA will not participate, directly or indirectly, in payment for any premium or royalty on any patented or proprietary material, specification, or process specifically set forth in the plans and specifications for a project, unless:

- the item is purchased or obtained through competitive bidding with equally suitable unpatented items,
- the STA certifies either that the proprietary or patented item is essential for synchronization with the existing highway facilities or that no equally suitable alternative exists, or
- the item is used for research or for a special type of construction on relatively short sections of road for experimental purposes. States should follow FHWA's procedures for "Construction Projects Incorporating Experimental Features" ([expermnt.htm](https://www.fhwa.dot.gov/procurement/permmt.htm)) for the submittal of work plans and evaluations.

The primary purpose of the policy is to have competition in selection of materials and allow for development of new materials and products. The policy further permits materials and products that are judged equal may be bid under generic specifications. If only patented or proprietary products are acceptable, they shall be bid as alternatives with all, or at least a reasonable number of, acceptable materials or products listed; and the Division Administrator may approve a single source if it can be found that its utilization is in the public interest.

Trade names are generally the key to identifying patented or proprietary materials. Trade name examples include 3M, Corten, etc. Generally, products identified by their brand or trade name are not to be specified without an "or equal" phrase, and, if trade names are used, all, or at least a reasonable number of acceptable "equal" materials or products should be listed. The licensing of several suppliers to produce a product does not change the fact that it is a single product and should not be specified to the exclusion of other equally suitable products.

c. State Preference References: 23 U.S.C. 112, 23 CFR 635.409

Materials produced within Maine shall not be favored to the exclusion of comparable materials produced outside of Maine. State preference clauses give particular advantage to the designated source and thus restrict competition. Therefore, State preference provisions shall not be used on any Federal-aid construction projects.

This policy also applies to State preference actions against materials of foreign origin, except as otherwise permitted by Federal law. Thus, States cannot give preference to in-State material sources over foreign material sources. Under the Buy America provisions, the States are permitted to expand the Buy America restrictions provided that the STA is legally authorized under State law to impose more stringent requirements.

d. State Owned/Furnished/Designated Materials References: 23 U.S.C. 112, 23 CFR 635.407

Current FHWA policy requires that the contractor must furnish all materials to be incorporated in the work, and the contractor shall be permitted to select the sources from which the materials are to be obtained. Exceptions to this requirement may be made when there is a definite finding, by MaineDOT and concurred in by Federal Highway Administration's (FHWA) Division Administrator, that it is in the public interest to require the contractor to use materials furnished by the MaineDOT or from sources designated by MaineDOT. The exception policy can best be understood by separating State-furnished materials into the categories of manufactured materials and local natural materials.

Manufactured Materials When the use of State-furnished manufactured materials is approved based on a public interest finding, such use must be made mandatory. The optional use of State-furnished manufactured materials is in violation of our policy prohibiting public agencies from competing with private firms. Manufactured materials to be furnished by MaineDOT must be acquired through competitive bidding, unless there is a public interest finding for another method, and concurred in by FHWA's Division Administrator.

Local Natural Materials When MaineDOT owns or controls a local natural materials source such as a borrow pit or a stockpile of salvaged pavement material, etc., the materials may be designated for either optional or mandatory use; however, mandatory use will require a public interest finding (PIF) and FHWA's Division Administrator's concurrence.

In order to permit prospective bidders to properly prepare their bids, the location, cost, and any conditions to be met for obtaining materials that are made available to the contractor shall be stated in the bidding documents.

Mandatory Disposal Sites Normally, the disposal site for surplus excavated materials is to be of the contractor's choosing; although, an optional site(s) may be shown in the contract provisions. A mandatory site shall be specified when there is a finding by MaineDOT, with the concurrence of the Division Administrator, that such placement is the most economical or that the environment would be substantially enhanced without excessive cost. Discussion of the mandatory use of a disposal site in the environmental document may serve as the basis for the public interest finding.

Summarizing FHWA policy for the mandatory use of borrow or disposal sites:

- mandatory use of either requires a public interest finding and FHWA's Division Administrator's concurrence,
- mandatory use of either may be based on environmental consideration where the environment will be substantially enhanced without excessive additional cost, and
- where the use is based on environmental considerations, the discussion in the environmental document may be used as the basis for the public interest finding.

Factors to justify a public interest finding should include such items as cost effectiveness, system integrity, and local shortages of material.

C. Standard FHWA Contract Provisions - FHWA 1273

Unless expressly otherwise provided in the Bid Documents, the following “Required Contract Provisions, Federal Aid Construction Contracts”, FHWA-1273, are hereby incorporated into the Bid Documents and Contract.

Cargo Preference Act : Contractor and Subcontractor Clauses. “Use of United States-flag vessels: The contractor agrees—“(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.”(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.”(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.”(Reorganization Plans No. 21 of 1950 (64 Stat. 1273) and No. 7 of 1961 (75 Stat. 840) as amended by Pub. L. 91-469 (84 Stat. 1036) and Department of Commerce Organization Order 10-8 (38 FR 19707, July 23, 1973)) [42 FR 57126, Nov. 1, 1977]

The Cargo Preference Act requirements apply to materials or equipment that are acquired for a specific Federal-aid highway project. In general, the requirements are not applicable to goods or materials that come into inventories independent of an FHWA funded-contract. For example, the requirements would not apply to shipments of Portland cement, asphalt cement, or aggregates, as industry suppliers and contractors use these materials to replenish existing inventories. In general, most of the materials used for highway construction originate from existing inventories and are not acquired solely for a specific Federal-aid project. However, if materials or equipment are acquired solely for a Federal-aid project, then the Cargo Preference Act requirements apply.”

The United States Department of Transportation (USDOT)

Standard Title VI/Non-Discrimination Assurances

DOT Order No. 1050.2A

The **Maine Department of Transportation** (herein referred to as the "Recipient"), **HEREBY AGREES THAT**, as a condition to receiving any Federal financial assistance from the U.S. Department of Transportation (DOT), through **Federal Highway Administration** (herein referred to as "FHWA" is subject to and will comply with the following:

Statutory/Regulatory Authorities

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 C.F.R. Part 21 (entitled *Non-discrimination In Federally-Assisted Programs Of The Department Of Transportation-Effectuation Of Title VI Of The Civil Rights Act Of 1964*);
- 28 C.F.R. section 50.3 (U.S. Department of Justice Guidelines for Enforcement of Title VI of the Civil Rights Act of 1964);

The preceding statutory and regulatory cites hereinafter are referred to as the "Acts" and "Regulations," respectively.

General Assurances

In accordance with the Acts, the Regulations, and other pertinent directives, circulars, policy, memoranda, and/or guidance, the Recipient hereby gives assurance that it will promptly take any measures necessary to ensure that:

"No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity, for which the Recipient receives Federal financial assistance from DOT, including the FHWA.

The Civil Rights Restoration Act of 1987 clarified the original intent of Congress, with respect to Title VI and other Non-discrimination requirements (The Age Discrimination Act of 1975, and Section 504 of the Rehabilitation Act of 1973), by restoring the broad, institutional-wide scope and coverage of these non-discrimination statutes and requirements to include all programs and activities of the Recipient, so long as any portion of the program is Federally assisted.

Specific Assurances

More specifically, and without limiting the above general Assurance, the Recipient agrees with and gives the following Assurances with respect to its Federally assisted **FHWA Program**.

1. The Recipient agrees that each "activity," "facility," or "program," as defined in §§ 21.23(b) and 21.2(e) of 49 C.F.R. § 21 will be (with regard to an "activity") facilitated, or will be (with regard to a "facility") operated, or will be (with regard to a "program") conducted in compliance with all requirements imposed by, or pursuant to the Acts and the Regulations.
2. The Recipient will insert the following notification in all solicitations for bids, Requests For Proposals for work, or material subject to the Acts and the Regulations made in connection with all **FHWA Programs** and, in adapted form, in all proposals for negotiated agreements regardless of funding source:

*"The **Maine Department of Transportation**, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award."*
3. The Recipient will insert the clauses of Appendix A and E of this Assurance in every contract or agreement subject to the Acts and the Regulations.
4. The Recipient will insert the clauses of Appendix B of this Assurance, as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a Recipient.
5. That where the Recipient receives Federal financial assistance to construct a facility, or part of a facility, the Assurance will extend to the entire facility and facilities operated in connection therewith.
6. That where the Recipient receives Federal financial assistance in the form, or for the acquisition of real property or an interest in real property, the Assurance will extend to rights to space on, over, or under such property.
7. That the Recipient will include the clauses set forth in Appendix C and Appendix D of this Assurance, as a covenant running with the land, in any future deeds,

leases, licenses, permits, or similar instruments entered into by the Recipient with other parties:

- a. for the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and
 - b. for the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.
8. That this Assurance obligates the Recipient for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property, or real property, or interest therein, or structures or improvements thereon, in which case the Assurance obligates the Recipient, or any transferee for the longer of the following periods:
 - A. the period during which the property is used for a purpose for which the Federal financial assistance is extended, or for another purpose involving the provision of similar services or benefits; or
 - b. the period during which the Recipient retains ownership or possession of the property.
9. The Recipient will provide for such methods of administration for the program as are found by the Secretary of Transportation or the official to whom he/she delegates specific authority to give reasonable guarantee that it, other recipients, sub-recipients, sub-grantees, contractors, subcontractors, consultants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed or pursuant to the Acts, the Regulations, and this Assurance.
10. The Recipient agrees that the United States has a right to seek judicial enforcement with regard to any matter arising under the Acts, the Regulations, and this Assurance.

By signing this ASSURANCE, **Maine Department of Transportation** also agrees to comply (and require any sub-recipients, sub-grantees, contractors, successors, transferees, and/or assignees to comply) with all applicable provisions governing the **FHWA's** access to records, accounts, documents, information, facilities, and staff. You also recognize that you must comply with any program or compliance reviews, and/or complaint investigations conducted by the **FHWA**. You must keep records, reports, and submit the material for review upon request to **FHWA** or its designee in a timely, complete, and accurate way. Additionally, you must comply with all other reporting, data collection, and evaluation requirements, as prescribed by law or detailed in program guidance.

Maine Department of Transportation gives this ASSURANCE in consideration of and for obtaining any Federal grants, loans, contracts, agreements, property, and/or discounts, or other Federal-aid and Federal financial assistance extended after the date hereof to the recipients by the U.S. Department of Transportation under the **FHWA Programs**. This ASSURANCE is binding on the State of Maine, other recipients, sub-recipients, sub-grantees, contractors, subcontractors and their subcontractors, transferees, successors in interest, and any other participants in the **FHWA Programs**. The person(s) signing below is authorized to sign this ASSURANCE on behalf of the Recipient.

Maine Department of Transportation
Dale F. Doughty, Commissioner
(Name of Recipient)

By: 
(Signature of Authorized Official)

Dated: 2-13-26

APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, **Federal Aviation Administration (FHWA)**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the **FHWA** to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the **FHWA** as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non- discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the **FHWA** may determine to be appropriate, including, but not limited to:

- a. withholding payments to the contractor under the contract until the contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

APPENDIX B

CLAUSES FOR DEEDS TRANSFERRING UNITED STATES PROPERTY

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of Assurance 4:

NOW, THEREFORE, the U.S. Department of Transportation as authorized by law and upon the condition that the **Maine Department of Transportation** will accept title to the lands and maintain the project constructed thereon in accordance with all requirements imposed by Title 49, Code of Federal Regulations, Department of Transportation, subtitle A, Office of the Secretary, part 21, Non-discrimination in Federally-assisted Programs of the Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), the Regulations for the Administration of **Federal Aviation Administration (FHWA) Program**, and the policies and procedures prescribed by the **FHWA** of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the **Maine Department of Transportation** all the right, title and interest of the U.S. Department of Transportation in and to said lands described in Exhibit A attached hereto and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto **Maine Department of Transportation** and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the **Maine Department of Transportation**, its successors and assigns.

The **Maine Department of Transportation**, in consideration of the conveyance of said lands and interests in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed [,] [and]* (2) that the **Maine Department of Transportation** will use the lands and interests in lands and interests in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non- discrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended[, and (3) that in the event of breach of any of the above-mentioned non-discrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said land, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation

and its assigns as such interest existed prior to this instruction].*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

APPENDIX C

CLAUSES FOR TRANSFER OF REAL PROPERTY ACQUIRED OR IMPROVED UNDER THE ACTIVITY, FACILITY, OR PROGRAM

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the **Maine Department of Transportation** pursuant to the provisions of Assurance 7(a):

- A. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:
 - 1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Acts and Regulations (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.
- B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Non-discrimination covenants, **Maine Department of Transportation** will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.*
- C. With respect to a deed, in the event of breach of any of the above Non-discrimination covenants, the **Maine Department of Transportation** will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the **Maine Department of Transportation** and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

APPENDIX D

CLAUSES FOR CONSTRUCTION/USE/ACCESS TO REAL PROPERTY ACQUIRED UNDER THE ACTIVITY, FACILITY OR PROGRAM

The following clauses will be included in deeds, licenses, permits, or similar instruments/agreements entered into by **Maine Department of Transportation** pursuant to the provisions of Assurance 7(b):

- A. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the Acts and Regulations, as amended, set forth in this Assurance.
- B. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above Non- discrimination covenants, **Maine Department of Transportation** will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued.*
- C. With respect to deeds, in the event of breach of any of the above Non-discrimination covenants, **Maine Department of Transportation** will there upon revert to and vest in and become the absolute property of **Maine Department of Transportation** and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

APPENDIX E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure

compliance with Title VI, you must take reasonable steps to
-ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at
74087 to 74100);

- Title IX of the Education Amendments of 1972, as amended, which prohibits you
from discriminating because of sex in education programs or activities (20 U.S.C.
1681 et seq).



Environmental Summary Sheet

WIN: 27498.10

Date Submitted: 3/13/2026

Town: Augusta, Interstate 95 NB-SB

CPD Team Leader: Joshua Brown

ENV Field Contact (Regional Coordinator): Joshua Brown

NEPA Complete: NEPA certified pursuant to 23 CFR 771.117(c)(26), on 3/13/2026.

Section 106

Review Complete: PA-A

Section 106 Resources: none

Section 4(f) and 6(f)

Section 4(f)

No Real Property Interest

Section 6(f)

No Real Property Interest

Maine Department of Inland Fisheries and Wildlife Essential Habitat

Essential Habitat not mapped within the projects site

Section 7

Species of Concern: Atlantic Salmon -NE
Northern Long-eared Bat-NLAA

Essential Fish Habitat

No Effect

Maine Department of Agriculture, Conservation, and Forestry

Public Lands, Submerged Land Lease: NA

Maine Land Use Planning Commission: NA

Maine Department of Environmental Protection

NA, per scope

Army Corps of Engineers: Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act.

NA per scope

Stormwater Review

NA, based on scope

Hazardous Materials Review

NA, based on scope

Special Provisions Required

Special Provision 203 – Streambed Material

N/A ☒ Applicable ☐

Special Provision 105-Environmental Requirements

N/A ☐ Applicable ☒

Standard Specification 656-Erosion Control Plan

N/A ☐ Applicable ☒

Special Provision 610 – Rock Bands and Banklines

N/A ☒ Applicable ☐

Special Provision 203-Dredge Spec

N/A ☒ Applicable ☐