Updated **12/13/2021**

FEDERAL PROJECT

Effective May 15, 2020
Supersedes April 22, 2020

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.

April 28, 2017
Supersedes November 05, 2014

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 Rebecca Snowden at rebecca.snowden@maine.gov or Diane Barnes at diane.barnes@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:

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, executers, 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: _____

SAMPLE

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.

State of Maine
Department of Transportation

RFI No: _____

REQUEST FOR INFORMATION

Date _____ Time _____

Information Requested for:

WIN(S): _____ Town(s):_____Bid Date: _____

Question(s):_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Request by:

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

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

Complete this form and fax to 207-624-3431, Attn: Project Manager (name listed on the "Notice to Contractors"), or Email questions to RFI-Contracts.MDOT@maine.gov, Please include the word "RFI" along with the Project Name and Identification Number in the Subject line, or electronically by using the RFI Tab located on the Individual Projects Detail page.

NOTICE

Disadvantaged Business Enterprise Proposed Utilization

The Apparent Low Bidder shall submit the Disadvantaged Business Enterprise Proposed Utilization form with their bid. This is a curable bid defect.

The Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan form contains additional information that is required by USDOT.

The Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan form should be used.

A copy of the new Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan and instructions for completing it are attached.

Note: Questions about DBE firms, or to obtain a printed copy of the DBE Directory, contact The Office of Civil Rights at (207) 624-3066.

MDOTs DBE Directory of Certified firms can also be obtained at https://www.maine.gov/mdot/civilrights/dbe/

INSTRUCTIONS FOR PREPARING THE MaineDOT CONTRACTOR'S DBE/SUBCONTRACTOR UTILIZATION 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.

SPECIFIC INSTRUCTIONS FOR COMPLETING THE FORM:

Insert Contractor name, the name of the person(s) preparing the form, and that person(s) telephone, fax number and e-mail address.

Calculate and provide percentage of your bid that will be allocated to DBE firms, Federal Project Identification Number, and location of the Project work.

In the columns, name each subcontractor, DBE and non-DBE firm to be used, provide the Unit/Item cost of the work/product to be provided by the subcontractor, give a brief description and the dollar value of the work.

Revised 1/12

DBE GOAL NOTICE FFY 2022-2024
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.

For FFY 2022-24 (October 1, 2021 through September 30, 2024) MaineDOT has established an annual DBE participation goal of **1.97%** to be achieved through race/gender neutral means. This goal has been approved by the Federal Highway Administration and remains in effect through September 30, 2024. 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 1.97% 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

MaineDOT CONTRACTOR'S DBE/SUBCONTRACTOR PROPOSED UTILIZATION FORM

All Bidders must furnish this form with their bid on Bid Opening day

Contractor: _____ **Telephone:** _____ **Ext** _____

Contact Person: _____ **Fax:** _____

E-mail: _____

BID DATE: _____

FEDERAL PROJECT PIN # _____ **PROJECT LOCATION:** _____

TOTAL ANTICIPATED DBE____% PARTICIPATION FOR THIS CONTRACT

WBE	DBE	Non DBE	Firm Name	Item Number & Description of Work	Quantity	Cost Per Unit/Item	Anticipated $ Value
						Subcontractor Total>	
						DBE Total >	

NOTE: THIS INFORMATION IS USED TO TRACK AND REPORT ANTICIPATED DBE PARTICIPATION IN ALL FEDERALLY FUNDED MAINE DOT CONTRACTS. THE ANTICIPATED DBE AMOUNT IS VOLUNTARY AND WILL NOT BECOME A PART OF THE CONTRACTUAL TERMS.

Equal Opportunity Use:

Form received:___/___/___Verified by: _____

FHWA ☐ FTA ☐ FAA ☐

For a complete list of certified firms and company designation (WBE/DBE) go to http://www.maine.gov/mdot/civilrights/

Rev. 01/15

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) 624-3066

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 Ticonic Bridge Replacement in the city of **WATERVILLE** and in the town of **WINSLOW**" 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 October 5, 2022 and at that time and place, publicly opened and read. **Only bidders prequalified for this specific project will be allowed to submit bids.** 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. 2313800 WIN 023138.00

Location: In Kennebec County, Ticonic Bridge is located on Bridge Street/ Spring Street/ Route 100/ 137/ 201 over the Kennebec River on the Waterville-Winslow town line. Augusta Road/ Route 100/ 201 and Carter Memorial Drive/ Route 137.

Scope of Work: Ticonic bridge replacement, Augusta Road/ Route 100/ 201, and Carter Memorial Drive/ Route 137 improvements plus 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 **Project Manager Mark Parlin** 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.

Plans, specifications and bid forms may be seen at the MaineDOT Building in Augusta, Maine. 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 $138.00 ($146.00 by mail). Half size plans $69.00 ($73.00 by mail), Bid Book $10 ($13 by mail), Single Sheets $2, payment in advance, all non-refundable.

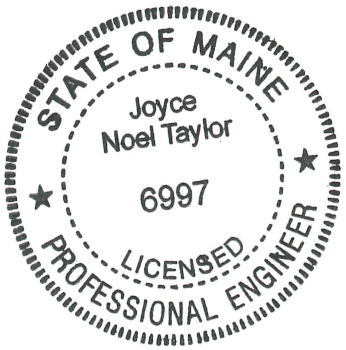
Each Bid must be made upon blank forms provided by the Department and must be accompanied by a bid bond at 5% of the bid amount or an official bank check, cashier's check, certified check, certificate of deposit, or United States postal money order in the amount of 5% of the bid amount, payable to Treasurer, 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
September 7, 2022



Joyce Noel Taylor

JOYCE NOEL TAYLOR P. E.
CHIEF ENGINEER

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)

NOTICE

(COVID-19 Pandemic)

The Department considers the COVID-19 Pandemic an Uncontrollable Event as defined in Section 101.2 of the Department's Standard Specifications.

Accordingly, any documented delay to the project's Critical Path due to COVID-19 related issues, such as impacted workforce, subcontracts, or material supply, will be considered an Excusable Delay as defined in Section 109.5.1(A)(3) of the Department's Standard Specifications.

As an Excusable Delay, the Contractor is entitled to an extension of time provided that other associated notification, documentation, and procedural requirements set forth in the Contract are met.

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0010	202.13 REMOVING EXISTING RAILINGS (RETAINED BY DEPARTMENT)	1,300.000 LF				
0020	202.15 REMOVING EXISTING MANHOLE OR CATCH BASIN	7.000 EA				
0030	202.19 REMOVING EXISTING BRIDGE	LUMP SUM	LUMP SUM			
0040	202.19 REMOVING EXISTING BRIDGE ARCH STRUCTURE	LUMP SUM	LUMP SUM			
0050	202.202 REMOVING PAVEMENT SURFACE	1,250.000 SY				
0060	203.20 COMMON EXCAVATION	2,550.000 CY				
0070	203.21 ROCK EXCAVATION	50.000 CY				
0080	203.25 GRANULAR BORROW	1,200.000 CY				
0090	206.082 STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	3,700.000 CY				
0100	206.092 STRUCTURAL ROCK EXCAVATION - MAJOR STRUCTURES	360.000 CY				
0110	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	1,950.000 CY				

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0120	403.2081 12.5 MM POLYMER MODIFIED HOT MIX ASPHALT	670.000 T				
0130	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	71.000 T				
0140	403.211 HOT MIX ASPHALT (SHIMMING)	35.000 T				
0150	403.2131 12.5 MM POLYMER MODIFIED HMA BASE	920.000 T				
0160	409.15 BITUMINOUS TACK COAT - APPLIED	690.000 G				
0170	461.131 TEMPORARY PAVEMENT	49.000 T				
0180	501.220 MICRO PILES	670.000 EA				
0190	501.2221 ABANDONED MICROPILES	50.000 LF				
0200	501.2331 MICROPILE VERIFICATION LOAD TEST	1.000 EA				
0210	501.25 STEEL CASING 12 INCH GALV	42.000 LF				
0220	501.25 STEEL CASING 24 INCH GALV	32.000 LF				
0230	501.804 DRILLING EQUIPMENT MOBILIZATION	LUMP SUM	LUMP SUM			

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars Cents	Bid Amount Dollars Cents
0240	501.83 DRILLED SHAFT CONFIRMATORY BORINGS	660.000 LF	_____.____	_____.____
0250	502.21 STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS	560.000 CY	_____.____	_____.____
0260	502.219 STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS	LUMP SUM	LUMP SUM	_____.____
0270	502.23 STRUCTURAL CONCRETE PIERS	16.000 CY	_____.____	_____.____
0280	502.239 STRUCTURAL CONCRETE PIERS	LUMP SUM	LUMP SUM	_____.____
0290	502.24 STRUCTURAL CONCRETE PIERS (PLACED UNDER WATER)	730.000 CY	_____.____	_____.____
0300	502.26 STRUCTURAL CONCRETE ROADWAY AND SIDEWALK SLABS ON STEEL BRIDGES	LUMP SUM	LUMP SUM	_____.____
0310	502.31 STRUCTURAL CONCRETE APPROACH SLABS	LUMP SUM	LUMP SUM	_____.____
0320	502.341 STRUCTURAL CONCRETE ROADWAY MEDIAN	5.000 CY	_____.____	_____.____
0330	502.49 STRUCTURAL CONCRETE CURBS AND SIDEWALKS	LUMP SUM	LUMP SUM	_____.____
0340	502.77 FIBER REINFORCED POLYMER BRIDGE DRAIN - TYPE: G	8.000 EA	_____.____	_____.____

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars Cents	Bid Amount Dollars Cents
0350	503.12 REINFORCING STEEL, FABRICATED AND DELIVERED	108,700.000 LB	_____.____	_____.____
0360	503.13 REINFORCING STEEL, PLACING	108,700.000 LB	_____.____	_____.____
0370	503.17 MECHANICAL WELDED SPLICE	2,286.000 EA	_____.____	_____.____
0380	503.19 LOW-CARBON, CHROMIUM REINFORCEMENT - FABRICATED & DELIVERED	510,300.000 LB	_____.____	_____.____
0390	503.20 LOW-CARBON, CHROMIUM REINFORCEMENT - PLACING	510,300.000 LB	_____.____	_____.____
0400	504.702 STRUCTURAL STEEL FABRICATED AND DELIVERED, WELDED	LUMP SUM	LUMP SUM	_____.____
0410	504.71 STRUCTURAL STEEL ERECTION	LUMP SUM	LUMP SUM	_____.____
0420	505.08 SHEAR CONNECTORS	LUMP SUM	LUMP SUM	_____.____
0430	506.9104 THERMAL SPRAY COATING - SHOP APPLIED	LUMP SUM	LUMP SUM	_____.____
0440	507.0834 WYOMING STEEL BRIDGE RAILING	LUMP SUM	LUMP SUM	_____.____
0450	508.14 HIGH PERFORMANCE WATERPROOFING MEMBRANE	LUMP SUM	LUMP SUM	_____.____

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars Cents	Bid Amount Dollars Cents
0460	511.07 COFFERDAM: ABUT NO.1	LUMP SUM	LUMP SUM	_____.____
0470	511.07 COFFERDAM: ABUT NO.2	LUMP SUM	LUMP SUM	_____.____
0480	511.07 COFFERDAM: EXIST PIER 1 REMOVAL	LUMP SUM	LUMP SUM	_____.____
0490	511.07 COFFERDAM: PIER	LUMP SUM	LUMP SUM	_____.____
0500	511.07 COFFERDAM: RIPRAP AND BR REMOVAL	LUMP SUM	LUMP SUM	_____.____
0510	512.081 FRENCH DRAINS	LUMP SUM	LUMP SUM	_____.____
0520	515.21 PROTECTIVE COATING FOR CONCRETE SURFACES	LUMP SUM	LUMP SUM	_____.____
0530	521.23 EXPANSION DEVICE FINGER JOINT	2.000 EA	_____.____	_____.____
0540	523.52 BEARING INSTALLATION	27.000 EA	_____.____	_____.____
0550	523.5551 POT OR DISC BEARINGS, FIXED	9.000 EA	_____.____	_____.____
0560	523.5552 POT OR DISC BEARINGS, EXPANSION	18.000 EA	_____.____	_____.____
0570	524.301 TEMPORARY STRUCTURAL SUPPORT ABUT NO.1	LUMP SUM	LUMP SUM	_____.____

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars Cents	Bid Amount Dollars Cents
0580	524.301 TEMPORARY STRUCTURAL SUPPORT ABUT NO.2	LUMP SUM	LUMP SUM	_____.____
0590	524.301 TEMPORARY STRUCTURAL SUPPORT CLOSURE WALL	LUMP SUM	LUMP SUM	_____.____
0600	524.301 TEMPORARY STRUCTURAL SUPPORT CONSOLIDATED COMMUNICATIONS	LUMP SUM	LUMP SUM	_____.____
0610	524.304 TEMPORARY ACCESS CONSTRUCTION	LUMP SUM	LUMP SUM	_____.____
0620	526.301 PORTABLE CONCRETE BARRIER TYPE I	LUMP SUM	LUMP SUM	_____.____
0630	526.304 PORTABLE CONCRETE BARRIER, ANCHORED TYPE 1	LUMP SUM	LUMP SUM	_____.____
0640	526.34 PERMANENT CONCRETE TRANSITION BARRIER	4.000 EA	_____.____	_____.____
0650	527.34 WORK ZONE CRASH CUSHIONS	3.000 UN	_____.____	_____.____
0660	602.30 FLOWABLE CONCRETE FILL	40.000 CY	_____.____	_____.____
0670	603.155 12 INCH REINFORCED CONCRETE PIPE CLASS III	70.000 LF	_____.____	_____.____
0680	603.159 12 INCH CULVERT PIPE OPTION III	26.000 LF	_____.____	_____.____

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0690	603.169 15 INCH CULVERT PIPE OPTION III	44.000 LF				
0700	603.179 18 INCH CULVERT PIPE OPTION III	64.000 LF				
0710	603.199 24 INCH CULVERT PIPE OPTION III	52.000 LF				
0720	604.072 CATCH BASIN TYPE A1-C	3.700 EA				
0730	604.092 CATCH BASIN TYPE B1-C	2.000 EA				
0740	604.16 ALTERING CATCH BASIN TO MANHOLES	2.000 EA				
0750	604.164 REBUILDING CATCH BASIN	2.000 EA				
0760	604.18 ADJUSTING MANHOLE OR CATCH BASIN TO GRADE	3.000 EA				
0770	604.247 CATCH BASIN TYPE F5-C	1.000 EA				
0780	604.249 CATCH BASIN TYPE F6-C	1.000 EA				
0790	604.252 CATCH BASIN TYPE A5-C	4.200 EA				
0800	605.09 6 INCH UNDERDRAIN TYPE B	350.000 LF				
0810	605.11 12 INCH UNDERDRAIN TYPE C	60.000 LF				

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0820	605.12 15 INCH UNDERDRAIN TYPE C	44.000 LF				
0830	605.15 24 INCH UNDERDRAIN TYPE C	48.000 LF				
0840	606.1301 31” W-BM GR, MID-WAY SPLICE-SGL FACED	79.000 LF				
0850	606.1304 31” W-BM GR, MID-WAY SPLICE-OVER 15' RAD	25.000 LF				
0860	606.1306 31” W-BM GR, MID-WAY SPLICE TANGENT TERMINAL	3.000 EA				
0870	606.1307 BRIDGE TRANSITION (ASYMMETRICAL) - TYPE 1A	2.000 EA				
0880	606.1307 BRIDGE TRANSITION (ASYMMETRICAL) - TYPE 1A MODIFIED	2.000 EA				
0890	606.259 ANCHORAGE ASSEMBLY	1.000 EA				
0900	606.353 REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	7.000 EA				
0910	606.356 UNDERDRAIN DELINEATOR POST	2.000 EA				
0920	606.47 SINGLE WOOD POST	1.000 EA				

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0930	607.17 CHAIN LINK FENCE - 6 FOOT	35.000 LF				
0940	608.26 CURB RAMP DETECTABLE WARNING FIELD	98.000 SF				
0950	609.12 VERTICAL CURB TYPE 1 - CIRCULAR	4.000 LF				
0960	609.221 TERMINAL CURB TYPE 1	31.000 LF				
0970	609.222 TERMINAL CURB TYPE 1 - CIRCULAR	38.000 LF				
0980	609.31 CURB TYPE 3	330.000 LF				
0990	609.38 RESET CURB TYPE 1	520.000 LF				
1000	609.40 RESET CURB TYPE 5	460.000 LF				
1010	610.08 PLAIN RIPRAP	11.000 CY				
1020	610.16 HEAVY RIPRAP	260.000 CY				
1030	610.18 STONE DITCH PROTECTION	5.000 CY				
1040	613.319 EROSION CONTROL BLANKET	190.000 SY				
1050	615.07 LOAM	67.000 CY				

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
1060	618.13 SEEDING METHOD NUMBER 1	2.000 UN				
1070	618.14 SEEDING METHOD NUMBER 2	11.000 UN				
1080	619.12 MULCH	13.000 UN				
1090	620.58 EROSION CONTROL GEOTEXTILE	227.000 SY				
1100	620.66 DRAINAGE GEOCOMPOSITE	110.000 SY				
1110	623.11 REMOVE AND LOAD MONUMENT	 LUMP SUM	 LUMP SUM			
1120	626.11 PRECAST CONCRETE JUNCTION BOX	4.000 EA				
1130	626.21 METALLIC CONDUIT	20.000 LF				
1140	626.22 NON-METALLIC CONDUIT	1,400.000 LF				
1150	626.421 24 INCH DIAMETER FOUNDATION	28.000 LF				
1160	627.733 4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	6,400.000 LF				
1170	627.75 WHITE OR YELLOW PAVEMENT & CURB MARKING	1,900.000 SF				

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
1180	627.77 REMOVING PAVEMENT MARKINGS	1,450.000 SF				
1190	627.78 TEMPORARY 4 INCH PAINTED PAVEMENT MARKING LINE, WHITE OR YELLOW	10,000.000 LF				
1200	629.05 HAND LABOR, STRAIGHT TIME	140.000 HR				
1210	631.10 AIR COMPRESSOR (INCLUDING OPERATOR)	20.000 HR				
1220	631.11 AIR TOOL (INCLUDING OPERATOR)	20.000 HR				
1230	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	20.000 HR				
1240	631.14 GRADER (INCLUDING OPERATOR)	20.000 HR				
1250	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	220.000 HR				
1260	631.22 FRONT END LOADER (INCLUDING OPERATOR)	20.000 HR				
1270	631.32 CULVERT CLEANER (INCLUDING OPERATOR)	20.000 HR				
1280	634.160 HIGHWAY LIGHTING	 LUMP SUM	 LUMP SUM			

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
1290	634.70 ORNAMENTAL LIGHTING	15.000 EA				
1300	639.18 FIELD OFFICE TYPE A	1.000 EA				
1310	643.71 TRAFFIC SIGNAL MODIFICATION BRIDGE ST/ BENTON AVE/ CLINTON AVE/ BAY ST	LUMP SUM	LUMP SUM			
1320	643.71 TRAFFIC SIGNAL MODIFICATION CARTER MEMORIAL DR/ AUGUSTA RD	LUMP SUM	LUMP SUM			
1330	643.711 TRAFFIC SIGNAL MODIFICATION (TEMPORARY) BRIDGE ST/ BENTON AVE/ CLINTON AVE/ BAY ST	LUMP SUM	LUMP SUM			
1340	643.711 TRAFFIC SIGNAL MODIFICATION (TEMPORARY) SPRING ST/ MAIN ST/ WATER ST/ FRONT ST/ BRIDGE ST	LUMP SUM	LUMP SUM			
1350	643.713 TEMPORARY EMERGENCY SYSTEM PREEMPTION MODIFICATION	LUMP SUM	LUMP SUM			
1360	645.103 DEMOUNT GUIDE SIGN	15.000 EA				
1370	645.106 DEMOUNT REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	53.000 EA				
1380	645.108 DEMOUNT POLE	12.000 EA				

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
1390	645.113 REINSTALL GUIDE SIGN	15.000 EA				
1400	645.116 REINSTALL REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	41.000 EA				
1410	645.118 REINSTALL POLE	11.000 EA				
1420	645.292 REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGNS TYPE II	80.000 SF				
1430	652.312 TYPE III BARRICADE	12.000 EA				
1440	652.33 DRUM	70.000 EA				
1450	652.34 CONE	70.000 EA				
1460	652.35 CONSTRUCTION SIGNS	1,200.000 SF				
1470	652.361 MAINTENANCE OF TRAFFIC CONTROL DEVICES	LUMP SUM	LUMP SUM			
1480	652.38 FLAGGER	500.000 HR				
1490	652.41 PORTABLE CHANGEABLE MESSAGE SIGN	4.000 EA				
1500	659.10 MOBILIZATION	LUMP SUM	LUMP SUM			

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
1510	660.21 ON-THE-JOB TRAINING (BID)	4,000.000 HR				
1520	801.03 TEST PITS	10.000 EA				
1530	822.33 6 INCH CLASS 52 DUCTILE IRON PIPE	30.000 LF				
1540	822.34 8 INCH CLASS 52 DUCTILE IRON PIPE	100.000 LF				
1550	822.3407 8 INCH EXPANSION JOINT	2.000 EA				
1560	822.363 12 INCH CLASS 52 DUCTILE IRON PIPE	300.000 LF				
1570	822.50 24 INCH CLASS 52 DUCTILE IRON PIPE	8.000 LF				
1580	823.311 12 INCH GATE VALVE WITH BOX	2.000 EA				
1590	823.3251 8 INCH GATE VALVE WITH BOX	1.000 EA				
1600	823.33 6 INCH GATE VALVE WITH BOX	2.000 EA				
1610	824.30 FIRE HYDRANT	2.000 EA				
1620	825.321 1 INCH CORPORATION	1.000 EA				
1630	827.33 TRENCH INSULATION	40.000 LF				

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
1640	830.104 WATER MAIN BRIDGE CROSSING	610.000 LF				
1650	830.163 GAS MAIN BRIDGE CROSSING, OWNER FURNISHED	620.000 LF				
1660	830.164 HANGER - ROLLER ASSEMBLIES	56.000 EACH				
1670	845.10 STRUCTURAL STEEL UTILITY SUPPORT CHARTER COMMUNICATIONS	LUMP SUM	LUMP SUM			
1680	845.10 STRUCTURAL STEEL UTILITY SUPPORT CMP	LUMP SUM	LUMP SUM			
1690	845.10 STRUCTURAL STEEL UTILITY SUPPORT CONSOLIDATED COMMUNICATIONS	LUMP SUM	LUMP SUM			
1700	845.102 SINGLE STRUCTURAL STEEL UTILITY SUPPORT	56.000 EACH				
1710	910.30 SPECIAL WORK WINTER MAINTENANCE & SNOWPLOWING	12.000 EA				
1720	910.301 SPECIAL WORK CONDUIT - CHARTER COMMUNICATIONS	LUMP SUM	LUMP SUM			
1730	910.301 SPECIAL WORK CONDUIT - CONC DUCT BANK - CMP	LUMP SUM	LUMP SUM			

Proposal ID: 023138.00 Project(s): 023138.00

SECTION: 1 INITIAL GROUP

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars Cents	Bid Amount Dollars Cents
1740	910.301 SPECIAL WORK CONDUIT - CONC DUCT BANK - CONSOLIDATED COMMUNICATIONS	LUMP SUM	LUMP SUM	_____.____
1750	910.301 SPECIAL WORK CONDUIT & HANGERS BRIDGE - CHARTER COMMUNICATIONS	LUMP SUM	LUMP SUM	_____.____
1760	910.301 SPECIAL WORK CONDUIT & HANGERS BRIDGE - CMP	LUMP SUM	LUMP SUM	_____.____
1770	910.301 SPECIAL WORK CONDUIT & HANGERS BRIDGE - CONSOLIDATED COMMUNICATIONS	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 **023138.00** for **Ticonic Bridge Replacement** in the city of **Waterville** and in the town of **Winslow**, **Augusta Road and Carter Memorial Drive Improvements** in the town of **Winslow,** 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 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 **May 30, 2027.** 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 023138.00, Ticonic Bridge replacement, Augusta Road and Carter Memorial Drive improvements plus other incidental work,** 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. This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF TRANSPORTATION

Date	By: Bruce A. Van Note, 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 **023138.00** for **Ticonic Bridge Replacement** in the city of **Waterville** and in the town of **Winslow**, **Augusta Road and Carter Memorial Drive Improvements** in the town of **Winslow,** 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 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 **May 30, 2027.** 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 023138.00, Ticonic Bridge replacement, Augusta Road and Carter Memorial Drive improvements plus other incidental work,** 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. This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF TRANSPORTATION

Date	By: Bruce A. Van Note, 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:

SAMPLE

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.

SAMPLE

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.

SAMPLE

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

_____	**(Sign Here)**
Date	(Signature of Legally Authorized Representative of the Contractor)
(Witness Sign Here)	**(Print Name Here)**
Witness	(Name and Title Printed)

SAMPLE

G. Award.

Your offer is hereby accepted. This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF TRANSPORTATION

_____	_____
Date	By: Bruce A. Van Note, 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:	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.....	.....……....

SAMPLE

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.

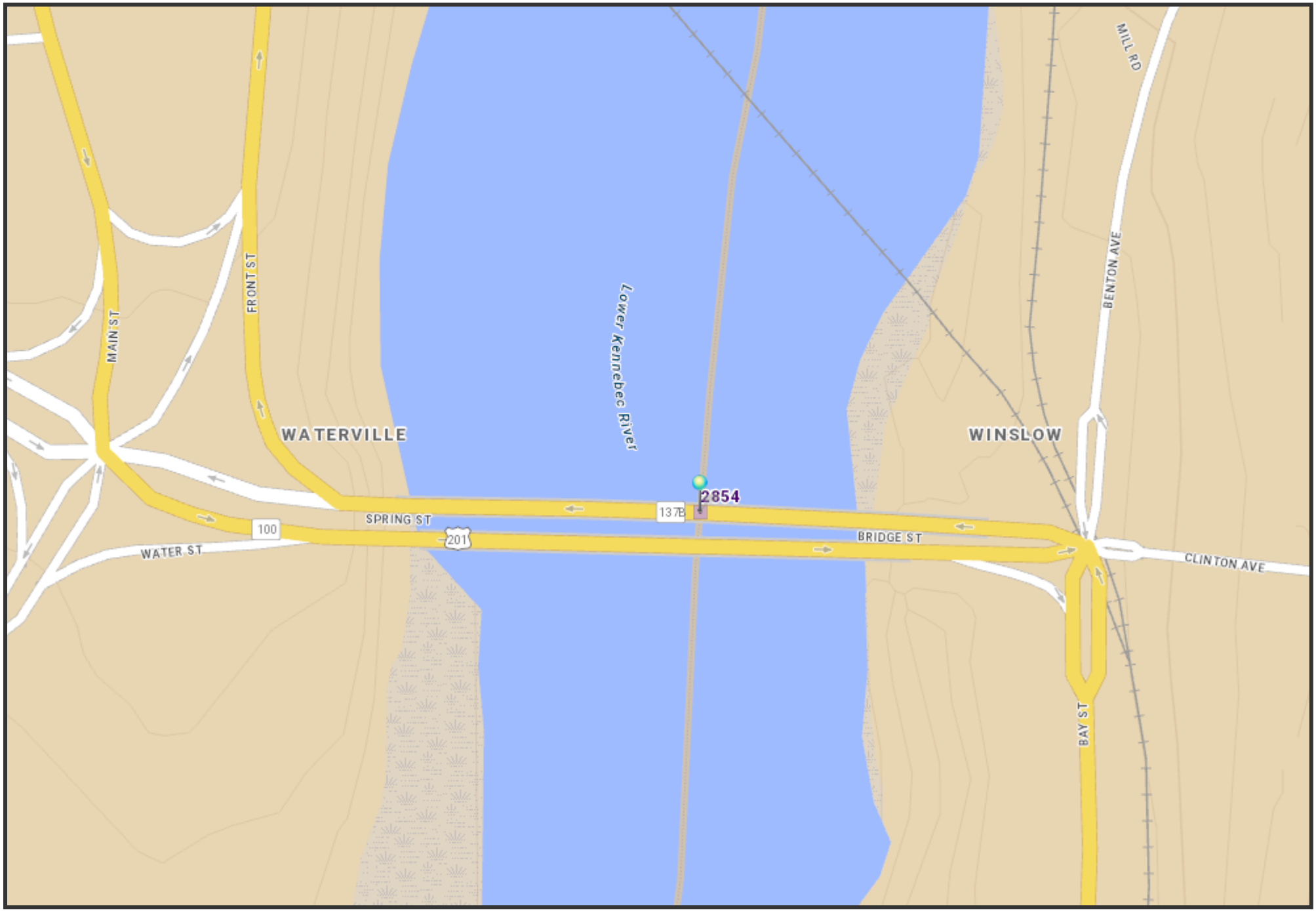
A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material or both, used or reasonably required for use in the performance of the contract.

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	…….....….....

SAMPLE

BRIDGE NO. 2854



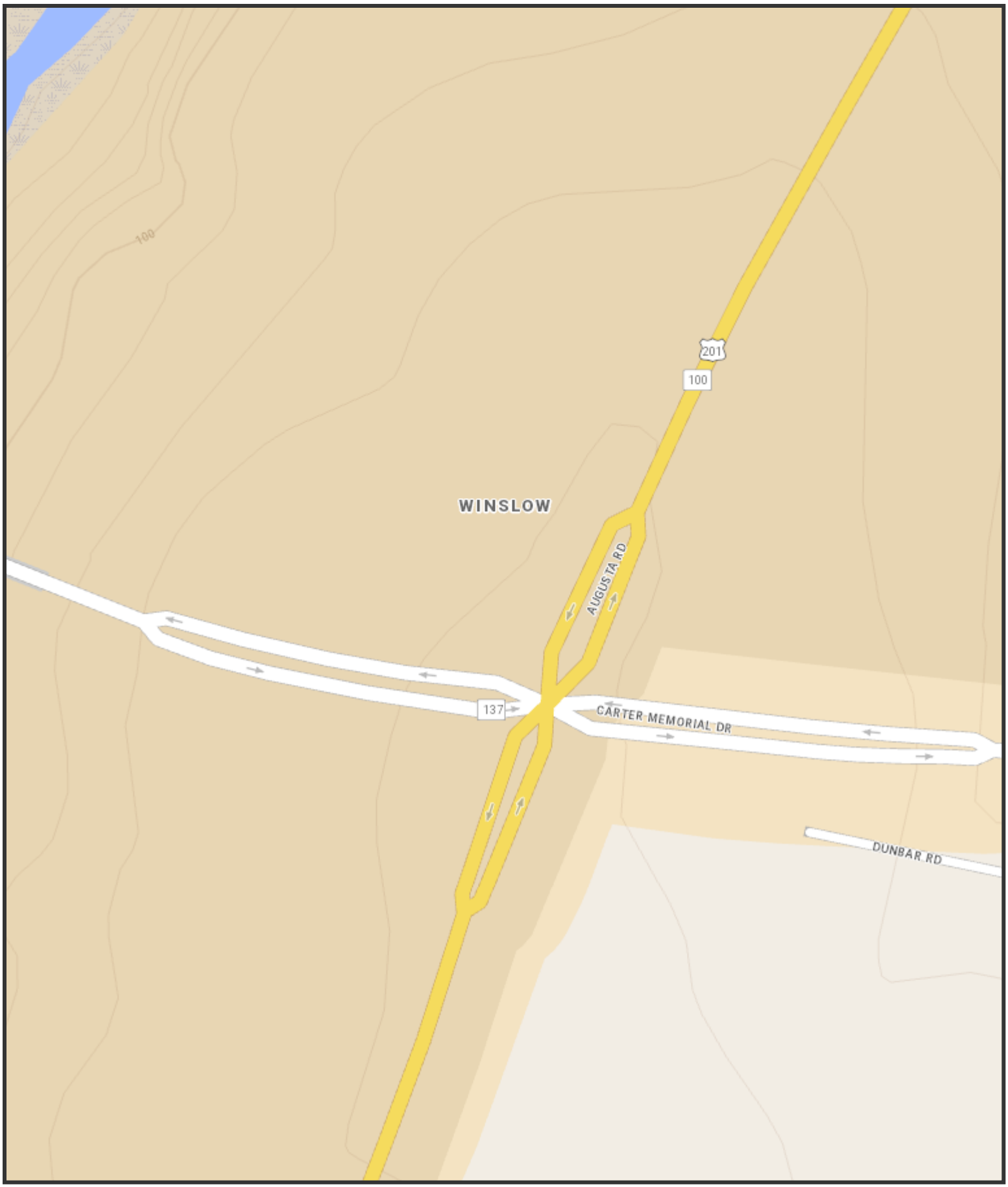
The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.05 Miles

1 inch = 0.04 miles

Date: 8/10/2022
Time: 11:48:03 AM

CARTER MEMORIAL DRIVE/ AUGUSTA ROAD



The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.03 Miles

1 inch = 0.04 miles

Date: 8/10/2022
Time: 11:40:24 AM

"General Decision Number: ME20220037 02/25/2022

Superseded General Decision Number: ME20210037

State: Maine

Construction Type: Highway

County: Kennebec County in Maine.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $15.00 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 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at https://www.dol.gov/agencies/whd/government-contracts.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022

ENGI0004-005 04/01/2018

	Rates	Fringes
POWER EQUIPMENT OPERATOR: Grader/Blade, Milling Machine, Paver (Asphalt, Aggregate, and Concrete), Roller Asphalt	$ 22.61	12.50

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* 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.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($15.00) or 13658 ($11.25). Please see the Note at the top of the wage determination for more information.

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.

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) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the

cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which 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. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of 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. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in

the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

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

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write 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 the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write 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 by 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

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

Waterville-Winslow
Ticonic Bridge (#2854)
Bridge Reconstruction / Replacement
WIN 23138.00

GENERAL NOTE

A review of the Maine Department of Environmental Protection (MDEP) File Room Databases specific to Waterville and Winslow, ME indicates several documented petroleum product / hazardous material releases associated with the former Lockwood-Dutchess Mill Complex (CMP and Hathaway properties) adjacent to the southwest end (Waterville approach) of the Ticonic Bridge. The historic industrial use and existing environmental conditions at these properties has generated MDEP environmental investigations and remedial actions at these properties. The proximity of these properties to this bridge construction initiative indicated there was the potential to encounter soil and/or groundwater contamination within the proposed areas of earthwork. However, subsurface exploration at the western approach/abutment of the subject bridge did not encounter or indicate the presence of impacted soil and/or groundwater. Although no impacts were identified, it is warranted to consider that contamination could be encountered. Consequently, the Contractor shall remain alert for evidence of petroleum product / hazardous material contamination. In the event the Contractor encounters evidence of soil and/or groundwater contamination, the Contractor shall immediately stop work in the impacted area, secure the excavation, and notify the Resident. In addition, the Contractor shall employ appropriate health and safety measures to protect its workers against hazards associated with working near petroleum / hazardous material impacted soil and/or groundwater. The Resident shall contact the Senior Geologist in MaineDOT's Environmental Office at 207-624-3000, and the MDEP at 800-482-0777. Work may only continue with authorization from the Resident.

Likewise, subsurface exploration on the east end (Winslow approach) of the bridge did not encounter or indicate the presence of petroleum / hazardous material impacts. However, the east end approach of this project is adjacent to a segment of an active Pan Am Railway line. Being that an active railway is near the project limits, coal ash may be present in work zones adjacent to the railway line. Coal ash is characteristically identified as being a fine-grained black material. Coal ash, if encountered, shall be reused on site as fill material. If the material cannot be reused on site, the Contractor is responsible for obtaining all approvals or permits, and any required analytical results for proper disposal at a licensed MDEP facility. In addition, during the duration of the project, the Contractor is responsible for proper disposal of any railroad ties encountered and which cannot be reused on site. The Contractor is responsible to have unused ties disposed of as demolition waste at a landfill approved to accept demolition waste/debris. If the Contractor encounters other potential demolition debris, or soil and/or impacted groundwater, the Contractor shall notify the Resident. The Resident shall contact the Senior Geologist in the Maine Department of Transportation Environmental Office (MaineDOT-ENV) at 207-624-3000.

MaineDOT DBE Project Attainment Target (PAT)
for this Project is **.020 %**

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.

Town: **Waterville - Winslow**
Project: **23138.00**
Date: **August 22, 2022**

SPECIAL PROVISIONS
SECTION 104
Utilities

UTILITY COORDINATION

The Contractor has primary responsibility for coordinating their work with utilities and/or railroad after contract award. The Contractor shall communicate directly with the utilities and/or railroad 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.

CONSIDERATION SHOULD BE TAKEN WHEN ORDERING UTILITY MATERIALS DUE TO CURRENT SUPPLY CHAIN ISSUES. THE TIME NEEDED IS NOT INCLUDED IN THE ESTAMTED WORKING DAYS TABLE.

MEETING

A Preconstruction Utility Conference, as defined in Subsection 104.4.6 of the Standard Specifications **IS** REQUIRED.

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 and/or railroads have been notified and will be furnished a project specification.

Overview & Utility/Railroad Contact Information:

Utility/Railroad	Aerial	Underground	Railroad	Contact Name	Contact Number
Brookfield Renewable Energy Partners, L.P.	X			Ernest DeLuca David Watson	207-755-5619 207-520-8870
Central Maine Power Co.		X		Kristian Suttie	207-453-5612
Charter Communications	X	X		Chris Verzoni	207-620-3416
Consolidated Communications Inc.	X	X		Martin Pease	207-535-4208
Firstlight	X	X		Mike Ellingwood	207-333-3471
Kennebec Sanitary Treatment District		X		Lynn Woodard Nick Champagne	207-873-0611 207-859-3070
Kennebec Water District		X		Jefferson Longfellow	207-872-2763
Springfield Terminal Railway			X	Shawn Higgins	978-663-1127
Summit Natural Gas of Maine		X		Garth Vdoviak	207-621-8000
Waterville Sewerage District		X		Tyler Mitchell	207-873-5191
City of Waterville	X	X		Andrew	207-680-4232

				Mcpherson	
Town of Winslow		**X**		**Paul Fongemie**	**207-872-1972**

Temporary utility/railroad adjustments **ARE** 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 provide proper fire protection.

Unless otherwise specified, any underground utility/railroad facilities shown on the project plans represent approximate locations gathered from available information. The Department cannot certify the level of accuracy of this data. Underground facilities indicated on the topographic sheets (plan views) have been collected from historical records and/or on-site designations provided by the respective utility/railroad companies. Underground facilities indicated on the cross-sections have been carried over from the plan view data and may also include further approximations of the elevations (depths) based upon straight-line interpolation from the nearest manholes, gate valves, or test pits.

All clearing and tree removal in areas where utilities are involved must be completed before the utilities are able to relocate their facilities.

It is the responsibility of the Contractor with the Utility Pole owner, to layout all the proposed pole locations in the field prior to the start of utility relocations. Should any adjustments be needed, the Utility will document adjustments and inform the Department prior to utility relocations.

The Contractor shall provide the utilities access to the new pole locations. Construction of any spot cuts or fills in excess of 2 feet must be completed prior to utility relocations. All cut/fill depths listed on the pole list are approximate and will need to be verified by the Contractor prior to poles being set. The Contractor shall prepare a plan for how access and the spot cuts and fills will be accomplished and what the schedule will be for performing the work. This plan will be discussed at the pre-construction utility meeting.

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

Utility/railroad working days are Monday through Friday. Times are estimated on the basis of a single crew for each utility/railroad. Any times and dates mentioned are **estimates only** and are dependent upon favorable weather, working conditions, and freedom from emergencies. The Contractor shall have no claim against the Department if they are exceeded.

AERIAL

Summary:

Utility	Pole Set	New Wires/ Cables	Trans. Wires/ Cables	Remove Poles	Estimated Working Days
Charter Communications	X	X		X	2
				Total:	**2**

Utility Specific Issues:

Charter Communications

Charter Communications will be setting two temporary poles. The locations of the poles will be determined in the field. Once all utility work is completed the poles will be removed by the utility.

Pole List:

Existing Pole #	Existing Station	Left/ Right		Existing Offset	Proposed Station	Left/ Right		Proposed Offset	Comments
		LT	RT			LT	RT		
U/K	14+82		X	50’					Charter Removal
U/K	15+30		X	52’					Remove by Contractor dual poles
U/K	21+78		X	50’					CMP Removal

Note**

There is an existing unidentified aerial utility cable within the project limits. Efforts to identify the owner of the utility was unsuccessful, the line is believed to be obsolete. The Contractor will need to cut and wreck out approximately 225ft ± of the line and 2 poles located at station 15+30Rt and 15+40Rt. This work will be incidental to Pay Item 202.19- Removing Existing Bridge.

****Note****

All Utility’s must remain in service until cut over to the proposed utility locations are complete

UNDERGROUND

Summary:

Utility	Summary of Work	Estimated Working Days
Central Maine Power Company	Splicing new underground power cables	7
Charter Communications	Stage 1 temporary move Phase 2 pull fiber and splice.	2
Charter Communications	Stage 2 pull fiber and splice.	8
Consolidated Communications Inc.	Splicing new underground communication cables	540
Firstlight	Fiber Splicing	5

Kennebec Sanitary Treatment District	Access to Manhole to be provided by MDOT Contractor. (See utility specific)	N/A
Kennebec Water District	Installation of underground utilities to be done by MDOT Contractor.	N/A
Summit Natural Gas of Maine	Installation of underground facilities to be done by MDOT Contractor. Pipe welding by Utility	N/A
Waterville Sewerage District	Adjusting manhole covers facilities to be done by MDOT Contractor.	N/A
City of Waterville	Adjusting manhole covers facilities to be done by MDOT Contractor.	N/A
Town of Winslow	Adjusting manhole covers facilities to be done by MDOT Contractor.	N/A
	Total:	**562**

Utility Specific Issues:

Central Maine Power Company

Central Maine Power Company (CMP) has entered into an agreement with the Maine Department of Transportation for the MDOT Contractor to construct a concrete duct bank on both approaches to the bridge totaling approximately 300± ft containing (four) 6-inch utility conduits in total. The duct bank and hanger system are to be constructed by MaineDOT Contractor as per plan and specification provided within the contract bid book. The conduits must be clearly labeled at the ends of the conduits identifying the respective utility and pull cords installed. CMP will be responsible to load and pull their own cables. It is the responsibility of the utility to inspect and accept all work performed by the MDOT Contractor. CMP has an existing conduit system on the bridge and in the approaches. The system has been discontinued for the duration of this project. CMP will be removing (1) existing pole at Station 21+78, 50’ Rt. The existing conduit system and all appurtenances are to be wrecked out with the bridge deck and will be incidental to the project.

Charter Communications

Charter Communications (Charter)will be relocating their facilities temporarily for this project. Between stages 1 and 2. On the Waterville approach, Charter will locate one pole within the grassed island between Main Street and Front Street. A temporary easement will need to be acquired by Charter from the City of Waterville. A second pole will be installed near the abutment on the Waterville approach, the exact location will be determined in the field by MDOT Contractor and Charter. Charter Communications may be required to place the cable subgrade in a culvert provided by the utility to avoid aerial conflicts and then attach to the sidewalk rail posts crossing the river to the Waterville and Winslow approaches Charter Communications will remain sub grade in a culvert provided by Charter Communications to a riser pole to be determined in the field by MDOT Contractor. Charter Communications crosses Benton Ave to pole # 1. The culvert installation by MDOT Contractor will be incidental to the project.

Charter Communications has expressed a desire to rise permanently on the first southerly pole on Bay Street # 29/35/1. A new under-ground conduit system will be installed by Charter Communications from the proposed riser pole 29/35/1. to a location within the project limits of the bridge and stubbed out. This location is to be determined in the field By MDOT Contractor and Charter. The Contractor will attach to the new proposed underground conduit in the bridge approach to the

underground conduit from the proposed riser pole. The Contractor shall plan to install conduit to the project limits. The conduit from the proposed riser pole to the bridge project limits will be performed by Charter. This work will need to be coordinated between Town of Winslow, Charter and MDOT Contractor.

Note
Utility plan will be discussed in further detail at the pre-construction meeting.

Consolidated Communications Inc.

Consolidated Communications Inc. (Consolidated) has entered into an agreement with the Maine Department of Transportation. MDOT Contractor will construct a concrete duct bank on both approaches to the bridge containing (fifteen) 4-inch utility conduits. Also, a bridge hanger system containing (fifteen) 4-inch conduits as per plan and specification provided within the contract bid book. The conduits must be clearly labeled identifying the respective utilities and pull cords installed. Consolidated Communications will be responsible for identifying the respective utility conduits for companies contained within the duct bank system. Each utility will load and pull and splice their own cables. On the Winslow bridge approach Consolidated Communications will set and modify a utility vault located at Sta 21+44±. The utility will install (fifteen) 4-inch conduits from this location to the existing vault at Sta 21+51Rt. Consolidated Communications will adjust the manhole cover to grade at the existing vault. It is the responsibility of Consolidated Communications to inspect and accept all work performed by the MDOT Contractor. Consolidated has an existing conduit system on the bridge and in the approaches. The existing conduit system and all appurtenances are to be wrecked out with the bridge deck and will be incidental to the project. Consolidated Communications require 540 calendar days (18 Months) to complete the utility work. The required time will start once the conduit has been completed by the MDOT Contractor. All utility work must be completed and operational before existing facilities can be wrecked out.

Firstlight

Firstlight has an agreement with Consolidated Communications Inc. to be in the communications duct bank. Firstlight will be responsible to pull and splice their own cable after new duct bank has been installed.

Kennebec Sanitary Treatment District

Kennebec Sanitary Treatment District has an interceptor wastewater facility located on the Waterville end of existing bridge. Results from a camera inspection and record drawings are available upon request from Kennebec Sanitary Treatment District. The interceptor sanitary facility will remain in place during construction and must remain in operation. Kennebec Sanitary Treatment District also has a manhole within the project access limits at approximate Station 15+21,66'Lt. The manhole will need to be accessible to the district during the project. Access to the manhole will be provided by the Contractor. It will be the responsibility of the Contractor to protect the facility from any damage during the bridge construction.

Kennebec Water District

Kennebec Water District has entered into an agreement with the Maine Department of Transportation for furnishing and installing of a new water system. MDOT's Contractor will construct a new bridge hanger system, water main and trench work per plan and specification provided within the contract bid book. It is the responsibility of Kennebec Water District to inspect and accept all work performed. Kennebec Water District has an existing water main on the bridge and 12 inch and 24-inch water mains in the approaches. The existing fire hydrants and gate valves are to be removed and delivered to

Kennebec Water District's operational facilities on 133 Drummond Avenue Waterville Maine. All other piping materials and appurtenances shall become the property of the Contractor. All utility work must be completed and operational before existing facilities can be wrecked out.

Kennebec Water District has a fire hydrant located on Route 201 Augusta Road at the intersection of Carter Memorial Drive at station 201+61,39'Lt that will need to be relocated. The hydrant will need to be relocated approximately 7 feet ± to proposed Station 201+61,46'Lt for turning widening at this location.

Note Kennebec Water District will be responsible to trench and install water line from a location to be determined by Kennebec Water District and trenched into MDOT work limits for this project. The water line is to be capped until the new bridge has the hanger system in place to continue the river crossing. This work must take place before September 2022 due to the pavement moratorium. Any work performed outside of MDOT project limits will need opening permits for the respective municipality.

Waterville Sewerage District

Waterville Sewerage District has an abandoned 18-inch clay sewer line within the project limits. The exact location and depth are unknown. Waterville Sewerage District has agreed to wrecking out the abandoned line should the line be struck during excavation. Waterville Sewerage District needs to be notified in the event of a strike. The Contractor shall consult with the Waterville Sewerage District for best management practices for capping or plugging the old facility.

Summit Natural Gas of Maine

Summit Natural Gas of Maine has entered into an agreement with the Maine Department of Transportation for furnishing and installation of a new natural gas system. MDOT's Contractor will construct a new bridge crossing and hanger system on bridge and through bridge abutments, per plan and specification provided within the contract bid book. It is the responsibility of Summit Gas of Maine to inspect and accept all work done by MDOT Contractor. Summit Natural Gas of Maine will perform all tasks associated with pipeline welding, joining, coating, testing and inspection.

Brookfield Renewable Energy Partners, L.P.

Brookfield Renewable Energy Partners, L.P have facilities within the work area for this project. The scope of work planned for this project is the removal of the concrete arch bridge deck and all sub structure of the bridge that is spanning the impoundment area for water storage. It is the responsibility of the Contractor to prevent any bridge construction debris from falling or entering the impoundment area. The Contractor will also be removing concrete pier structure from the dam. The pier is attached to a portion of the dam. It is the responsibility of the Contractor to protect the dam from any damage during construction activities of the project. There may be an opportunity for adjustments to the flashboards. The Contractor shall coordinate directly with Brookfield Renewables regarding adjustments to the flashboards.

Brookfield will review all demo plans, temporary false work plans, and flashboard installation plans prior to construction activities 30 days in advance. Demo plans shall be submitted by MDOT Contractor to Brookfield Renewable for review.

Work performed by the Contractor to adjust the flashboards will not be paid for separately but considered incidental to the Contract.

City of Waterville

The City of Waterville has 3 manholes / Catch Basins that will need to be adjusted to grade prior paving operations. (1) adjustment will be altering a Catch basin to a manhole (1) will be rebuilding the manhole to grade and (1) is adjusting manhole to grade work will be performed by the MDOT Contractor.

Town of Winslow

The Town of Winslow has 1 Sewer Manhole that needs to be rebuilt to grade during paving operations. This adjustment will be performed by the MDOT Contractor.

Utility Specific Issues:

Waterville and Winslow

Winslow has aerial signals and bridge lighting within the project limits. A new service account is required.

In general, all 240-volt upgrade projects will require a new electric service account. For those upgrades and other projects that require new electric service accounts, the Contractor shall request that a new account be established by contacting Municipal Official, for all locally owned facilities. **For this Contract, the contact to establish a new service account is for Waterville Andrew Mcpherson 207-485-1145 For Winslow Paul Fongemie 207-649-8496.** The Contractor shall provide the following information with the new electric service account request:

- Electrician's name performing the work
- Voltage
- Amperage
- Pole number of the power supply
- Distance from the pole to the control box
- The number of the closest meter to the pole

The Contractor shall allow at least 4 weeks for the Municipality to establish the account.

City of Waterville

The City of Waterville will be responsible for the bridge lighting on the downstream side of the bridge. Waterville has an existing lighting control cabinet located at station 13+68Rt. The bridge lighting will be powered from this circuit.

Town of Winslow

MDOT Contractor shall install lighting control cabinet at location shown on the plans. The cabinet at station 22+18Lt shall be a single circuit, with all luminaires on the upstream side of the bridge.

PLEASE NOTE

All underground utilities require **10 working days' notice** for any/all excavation or any other subsurface work around any underground facilities to schedule an on-site representative to be present. The Contractor shall hand dig around all the underground facilities.

RAILROAD

Springfield Terminal Railway DBA/CSX Transportation

Maine Department of Transportation has entered into an agreement with Springfield Terminal Railway for railroad protection services.

- Access to the project area adjacent to the Springfield Terminal Railway is from station 21+00Lt – 22+50Lt for project equipment, work trestle and abutment.
- Springfield Terminal Railway has agreed that MDOT'S Contractor can erect a barrier such as a snow fence or jersey barrier 15 feet from center of the gauge of the rail to access the site.
- Once erected and inspected by Springfield Terminal Railway personal MDOT'S Contractor can access the area without the need for flagger protection. Provided the following activities are not taking place.
- Any clearing is taking place flagger protection services will be needed.
- Any work taking place within 15 feet of the center of gauge flagger protection services will be needed.
- Any cranes, trucks or any other equipment shall be considered as fouling and subjecting to hazard a track signal line, communication or electric supply line when working in a position that failure of equipment with or without load, could foul the track flagger protection services will be needed.
- Should any blasting be required the Contractor will need to perform a pre blast and post blast inspection of the track to ensure no settlement occurs. Rail protection services will be needed during any blasting operations.
- Agreement and PRTS documents are in the bid package.

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 104
GENERAL RIGHTS AND RESPONSIBILITIES
(General Duty to Cooperate)

The following is added to Standard Specifications Subsection 104.4.7, Cooperation With Other Contractors:

It is hereby brought to the Contractor's attention that the Department, City of Waterville and Brookfield Renewables have awarded and/or plan to award other contracts near or within the limits of this Contract.

Department of Transportation
WIN 024301.00 Statewide Traffic Signal Modernization
Brian Keezer – Project Manager
207-624-3612
Brian.Keezer@maine.gov
Description: Intersection traffic signal modernization and ADA updates. Intersections include the Winslow intersection within the project limits and the intersections along the detour route.

City of Waterville
WIN 024371.00 Waterville Downtown Improvement Project
Ernest Martin – Maine DOT Project Manager
207-624-3381
Ernest.Martin@maine.gov
Andrew McPherson – City Engineer
207-680-4232
amcpherson@waterville-me.gov
Description: Downtown roadway and intersection improvement project. Project includes the Waterville intersection within the project limits.

Brookfield Renewables
Lockwood Fishway
Ernest Deluca – Land Use/Compliance Specialist
207-755-5619
Ernest.Deluca@brookfieldrenewable.com
Description: Installation of new fishway at the Northeast corner of the project area.

The Contractor shall attend periodic meetings, as needed, for the other projects in the vicinity of this project. The periodic meetings will be held in the project vicinity as directed by the Resident. The intent of these meetings is to ensure coordination between projects with respect to safety, traffic control, and schedule.

The Contractor shall cooperate and coordinate Work activities with other Department of Transportation projects as well as the City of Waterville downtown project at all times and provide project access as necessary as directed by the Resident. The Contractor(s) for these two projects shall be invited to the preconstruction meeting for Ticonic Bridge. The Contractor(s) shall notify the Resident of any issues.

SPECIAL PROVISION
SECTION 104
GENERAL RIGHTS AND RESPONSIBILITIES
(Reserved Limits)

It is hereby brought to the Contractor's attention that use of the following area will not become available to the Contractor until March 1st, 2023 unless released prior to that date by the Department:

- Maine Central Railroad Company property located on the Winslow side of the Kennebec River; refer to the Right of Way Map for actual limits (Item No. 6, approximately STA 21+00 to 22+50 LT).

SPECIAL PROVISION
SECTION 104
GENERAL RIGHTS AND RESPONSIBILITIES
(Winter Maintenance and Snow Removal)

This Special Provision specifies Contractor requirements for snowplowing, ice control, and snow removal on, and in the vicinity of, the Two Cent Pedestrian Bridge during periods when both sidewalks on the Ticonic Bridge are closed and the Pedestrian Detour using the Two Cent Bridge is in place. The requirements of this Special Provision supplement the information and restrictions specified in Special Provisions 107 and 652.

During periods when the Pedestrian Detour using the Two Cent Bridge is in place, the Contractor shall provide for, and perform, all winter maintenance and snow removal in compliance with this Special Provision and within the limits shown in Figure 1. This work also includes the satisfactory removal of existing snow and ice from within the limits shown in Figure 1 prior to the implementation of the Pedestrian Detour using the Two Cent Bridge.

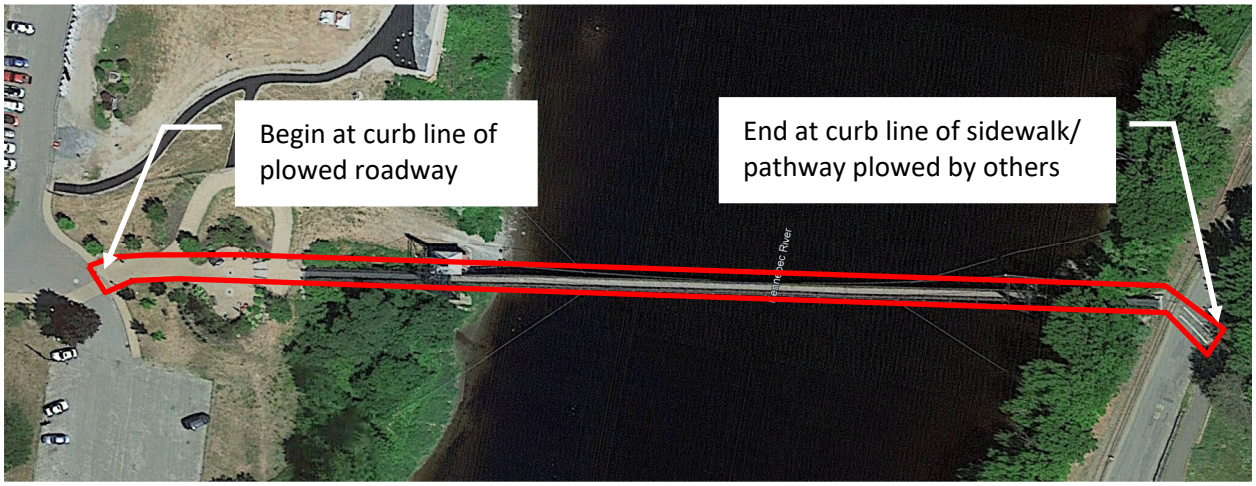


Figure 1 – Limit of Contractor Winter Maintenance and Snow Removal at Two Cent Bridge

Contractor Requirements

Snow removal and material application operations shall occur for each storm event. A storm event is defined as snow accumulation on the pavement reaching a depth of one inch or any other storm event creating unsafe, slippery conditions for pedestrians as determined by the Resident. Unless specified otherwise in this Special Provision, immediately after storm conditions have subsided, the snow and/or ice shall be cleared to the specified width and final surface treatment shall be applied.

The Contractor shall be responsible for maintaining safe and accessible pedestrian passage in conjunction with the Municipal snowplowing measures, according to this Special Provision, and in

coordination with City staff as follows:

a) The Contractor is responsible for snow removal/ice treatment at all times when Pedestrians are detoured to the Two Cent Bridge, regardless of whether the Contractor is actively working on site.

b) The Contractor shall maintain an unobstructed width of five feet, or face of bridge rail to face of bridge rail, whichever is less, within the limits shown in the figure above.

c) Within 12 hours of storm subsidence, and after the Municipalities have finished clearing the roadway, the Contractor shall clear and remove snow and treat for ice within the limits shown in Figure 1, including any windrows of snow left behind from adjacent snowplowing operations.

d) The Contractor shall use equipment that will not damage the pavers on the Waterville end of the Two Cent Bridge, damage the Two Cent Bridge, or overload the Two Cent Bridge. Equipment used for snow removal shall be limited to walk-behind self-propelled snowblowers. The use of heavy equipment such as snowplows, skid steers, or other ride-along equipment is not permitted.

e) The Contractor will be responsible for documenting the condition of the pavers on the Waterville end of the Two Cent Bridge each year before winter maintenance activities begin, and each year following the completion of winter maintenance activities. The Contractor shall be responsible for repairing damaged pavers to the satisfaction of the Resident at no additional cost to the Department.

f) The Contractor shall be responsible for ice control measures including sanding of the walkway surface. The application of salt for ice control measures is not allowed.

g) The Contractor shall be responsible for rinsing the Two Cent Bridge with clean water each spring following the completion of the Contractor's winter maintenance activities to remove sand accumulation from the structure.

Method of Measurement

Winter Maintenance and Snow Removal, as described herein, will be measured by each storm event, complete, and accepted. A storm event shall be defined as any storm event producing at least one inch of snow or creating unsafe, slippery conditions as determined by the Resident. A storm event shall be considered to have ended if no measurable precipitation has fallen for a period of at least eight hours. Rinsing of the Two Cent Bridge will not be measured for payment separately, but shall be incidental to the related work.

Basis of Payment

Winter Maintenance and Snow Removal will be paid at the contract unit price for each storm event.

Payment shall include all work required to remove snow from the specified areas as outlined herein, including ice control measures and rinsing of the structure.

Payment will be made under:

Pay Item		Pay Unit
910.30	Special Work – Winter Maintenance & Snow Removal	Each

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

Work within stream ("In Stream Work," see MaineDOT Standard Specifications 101.2 Definitions) requires special conditions to minimize impacts. The following special conditions shall apply to this project:

I. In-Water Work is allowed for specific activities as follows:

Activity	In-Water Work Window
Construction and removal of temporary access structures (e.g., temporary work trestle piles and wet roads) below the ordinary high water mark (OHM)	September 1 to March 31
Installation of temporary culverts and bridges	September 1 to March 31
Underwater rock drilling (unless below behavioral and physiological effect thresholds)	September 1 to March 31
All in-water demolition work, including above-water demolition using hydraulic breakers that will transmit vibration and sound into the water.	September 1 to March 31
Activities likely to create high levels of sedimentation or turbidity and have a risk of debris falling into the river, including concrete arch and pier removal.	September 1 to March 31
Bedrock leveling using hydraulic breakers.	September 1 to March 31
Any noise generating activity exceeding behavioral and/or injurious thresholds (150 dB re 1 µPa RMS and 206 dB re 1µPa2-s Peak, respectively).	September 1 to March 31
Cofferdam construction	September 1 to March 31
Work within cofferdam	Any time
Cofferdam removal	Any time
Cofferdam and temporary pile installation/removal and riprap placement on dry ledge	Any time
Permanent placement of riprap (no excavation)	Any time

1. All in-water cofferdams shall be constructed during the in-water work window between September 1 and March 31.
2. Activities that could result in in-water noise louder than 150 dB RMS or increase turbidity shall be avoided from April 1 – August 31.

II. In-Water work window applies to the following water bodies at the following station #'s:
1. Kennebec River at proposed bridge replacement project

IV. Special Conditions:
1. Special Conditions of Army Corps of Engineers (ACOE) Individual Permit apply (see permit and other conditions in this SP 105).
2. Special Conditions of Formal Endangered Species Act (Section 7) Consultation with U.S. Fish and Wildlife Service apply (summarized in this Special Provision 105 and ACOE permit).
3. Special Conditions of Informal Endangered Species Act (Section 7) Consultation with National Marine Fisheries Service apply (summarized in this Special Provision 105).
4. The Contractor shall hold a pre-construction meeting with appropriate MaineDOT Environmental Office staff, other MaineDOT staff, and the Contractor(s) to review all procedures and requirements for avoiding and minimizing effects to Atlantic salmon (ATS) and its critical habitat. The following individuals/agencies shall be invited: ACOE (Jana Jacobson, Jana.L.Jacobson@usace.army.mil; FHWA (Rachel LeVee,

rachel.levee@dot.gov) and U.S. Fish and Wildlife Service (Patrick Dockens, patrick_dockens@fws.gov; Nicole Pauley, nicole_pauley@fws.gov).

5. The Contractor shall contact Eric Ham of MaineDOT Environmental Office (207-215-7356, eric.ham@maine.gov) at least two weeks prior to installation of cofferdams to coordinate fish evacuation.
    a. To minimize fish stranding inside the cofferdam when dewatering, the MaineDOT environmental staff or similarly qualified consultants will inspect the cofferdams after completion and before a seal placement for presence of adult Atlantic salmon. If adult Atlantic salmon are observed during active construction, all activities will cease and the MaineDOT environmental staff or similarly qualified consultants will immediately contact the Service's Maine Fish and Wildlife Complex 207/469-7300.
6. Prior to any fill or riprap placement activities, including construction of temporary wet roads or water diversion, the MaineDOT will implement its Fish Check Protocol (appended to this Special Provision) to review the work area for adult Atlantic salmon.
7. No blasting or use of explosives is permitted at any time.
8. Sheet pile installation and removal shall be completed using a vibratory hammer.
9. All in-water excavation shall be completed in a cofferdam.
10. Temporary fill must be stabilized to prevent erosion or, in the case fill placed in flowing water (rivers or streams), clean washed stone should be used.
11. Temporary fill will consist of non-erodible material on top of a geotextile fabric filter layer.
12. No fill for temporary access (riprap) will be placed in the primary or bypass channel. Culverts will be installed where wet roads cross secondary channels to provide connectivity of flow and downstream fish passage.
13. All areas of temporary stream or wetland fill must be within the specified limits on the plans and shall be restored to their original contour and character upon completion of the project. Temporary fill includes fill that received authorization and fill that mistakenly enters a resource (i.e., from slope failures, accidental broken sandbag cofferdams, miscellaneous construction materials, etc.).
14. Demolition and debris removal and disposal will comply with Section 202.03 of the MaineDOT's Standard Specifications. The Contractor will contain all demolition debris, including debris from wearing surface removal, saw cut slurry, dust, etc., and will not allow it to discharge to any resource. The Contractor will dispose of debris in accordance with the Maine Solid Waste Law (Title 38 M.R.S.A., Section 1301 et. seq.) and in compliance with applicable regulatory approvals. The demolition plan, containment, and disposal of demolition debris will be addressed in the Contractor's Soil Erosion and Water Pollution Control Plan (SEWPCP).
15. BMPs will be implemented in accordance with the MDOT: Best Management Practices for Erosion and Sedimentation Control (MDOT 2008) to prevent sedimentation into streams from construction activities or storm events. These BMP measures include many filtering and sedimentation control techniques designed to dissipate water discharge energy (flow), filtering out sediments, and allowing particulate matter to settle out from suspension to the greatest extent practicable
16. Existing piers will be removed down to the underlying bedrock (or a foot below the natural substrate grade) and debris from the structures will be removed from the riverbed.
17. Demolition of concrete piers of existing bridge will occur within containment such as turbidity curtains.
18. Any temporary piles driven into sediment will be removed with a vibratory hammer or cut to one foot below the substrate level.
19. Any temporary piles removed by pulling will be completed using a BMP to minimize turbidity.
20. Fresh concrete will be poured inside of a cofferdam (concrete seal) and will not contact flowing water (outside cofferdam).
21. Water pumped out of the cofferdam will be within one pH unit of background pH level of the resource (Kennebec River) (MaineDOT standard specifications). A representative of the MaineDOT Surface Water Quality Unit will periodically evaluate pH to determine whether the water is within the allowable tolerance to be pumped directly back into the river or whether it needs to be treated prior to discharge.
22. Bedrock leveling using hydraulic breakers or other exceedance noise generating methods will occur within the in-water work window (September 1 to March 31) and within a cofferdam.

23. Use of hydraulic breakers (beneath or near the water line) when the anticipated noise is above the behavioral noise threshold requires a 20-minute “soft start” to allow fish an opportunity to leave the project vicinity before sound pressure increases.
24. The Contractor shall conduct all construction activities in accordance with the MEDOT-approved SEWPCP.
25. No heavy construction equipment will travel into or through any flowing streams with erodible substrate (e.g., sand, silt, and clay). Travel of heavy construction equipment into or through flowing streams and on stream substrate will only occur when the stream substrate is non-erodible (e.g., ledge, cobble) and the contractor has received approval from the MaineDOT environmental field office staff.
26. No equipment, materials, or machinery shall be stored, cleaned, fueled, or repaired within any wetland or stream resource. These activities shall occur more than 100 feet from any wetland or stream resource and shall follow the specifications of the SEWPCP.
27. When utilizing pumps in fish bearing portions of the project, in order to prevent ATS juvenile entrapment related to dewatering diversions, the Contractor will use a screen on each pump intake designed such that the approach velocity does not exceed 0.20 feet/second. Square or round screen face openings are not to exceed 3/32 inches (2.38 millimeters) measured on a diagonal. Criteria for slotted face openings shall not exceed 1/16 inches (approximately 1.75 millimeters) in the narrow direction. These screen criteria follow National Marine Fisheries Service (NMFS) guidance (NMFS 2008). Intake hoses shall be regularly monitored while pumping to minimize adverse effects to Atlantic salmon or other species.
28. All pumps and generators required for in-stream work shall be cleaned of external oil, grease, dirt, and mud such that turbid water does not drain to any wetland or stream. Any leaks of this equipment shall be fixed prior to entering streams or areas that drain directly to streams or wetlands. Operation shall follow the specifications of the SEWPCP.
29. The contractor shall minimize vegetation clearing and soil disturbance adjacent to the river to the maximum extent practicable. During construction, any disturbed soils will be temporary stabilized with BMPs, such as straw mulch, plastic sheeting, erosion control mix, or other appropriate BMPs. Disturbed areas with erodible soil can include, but are not limited to, temporary storage piles, access ways, partially constructed slopes, etc. Areas of disturbed soil adjacent to the waterways will be stabilized and re-vegetated with a seed mix appropriate for riparian areas in Maine except where riprap has been placed.
30. The contractor shall fully remove all cofferdams from the stream immediately following completion of in-stream work using techniques to minimize turbidity releases.
31. Vessels will travel at slow speeds, typically less than 6 knots (6.9 miles per hour), in the construction zone.
32. To minimize the spread of noxious weeds into the riparian zone, all off-road equipment and vehicles (operating off of existing open and maintained roads) shall be cleaned prior to entering the construction site to remove all soil, seeds, vegetation, or other debris that could contain seeds or reproductive portions of plants. All equipment shall be inspected prior to offloading to ensure they are clean.
33. All Atlantic salmon mortalities shall be reported to the Service’s Maine Field Office at (207) 902-1585 (Nicole Pauley) or (207) 902-1586 (Patrick Dockens) within 48 hours of occurrence. Any Atlantic salmon death(s) shall be immediately preserved (refrigerate or freeze) for delivery to the Service’s office in East Orland, Maine. If the Service is not available, contact the National Marine Fisheries Service in Orono, Maine (207) 866-3755 (Dan Tierney) to arrange for delivery.
34. A copy of the ACOE permit shall be kept at the work site (and the project office) whenever work is being performed, and all personnel with operational control of the site shall ensure that all appropriate personnel performing work are fully aware of its terms and conditions.

V. Approvals:

1. Temporary Soil Erosion and Water Pollution Control Plan
2. Permitted Resource Impacts (square feet), see ACOE permit for locations:

Stream:	Wetland: None
Permanent RUS: 1,820	
Temporary RUS: 59,810	

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VI. All activities are prohibited (including placement and removal of cofferdams unless otherwise permitted by Regulatory Agencies) below the normal high water mark if outside the prescribed in-water work window (see Section I), except for the following:

1. Work within a cofferdam constructed according to MaineDOT's Standard Specifications and in adherence with the contractors approved "Soil Erosion and Water Pollution Control Plan".

VI. No work is allowed that completely blocks a river, stream, or brook without providing downstream flow.

NOTE: Regulatory Review and Approval is required to modify the existing In-Water work window. Requests for work window extensions must be submitted to the MaineDOT Environmental Office. Approval of requests for work window extensions is not guaranteed and may result in delays in construction schedule that are the sole responsibility of the contractor.

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SPECIAL PROVISION 105 - ATTACHMENTS:

FISH CHECK PROTOCOL

Chapter 8 Appendices

8.1 Appendix A- MaineDOT's Atlantic Salmon Evacuation Plan and Disinfection Procedures

1. An adequate number of qualified MaineDOT Environmental Office staff will be onsite during construction and dewatering of all cofferdams and for fish salvage activities.

2. If it is possible that an adult salmon could be present in the work area, a visual survey of the work area to inspect for the presence of an Adult salmon will be completed. Further precautions for adult salmon will be followed after the visual inspection to ensure that adult salmon are removed from the work area prior to electro fishing.

3. MaineDOT Environmental Office staff will follow the Maine Atlantic Salmon Commission Disinfection Procedures (MASC 2005).

4. Following installation of the upstream block net, haze fish out of the proposed dewatered sections by walking seines downstream from the upstream block net location to the end of the work site in an attempt to 'herd' fish out of the worksite. A downstream block net will then be installed, followed by efforts to capture remaining fish with dip-nets. Fisheries biologists experienced with work area isolation, and competent to ensure the safe handling of all ESA-listed fish will conduct or supervise the operation.

5. Install a block net or cofferdam downstream of the project site immediately after the sweep to ensure fish will not move back into the project area. The block net will be secured to the stream channel, bed, and banks until fish capture and transport activities are complete. Size and place the block net in the stream in such a way as to exclude ESA-listed juvenile salmonids expected to occur within the project vicinity at the time of work without otherwise impinging these fish on the net. Monitor the block net once a day to ensure that it is properly functioning and free of organic accumulate. Block nets will be placed were water levels allow. Cofferdams also act to exclude ESA-listed juvenile salmonids out of the work area.

6. Stream depths may dictate that evacuation activities cannot commence until water control devices have been installed and the water levels have been lowers to safe levels for netting and electrofishing. Some water control devices will not allow for dewatering. In cases when water depths are >2-3 feet, only netting, herding, and trapping strategies can be employed to haze fish out of the work area.

7. Use one or a combination of the following methods to most effectively capture ESA-listed fish and minimize harm (Figure 1). Fish salvage shall proceed from the least invasive method to most invasive.

a) Hand Netting. Collect fish by hand or dip-nets, as the area is slowly dewatered.

b) Seining. Seine using a net with mesh of such a size as to ensure entrapment of the residing ESA-listed fish. The bottom or lead line has lead weights strung or crimped onto it to weight the net. The top or float line includes cork, polystyrene foam, or plastic floats to keep the top of the seine near the water surface. The net is attached to wood or metal poles to handle the seine. Two persons hold the seine in a vertical position above the water and perpendicular to the flow at the downstream edge of a riffle. They then thrust the poles and lead line of the seine to the stream bottom. The poles are allowed to slant downstream so that the flow forms a slight pocket in the seine. This procedure is continued from one shoreline across the width of the channel to the other shoreline so that the entire riffle is sampled. The seine is then lifted out of the water and the fish removed (Bramblett and Fausch 1991).

c) Trapping. Minnow traps (or gee-minnow traps) are net or wire enclosures that trap live fish. Fish swim through the funnel shaped openings and are guided to a narrow opening at the center of the trap. These traps are best suited for collecting juvenile fish or small adult fish in pool habitat. Traps should be baited and fished overnight. In areas of moderate to high fish densities, maximum catches in minnow traps are approached within one to two hours, with catches dropping sharply when traps are fished longer than 24 hours between checks. For bait, salmon eggs are most widely used, but hamburger, canned cat food, salmon flesh, canned corn, shrimp, and sardines have been used successfully (Magnus et al. 2006).
d) Electrofishing. Before dewatering, electrofishing will be used as the last evacuation measure following the above other means of fish capture and if they are not practical or effective following NMFS (2000) guidelines found at: http://www.nwr.noaa.gov/ESA-Salmon-Regulations-Permits/4d-Rules/upload/electro2000.pdf .

- Prior to the start of sampling at a new location, water temperature and conductivity measurements must be taken to evaluate electroshocker settings and adjustments.
- Each electrofishing session must start with all settings (voltage, pulse width, and pulse rate) set to the minimums needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured, and generally not allowed to exceed conductivity-based maxima indicated in the NMFS (2000) guidelines. Only direct current (DC) or pulsed direct current (PDC) should be used.
- Electrofishing activities will be avoided if stream temperatures exceed 23 degrees Celsius. Electrofishing will take place before 9:00 AM to take advantage of daily temperature swings.
- Electrofishing will not commence if the presence of an adult Atlantic salmon is suspected.



Figure 1. Examples of fish salvaging methods.

8. Handling of fish:

a) Juvenile Atlantic salmon will be netted (1/4" knotless nylon) and immediately placed in a disinfected 5-gallon bucket filled with aerated stream water of ambient temperature.
b) Adult Atlantic salmon will be crowded into a handling device utilized by Maine Department of Marine Resources. The device consists of a rubber tube that is closed on one end and open on the other (Figure 2). Small holes are placed in the closed end to allow some water out but allow all of the water to drain. Any adults salmon captured this way will be moved immediately outside of the exclusion with the handling device and will not be held.
c) All other fish species will be placed in a disinfected 5-gallon bucket with aerated stream water of ambient temperature and released upstream is possible or downstream of the project if the upstream does not contain suitable habitat under assessment by the on-site biologist.
d) Minimize the number of fish stored in each 5-gallon buckets used for handling bucket to prevent overcrowding. If an Atlantic salmon is captured, it will be immediately relocated.
e) Handling time will be minimized. Monitor water temperature in buckets and well-being of captured fish.
f) Release fish from the isolated reach into a pool or area that provides cover and flow refuge after fish have recovered from stress of capture. Fish release upstream of the project site is preferred as sediment impacts would not likely affect individuals upstream of the crossing, but downstream release may be necessary if upstream reach is not suitable habitat for release.



Figure 2- 'Rubber sock' for adult salmon handling.
Photo courtesy of Maine Department of Marine Resources.

9. If need be, all salmonids will be clearly photo-documented for identification purposes. Photos will not be taken of Adult Atlantic salmon to ensure minimal handling time.

10. A report and any photographs of transferred salmon will be submitted to US Fish & Wildlife Service, National Marine Fisheries Service, the Maine Department of Marine Resources, the Maine Department of Inland Fisheries & Wildlife and the appropriate action agencies (USACE and FHWA).

Due to variability in construction timing, potential scheduling conflicts, and other potential unforeseen issues, to ensure coverage and eliminate project delays several MaineDOT employees or their designees will be available during construction and dewatering of cofferdams. MaineDOT or consultant staff will be reviewed for proper experience prior to completing a fish evacuation.

In addition to the staff listed above, other Environmental staff members, including qualified fisheries consultants, may be added pending USFWS approval. Anyone electrofishing will be required to have experience electrofishing salmonids in Maine. The Proponents may solicit the aid of fisheries biologists from the USFWS, NMFS or MDMR if agency staff is available to assist at the necessary time.

Biosecurity guidelines are practical steps that can be taken to minimize the spread of unwanted organisms. The guidelines below are designed to provide direction to MaineDOT biologists working in Maine's lakes, rivers, and streams to minimize the potential for spread of aquatic species, particularly invasive species. These guidelines were adapted from the Maine Department of Inland Fisheries and Wildlife guidelines and have been written to separate aquatic plants, aquatic animals, and aquatic pathogens.

Equipment:

Portable hand-pump sprayer for field disinfection

Large stiff bristle brush

Spray bottle

Rubbing alcohol

Nolvasan disinfectant

II. Procedures to minimize the spread of aquatic plants

Personnel – visual inspection of personal equipment (i.e. boots/waders/gloves) with hand removal of plants before leaving area.

Other Equipment- *same as above*

Dip nets, trap nets and leads – aquatic plants must be removed from nets before they are moved between waters. Nets should be visually inspected on land with hand removal of plants before leaving the sampling area. After seasonal use, nets will be cleaned, thoroughly dried in direct sun or indoor storage area, and re-inspected to remove any remaining plant material. Ensure all net sections and components are thoroughly dry for a minimum of 3 days. When possible, clean/dry nets and leads should be used between waters.

Reporting Requirements – Aquatic plants of unknown species or plants known to be aquatic nuisance species should not be transported unless placed in a sealed container. Small specimens may be transported to the Maine Department of Environmental Protection for species identification (MDEP contact: John McPhedran (207) 287-2813).

Waters with Documented Infestations – Biological staff should be extra diligent when working on waters with known infestations to prevent the further spread of invasives. When possible, staff should minimize contact and disturbance of aquatic invasive plant beds to reduce the risks of spreading the plant within the water being sampled and elsewhere. A current list of known plant infestations is available at MDEP's website (www.maine.gov/dep/blwq/topic/invasives/doc.htm).

III. Procedures to minimize the spread of aquatic animals

Personnel- personal equipment (i.e. boots/waders/gloves) should be rinsed clean of all visible mud and aquatic debris.

Other Equipment – rinsed clean of mud and aquatic debris.

Dip nets, trapnets and leads – Remove as much mud and aquatic debris as possible on site. After seasonal use, trapnets should be transported to maintenance camp or other suitable location and cleaned, thoroughly dried in direct sun or indoor storage area, and re-inspected to remove any remaining material. Ensure all net sections and components are thoroughly dry for a minimum of 3 days. When possible, clean/dry nets and leads should be used between waters.

a. Reporting Requirements- Unknown specimens and known aquatic invasive species should be transported in sealed containers for identification. Identification of invasive aquatic species should be reported to Maine Department of Inland Fisheries and Wildlife
b. Waters w/ Documented Infestations – Biological staff should be extra diligent when working on waters with known infestations to prevent the further spread of invasives. In this case, nets should be cleaned, soaked in salt brine (3%) overnight to destroy freshwater aquatic organisms, rinsed, and dried in sunlight between uses.

IV. Procedures to minimize the spread of aquatic pathogens

a. Equipment – Field equipment that comes in constant contact with stream or lake water (i.e. waders, nets, seines, gloves, shocker wand and tail, buckets, measuring boards, etc.) should be cleaned & disinfected before use between waters. Disinfection for most equipment is accomplished with

a 2oz. Nolvasan/gallon water solution in the large trashcan. Equipment should be allowed to set in solution for 10 minutes then rinsed thoroughly.

Equipment will be sprayed with a hand-pump style sprayer and allowed to set during transit to the new water.

Delicate equipment such as electronic scales, conductivity meters, thermometers, etc., should be sprayed with alcohol and allowed to air dry.

b. Dip nets, trapnets and leads – are too large to be soaked and unlikely to get reasonable disinfection with a spray system. After seasonal use, trapnets should be transported to the regional headquarters, cleaned, thoroughly dried in direct sun or indoor area, and re-inspected to remove any remaining material. Ensure all net sections and components are thoroughly dry for a minimum of 3 days. When possible, clean/dry nets and leads should be used between waters.

c. Reporting Requirements – Fish encountered with lesions of reportable pathogens, or unknown pathogens should be preserved in 10% buffered formalin for storage or sent for immediate necropsy to the MDIF&W Fish Health Laboratory. Fish with obvious signs of clinical disease should be disposed of on land, rather than returned to the water to spread the pathogen.

d. Waters with Documented Pathogens – Biological staff should be extra diligent with disinfection procedures when working on waters with known pathogen issues to prevent the further spread of the organisms.

Questions regarding proper cleaning and/or disinfection of field equipment should be addressed with the equipment manufacturer.

Maine Statutes

The "Invasive Aquatic Plants" provisions are codified in a number of places in Maine Revised Statutes Annotated:
38 MRSA 410-N – Aquatic nuisance species control
38 MRSA 419-C – Prevention of the spread of invasive aquatic plants
38 MRSA Chapter 20-A – Program to prevent infestation of and to control invasive aquatic plants

38 MRSA 20-B – Invasive aquatic plants and nuisance species control

Amendments from the 2003-2004 legislative session:

Chapter 627. An Act to Amend the Laws Regarding Invasive Aquatic Species (effective July 30, 2004)

Chapter 655. An Act to Revise the Fish and Wildlife Laws to Complement the Recodification of those laws (IN PART) (effective April 22, 2004)

Reference:

Chapter 136. An Act Regarding the Development and Implementation of an Eradication Plan for Invasive Aquatic Plants (effective September 13, 2003).

Chapter 434. An Act to Prevent Infestation of Invasive Aquatic Plants (effective June 20, 2001)

Chapter 722, An Act to Prevent the Spread of Invasive Aquatic Plants (effective April 14, 2000).

The “Chapters” are in the form that a bill is enacted and signed. They contain temporary provisions, such as report and budget provisions, which are not codified into MRSA.

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SPECIAL PROVISION
SECTION 105
GENERAL SCOPE OF WORK
(Weight Restrictions)

These provisions are in addition to those in Section 105.5 - Hauling of Materials and Equipment.

At the Contractor's option, up to three heavy vehicles / pieces of equipment placed on the new bridge structure may be submitted to the Department for confidential pre-approval during Bid-Phase. This includes heavy vehicles / pieces of equipment placed only on the completed phase one bridge deck. Loadings reviewed and commented on prior to project Advertisement shall be resubmitted for approval after project Advertisement. The following provisions apply:

a. The submittal for each vehicle or piece of equipment shall include the following information:

    i. Equipment description and proposed use.

    ii. Number and spacing\length of axles\tracks.

    iii. Configuration of the proposed bridge at the time of loading (e.g.: amount of work completed, presence of pavement, sidewalks, barriers, etc).

    iv. Proposed equipment configuration and unloaded weight.

    v. Total loaded weight and loaded weight distribution.

    vi. When equipment is used for hoisting or lifting, the submittal shall clearly state the equipment location, materials to be hoisted and lifted, maximum load to be lifted, maximum pick radius, and other relevant information necessary to independently verify the operating capacity of the equipment and the resulting loads on the bridge deck.

b. Requests for pre-approval shall be clearly marked "CONFIDENTIAL RFI" and shall be submitted separately from any other RFI's.

c. The responses to these requests for pre-approval will be confidential and will not be shared with other bidders.

d. Requests for pre-approval will be reviewed and, when practical, the proposed loads will be evaluated, and the results shared with the Contractor who submitted the request. The Department will endeavor to respond to these requests within five business days.

If the parameters submitted in section a. above change during construction, the Contractor shall notify the Department in writing and include specifics on what changed from the pre-approved loads.

The Department reserves the right to reject the use of any vehicle or piece of equipment on the proposed bridge, regardless of weight, if in the judgment of the Department, its use could have an unacceptable effect on the bridge structure or the loads do not meet the parameters stated when pre-approved during Bid-Phase.

If the Contractor does not adhere to these restrictions and limitations, the Resident will issue a suspension of work effective immediately. Work shall not resume until the Contractor and the Department can reach a resolution for future operations.

The Contractor shall be responsible for implementing any measures required, such as the placement of crane mats or removing existing stockpiled materials, prior to operating heavy vehicles or equipment on the bridge at no additional cost to the Department.

The Department shall not be held responsible for any delay in the work, or additional costs incurred, associated with the enforcement of this special provision.

SPECIAL PROVISION 105
CONSTRUCTION AREA

A Construction Area located in the **City of Waterville** and **Town of Winslow** has been established by the Maine Department of Transportation (MDOT) in accordance with provisions of 29-A § 2382 Maine Revised Statutes Annotated (MRSA).

(a) The section of highway under construction in the city of Waterville and in the town of Winslow, Kennebec County on Bridge Street/ Spring Street/ Route 100/ 137/ 201 over the Kennebec River.

(b) (Bridge Street/ Spring Street) over the Kennebec River station 13+55.00 to station 22+75.96 of the construction plus 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 Waterville** 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 105
CONSTRUCTION AREA

A Construction Area located in the **City of Waterville** and **Town of Winslow** has been established by the Maine Department of Transportation (MDOT) in accordance with provisions of 29-A § 2382 Maine Revised Statutes Annotated (MRSA).

(a) The section of highway under construction in the city of Waterville and in the town of Winslow, Kennebec County on Bridge Street/ Spring Street/ Route 100/ 137/ 201 over the Kennebec River. The section of highway under construction in the town of Winslow, Kennebec County on Route 100/ 201/ Augusta Road and Carter Memorial Drive/ Route 137.

(b) (Bridge Street/ Spring Street) over the Kennebec River station 13+55.00 to station 22+75.96 of the construction plus approaches.

(c) (Augusta Road/ Carter Memorial Drive) station 200+11.68 to station 203+75.00 of the construction plus 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 **Town of Winslow** 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.

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SPECIAL PROVISION
SECTION 107
TIME
(Contract Time)

107.1.1 Contract Time and Contract Completion Date Add the following to this section:

The contract completion date for this contract is May 30, 2027.

Special Provision
Section 107
Time
(Supplemental Liquidated Damages for Fabrication Time)

107.8.1 Fabrication Time The Department has budgeted for the following amounts of continuous full time fabrication/shop QA inspection for the following Work components:

Element	Time	Supplemental LD
Structural Plate Girders	210 Calendar Days	$1,000 per Calendar Day
Thermal Spray Coating	210 Calendar Days	$1,000 per Calendar Day

The Contractor is responsible for requiring their fabricators and suppliers to produce these products for the Work continuously until finished, including any needed actions to correct unacceptable workmanship or materials. If the Department determines that QA inspection beyond these times is required, then the corresponding Supplemental Liquidated Damages will be deducted as they occur from the amounts otherwise due to the Contractor. These allowed Fabrication Time begins on the first day of fabrication and runs consecutively until expiration.

If a fabricator or supplier works more than one shift per day and the Department determines that inspection is required for each shift, each shift will count as a calendar day and the LD rate will be the noted amount per shift per Calendar Day in lieu of per Calendar Day.

QA inspector presence is required but not limited to the following activities:

> For metal fabrication work: welding, including tack welding, heat correcting, non-destructive examination, assembly verification, and hold points in the approved Thermal Spray Coating procedure and any other times as required in the Standard Specifications or Special Provisions.

SPECIAL PROVISION
SECTION 107
TIME
(Work Times)
(Incentive/Disincentive)
(Supplemental Liquidated Damages)

The following requirements apply to all work in this Contract:

107.3.1 General Add the following to this section:

The Contractor will be allowed to detour westbound traffic from the Ticonic Bridge as shown in the Contract Plans. The Contractor shall limit the total duration of the westbound detour to a maximum of 1,095 Calendar Days. The length of time that the bridge is closed to all traffic, as permitted herein, will count toward the duration of the westbound detour.

The Contractor will be allowed to install lane closures on the Ticonic Bridge. Eastbound lane closures will be allowed regardless of whether or not the westbound detour is in place. All lane closures shall be during the times described herein.

The Contractor will be allowed to close the Ticonic Bridge to all traffic and pedestrians as described herein.

Roadways and sidewalks on and adjacent to the Ticonic Bridge shall be cleaned of all debris and construction materials prior to reopening the roadway and sidewalks, and following approval by the Resident.

The Contractor shall provide weekly written updates to the Resident regarding anticipated roadway and lane closures so the Department, City of Waterville, and Town of Winslow can update the public on construction activities. Payment shall be incidental to the Contract.

Allowed Lane and Roadway Closure Times:

1. *Extended Bridge Closures*:

   The Contractor is allowed to close Ticonic Bridge to all traffic and pedestrians for no more than two extended closures during the Contract, hereafter referred to as Extended Bridge Closures. The combined duration of the Extended Bridge Closures shall total no more than 175 Calendar Days.

   The Contractor shall notify the Resident of the selected date and planned duration for each Extended Bridge Closure in writing at least 60 Calendar Days prior to the start of each closure.

The limits of each Extended Bridge Closure shall encompass the area beginning at the easterly gutterline of Front Street and extending east to the westerly gutterline of Benton Avenue. During the Extended Bridge Closure, access to side streets, residences and businesses shall be maintained.

The eastbound and westbound detour signs shall be in place and uncovered at least two hours prior to implementing the Extended Bridge Closure.

The Contractor will be required to submit and follow a closure notification plan in accordance with the requirements of Standard Specification 104.4.10 for all Extended Bridge Closures. The Contractor shall be responsible for coordinating all planned closures with other projects potentially impacting traffic on the detour routes shown in the Plans.

2. *Ticonic Bridge Lane Closures*:

The Contractor will be allowed to install temporary lane closures on the Ticonic Bridge at the times outlined below to accommodate work activities that, in the opinion of the Department, cannot be reasonably or safely completed with all lanes of traffic open. Lane widths shall be as defined in Special Provision 652.

a. Eastbound Traffic

Eastbound lane closures will be allowed during the following times regardless of whether westbound traffic is being detoured off site:

i. Eastbound traffic may be reduced to two lanes of traffic at any time provided the traffic control layout for the Utility Stage shown in the Contract Plans is followed.

ii. Eastbound traffic may be reduced to a single lane of traffic Monday through Saturday:

1. Beginning at 12:00 AM (midnight) and ending at 2:00 PM
2. Beginning at 6:00 PM and ending at 12:00 AM (midnight)

b. Westbound Traffic

Westbound traffic may be reduced to a single lane of traffic Monday through Saturday during the following times:

i. Beginning at 12:00 AM (midnight) and ending at 6:00 AM

ii. Beginning at 9:00 AM and ending at 4:00 PM

iii. Beginning at 6:00 PM and ending at 12:00 AM (midnight)

Except as otherwise specified herein, pedestrians and bicyclists shall be accommodated

on the bridge during these restrictions.

3. *Nightly Bridge Closures*:

   The Contractor will be allowed nightly closures of the Ticonic Bridge to all traffic, bicyclists and pedestrians to accommodate work activities that, in the opinion of the Department, cannot be reasonably or safely completed with the bridge open to traffic. Closures are allowed Sunday through Thursday beginning at 7:00 PM each night and ending at 6:00 AM the next morning.

   The Contractor will be required to submit and follow a closure notification plan in accordance with the requirements of Standard Specification 104.4.10 for all Nightly Bridge Closures. The Contractor shall be responsible for coordinating all planned closures with other projects potentially impacting traffic on the detour routes shown in the Plans.

4. *Short-Term Traffic Stoppages*:

   Short term stoppages of traffic on the Ticonic Bridge and/or approaches lasting up to ten minutes are permitted with the approval of the Resident for the mobilization of equipment, or for the delivery of materials, that cannot be reasonably completed without a stoppage. Short-Term Traffic Stoppages are allowed Monday through Friday between 7:00 PM and 6:00 AM each day.

5. *South Sidewalk Closures:*

   The Contractor shall close the south sidewalk of the Ticonic Bridge (the sidewalk on the Arch) and detour pedestrian traffic to the Two-Cent Bridge at the beginning of Stage 1 construction. This sidewalk shall remain open during utility relocation work in advance of Stage 1 construction.

Supplemental Liquidated Damages:

The following supplemental liquidated damages shall apply to this project:

1. *Extended Bridge Closures*:

   Supplemental liquidated damages will be assessed if Ticonic Bridge and approaches are not reopened to two lanes of eastbound traffic by the end of the approved Extended Bridge Closure Period. Supplemental liquidated damages will be assessed at the rate of $10,000 per Calendar Day, or any portion thereof, that the bridge is not reopened to two lanes of eastbound traffic.

2. *Ticonic Bridge Lane Closures:*

   Supplemental liquidated damages will be assessed at the rate of $500.00 for each 30-minute increment, or any portion thereof, that either bound of the Ticonic Bridge remains restricted to a single lane beyond the specified time.

3. *Nightly Bridge Closures*:

   Supplemental liquidated damages will be assessed at the rate of $1,000.00 for each 30-minute increment, or any portion thereof, that the bridge remains closed beyond the specified time.

4. *Short Term Traffic Stoppages:*

   Supplemental liquidated damages will be assessed at the rate of $250.00 for each 5-minute increment, or any portion thereof, that a traffic stoppage remains in place in excess of the allowed duration.

Assessment of supplemental liquidated damages will be in addition to liquidated damages specified in Section 107 of the Standard Specifications.

Westbound Detour Incentive & Disincentive:

The following incentive & disincentive will apply to detouring westbound traffic off the Ticonic Bridge:

1. Early Opening Incentives. The Contractor will be paid a $5,000 incentive for each complete Calendar Day that the Ticonic Bridge is considered substantially complete and reopened to westbound traffic in advance of the maximum allowed duration for detouring westbound traffic, as specified herein. The value of the incentive will be capped at 90 days ($450,000). The Ticonic Bridge will be considered substantially complete when the following items are complete, in place, and accepted: surface pavement on the bridge, base pavement in the approaches, bridge rail, bridge rail transitions, approach guardrail, pavement ramps (if applicable), and the entire limit of sidewalk work on at least one side of the roadway.

2. Late Opening Disincentives. The Contractor will be assessed a $5,000 disincentive for each Calendar Day, or any portion thereof, that the Ticonic Bridge is not reopened to westbound traffic after the maximum allowed duration for detouring westbound traffic, as specified herein.

107.3.2 Night Work Add the following to this section:

Night work will be permitted at all times during construction, unless otherwise specified herein. Night work will only be permitted Sunday through Thursday during the times specified herein.

SPECIAL PROVISION
SECTION 108
PAYMENT
(Steel Cost Adjustment)

This Special Provision was developed to minimize risk to the Contractor and steel fabricator(s) associated with current volatile fluctuations in the cost of steel materials.

Description Steel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in steel prices. All prices and costs are in U.S. Dollars (USD).

Types of Steel Products: An adjustment will be made for fluctuations in the cost of reinforcing steel (all reinforcing/reinforcement items included in Standard Specification Section 503), and plate and rolled-shape steel used in the fabrication of steel for Contract pay items covered under the following sections of the Standard Specification:

- Section 503, Reinforcing Steel
- Section 504, Structural Steel
- Section 507, Railings

The adjustments shall apply to the above items when they are part of the original Contract or Extra Work added by Contract Modification and paid for by agreed unit prices. The adjustments shall not apply when the item is Extra Work added by Contract Modification and paid for at a lump sum price or by Force Account.

Documentation Sufficient documentation shall be furnished to the Department to verify the following:

1. The full Purchase Order weight and date of the material order with signature.
2. The quantity of steel, in pounds, incorporated into the various pay items covered by this Special Provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment Steel cost adjustments shall be computed as follows:

SCA = Q × D

Where: **SCA** = steel cost adjustment, in USD
Q = quantity of steel incorporated into the work, in pounds. For 503 items, this quantity shall be the quantity included in the schedule of items; for 504 and 507 items, this quantity shall be the weight of steel included in the accepted as-built Working Drawings; the weight of scrap steel and steel used for convenience shall not be included in these weights.
D = price factor, in USD per pound

$\mathbf{D = MP_B - MP_A}$

Where: $\mathbf{MP_B}$ = The Platts Steel Spot Market Prices for the bid item listed in the table below for the month the material Purchase Order, including the total weight of steel and date of the order, is executed. The price will be converted from USD per ton to USD per pound.

$\mathbf{MP_A}$ = The Platts Steel Spot Market Prices for the bid item listed in the table below, for the month prior to the bid opening, for work paid for at the Contract price; or for the month the Contract Modification is signed by the Contractor for Extra Work that is paid for by agreed unit prices. The price will be converted from USD per ton to USD per pound.

The estimated total weight of the steel and market price identifier that will be used to calculate the steel cost adjustment for the respective Pay Items is shown in the following table:

Standard Specification Section	Estimated Total Weight of Steel (lbs.)	Platts Market Price
504, Structural Steel	3,600,000	Plate
507, Railings	81,800	Plate
503, Reinforcing	621,600	Reinforcing Bar, No.5

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the Contract Bid date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the MP_B will be based on the date the material arrives at the jobsite. In this case, an adjustment will only be made when there is a decrease in steel costs.

Basis of Payment Steel cost adjustments may be positive or negative.

Steel cost adjustments will be calculated by the Department and will be paid or deducted when all other Contract requirements for the applicable items of work are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustments will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

The steel cost adjustments shall not apply during any time after the Contract Completion Date when the Contractor is being assessed Liquidated Damages.

Cost adjustments, if any, shall be made by Contract Modification in accordance with this Special Provision.

SPECIAL PROVISION
SECTION 202
REMOVING STRUCTURES AND OBSTRUCTIONS
(Removing Existing Bridge – Arch Structure)

202.01 Description The following paragraphs are added:

This work shall include the removal and satisfactory disposal of the existing Ticonic Bridge earth-filled arch including the earth fill, tie rods, arch sidewalls, arch rib, sidewalk, embedded utilities, and associated components. This work also includes removal of the existing cast-in-place concrete piers and abutments associated with the arch to the limits shown on the Plans.

202.011 Construction Requirements

The Contractor shall demolish the existing superstructure of the arch in a manner that prevents damage to the dam/spillway beneath the bridge, minimizes the loss of debris into the impoundment to the extent practicable, and does not damage the existing dam/spillway or other infrastructure related to the Lockwood Dam facility. Damage to these facilities resulting from the Contractor's operations shall be repaired to the satisfaction of the Resident at no additional cost to the Department.

The Contractor shall dismantle the existing superstructure of the arch in a manner that, to the extent practicable, minimizes the loss of debris into the approximately 50-foot-wide stream channel located near the Winslow riverbank where the placement of temporary fill is not permitted.

The Contractor shall make a good faith effort to safely, and to the degree practicable, remove fill materials from within the arch prior to demolition of the concrete structure.

The Contractor shall be responsible for completing the work in accordance with the requirements of the project permits. The Contractor and Department will work together to identify appropriate and practicable methods for containment of demolition debris. The retrieval and removal of demolition debris that lands within the limits of the Kennebec River shall be completed as expeditiously as practicable, and as allowed by the project in water work windows.

All temporary structural supports, barges, or other components used within the impoundment shall be securely anchored or fastened in place in a manner that prevents unanticipated or uncontrolled movement that could damage the dam/spillway, the downstream headgate structure, or other components of the Lockwood Dam facility.

Any temporary structural supports, barges, or other components installed within the impoundment channel beneath or downstream of the bridge shall not restrict the existing 125-foot-wide hydraulic channel by more than fifteen percent. Temporary structural supports shall be located in a manner that does not significantly increase flow velocities or create significant new

eddies that could be detrimental to the stability of the dam/spillway, riverbank, existing bridge or headgate structure.

Explosive demolition of the existing structure will not be permitted.

The Contractor shall provide a demolition submittal for the Arch Structure and supporting substructures prepared and stamped by a professional engineer licensed in the state of Maine. The submittal shall include, but shall not be limited to, demolition plans and sequence, temporary shoring (if required), debris containment and protective structure details, design calculations, approximate demolition timeline, and a written demolition narrative. The demolition narrative shall outline the proposed demolition procedure and sequence including the proposed method(s) of removal, all required falsework and temporary supports, protective structures, and equipment needed to safely accomplish bridge removal. The submittal shall also identify all portions of the structure specified to be salvaged, and the manner in which these portions will be safely removed. The bridge demolition submittal shall include the Contractor's proposed equipment, procedures and processes for the safe retrieval and removal of demolition debris from the river basin in the event of an unplanned collapse of the arch structure during construction. The Contractor shall submit the demolition submittal to the Resident at least 60 calendar days prior to beginning demolition activities. If the Department requires changes to the demolition submittal, based on Contract requirements, then the Contractor shall implement the changes at no additional cost to the Department. No additional payments to the Contractor will be associated with this submittal and review process.

202.07 Method of Measurement

Removing Existing Bridge – Arch Structure will be measured by the lump sum.

202.08 Basis of Payment

The accepted quantity of Removing Existing Bridge – Arch Structure will be paid for at the contract lump sum price, which price shall be full compensation for removal of the arch, earth fill, removal of the concrete abutments and piers associated with the arch to the limits shown on the plans, and the removal of the curbs and sidewalks located atop the existing arch.

Payment will be made under:

Pay Item		Pay Unit
202.19	Removing Existing Bridge – Arch Structure	Lump Sum

SPECIAL PROVISION
SECTION 202
REMOVING STRUCTURES AND OBSTRUCTIONS
(Removing Existing Railings Retained by Department)

The following item on the existing bridge shall be removed by the Contractor and remain property of the Department:

1. 4 bar metal bridge rail including posts, clips, and bolts.

The bridge rail and bridge rail posts shall be removed by the Contractor and transported from the project site to the following location:

Maine Department of Transportation
Fairfield Lot
131 Skowhegan Avenue
Fairfield, Maine

Contact in Fairfield: Matt Gagne, (207) 592-1581

The Contractor shall contact the Resident a minimum of 72 hours in advance of delivery of the bridge rail and posts. MaineDOT will be responsible for unloading any materials. Prior to delivery of the materials, the Contractor shall confirm unloading capabilities of the Department's maintenance lot.

The aluminum rail and posts shall be adequately secured to wooden pallets before being returned to the Department. Base plates, rail caps, splice bars, clamp bars and miscellaneous hardware shall be placed in wooden boxes on wooden pallets. The wooden boxes shall have wooden covers attached with two hinges and a clasp. The clasp shall be secured in the closed position by a method approved by the Resident. The size of the pallets and boxes shall be approved by the Resident. The weight limit on the pallets shall be such that no damage will occur to the pallets or the materials stored on the pallets.

SPECIAL PROVISIONS
SECTION 202
REMOVING STRUCTURES AND OBSTRUCTIONS
(Removing Pavement Surface)

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 at 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 ¼ 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 ½ 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 $^{3}/_{8}$ 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	
2" and less	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 paved that day.
12:1 Tapered Centerline Joint	
1 ½" 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
2" and less	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 7 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

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
202.202 Removing Pavement Surface	S.Y.
202.20201 Removing Pavement Surface (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.

Waterville-Winslow
WIN 23138.00
Ticonic Bridge (#2854)
Lower Kennebec River – Class C Waterbody
February 22, 2022

SPECIAL PROVISION
SECTION 203
EXCAVATION AND EMBANKMENT
(Dredge Materials)

Management and Disposal: Dredge Material (See MaineDOT Standard Specifications § 101.2 Definitions) is regulated as a Special Waste.

In accordance with CMR 418, 500-cubic yards or less of Dredge Material Beneficially Used in the area(s) adjacent to and draining into the dredged water body is exempt from Beneficial Use Permits. Work associated with the Ticonic Bridge (#2854) replacement initiative will result in the incidental excavation of Dredge Material from the Lower Kennebec River (Class C Waterbody) – primarily associated with removal of the existing bridge pier directly upstream of the spillway. It is anticipated that approximately 20-cubic yards of dredge will be excavated. There may be onsite Beneficial Use for a portion of this Dredge Material, as directed by the Resident; the remaining Dredge Material shall be disposed of at an appropriately licensed facility.

The Contractor shall dispose of project Dredge Material that is not Beneficially Used at the site of generation, at a facility licensed by the Maine Department of Environmental Protection (MDEP) for the management of Special Waste. The Contractor shall be responsible for making all necessary arrangements for dewatering and proper management of the Dredge Material, including any laboratory testing, in accordance with the facility's license. The Contractor shall provide documentation to the Resident demonstrating that Dredge Material was managed as specified. Submitted documentation shall consist of truck manifests, waybills, or related documentation acceptable to the Resident, and shall clearly document the management site location and quantity of Dredge Material.

It is acknowledged that excavation of Dredge for this work may include some concrete and/or rock – remnants of the bridge pier removal. The MDEP has determined that sound boulders (rock 12-inches or more in diameter) or concrete debris, that is free of adhering sediment or other contaminants, shall be deemed as Inert Fill material and shall not be included in Dredge Material Quantities.

Method of Measurement: Excavation of Dredge material will be measured for payment under related Contract Items.

Basis of Payment: The accepted quantity of Dredge Material properly disposed of, as Special Waste, will be paid for at the contract unit price bid for Disposal of Special Waste.

Payment shall be full compensation for dewatering, testing, stockpiling, loading, managing, transporting, disposal, and all associated fees.

Payment will be made under:

Pay Item		Pay Unit
203.2318	Disposal of Special Waste	Ton

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) 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	16.0	65-80*	0.6-1.2
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

Use	Minimum Ambient Air Temperature	Zone 1 Allowable Placement Dates	Zone 2 Allowable Placement Dates
Surface course (travelway & adjacent shoulders) less than 1 in. thick placed during conditions defined as "night work"	50°F	June 1 to Saturday following September 1	
Surface course (travelway & adjacent shoulders) less than 1 in. thick	50°F	May 15 to Saturday following September 15	
Travelway surface course greater than or equal to 1 in. thick	50°F	May 1 to Saturday following October 1	April 15 to Saturday following October 15
HMA for surface course on bridge decks	50°F	May 1 to Saturday following October 1	April 15 to Saturday following October 15
HMA for base or shim course on bridge decks	50°F	April 15 to November 15	
HMA for use other than travelway surface course	40°F	April 15 to November 15	
HMA for curb, driveways, sidewalks, islands, or other incidentals	40°F	N/A	N/A
HMA produced with an approved WMA technology for base or shim course	35°F	April 15 to November 15	

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.

d. 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 eights 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 +/- ¼ 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 ¼ 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. 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 On 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.
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 length of 0.5 miles 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.

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.

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 shall be completely sealed with hot-applied rubberized asphalt material, meeting the requirements of Type 4 crack seal; 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.

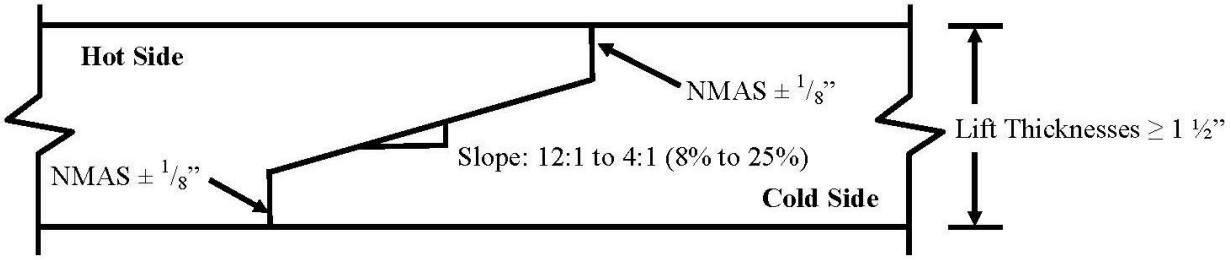


FIGURE 1: Notched Wedge Joint

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, Typicals, Special Provisions and communication process. This meeting shall be held prior to placing any mix. 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.

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.
   - Type of release agent to be used on haul units, tools and rollers.

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 pass during placement.
   - Mix TMD to be used for density gauge setting for method spec density work
   - Procedures for avoiding paving in inclement weather.
   - 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.
   -

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 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.
A QCP, certified QC personnel, and a Prepave Meeting shall not be required for Item 403.209 - Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals) accepted under visual or Method D. An approved JMF shall be provided to the Resident prior to placement.

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. 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

*Method A and B only

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 for Method D, (sidewalks, drives, islands & incidentals) and visual acceptance items

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) accepted under visual or Method D. 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 sublot 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 sublot 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 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

*Unless otherwise agreed upon at the Prepave Meeting

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

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 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		
Voids at N_{design}		N/A
Fines to Effective Binder*		
VMA at N_{design}		
VFB		
% TMD (In-place Density)		<60 PWL

*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 sublot 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 = (Voids @ N_d PF - 1.0)(Q)(P)x0.20 + (VMA @ N_d - 1.0)(Q)(P)x0.20 + (PGAB Content PF- 1.0)(Q)(P)x0.10	PA = (density PF- 1.0)(Q)(P)x0.50
Method C	PA = (% Passing Nom. Max PF-1.0)(Q)(P)x0.05+(% passing 2.36 mm PF-1.0)(Q)(P)x0.05+(%passing 0.30 mm PF-1.0)(Q)(P)x0.05+(%passing 0.075 mm PF-1.0)(Q)(P)x0.10+(PGAB Content PF-1.0)(Q)(P)x0.25	PA = (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. The Department will sample once per sublot 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	
Maximum Sublot Size – Mix	(Lot size ≤ 1000 tons)	(Lot size > 1000 tons)
	250 ton	750 ton
Sublot Size – Density	125 ton (Max 5 Sublots)	250 ton

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

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 sublot 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 sublot density is less than 88.5 percent or greater than 99.0 percent of the sublot 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 sublot TMD, the sublot shall be removed and replaced at no cost to the Department; otherwise, the average of the three cores will be used to determine the sublot 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 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	No	+/- 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

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 sublot 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	Pay Unit
402.10 Incentive/Disincentive - Pavement Smoothness	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:

Pay Item		Pay Unit
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 403
HOT MIX ASPHALT PAVEMENT

Desc. Of Course	Grad Design.	Item Number	Total Thick	No. Of Layers	Comp. Notes
3" –Ticonic Bridge Deck					
Wearing	12.5 mm	403.2081	1½"	1	2,5,8,21,30
Base	12.5 mm	403.2131	1½"	1	2,5,8,21,30
5" – US 201/Route 100/137 Travel Way, Shoulders, Widenings & Guardrail Flareouts – Full Depth Construction					
Wearing	12.5 mm	403.2081	1½"	1	2,5,8
Base	12.5 mm	403.2131	1½"	1	2,5,8
Base	12.5 mm	403.2131	2"	1	2,5,8
3" – US 201/Route 100/137 Travel Way & Shoulders - Mill & Overlay					
Wearing	12.5 mm	403.2081	1½"	1	2,5,8
Base	12.5 mm	403.2131	1½"	1	2,5,8
4" – US 201 – Offsite Improvement Areas Travel Way & Shoulders					
Wearing	12.5 mm	403.2081	1½"	1	2,5,8
Base	12.5 mm	403.2131	2½"	1	2,5,8
4" – Temporary Pavement					
Temp.	12.5mm	461.131	4"	2	24
Varies - Shim – As Directed					
Shim	9.5 mm	403.211	varies	1/more	4,20,30
2" – Sidewalks, Islands and Incidentals					
Wearing	9.5 mm	403.209	2"	2/more	3,20,30

COMPLEMENTARY NOTES

2. The required PGAB shall be a storage-stable, homogeneous, polymer modified asphalt binder that meets **PG 64E-**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 the **PG 64E-28** requirements. The Contractor shall provide supporting test data showing the PGAB and anti-strip blend meet the required criteria.
3. The design traffic level for mix placed shall be <3 million ESALS. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **65 gyrations**.
4. The aggregate qualities shall meet the design traffic level of 3 to <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**.

5. The design traffic level for mix placed shall be >10 million ESALS. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **65 gyrations**.
8. Section 106.6 Acceptance, (2) **Method B** as specified Section 401.21 - Quality Assurance Methods A and B.
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.
21. The combined aggregate gradation required for this item shall be classified as a 12.5mm "**fine graded "** mixture, (using the Primary Control Sieve control point) as defined in 703.09.
24. See Special Provision 461 – Temporary Pavement for project specifics.
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.

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 461
TEMPORARY PAVEMENT

Description

This work shall consist of furnishing all labor, materials and equipment, for the manufacturing, installation and removal of all Temporary Pavement in accordance with these specifications, Special Provision 403 Hot Mix Asphalt, and the Plans.

For Temporary Traveled Ways, pavement shall meet all mix design requirements of a 12.5 mm surface mix for the top 1½ inches, and a 12.5 mm base mix for the remaining 2½ inches.

For Temporary Sidewalks and Pedestrian Access, pavement shall meet all mix design requirements of a 9.5 mm surface mix for the required 2 inches.

Acceptance

This work shall not be eligible for mix or density incentive/disincentive.

The Department will accept or reject any HMA based on a **visual basis**, either prior to its use, during placement, or in its final disposition.

Method of Measurement

This work will be measured for payment by the Ton, complete in place and accepted.

Basis of Payment

The work shall be paid for at the contract Ton price for the manufacturing, installation and removal of all Temporary Pavement.

Payment will be made under:

Pay Item		Pay Unit
461.131	Temporary Pavement	Ton

SPECIAL PROVISION
SECTION 501
FOUNDATION PILES
(Micropiles)

Specification Section 501 - Foundation Piles is amended by the addition of the following:

501.01 Description

This work shall consist of furnishing and constructing a micropile foundation as shown in the Plans and as specified herein. The Contractor is responsible for furnishing all materials, products, accessories, tools, equipment, services, transportation, labor and supervision, and manufacturing techniques required for installation of micropiles for this project as shown on the Plans, approved submittals and specified herein. Accessibility varies throughout the site, and it is the responsibility of the Contractor to select equipment and construction methods accordingly.

The Contractor shall coordinate the work so the micropiles are safely constructed adjacent to existing structures. The Contractor shall perform the micropile construction and related excavation in accordance with the Plans and approved submittals.

The Contractor shall determine the micropile installation means and methods, confirm the estimated grout-to-bedrock bond value by load testing, and ensure that their operations prevent damage to adjacent structures including but not limited to underground utility infrastructure. The minimum micropile and casing diameters are shown on the Plans. The micropile load capacities shall be verified by verification load testing and must meet the load test acceptance criteria specified herein.

The Contractor shall install micropiles so that ground loss or densification and any resulting settlement or vibration does not damage existing structures or facilities to remain. The Contractor is responsible for advancing through any boulders, cobbles, masonry, concrete or obstructions that may interfere with the installation of micropiles.

Where proposed micropiles overlap with existing foundations to remain, the Contractor shall install micropiles through existing substructure concrete after any required partial demolition, including complete penetration of permanent casing through the concrete and into bedrock.

It is anticipated that micropile lengths will vary significantly and abruptly at the site. Top of rock elevations for micropile lengths shall be determined using the results of confirmation core borings which will be completed by the Contractor. Micropiles may be omitted at the direction of the Resident if bedrock is encountered above the elevation of the bottom of the substructure, as noted in the Drawings.

The Contractor shall monitor all aspects of micropile construction and load testing. The Contractor shall perform load testing as required. The Contractor shall provide access so that the

Resident and/or their representative can monitor all aspects of micropile construction. The Contractor shall not install or load test micropiles unless the Department's authorized representative is present at the site to monitor the work.

501.011 Definitions

Definitions that apply within this Special Provision are:

Alignment Load (AL) A minimum initial load (no greater than 4 percent of the Factored Design Load) applied to micropile during testing to keep the testing equipment correctly positioned.

Bond Breaker A device, sleeve or special treatment incorporated into a length of micropile that will prevent load transfer to the soil over that length. A bond breaker also provides full lateral support of the micropile over the length of the bond breaker. Grout placed in contact with the soil using gravity pressure only will not be considered to constitute a bond breaker. A bond breaker shall be included above the top of the bond zone to isolate the soil adjacent to the sacrificial micropiles installed for verification testing (test piles).

Plunge Length The gravity grouted, pressure grouted, and/or post grouted length of permanent casing of a micropile that is bonded to the ground and transfers the applied loads to the surrounding bedrock.

Bond Zone The gravity grouted, pressure grouted, and/or post grouted length of a micropile located below the plunge length that is bonded to the ground and transfers the applied loads to the surrounding bedrock.

Centralizer A device to support and position the reinforcing steel in the drill hole and/or casing so that a minimum grout cover is provided.

Coupler The means by which load capacity can be transmitted from one partial length of reinforcement to another.

Free (Unbonded or Cased) Length The designed length of the micropile that is not bonded to the surrounding ground with grout.

Factored Design Load (FDL) The maximum factored compressive or tension axial load for a micropile as indicated on the Plans.

Micropile A small diameter, bonded, cast-in-place friction pile formed by removing material using non-vibratory and non-displacement methods to create a cased open, cylindrical hole in the ground, which is subsequently filled with grout and steel reinforcement.

Mill Secondary Mill rejected American Petroleum Institute (API) casing, a.k.a. "Mill Rejects," "Structural Grade," "Limited Service," or "Minimum Test Pipe".

Non-Production Micropile Sacrificial micropiles that are not incorporated into the substructure. For example, test micropiles which are abandoned after testing has been completed.

Overburden Material, natural or placed, that may require cased drilling methods to provide an open borehole to underlying strata.

Permanent Steel Casing A steel pipe of flush joint type installed in the upper portion of a micropile and into the rock for the length of the plunge to stabilize the drill hole and support adjacent soils, and gain the required axial capacity within the plunge length.

Positive circulation or flush A method of progressing and cleaning out a hole for a micropile wherein drilling fluid is injected into the hole and returns upward along the outside of the drill casing.

Post-grouting The injection of additional grout into the bond zone of a micropile after the primary grout has set. Also known as regrouting or secondary grouting.

Pressure grouting A method used to develop pile capacity wherein pressure is applied continuously to the top of the fluid grout column through the drill head as the casing is removed from the bond zone.

Primary Grout Portland-cement-based grout injected into the micropile hole prior to or after the installation of the reinforcement to achieve the load transfer from the structure to be supported to the surrounding ground within the micropile bond zone.

Production micropile A micropile which will be incorporated into the structure's foundation.

Recirculation A method of handling drilling fluid where the fluid coming back out of the hole is captured and reused.

Reinforcing Steel A bar placed through the full length of the pile, in the center of the pile to provide load transfer into the bond zone.

Reverse circulation A method of cleaning the inside of the drill casing. Drilling fluid is circulated down through the drill rods and returns upwards through the inside of the drill casing to flush the drill casing clean.

Test Design Load (TDL) The design load utilized for testing the verification test pile as provided on the plans. The TDL is not equal to the factored design load.

Tremie grouting A method used to place grout in a drill hole. A grout tube is placed to the bottom of the drill hole. While keeping the grout tube opening submerged in the grout, grout

is pumped into the hole, causing the drilling fluid to be displaced upward.

501.012 Qualifications and Submittals

The Contractor performing the work described in this specification shall have installed micropiles of similar diameter, length, difficulty of installation, and subsurface conditions to those shown on the Plans for a minimum of five years prior to the bid date for this project.

Forty-five (45) days prior to the start of installation of the Micropiles, the Contractor performing the work described in this Special Provision shall submit:

1. Proof of successfully constructed and load tested Micropiles for at three (3) projects in the last five (5) years under similar site conditions to those indicated in the Contract Documents.

2. A list identifying the on-site supervisors, drill rig operators, and load testers assigned to the project. On-site supervisors shall have supervised the successful installation of Micropiles on at least three (3) projects in the last five (5) years under similar site conditions to those indicated in the Contract Documents. Drill rig operators shall have at least one (1) year experience in construction of Micropile foundations. The load test engineer responsible for design and execution of all micropile Verification load tests shall have designed and administered load tests on micropiles of similar size and capacity on a minimum of three (3) projects in the last five (5) years.

3. Qualifications of the driller engaged by the Contractor to perform the confirmatory core borings.

The Resident will approve or reject the Contractor's qualifications and staff within fourteen (14) Working Days after receipt of the submission.

The Contractor will not be allowed to begin work until all related submittal requirements are satisfied and found acceptable to the Resident. At least thirty (30) days prior to the start of installation of the micropiles, the Contractor shall prepare and submit the information outlined below. All submittals will be reviewed by the Resident in accordance with Standard Specification Section 105.7, Working Drawings.

The Contractor shall submit a Micropile Installation Plan, which shall include:

1. List and description of proposed equipment and materials to be used for micropile installation, including drilling equipment, drill bit cut sheet, cleaning method, centralizers, reinforcing steel, bond breakers, primary grouting, post-grouting (if needed), tensioning, load testing and load transfer. Include model, size, type, manufacturer’s information, lifting capacities, and vertical and horizontal clearance compared to clearance available, for each piece of equipment.

2. Details of proposed procedures for micropile installation including, but not limited to, anticipated means/methods for: advancing and cleaning out the casing; achieving the required casing plunge length into rock; checking cleanliness of drill holes; installation of reinforcing; primary grouting and post-grouting including the method of achieving grout penetration within the annulus between the rock and the casing in the plunge length. Identify the consecutive steps and the approximate time required for each step, labor and equipment usage schedule, any interference to any existing structures, facilities, or utilities as a result of the micropile installation, and the methods to be used to control and verify micropile position and vertical or battered alignment.
3. Procedures and anticipated means/methods and equipment/tooling for advancing through boulders, cobbles, masonry, and obstructions.
4. Procedures for containment of drilling fluid and spoils, and disposal of spoils.
5. Shop drawings, including the micropile components, all structural steel, micropile top attachment and bond zone details which includes the plunge and rock sockets. Provide information on the length of the permanent steel casing sections and reinforcement sections to be used, as dictated by the length of the drill mast and by the available overhead clearance, and the resulting location of joints. Shop drawings shall provide details and dimensions of all micropile components, including, but not limited to, nominal diameter, length, and size of permanent casing, reinforcement, splicing, centering devices, post-grout tube, grouting pressure, grout compressive strength, micropile to footing connection details, and shall include a plan showing micropile designations and working and staging areas.
6. Grout mix design and documentation from an independent testing laboratory. This item shall include the proportions of the batch, the manufacturer of the components, the specific gravity, and grout compressive strength test results completed within the last year.
7. If proposed, details of post-grouting materials/mix design, equipment and procedures, including the method, sequence of operations and equipment required.
8. Layout drawings showing the proposed sequence of micropile installation and proposed micropile verification load test location. Coordinate this sequence with the proposed phasing and scheduling.
9. Estimated sequencing and duration of the work, including mobilization, micropile installation, grouting, and demobilization.
10. Example micropile drilling log, installation log and grouting form.

For API steel pipe used as permanent steel casing, the Contractor shall submit a minimum of two representative coupon tests or mill certifications (if available) on each truckload delivered to the project. Certified mill test reports for the reinforcing steel shall be submitted for record purposes as the materials are delivered. The ultimate strength, yield strength, elongation, and material properties composition shall be included. Mill certificates for hex plates, nuts and couplers shall also be submitted to the Resident.

The Contractor shall submit a Quality Control Plan (QCP) for the grout, in accordance with Standard Specification Section 502.1701, Quality Control, Method A and B, with the following exception: there are no permeability or entrained air requirements. This plan shall also include a description of the procedures and equipment for placing the grout and the method for monitoring quality control of the mix. At a minimum, quality control shall include: Use of a Baroid Mud Balance per American Petroleum Institute (API) Recommended Practice (RP) 13B-1, Standard Procedure for Testing Water Based Drilling Fluids, to check the specific gravity of the mixed grout prior to placement of the grout into each micropile; and compressive strength testing in accordance with AASHTO T106/ASTM C109 at a frequency of no less than one set of three (3) 2-inch grout cubes each day of operation, or per every six (6) micropiles, whichever occurs more frequently.

The Contractor shall conduct confirmatory core borings and submit logs a minimum of seven (7) days before commencement of micropile installation in accordance with Subsection 501.041 Confirmatory Core Borings.

The Contractor shall submit a Micropile Testing Submittal containing detailed plans for the method proposed for verification load testing of the micropiles to the Resident for review and acceptance prior to beginning load tests. This shall include all necessary drawings and details to clearly describe the proposed verification load test location, load test method and equipment, as well as calculations to ensure that the central reinforcement, load test equipment and subgrade are adequate to accommodate the proposed test loads, and shall bear the seal of a Professional Engineer registered in the State of Maine.

The Micropile Testing Submittal shall also include calibration reports for each test jack, pressure gauge, master pressure gauge and load cell to be used. The calibration tests shall have been performed by an independent testing laboratory and tests shall have been performed within sixty (60) days of the date submitted. The Resident shall approve or reject the calibration data within five (5) working days after receipt of the data. Testing shall not commence until the Resident has approved the jack, pressure gauge and master pressure gauge calibrations.

Micropile installation records shall be submitted to the Resident within twenty-four (24) hours after each micropile installation is completed. At a minimum the records shall include: micropile drilling duration and observations; description and depth of soil and bedrock encountered; micropile inclination; approximate final drill hole, casing, reinforcement, and centralizer elevations; cut-off elevation; description of unusual behavior and/or conditions; deviations from planned parameters; grout volumes pumped; grout pressures; micropile materials and dimensions; micropile location; inspector name; drill method; grout method; drill rig operator.

The Contractor shall submit to the Resident within thirty (30) calendar days after completion of the micropile work a report containing:

1. As-built drawings showing the locations of the micropiles and the micropile lengths.
2. Steel manufacturer's mill test reports for the reinforcing steel, and coupon test results for permanent steel casing.
3. Detailed drilling records including depth to bedrock and bedrock quality.
4. Grouting records indicating the cement type, quantity injected and pressure.
5. Results of grout cube breaks.
6. Micropile load test results and graphs.

501.02 Materials

For all steel remaining as a permanent part of the work, including "mill secondary" casing, all Buy America provisions shall apply. Refer to Standard Specifications Subsection 105.11, Other Federal Requirements, and Standard Specifications Appendix A to Division 100, Section 3, Other Federal Requirements.

Water Water shall meet the requirements of Subsection 701.02.

Grout Cement grout for grouting the micropiles shall be either neat cement grout, or sand-cement grout with a water-cement ratio not more than 0.45 by weight. Water content and consistency of grout may be varied only by written approval by the Resident or their agent. Minimum 28-day unconfined compressive design strength of grout shall be 5,000 psi per AASHTO T106. The grout design strength shall be achieved prior to placing pile cap concrete. Materials for cement grout shall be in accordance with the approved submittal. All cement shall be Portland cement conforming to AASHTO M85, Types I, II, III or V.

The grout shall be pumpable and consist of a mixture of Portland cement, mineral filler, plasticizer, sand and water so proportioned and mixed as to provide a grout capable of maintaining the solids in suspension without appreciable water gain, yet which will laterally penetrate and fill any voids in foundation material.

Mineral filler shall be finely powdered siliceous material, which possesses the property of chemically reacting in the presence of moisture with calcium hydroxide at ordinary temperatures to form compounds possessing cementitious properties. Plasticizer shall be a compound possessing characteristics which will increase the flowability of the mixture, assist in the dispersal of cement grains, and neutralize the setting shrinkage of the cement mortar.

Admixtures shall conform to the requirements of AASHTO M 194. Expansive admixtures and those with chlorides shall not be used. Admixtures shall be compatible with the grout and mixed in accordance with the manufacturer's recommendations. Their use shall only be permitted after field tests on fluid and set grout properties. Admixtures shall be submitted for review in the grout mix design and approval by the Resident.

Fine Aggregate If sand-cement is used, sand shall conform to AASHTO M45 (ASTM C144).

Grout Protection Provide a minimum 1-inch grout cover over bars and ½ inch grout cover over couplers.

Reinforcing Steel Reinforcement steel shall be continuously threaded bar conforming to AASHTO M31 (ASTM A615), Grade 75 or better, except as noted for test piles in the Contractor's Micropile Testing Submittal. When a bearing plate and nut are required to be threaded onto the top end of the reinforcing bars for micropile top to footing anchorage, the threading may be continuous spiral deformed ribbing provided by the bar deformations or may be cut into the reinforcing bar. If threads are cut into a reinforcing bar, the next larger bar number designation from that shown on the Plans shall be provided at no additional cost.

Reinforcing steel shall be galvanized in accordance with AASHTO M232 (ASTM A153)

Hex Nuts and Couplers Hex Nuts and Couplers shall conform to ASTM A576, Grade 75 or better. Hardened washers shall conform to ASTM F436, Grade 75 or better. Tension couplers shall be able to develop 1.25 times the theoretical yield strength of the spliced bar. Couplers shall be sized such that they allow the passage of grout between the casing and coupler, and shall be placed no shallower than 15 feet below the cutoff elevation.

Hex nuts and couplers shall be galvanized in accordance with AASHTO M232 (ASTM A153).

Permanent Steel Casing Steel casing for micropiles shall have the minimum outside diameter and wall thickness shown on the Plans and shall meet the tensile requirements of API 5CT Grade N80 (80 ksi) or better. The casing should be able to withstand the stresses associated with advancing it into the ground, in addition to the stresses due to hydrostatic and earth pressures. Casing shall be straight-seamed. Lap welded seams are not acceptable. Casing shall be either:

1. New "mill secondary" steel casing without mill certification, provided it is free from defects (dents, cracks, tears) and has a minimum of two unique coupon tests per truckload meeting the requirements of ASTM A 370-14, or

2. "Prime" steel casing meeting the requirements of API 5 CT Grade N80 or better.

If welding of high strength steel casing is required, a welding procedure conforming to AWS D1.1 *Structural Welding Code – Steel* specifications and recommendations shall be submitted to the Resident for review and acceptance, prior to any welding operation.

Permanent Steel Casing splices shall conform to the requirements of ASTM A148/A148M, Grade 725-585 (Grade 105-85). Casing splices or threads shall develop the required nominal

strength of the pile cross section and shall provide proper alignment so that no eccentricity or angle occurs between the axes of the two lengths spliced.

The Permanent Steel Casing shall be flush joint and the pipe joint shall be completely shouldered and with no stripped threads.

The manufacturer or fabricator of steel pipe piling shall furnish a certificate of compliance stating that the piling being supplied conforms to these specifications. The certificate of compliance shall include test reports for tensile and chemical tests. Samples for testing shall be taken from the base metal, steel or coil or from the manufactured or fabricated piling. The certificate of compliance shall be in Imperial units.

Plates and Shapes Structural steel plates and shapes for micropile top attachment shall conform to AASHTO M 223 Grade 50 (ASTM A572).

Plates and Shapes shall be galvanized in accordance with Section 506, Shop Applied Protective Coating – Steel.

Centralizers and Spacers for Reinforcing Steel Centralizers and spacers shall be fabricated from schedule 40 PVC pipe or tube, steel, or material non-detrimental to the reinforcing steel. Wood shall not be used.

Centralizers and spacers shall be securely attached to the reinforcement; sized to position the reinforcement within 3/8 inch of plan location from center of micropile; sized to allow grout tremie pipe insertion to the bottom of the drill hole; and sized to allow grout to freely flow up the drill hole and permanent steel casing without misalignment of the reinforcement.

501.04 Construction Requirements

501.041 Confirmatory Core Borings

To confirm the depth and nature of the bedrock at the proposed drilled micropile locations and to determine whether drilled micropiles can be eliminated due to the presence of shallow rock, the Contractor shall take confirmatory core borings (rock cores) prior to commencement of drilled micropile installation at the following minimum locations:

Micropile Confirmation Core Locations

Primary Cores		**Secondary Cores**	
Coordinates (Northing, Easting [feet])	Estimated Bottom of Core Elevation (ft)	Coordinates (Northing, Easting [feet])	Estimated Bottom of Core Elevation (ft)
625690.7, 1178915.6	48.5	625697.8, 1178922.8	38.5
625691.5, 1178922.7	38.5	625705.3, 1178916.0	48.5
625698.0, 1178915.8	48.5	625710.3, 1178923.1	38.5
625704.0, 1178923.0	38.5	625720.0, 1178916.4	48.5
625712.7, 1178916.2	48.5	625722.8, 1178923.4	38.5
625716.5, 1178923.3	38.5	625734.7, 1178916.7	48.5
625727.3, 1178916.6	48.5	625735.2, 1178923.8	38.5
625729.0, 1178923.6	38.5		
625742.0, 1178917.0	48.5		
625741.5, 1178924.0	38.5		

The sequence of the confirmatory cores should be to conduct the Primary Cores as shown in the table above, followed by completing the Secondary Cores if directed by the Resident or their agent. The Resident or their agent reserves the right to eliminate confirmatory cores and/or to adjust the planned core depths if it is judged that the data collected is sufficient to determine the elevation requirements of the drilled micropile components.

The Contractor shall collect rock cores continuously through existing granite masonry blocks, concrete and rock fill that may be present above the bedrock, and in bedrock as judged by the Geotechnical Engineer. At all confirmatory borings, the Contractor shall cut rock cores until a minimum of five (5) feet of bedrock has been cored and at least two (2) consecutive feet of rock having a Rock Quality Designation (RQD) value of 25 percent or greater is encountered. Calculation of minimum RQD shall consist of at least two pieces of rock core greater than 4 inches long in the final 2 feet of the core. The estimated bottom of core elevations provided in the table are for planning purposes and may be adjusted in the field by the Resident or their agent based on the actual depth of bedrock encountered.

Borings shall be advanced through overburden and other materials that cannot be cored by driving or spinning casing and washing. Casing shall have a minimum outside diameter (O.D.) of 3.5-inches. Minimum NQ2-size rock cores shall be cut with a double or triple tube core barrel. Concrete, masonry and bedrock shall be drilled and cores recovered, stored, and transported in accordance with ASTM D2113 and D5079 “Routine Level” of care. Rock core will be measured, visually identified and described on a boring log by the Geotechnical Engineer.

The Contractor shall provide access to the Geotechnical Engineer and the Resident to allow for borehole observation and logging, and measurement of RQD from the rock core samples. The Contractor shall give a minimum 72-hour notice to the Resident prior to starting the drilling operation. The top of rock at a given drilled micropile location shall be based on the results of the confirmatory core borings. The Geotechnical Engineer will be the sole judge as to the classification of rock encountered during drilling of the confirmatory borings, including the quality of the rock, depth to top of rock, and elevation of top of rock.

The core samples shall be placed in suitable wooden boxes with hinged box covers, divided into separate compartments for individual core runs, identified by micropile location, elevation, and project number and delivered with the Contractor's field log to the Resident within 24 hours after the exploration is completed. The Geotechnical Engineer will review the field logs and cores and determine the final required drilled micropile plunge and rock socket elevations and depths based on the quality of rock encountered in the borings within three (3) days of completion of the confirmation borings.

501.042 Micropile Construction

Progress all micropiles using permanent steel casing. If replacement micropiles are needed because installed micropiles are unacceptable, location of the replacement micropile(s) shall be approved by the Resident or their Agent. All installation techniques shall be determined and scheduled such that there will be no interconnection (grout flow between holes) or damage to previously installed micropiles.

Tolerances Install the top of the permanent steel casing to the elevation indicated in the Plans. Install the tip of the permanent steel casing to the elevation required to ensure the minimum plunge length is achieved as indicated in the plans and by the results of the confirmatory borings. Install the permanent steel casing so that the center of each casing does not vary from the plan location by more than 3 inches. Micropile-hole alignment of vertical micropiles shall be within 2% of design alignment. Top elevation of the micropile as measured at the cutoff elevation of the casing shall be within plus or minus 1 inch of the design vertical elevation. The casing tip elevation and bottom elevation of the rock socket shall be at or below the elevation developed based on the results of the confirmatory borings. Centerline of reinforcing steel shall not be more than ¾ inch from centerline of piling and shall maintain minimum cover requirement for the reinforcing bars and couplers.

Drilling, Soil Removal, and Permanent Casing Installation The drilling equipment and methods shall be suitable for drilling through the conditions to be encountered, with minimal disturbance to these conditions or any overlying or adjacent structures or services, water bodies, or previously installed micropiles. The drilling equipment shall be capable of installing micropiles to a depth and size shown on the Plans and as indicated by the results of the confirmatory borings. An underreamer bit shall be used to advance a core hole with a diameter between 0.5 and 1 inch larger than the outside diameter of the casing. Drill so that the micropile is not moved out of horizontal alignment or out of specified inclination. Drill casing shall be extended into bedrock at or below the required elevation to provide the minimum plunge length

required prior to grouting. Open/unsupported drill holes through the overburden will not be permitted. Do not drill or flush ahead of the drill casing by more than 6 inches in soil. Perform drilling and excavation in such a manner as to prevent the collapse of the hole. Use of bentonite slurry is not permitted. Use of polymer slurry to remove cuttings from the cased hole must be approved by the Resident. Install micropiles so that the permanent steel casing is in intimate contact with the surrounding soil. Advance the hole using duplex drilling methods and reverse circulation within the drill casing. Positive circulation or flushing, a method of progressing and cleaning out a hole for a micropile wherein water is injected into the hole and returns upward along the outside of the drill casing, will not be allowed. The use of air to clean the casing will be allowed at the discretion of the Engineer if it can be shown to induce no adverse impact on surrounding soils and structures. These methods are allowed provided the Specialty Contractor exercises caution to prevent over-excavation or heaving.

Micropile casings shall be drilled to the minimum plunge length shown in the plans and as indicated by the confirmatory borings. Micropile rock sockets shall be drilled to the minimum rock socket length shown in the Plans and as indicated by the confirmatory borings. The rock socket length must be confirmed by approved methods to be open to the defined nominal diameter, full length, prior to placing reinforcing steel and grout.

The Contractor is responsible for removing and/or advancing through any cobbles, boulders, masonry, and all obstructions that may interfere with the installation of Micropiles, with the possible exception of buried steel remnants. The Contractor shall have and maintain on site at all times the proper equipment, tools, materials, and labor necessary for the effective removal or penetration of such materials, if encountered. An impact or vibratory hammer shall not be used to advance casing; this requirement does not apply to rotary percussive techniques that use top-drive hammers or down-the-hole hammers.

Control the procedures and operations to prevent undermining, damage or settlement to adjacent structures, tunnels, utilities or adjacent ground, or previously installed micropiles and prevent adverse impact on adjacent waterbodies. If any undermining, damage, settlement, or impact on water bodies occurs, halt operations. Provide a written plan to the Resident for review with procedures to avoid reoccurrence. Resume work only after the Resident or their agent have approved the plan in writing. Repair all damage and settlement at no additional cost to the Department. Delays resulting from the plan preparation and review process shall be the sole responsibility of the Contractor, and shall be at no additional cost to the Department.

Control the procedures and operations to prevent soil or rock material from moving into the bottom of the hole at all times during installation and cleaning out. Maintain the fluid level inside the hole above the ground water level at all times during installation and cleaning out. Monitor the rate of fluid flow used to progress the holes. Monitor any adjacent water body for adverse impacts such as siltation resulting from drilling and flushing.

Control drilling fluid and dispose of spoil in accordance with the approved procedure. Drill fluid and cuttings shall be controlled by diverters, or other methods approved by the Resident, that produce a closed system allowing all drill spoil to be placed in settling tanks for separation

of fluid and solids for eventual disposal. Wastes and spoils must be disposed of in an appropriate manner. Deposition of waste and spoil on local streets and in sewers will not be permitted.

Pre-drilling more than one hole or incomplete drilling of holes shall not be permitted unless otherwise approved by the Resident or their agent. All incomplete micropiles that are in progress shall be capped or covered during overnight or weekend breaks for safety and to prevent any objects from falling in. Do not advance a drill hole, clean a completed drill hole, pressure grout, or post-grout, within a radius of five (5) pile diameters or five (5) feet, whichever is greater, of a grouted micropile until the grout for that micropile has set for at least 24 hours, or longer if a retarder is used. The Resident will determine the longer wait time if a retarder is used based on the results of the grout testing.

All installation techniques shall be determined and scheduled such that there will be no interconnection or damage to micropiles in which grout has not achieved final set.

Steel Obstructions The Contractor shall notify the Resident immediately, first verbally then in writing, if the Contractor has encountered materials that they believe should be classified as a steel obstruction. Upon verbal notification, the Resident will determine if the encountered materials are to be classified as an obstruction.

If the Resident determines that the material is a buried steel remnant that cannot practically be penetrated using available drilling techniques or equipment, the Contractor may be directed to abandon the micropile and offset to an adjacent location, as determined by the Resident and the Geotechnical Engineer. If a micropile is to be abandoned, the Contractor shall terminate all drilling and backfill the micropile excavation with grout. Grout shall be placed from the bottom of the hole up using tremie methods. Micropile casing for abandoned piles shall remain in-place unless directed otherwise by the Resident. The casing shall be cut at or below the design top of pile elevation.

Reinforcing Steel, Centralizers, and Post Grout Tube Placement Reinforcing Steel shall be placed immediately prior to primary grouting. The Reinforcing Steel surface shall be free of all deleterious substances such as soil, mud, grease or oil that might contaminate the grout or coat the reinforcement and impair bond.

Centralizers shall be provided at 8 ft. maximum spacing on central reinforcement. The uppermost and lowermost centralizers shall be located a maximum of 5 feet from the ends of the micropile. Securely attach the centralizers to withstand installation stresses. Centralizers shall be provided of appropriate size to center the reinforcing steel in the bond zone and the permanent steel casing.

The Contractor shall check micropile top elevations and adjust all installed micropiles to the planned elevations.

After drilling, the hole shall be flushed with water and/or air or other method per approved Contractor submittal to remove drill cuttings and/or other loose debris to the satisfaction of the Department's authorized representative. After the Department's representative confirms that the hole is clean and open to depth, and immediately prior to grouting, lower the reinforcing steel to its specified location in the hole without dropping. If a post grout tube is used, attach it to the reinforcing steel prior to lowering it. Partially inserted reinforcing steel shall not be driven or forced into the hole. The Contractor shall remove the steel, redrill and reinsert steel when necessary to facilitate inserting at no additional cost to the Department. There shall be no interconnection or damage to micropiles in which the grout has not achieved final set.

Grout Placement The Contractor shall provide calibrated systems and equipment to measure the grout quality (including, at a minimum, grout specific gravity), quantity, and pumping pressure during the grouting operations. Pressure is usually applied by attaching a pressure cap to the top of casing or drilling head and injecting additional grout into the casing under controlled pressure. The minimum pump pressure at the top of the steel casing shall be calculated by the Contractor and provided in their submittal. The pressure gauge for grout pressure monitoring shall be capable of measuring pressure of at least 200 psi or twice the actual grout pressure to be used by Specialty Contractor, whichever is greater. Provide pressure gages capable of measuring the actual grout pressures used such that actual pressure readings are within the middle third of the gage. The grouting operations for micropiles shall begin within 4 hours after the micropile has been successfully cleaned.

The grout shall not contain lumps or any other evidence of poor or incomplete mixing. Admixtures, if used, shall be mixed in accordance with manufacturer's recommendations. The grouting equipment shall be sized to enable the grout to be pumped in one continuous operation. The grout shall be kept in constant agitation prior to pumping. Fill annular space between the Permanent Steel Casing/Rock Socket and the Reinforcing Steel with grout meeting the requirements of the approved mix design. Grout shall be placed within one (1) hour or less after mixing or within the time recommended by the manufacturer if admixtures are used and shall be installed without significant interruption. If significant interruption occurs, the Contractor shall replace the micropile or install a new replacement micropile at a location approved by the Resident at no additional cost to the Department. Grout not placed within the allowed time will be rejected.

Provide quality control of the mix by monitoring grout quality and volume per the QCP submitted to, and accepted by, the Department.

The grout shall be injected from the lowest point of the drill hole by means of a tremie pipe/tube in accordance with the approved procedure until clean, pure grout flows from the top of the micropile as determined by the Resident. All grouting operations shall ensure complete continuity of the grout column. The use of compressed air to directly pressurize the fluid grout is not permissible. The entire micropile shall be grouted to the design cut-off level and until clean grout flows from the top. Once clean grout is observed flowing from the top, the tip of the permanent casing should be raised by an amount equal to the required plunge length while remaining a minimum of one (1) foot below the top of rock as indicated by the confirmatory

cores, and the casing shall be subsequently readvanced to the required casing tip elevation to ensure grout fills the annulus outside of the casing within the plunge length in accordance with the Contractor's submittal. After the casing is advanced back to the required bottom of casing elevation, additional grout shall be placed until grout flows from the top. Make provisions for checking the grout level in place at the end of each stage of grouting. Record the initial volume of grout required to fill the hole. Upon completion, maintain the grout level at or above the micropile cut off elevation until the grout has set. Record date and time of observed grout loss and volume of added grout.

Upon completion of grouting, the grout tube may remain in the hole, but it shall be filled with grout. If post-grouting is utilized, perform post-grouting at least 48 hours after the primary grout or after the grout for the micropile has hardened. Record the pressure at which the grout was pumped and the volume pumped through each port.

Provide means and access for grout volume measurement at the micropile installation site to the Resident or their agent.

Grout Testing Testing will be performed in accordance with the QCP submitted to, and accepted by, the Department.

Micropile Acceptance Criteria The following shall be achieved in order for the production Micropiles to be acceptable to the Department:

1. Tolerance criteria met
2. Installed in accordance with the accepted Micropile Installation Plan and Grouting QCP.
3. Installed the permanent casing to the minimum plunge length shown in the Plans and as indicated by the confirmatory cores.
4. Installed the minimum rock socket length shown in the plans and as indicated by the confirmatory cores.
5. No damage sustained during construction.

Unacceptable Micropiles Unacceptable micropiles are micropiles which do not meet the Acceptance Criteria outlined above.

In the event that a Micropile is identified as unacceptable, the Contractor shall submit to the Resident a written plan of remedial action showing how to correct the problem and prevent its reoccurrence within 72 hours of identification of the unacceptable micropile. The Department shall review the remedial plan and approve or reject within one week after submission. The Contractor shall revise and resubmit their plan until it is approved by the Department. The Contractor shall repair, augment, or replace the unacceptable micropile in accordance with the approved remedial plan at no additional cost to the Department. No repair shall be permitted until the written plan is approved by the Resident. To mitigate and/or to

remedy unaccepted micropiles, the Contractor may be required to provide additional micropiles or supplement micropiles to meet specified requirements. Any associated work required due to unacceptable micropiles shall be at no additional cost. Payment will not be made for a rejected micropile until such time that the micropile is repaired or augmented to the satisfaction of the Resident.

501.043 Verification Load Testing.

One (1) successful, pre-production verification axial load test shall be conducted on a sacrificial, plumb micropile (test pile) installed within 20 feet of the abutment micropile locations for the proposed structure. Location of test pile shall be proposed by the Contractor and approved by the Resident. Verification load testing shall be performed in the presence of the Department's authorized representative and shall verify that the test pile meets the required compression or tension load resistance and the load test acceptance criteria. The Contractor shall provide a minimum of 48 hours notice prior to verification load testing. The test pile shall be installed and tested prior to production micropile installation. The drilling and grouting methods, casing and other reinforcement details, and depth of embedment for the successful test pile shall be as shown on the Plans and the approved submittal. A bond breaker shall be installed above the top of the rock socket in the test pile installed for verification testing to isolate the rock socket. The verification load tests will be conducted in tension. The test piles shall be loaded to 150% of the TDL. The Contractor shall indicate in their submittal whether higher strength steel is required for the reinforcing to resist the maximum test load. The maximum test load shall be no greater than 80 percent of the Minimum Ultimate Tensile Strength of the reinforcement.

Micropile verification load testing shall be in general conformance with ASTM D-3689 (tension load test) except as modified herein. The Contractor shall provide load testing equipment with a movement-measuring device with a sensitivity of 0.001 inches of displacement. Testing equipment shall include at least two (2) dial gauges, dial gauge support, jack and pressure gauge, electronic load cell, wire, mirror, and scale, and reference beam. A leveling plate shall be attached to the surface of the test pile and the jack shall be set in position with the load centered on the pile. The hydraulic jack and pressure gauge shall be calibrated by an independent testing laboratory as a unit with the pressure gauge graded to allow 10 kip increments.

The Contractor shall position the jack at the beginning of the load test such that the unloading and repositioning of the jack during the load test will not be required. An Alignment Load (AL) may be applied to the micropile prior to setting the movement recording devices. The AL shall be no more than 0.04 times the TDL. Dial gauges shall be zeroed at the first setting of the AL. Loads will be applied based on the calibrated pressure gauge reading.

The Contractor shall perform the sacrificial verification micropile load test by incrementally loading the micropile in accordance with the following schedule and recording the micropile head movement at each step:

Load Steps for Verification Load Testing

AL = Alignment Load TDL = Test Design Load		
	LOAD	HOLD TIME
1	AL (0.04 TDL)	-
2	0.075 TDL	4 minutes
3	0.15 TDL	4 minutes
4	0.225 TDL	4 minutes
5	0.30 TDL	4 minutes
6	0.375 TDL	4 minutes
7	AL (0.04 TDL)	1 minute
8	0.15 TDL	1 minute
9	0.30 TDL	1 minute
10	0.375 TDL	1 minute
11	0.45 TDL	4 minutes
12	0.525 TDL	4 minutes
13	0.60 TDL	4 minutes
14	0.675 TDL	4 minutes
15	0.75 TDL	4 minutes
16	AL (0.04 TDL)	1 minute
17	0.30 TDL	1 minute
18	0.60 TDL	1 minute
19	0.675 TDL	1 minute
20	0.75 TDL	1 minute
21	0.825 TDL	4 minutes
22	0.90 TDL	4 minutes
23	0.975 TDL	10 to 60 minutes (Creep Test Load Hold)
24	AL (0.04 TDL)	1 minute
25	0.30 TDL	1 minute
26	0.60 TDL	1 minute
27	0.90 TDL	1 minute
28	0.975 TDL	1 minute
29	1.05 TDL	4 minutes
30	1.125 TDL	4 minutes
31	1.2 TDL	4 minutes
32	1.275 TDL	4 minutes
33	1.35 TDL	4 minutes
34	1.425 TDL	4 minutes
35	1.5 TDL	4 minutes
36	1.2 TDL	4 minutes
37	0.90 TDL	4 minutes
38	0.60 TDL	4 minutes
39	0.30 TDL	4 minutes
40	AL (0.04 TDL)	15 minutes

Micropile top movement shall be measured at each load increment. Micropile movement during the creep test shall be measured and recorded at 1, 2, 3, 4, 5, 6, 10, 20, 30, 50, and 60

minutes. The load cell shall be monitored and jack pressure shall be applied as necessary to maintain a constant load throughout the creep test.

The Acceptance Criteria for micropile verification load testing shall be:

1. The micropile shall sustain the axial compression design load (0.75 TDL) in tension with no more than 0.5-inch total vertical movement in addition to the theoretical elongation of the bar, as measured from the top of the bond zone to the bottom of the load cell jacking plate prior to the start of load testing. If an alignment load is used, then the allowable movement will be reduced by multiplying by a factor of [(0.75 TDL-AL)/0.75TDL].

2. Test micropile shall have a creep rate at the end of the 0.975 TDL increments which is not greater than 0.04 inches/log cycle time from 1 to 10 minutes or 0.08 inches/log cycle time from 6 to 60 minutes and has a linear or decreasing creep rate throughout the creep load hold period.

3. Failure does not occur by the 1.5 TDL test load. Failure is defined as a slope of the load versus defection curve (at end of increment) exceeding 0.025 inch/kip.

If the micropile load test fails to meet the design requirements, the cause(s) shall be established, and the micropile design and/or installation methods shall be modified. These modifications include, but are not limited to, modifying the installation methods, increasing the bond length, or changing the micropile type. Any modification which requires changes to the structure shall have prior review and acceptance of the Resident. The cause for any modifications of design or construction procedures shall be decided in order to appropriately determine any additional cost implications. Any modifications of construction procedures shall be at the Contractor's expense. Subsequent verification micropiles shall be installed at locations approved by the Resident using the approved modified construction procedures and retested, as detailed previously in this Subsection. If the verification test results meet the acceptance criteria, the Resident shall review and approve the modified design and/or installation methods proposed by the Contractor prior to beginning production micropile installation.

The Contractor shall minimize disturbance to the ground surface when placing and removing blocking.

The Contractor shall provide the Resident a written report confirming micropile details and construction procedures within 7 working days after the completion of the pre-production load tests. This written confirmation shall either confirm the micropile construction methods initially proposed and bond lengths as shown in the drawings for micropiles or propose modifications based upon the results of the verification load tests.

At the completion of verification load testing, test micropiles shall be removed down to the elevation specified by the Resident, but no less than 2 feet below any foundation element or final ground surface elevation.

501.05 Method of Measurement

Drilling Equipment Mobilization All work related to mobilization, demobilization, and remobilization for separate phases of work of any equipment or temporary access and/or working platforms required to satisfactorily complete all micropile installation and load testing shall be measured on a lump sum basis.

Confirmatory Core Borings Confirmatory core borings, including collection of rock core samples, will be measured by linear foot for rock coring as measured from the top of the first core run to the bottom of the last rock core run. Coring through concrete and other rock-like materials will be included in the measured quantity.

Micropiles shall be measured per lineal foot of accepted production micropile installed. This measurement shall not include micropiles rejected or damaged prior to completion of the work unless remedied to the satisfaction of the Resident.

Micropile Verification Load Test shall be measured per each test performed and accepted for each designated pile load capacity, including installation of accepted test pile. Load tests made at the option of the Contractor or to repeat an unaccepted (failed) load test shall not be measured for payment.

Abandoned Micropiles shall be measured by linear foot of micropile excavation drilled, grouted, and backfilled. The length shall be determined as the difference between the design top of pile elevation and the tip elevation of the micropile at the depth where a confirmed steel obstruction was encountered.

501.06 Basis of Payment

Drilling Equipment Mobilization This item shall include the cost of furnishing all labor, equipment, and materials needed to complete micropile installation, including transporting, erecting, dismantling and removing all micropile construction and load testing equipment. The lump sum price for this item will be paid once all equipment is mobilized to the Project site.

Confirmatory Core Borings Confirmatory core borings authorized by the Resident will be paid for at the contract unit price per linear foot of core. Such payment shall include full compensation for casing advancement, soil drilling, rock coring, extracting, packaging and classifying the cores, delivering samples to the Department, and all other expenses necessary to complete the work. Payment shall also include equipment necessary to access the core locations shown on the Plans.

Micropiles The unit bid price shall include cost of the micropiles (installed and accepted), development and execution of an approved Micropile Installation Plan, Micropile Testing

Submittal, and Grout QCP, furnishing all labor, materials and equipment necessary to complete the work, and submit reports. All costs to repair all damage and settlement to adjacent ground and structures shall be incidental to the pay item for micropiles and at no additional cost to the Department. All costs to repair, augment and/or replace all rejected micropiles shall be incidental to the pay item for micropiles and at no additional cost to the Department. Micropiles that fail to meet the Acceptance Criteria will be rejected and no payment will be made for these micropiles.

The Contractor is responsible for estimating the grout take. There will be no extra payment for grout overruns. All costs associated with micropile installation include full compensation for any casings, augers, grouting operations, drilling equipment, or specialty tools needed to install micropiles shall be incidental to the contract pay item for micropiles.

Micropile Verification Load Test shall be paid for at the contract unit price per each test, satisfactorily completed, and meeting the acceptance criteria as stated herein. Payment for verification load tests includes full compensation for installation of a verification test pile and providing all labor, equipment, and materials needed to perform load tests and submitting reports as specified.

Abandoned Micropiles The linear foot price shall include cost of the abandoned micropile excavation, and grouting, furnishing all labor, materials and equipment necessary to complete the work.

Payment will be made under:

Pay Item:		Pay Unit
501.220	Micropiles	Linear Foot
501.2221	Abandoned Micropiles	Linear Foot
501.2331	Micropile Verification Load Test (includes Verification Pile)	Each
501.804	Drilling Equipment Mobilization (Micropiles)	Lump Sum
501.83	Confirmatory Core Borings	Linear Foot

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Pier Seal)

502.01 Description This section has been amended to include:

This work shall also consist of furnishing and placing the pier seal as described herein with the intended purpose of controlling the heat of hydration and reducing the potential for thermal cracking.

502.02 Classification This section has been amended to include:

Pier seal concrete shall meet the requirements of "Class A" concrete, except as modified in Section 502.05, Composition and Proportioning.

502.05 Composition and Proportioning This section has been amended to include:

Concrete mix designs for the Pier Seal shall contain 50 percent slag pozzolan cement replacement, by weight, to reduce the heat of hydration.

502.10 Placing Concrete This section has been amended to include:

The Pier Seal shall be completed in two lifts (5' maximum lift thickness). The elevation of the horizontal construction joint between the first and second lift shall be set at the average thickness of the seal. The construction joint shall be treated as required in Section 502.10(F). The surface of the construction joint shall receive a raked finish with a minimum amplitude of ¼".

The second seal placement shall be completed not less than 7 Calendar Days after completion of the first section of seal placement.

The Contractor shall be responsible for providing provisions for flooding of the seal formwork and/or cofferdam during the construction of the seal to address the potential for buoyancy prior to placing the seal to its finished height.

Payment will be made under:

Pay Item	Pay Unit
502.24 Structural Concrete Piers (placed under water)	Cubic Yard

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Roadway Median)

502.01 Description

This work shall consist of furnishing and placing a flush concrete median on Bridge Street in Waterville and removal of a portion of an existing flush concrete median on Augusta Road in Winslow as shown on the plans, or as directed by the Resident. Except as otherwise specified in this Special Provision, all work shall be in conformity with the applicable provisions of Section 502 - Structural Concrete, Section 503 - Reinforcing Steel, and Section 515 - Protective Coating for Concrete Surfaces.

502.03 Materials

Concrete Concrete shall be Class LP.

Reinforcing Steel Welded wire fabric conform to Section 503 - Reinforcing Steel and be epoxy coated or galvanized.

Galvanized reinforcing steel shall be hot-dipped galvanized with a Class I coating in accordance with ASTM A767. Nickel and aluminum shall be allowed in the galvanizing bath, but the zinc content shall not be less than 98 percent by mass. The Contractor shall furnish a written certification that the coating and coated bars meet the requirements of ASTM A767.

Control Joint Zip strip control joint shall be 38 mm [1 ½ inch] type as manufactured by Superior Featherweight Tool Company, 1325, Bixby Drive, City of Industry, CA 91745; Harris Plastic Control Joint Former 38 mm [1 ½ inch] type as manufactured by A.H. Harris & Sons, Inc., 21 Ellis Street, New Britain, CT 06050; or an equivalent.

Joint Sealant Per Section 714.04 - Sealant.

502.10 Placing Concrete

Preparation of Foundation The foundation bed shall be well graded and compacted, as directed by the Resident, to provide the thickness of concrete indicated on the Plans.

Prior to the concrete placement, the foundation bed shall be thoroughly and uniformly saturated with water. The bed shall be free of puddles and excessive surface water.

Placement of Concrete The concrete mix shall be placed in a continuous placement operation when possible so that construction joints will be kept to a minimum. Construction joints shall be constructed when there is a break in a placement. Construction joints shall be used to provide access to driveways and roads as directed by the Resident. Two foot long dowels spaced at 12-inches on center shall be placed at the construction joint. Construction joints shall be brushed with a neat cement paste immediately prior to making the adjacent placement. Control joints shall be constructed with a zip strip placed transversely at 10 feet on centers.

Joint sealant shall be applied at the top surface of the concrete median at construction joints.

The surface of the concrete shall receive a float finish in accordance with Section 502.13(A) - Float Finish. Immediately following the float finish, the surface shall be textured at right angles to the roadway using an approved open-pile, stiff bristle broom or mat.

The curing period for the concrete shall be four days and shall meet the requirements of Section 502.14 - Curing Concrete. The finished surface of the concrete shall receive a protecting coating in accordance with Section 515 - Protective Coating for Concrete Surfaces.

502.18 Method of Measurement

Structural concrete, roadway median, satisfactorily placed and accepted, will be measured for payment by the cubic yard, in accordance with the dimensions shown on the Plans or authorized by the Resident. Removal of a portion of an existing flush concrete median will not be measured separately for payment, but shall be considered incidental to this item.

502.19 Basis of Payment

The accepted quantity of Structural Concrete, Roadway Median will be paid for at the contract unit price per cubic yard, which payment will be full compensation for all labor, materials, equipment, and incidentals necessary to complete the work, including the fabrication, delivery, and placement of reinforcement; the furnishing and the application of the protective coating; the fabrication, delivery, and placement of dowels; furnishing and placement of control joint strip and sealant. Removal of a portion of an existing flush concrete median will be incidental to this item.

Excavation for the placement of the Structural Concrete, Roadway Median will be paid for under the appropriate contract pay item, Section 203 - Excavation and Embankments.

Payment will be made under:

Pay Item	Pay Unit
502.341 Structural Concrete, Roadway Median	Cubic Yard

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(QC/QA Acceptance Methods)

CLASS OF CONCRETE	ITEM NUMBER	DESCRIPTION	P	METHOD
A	502.21	Structural Concrete Abutment and Retaining Walls [Cubic yard quantity used for the closure wall, abutment subfootings, and recapping existing abutment 1]	$400	A
A	502.219	Structural Concrete Abutment and Retaining Walls [Lump sum quantity used for abutments and wingwalls]	$400	A
A	502.23	Structural Concrete Piers [Cubic yard quantity used for recapping the existing pier on the Lockwood Dam]	-	C
A	502.239	Structural Concrete Piers [Lump sum quantity used for the pier footing, stem, and pedestals]	$400	A
A	502.24	Structural Concrete Piers (Placed Under Water)	$400	A
A	502.26	Structural Concrete Roadway and Sidewalk Slab on Steel Bridges	$400	A
A	502.31	Structural Concrete, Approach Slab	-	C
LP	502.341	Structural Concrete, Roadway Median	$450	A
LP	502.49	Structural Concrete Curbs and Sidewalks	$450	A
LP	526.34	Permanent Concrete Transition Barrier	$450	A

P values listed above reflect the price per cubic yard (yd^3) for all pay adjustment purposes.

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Hydration Stabilizing Admixture)

502.07 Mixing and Delivery Replace the last sentence in paragraph "A" 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.**"

502.1701 Quality Control, Method A and B 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:":

Revise "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.**"

Revise "H" to read: "Process QC Testing**, including monitoring for attainment of Accelerated Hydration Gain when a hydration stabilizing admixture is used.**"

502.1702 Quality Control, Method C Revise to read:

"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."

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Combined Aggregate Grading for Concrete)

502.03 Materials Add the following:

Combined Aggregate Grading for Concrete	**703.03**

502.1701 Quality Control, Method A and B Amend the paragraph before Table 4 as follows:

The Contractor shall maintain records of all QC tests and calculations. The gradation test data and results shall be reported to the Department before the placement they represent. The Contractor or supplier shall retain split samples of the most recent QC gradations for possible ~~Verification~~ testing by the Department. In addition, the Department will sample the aggregates at the plant monthly to determine ~~specification~~ **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, corrective action shall be required before additional concrete may be supplied to the project. The compressive strength test results shall be reported to the Department by 10:00 A.M. of the first working day following the test. All QC test data shall be signed by the person who performed 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. All Method A and B QC testing shall meet the minimum requirements found in Table 4.

SPECIAL PROVISION
SECTION 703
AGGREGATES
(Combined Aggregate Grading for Concrete)

SECTION 703 – AGGREGATES Add the following:

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	A	AA	S	LATEX
Aggregate Size	1 inch	¾ inch	1½ inch	½ inch
2 inch			100	
1½ inch	100		95-100	
1 inch	95-100	100	85-100	
¾ inch	90-100	93 - 100	55-90	100
½ inch	55-78	60 - 90	45-75	90-100
⅜ inch	40-65	50 - 75	40-65	55-85
No. 4	35-50	35 - 50	35-55	30-60
No. 8	28-45	30 - 47	25-50	25-55
No. 16	18-35	19 - 37	15-40	18-50
No. 30	9-25	10 - 26	7-25	8-30
No. 50	4-14	4 - 14	3-14	3-15
No. 100	0-5	1 - 6	0-5	0-6
No. 200	0–3.0*	0 – 3.0*	0-3.0*	0 – 3.0*

***The percent passing the No. 200 sieve shall not exceed 5.0 percent for any fine aggregate. The percent passing the No. 200 sieve shall not exceed 1.5 percent for any single coarse aggregate.**

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Fiber Reinforced Polymer Bridge Drains)

Description

This work shall consist of design, fabrication and delivery of bridge drains using FRP (Fiber Reinforced Polymer) composite materials in accordance with the plans and this specification.

Specifications

Work shall be done in general accordance with the following specifications:

a. AASHTO LRFD Guide Specifications for Design of Concrete-Filled FRP Tubes for Flexural and Axial Members, 2012.
b. American Composites Manufacturing Association, ACMA Code of Standard Practice, First Edition, 2011.
c. ISO/IEC Guide 58, Calibration and Testing Laboratory Accreditation Systems - General Requirements for Operation and Recognition.
d. ISO/IEC 17025 General Requirements for the Competence of testing and Calibration Laboratories.
e. MaineDOT Standard Specifications.

2.3 Standards

A.) ASTM D 2584. *Standard Test Method for Ignition Loss of Cured Reinforced Resins.* American Society for Testing and Materials, West Conshohocken, PA.

B.) ASTM D 3039. *Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials.* American Society for Testing and Materials, West Conshohocken, PA.

C.) ASTM D 3171. *Standard Test Methods for Constituent Content of Composite Materials.* American Society for Testing and Materials, West Conshohocken, PA.

D.) ASTM D 4385. *Standard Practice for Classifying Visual Defects in Thermosetting Reinforced Plastic Pultruded Products.* American Society for Testing and Materials, West Conshohocken, PA.

E.) ASTM D 570. *Test Method for Water Absorption of Plastics.* American Society for Testing and Materials, West Conshohocken, PA.

F.) ASTM E 1356. *Standard Test Method for Assignment of the Glass Transition Temperatures by Differential Scanning Calorimetry.* American Society for Testing and Materials, West Conshohocken, PA.

G.) ASTM E 1640. *Standard Test Method for Assignment of the Glass Transition Temperature by Dynamic Mechanical Analysis.* American Society for Testing and Materials, West Conshohocken, PA.

H.) ASTM C 582. *Standard Specification for Contact-Mold Reinforced Thermosetting Plastic (RTP) Laminates for Corrosion-Resistant Equipment.* American Society for Testing and Materials, West Conshohocken, PA.

Material

Materials shall conform to the following requirements:

1. FRP composite drain and pipe material shall meet the requirements of Appendix A.

2. All material and workmanship will meet or exceed the requirements of the ASTM Specifications above.

3. Drain support assembly shall meet the material and protective coating requirements specified in the Standard Details.

Construction Requirements

FRP Drain Manufacturers

The FRP bridge drains shall be supplied by one of the following companies:

1. Kenway Corporation
2. FRP Bridge Drain Pipe-Westfall Company
3. ACO USA

The above suppliers have been pre-certified by providing materials samples that have been tested in accordance with Appendix A. Other suppliers/manufacturers may become certified if FRP bridge drain samples are tested in accordance with the requirements in Appendix A along with meeting the following requirements.

All manufactures or fabricators of FRP bridge drain systems/components are required to have a minimum of 3 years of experience in providing FRP composite structural grade products to the general market. Manufacturers need to provide documentation that personnel involved in manufacture/fabrication hold and maintain American Composites Manufactures Association (ACMA) certifications in a minimum of one of the following disciplines; 1) Open Molding, 2) Corrosion, 3) Vacuum Infusion, 4) Closed Molding and that the Manufacturer/Fabricator have an

ISO 9001:(current year) or other independent certification to ensure that the Manufacturer's process has been independently audited for conformance.

Design Guide for FRP Composite Scupper Bodies/Drain Inlets

General

The bridge shall use a drain size specified on the plans. See Appendix B for additional details. The bottom of the downspout shall extend a minimum of 12 inches below the bottom of the beams. For bridge decks with an integral concrete wearing surface, the drain pan depth shall be reduced to provide adequate concrete cover.

Deck/interface drain holes.

For bridge decks with pavement and waterproofing membrane, drain holes are required on both sides of the scupper to capture moisture at the interface between the top of the deck and bottom of the asphalt pavement. Three holes one half inch in diameter spaced at 6 inches on center and three and one quarter inches on center below the top of the grate, or pavement thickness, shall be placed on both sides of the scupper. If the holes are created after the molding process by punching, drilling or other mechanical means the holes shall be sealed using a compatible epoxy compound.

Grates

Grates shall be bicycle friendly and designed for HL-93 Live Load unless otherwise specified. Any gaps in grates shall have a maximum clear width of two inches. The minimum clear opening size in any grating shall be 1 1/8” by 1 1/8“. Grates shall be stainless steel (ASTM A995) or FRP specifically designed and meeting the HL-93 Live Load requirements.

- Steel grating shall be commercial heavy - duty grating with 1 1/2" x 5/16" bearing bars spaced at 2 3/8” and 3/8" diameter cross bars spaced at 2”. The grating shall be centered in the drain top. The bearing bars shall run parallel to traffic.
- FRP grating if used shall provide an opening area at least 75% of steel grating noted above. FRP gratings that do not meet this requirement are not acceptable and shall not be used.

Grates shall be designed so that they can be removed by mechanical means. Fasteners for grates shall be stainless. Where selected grates require orientation to flow, the grates will have orienting features included as required, i.e. for orders of paired drains one drain would have left hand orientation and the other right-hand orientation.

Grate Frames

Grate frames may be either integrated FRP composite or of stainless steel construction attached to the scupper/inlet body in a matter consistent with the physical design parameters.

Anchoring provisions
Scupper/inlet anchoring shall be bonded to the grate framing in a manner that provides a load path into the concrete decking. Anchor details to be specified as part of the shop drawings for the bridge drains and be a non-corrosive material.

Cross and Longitudinal Slope Compensation
The scupper/inlet designs shall provide a means to match the grate to the deck angles while maintaining the downspout in a plumb orientation. If purchased in pairs, one left handed version will be required for each right handed version. This may be achieved when a down spout portion is bonded to the scupper body, through the frame attachment to the scupper body.

FRP Composite Drain Sections
Bridge deck downspouts, bridge drain deck extensions, elbows and pipe for under drains shall be constructed using a circular cross section; however other cross sections are allowed with approval of the Fabrication Engineer. Drain sections shall comply with the material requirements set forth in Appendix A and maintain wall thickness of no less than 1/4 inch.

FRP Composite Deck Drain Extensions.
Down spout drain extensions shall be integrated and bonded directly to the scupper bodies.

Transitions through Connections and Components.
All transitions and joints to be manufactured through the use of smooth radius molds. Miter joint and edged transitions are not allowed. All internal joint connections are to be smooth and continuous.

Pigmented FRP Composite Drain Components
Pipes, fittings, bodies and all FRP composite drain system components shall be pigmented through the wall. The color used shall match the color of the beams unless otherwise allowed by the Fabrication Engineer. Paint, gel-coat or any other exterior coating shall not be accepted.

Joint Connections
Joints may be welded using manufacturer recommended adhesives in accordance to the adhesive manufacturer's application procedures. Adhesives must be compatible with the FRP resins, applied in a way that ensures complete bonding and liquid tight sealing of the resins, and be compatible with the environmental conditions such as temperature, freeze thaw conditions, and wet alkaline environments.

Shop Drawings/Inspection

Drawings The Contractor shall prepare shop detail, erection and other necessary working drawings in accordance with Section 105.7 - Working Drawings. Drawings shall include dimensions and tolerances necessary for manufacture and installation, all hardware, orienting

features, anchor details, fastener details, gasket details, cross and longitudinal matching features, joint details, transition details, and material lay-up/composition

Notice of Beginning Work The Contractor shall give the Fabrication Engineer a minimum of two weeks notice before the beginning of work. No work shall be performed before the Fabrication Engineer has been notified. Before beginning work, a pre-fabrication meeting may be held at the discretion of the Fabrication Engineer or, if requested, by the Contractor.

The Contractor shall advise the Fabrication Engineer of the production schedule and any changes to it. If the Contractor suspends work on a project, the Fabrication Engineer will require 48 hours notice prior to the resumption of work.

Inspection Quality Control (Q.C.) is the responsibility of the Contractor. The Quality Control Inspector (Q.C.I.) shall inspect all aspects of the work and shall supervise all nondestructive examination (NDE). The Q.C.I. shall record measurements and test results in a clear and legible manner. The Q.C.I. shall reject materials and workmanship that do not meet contract requirements. The Contractor may perform NDE in addition to the minimum required. The results of all measurements and testing shall be made available to the Quality Assurance Inspector (Q.A.I.).

Quality Assurance (Q.A.) is the prerogative of the Fabrication Engineer. The Q.A.I. will ensure that the Q.C. Department is performing properly, verify documentation, periodically inspect workmanship and witness NDE. Q.A. testing deemed necessary by the Fabrication Engineer in addition to the minimum testing requirements shall be scheduled to minimize interference with the production schedule.

Inspector's Authority The Q.A.I. will have the authority to reject material or workmanship that does not meet the contract requirements. The acceptance of material or workmanship by the Q.A.I. will not prevent subsequent rejection, if found unacceptable.

Rejections Rejected material and workmanship shall be corrected or replaced by the Contractor.

Bill of Materials The Contractor shall provide the Fabrication Engineer with copies of all bills of materials used in the fabrication of the FRP bridge drains.

Packaging, Storage and Shipping of Components
FRP drains shall be stored and handled in accordance with the manufacturer's recommendation. The drains shall be stored above the ground and not be allowed to come into contact with seawater, mud, grease, dirt or other deleterious materials that may be present on the job site.

Installation
The Contractor shall install the FRP drains in accordance with the manufacturer's installation procedures, Contract Plans, and in accordance with the Contractor's installation drawings. FRP bridge drains will be accurately placed at the locations shown on the Plans or as authorized by

the Resident. Adequate means shall be provided for securely holding the drains in place during placement of concrete. Any damaged drain shall be repaired or replaced at the Resident's discretion and at no additional cost to the Department.

Method of Measurement

FRP Bridge Drains will be measured by the number of units, for fabrication and delivery. Installation for the drains will be incidental to the Structural Concrete Superstructure item.

Basis of Payment

FRP Bridge Drains will be paid for at the contract unit price. Such payment will include compensation for the fabrication and delivery of the drains in accordance with this specification.

Payment will be under:

Pay Item		Pay Unit
502.77	FRP Bridge Drain –Type G	Each

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Fiber Reinforced Polymer Bridge Drains)

APPENDIX A

A.1 Scope
This section specifies the material composition, properties, test requirements and reports that shall be submitted and approved prior to and after product certification of each FRP composite drain component type, e.g. scupper body or pipe component. The manufacturer is responsible for testing using an approved independent lab per section A.5.3. Once certified the approved product may be manufactured with only internal testing provided the manufacturing process and laminate composition do not change. Changes to process and or composition do require additional testing and product certification. The manufacturer shall report the individual test results per section A.5.3. If the strength is less than the required properties certification will not be granted.

A.2 Material/Laminate Composition

A.2.1 Fibers
Fiber sizings and coupling agents shall be compatible with the resin system used to impregnate them.

A.2.2 Matrix Resins
Commercial grades of vinyl ester and epoxy resin systems are permitted provided the finished product meets the material property requirements before and after durability conditioning as set forth in Section A. Styrene is permitted to be added to the polymer resin during processing. Added styrene shall be less than 10 percent by mass of the polymer resin. The amount of styrene, as a mass percentage of the polymer resin, added during processing shall be reported per Section A.5.3.

A.2.3 Fillers and Additives
Commercial grade inorganic fillers such as kaolin clay, calcium carbonate, and alumina tri-hydrate shall not exceed 20 percent by mass of the polymer resin constituent. Commercial grade additives and process-aids, such as release agents, low profile shrink additives, initiators, promoters, hardeners, catalysts, pigments, fire-retardants, and ultra-violet inhibitors are permitted and depend on the processing method. Shrink additives, if used, shall be less than 20 percent by mass of the polymer resin. Commercial grade inorganic or organic non-woven surfacing mats or veils are permitted.

A.2.4 Fiber Content
Fiber content shall be measured by ASTM D 3171 or ASTM D 2584. Fiber content shall be high enough to meet the mechanical property requirements of the FRP system laminate. The manufacturer shall report the fiber content of the end product by volume or by mass in accordance to the method used. If fiber content is not provided by the manufacturer, then the manufacturer shall provide material data sheets with the weight per unit area of the fiber reinforcement used to manufacture the part.

A.2.5 Glass Transition Temperature
The characteristic value of the glass transition temperature of the composite system, determined in accordance with ASTM E1640, shall be at least 40 degrees Fahrenheit higher than the maximum design temperature, $T_{MaxDesign}$, defined in section 3.12.2.2 of the AASHTO LRFD Guide Specifications for Design of Concrete-Filled FRP Tubes for Flexural and Axial Members, 2012. FRP drain systems may not be used in environments with a service temperature higher than the glass transition temperature of the resin used for their manufacturing.

A.2.6 Longitudinal and Transverse Coefficients of Thermal Expansion (CTE)
The coefficient of Thermal Expansion (CTE) of the tube may vary in the longitudinal and circumferential directions of the component depending on the laminate architecture and type of fibers and resins.

A.3 Mechanical Properties

A.3.1 Tensile Properties
The tensile strength, tensile modulus of elasticity, and ultimate tensile strain shall be determined for both the axial and hoop directions of the tubular components or in transverse and longitudinal directions of inlet bodies, see Section A.5.1 Test Samples. The tensile strength as reported by the manufacturer for product certification shall be measured according to ASTM Test Method D 3039, or other tension test method designed to determine tensile properties of composite laminates at the approved frequency and number of specimens as specified in section A.5.

A.3.4 Compressive Properties
The compressive strength and ultimate compressive strain shall be determined for the longitudinal directions of the tube laminate. The compressive strength and ultimate compressive strains shall be derived from specimens tested in accordance with ASTM Test Method D 6641, or other approved compression test method designed to determine compressive properties of the composite.

A.4 Durability Properties
Material properties shall retain 85% of their baseline values for the material properties listed in Section 2.3 after conditioning for all the durability tests listed below. Durability test methods are adopted from AASHTO Guide Specifications for Design of Bonded FRP Systems for Repair and Strengthening of Concrete Bridge Elements.

Durability property testing is only required for initial product certification and not required for subsequent production orders. The testing is the responsibility of the manufacturer and shall be conducted by an approved independent testing lab per section A.5.2.

A.4.1 Moisture Absorption
Samples will be immersed in distilled water having a temperature of 100 +/-3 degrees Fahrenheit and tested after 1,000 hours of exposure.

A.4.2 Resistance to Alkaline Environment
Samples will be immersed in a saturated solution of calcium hydroxide (pH-11) at ambient temperature of 73 +/-3 degrees Fahrenheit for 1,000 hours prior to testing. The pH level will be monitored and the solution will be maintained as needed.

A.4.3 Alternating Ultraviolet Light and Condensation Humidity
Samples will be conditioned in an apparatus under Cycle I-UV exposure condition according to ASTM G154 Standard Practice. Samples will be tested within two hours after removal from the apparatus.

A.4.4 Freeze-Thaw
Samples will be exposed to 100 repeated cycles of freezing and thawing in an apparatus meeting the requirements of ASTM C666.

A.5 Sampling, Testing & Results.

A.5.1 Test Samples.
The manufacturer is responsible for testing and may use samples in accordance to the test methods and needs of test equipment available. Test coupons may be cut from manufactured products or prepared using identical processes e.g. wet lay-up, vacuum infusion, etc. in a flat sheet, or witness plate, in which test coupons may be cut. Approval of the Fabrication Engineer shall be required for acceptance of test specimens produced by a different manufacturing method. Samples derived from special coupon test sheets shall be taken interior to edge sections 1.5x the width of the required coupon width. Samples shall be prepared from samples oriented with the directions illustrated in figures 1 and 2 for scupper body and drain pipes. For samples from filament wound pipes, samples shall be constructed over polygon mandrels allowing for flat panels to be removed for test purposes. Each test shall use a quantity of three samples. See Tables A.5.4 for tests, material requirements and sample breakdown.

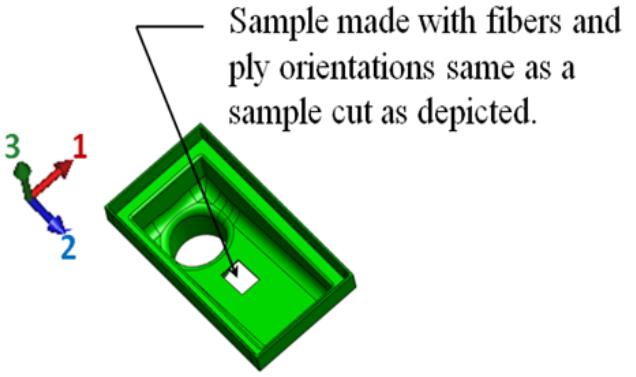


Figure 1.) Scupper Body Sample Orientations.

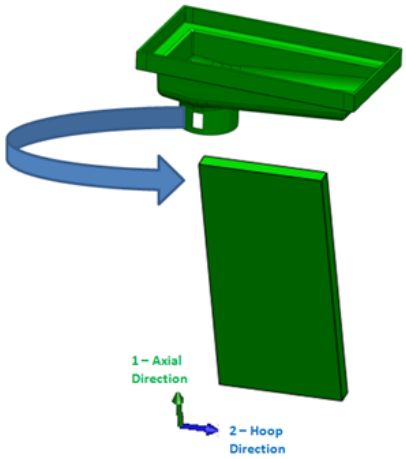


Figure 2.) Drain Pipe Sample Orientations.

A.5.2 Test Lab Requirements.
All testing of FRP material properties is being conducting in accordance to specified standards. Internal or external testing is to be conducted through laboratory facilities in accordance to ISO/IEC Guide 58, *Calibration and Testing Laboratory Accreditation Systems - General Requirements for Operation and Recognition* and ISO/IEC 17025 *General Requirements for the Competence of testing and Calibration Laboratories* as related by AASHTO document R18 "Recommended Practice for Establishing and Implementing a Quality System for Construction Materials Testing Laboratories."

A.5.3 Production Validation (PV) Testing.
Certification of materials used in FRP drain products must undergo PV testing of the specified material properties before and after environmental conditioning as set forth in Section A.5.4 by an independent lab. PV tests may be conducted internally by the manufacturer for development but are not acceptable for certification. Reported values for the material composition is be recorded and reported by the manufacturer, no independent audit is required.

A.5.4 Production Validation Sample Quantities, Minimum Material Properties and Reported Values
The following data shall be reported for material certification. Note that the tables shown use orientations related to FRP scupper or inlet bodies as set forth in Figure 1 of Section A.5.1. When evaluating tubular sections, orientation direction 2 as shown in Figure 2 of Section A.5.1 shall be substituted for orientation direction 3. The required number of samples have been reduced from ASTM requirements.

Table A.5.4.a PV reported material composition data. (Recorded by the manufacturer during the manufacturing process)

Section No.	Characteristic	Applicable Test Standard	Number of Samples	Tolerance	Reported
A.2.2	Styrene, mass percentage of polymer resin	per tolerance	N/A	10% max	
A.2.3	Inorganic fillers, mass percentage of polymer resin.	per tolerance	N/A	20% max	
	Shrink additives, mass percentage of polymer resin.	per tolerance	N/A	20% max	
A.2.4	Fiber Content	ASTM D3171 or ASTM D2584	3	Sufficient to meet mechanical properties	
A.2.5	Glass Transition Temperature	ASTM E1640	3	> Max Design Temperature	

Table A.5.4.b PV Reported Baseline Mechanical Properties

(Conducted by an independent laboratory. Samples as Manufactured w/o additional conditioning per Section A.3)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	10000 (psi)				
		Tensile Modulas of Elasticity			800000 (psi)				
		Ultimate Tensile Strain			0.003 in/ in				
	2	Tensile Strength		3	10000 (psi)				
		Tensile Modulas of Elasticity			800000 (psi)				
		Ultimate Tensile Strain			0.003 in/ in				
A.3.4	1	Compressive Strength	ASTM D6641	3	22000 (psi)				
		Ultimate Compressive Strain			0.003 in/ in				
	3	Compressive Strength		3	22000 (psi)				
		Ultimate Compressive Strain			0.003 in/ in				

Table A.5.4c PV Reported Mechanical Properties after 1000 hr. Moisture Immersion Condidtioning per Section A.4.1

(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

Table A.5.4d PV Reported Mechanical Properties after 1000 hr. of Alkaline Environment Conditioning per Section A.4.2

(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

Table A.5.4e PV Reported Mechanical Properties after UV Light Conditioning per Section A.4.3 (ASTM G154).

(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

Table A.5.4f PV Reported Mechanical Properties after 100 Freeze-Thaw Cycle Conditioning per Section A.4.4 (ASTM C666).

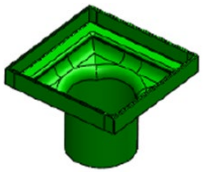
(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Fiber Reinforced Polymer Bridge Drains)

APPENDIX B

Standard Details



Bridge Drain – Symmetric Inlet

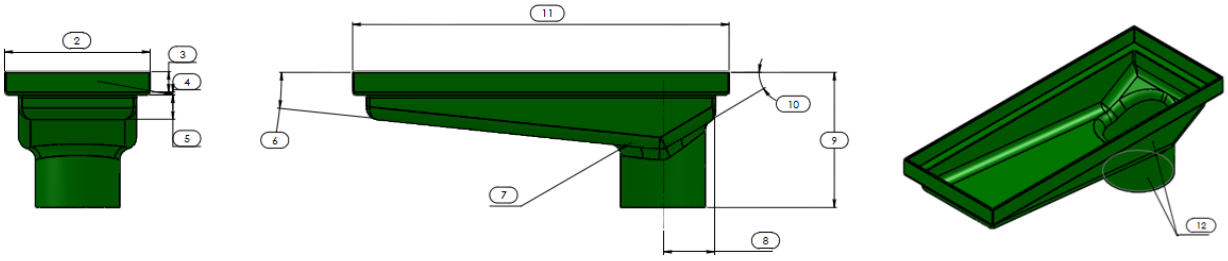
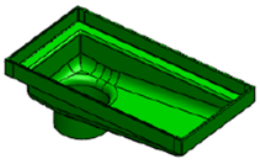


Table B1 Preferred Symmetric FRP Composite Inlet Bodies

	Size Designation	A	B	C		
	Size Dimensions (Grate Length x Width, Down Spout Diameter)	12x12xØ8	14x14xØ10	18x18xØ12		
Dimension		Nominal Dimensions			Nominal Design Tolerance	Manufacturing Tolerance
Number	Name					
1	Down Spout Inner Diameter	8"	10"	12"	min	+/- 0.015"
2	Grate Frame Width	12"	14"	18"	+/- 1"	+/- 0.025"
3	Grate Frame Height	As required to contain grate and recessed from deck surface				
4	Grate Frame Flange & Wall Thickness	0.25"	0.25"	0.25"	min	+/- 0.025"
5	Scupper Toe Depth	4"	4"	4"	+1"/-0"	+/- 0.1"
6	Scupper Toe Slope	1:10	1:10	1:10	min	+ 1 degree
7	Scupper Body Radii	2"	2"	2"	min	+0.1"
8	Down Spout Position to Heel	6"	6"	6"	+/- 0.5"	
9	Height	18"	18"	18"	Open	+/- 0.25"
10	Scupper Heel Slope	1:10	1:10	1:10	min	+0.1"
11	Grate Frame Length	12"	14"	18"	+/- 1"	+/- 0.025"
12	Scupper and Down Spout Wall Thickness	0.25"	0.25"	0.25"	min	+0.015"



Bridge Drain-Offset Scupper

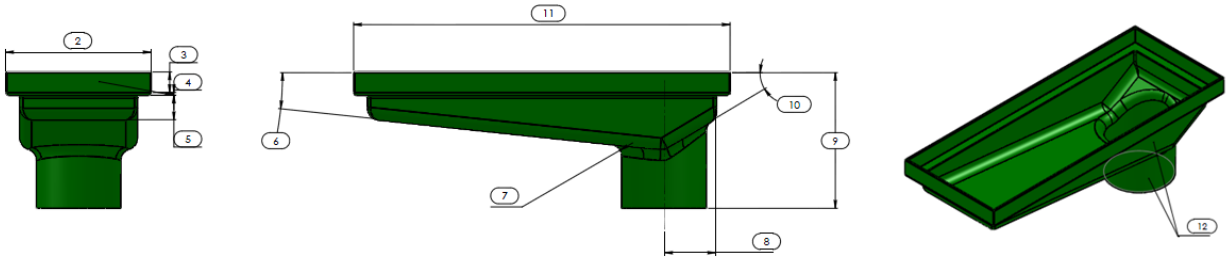


Table B2 Preferred Offset FRP Composite Scupper Bodies

	Size Designation	D	E	F	G		
	Size Dimensions (Grate Length x Width, Down Spout Diameter)	24x12xØ8	30x12xØ10	36x12xØ10	42x12xØ12		
Dimension		Nominal Dimensions				Nominal Design Tolerance	Manufacturing Tolerance
Number	**Name**						
1	Down Spout Inner Diameter	8"	10"	10"	12"	min	+/- 0.015"
2	Grate Frame Width	12"	12"	12"	12"	+ 2"/-0"	+/- 0.025"
3	Grate Frame Height	As required to contain grate and recessed from deck surface					
4	Grate Frame Flange & Wall Thickness	0.25"	0.25"	0.25"	0.25"	min	+/- 0.025"
5	Scupper Toe Depth	4"	4"	4"	4"	+1"/-0"	+/- 0.1"
6	Scupper Toe Slope	1:10	1:10	1:10	1:10	min	+ 1 degree
7	Scupper Body Radii	2"	2"	2"	2"	min	+0.1"
8	Down Spout Position to Heel	6"	6"	6"	6"	+/- 0.5"	
9	Height	13.5"	16"	18"	18"	Open	+/- 0.25"
10	Scupper Heel Slope	1:10	1:10	1:10	1:10	min	+0.1"
11	Grate Frame Length	24"	30"	36"	42"	+ 2"/-0"	+/- 0.025"
12	Scupper and Down Spout Wall Thickness	0.25"	0.25"	0.25"	0.25"	min	+0.015"

SPECIAL PROVISION
SECTION 507
RAILINGS
(Wyoming Steel Bridge Railing)

507.01 Description This section has been amended as follows:

This work shall consist of the furnishing of all materials for, and the construction of, Wyoming Bridge Railing in accordance with these specifications and the lines, grades, and details shown on the Plans.

507.02 Materials This section has been replaced in its entirety with the following:

Materials shall meet the requirements specified in the Plans as well as the following Section(s) of Division 700 – Materials:

Steel Bridge Rail:	Structural Steel	713.01

507.05 Steel Bridge Railing The following is added to this section:

All steel parts shall be hot dipped galvanized in accordance with Standard Specifications Section 506. Hardware shall be hot dip galvanized in accordance with Standard Specifications Section 506.

507.08 Method of Measurement This section is amended as follows:

Wyoming Bridge Railing will be measured as one lump sum unit; erected and accepted, in accordance with the dimensions shown on the Plans or as directed by the Engineer.

507.09 Basis of Payment This section is amended as follows:

Railing will be paid for at the contract lump sum price, complete in place. The accepted Wyoming Bridge Railing will include the furnishing of all materials, labor, galvanizing, and incidentals required for the fabrication and installation of the rail system complete in place.

Payment will be made under:

Pay Item		Pay Unit
507.0834	Wyoming Steel Bridge Railing	Lump Sum

SPECIAL PROVISION
SECTION 511
COFFERDAMS

Section 511 of the Standard Specifications is amended as follows:

511.03 Cofferdam Construction

Section 511.03.C of the Standard Specifications shall be replaced with the following:

C. Inspection of Seal Cofferdams. Seal cofferdam excavations shall initially be inspected by the Contractor after final cleaning and settlement of suspended sediment.

For each seal cofferdam excavation, the Contractor shall submit a written procedure to the Department for sediment/overburden removal and excavation inspection. For cofferdams where seal concrete is to be placed on bedrock, the inspection procedure shall describe the Contractor's final cleaning and inspection process for attaining cleanliness of each cofferdam excavation.

The seal cofferdam bottom will be considered clean if, at the time of placement of the seal concrete, more than 50 percent of the bottom area has less than 1 inch of sediment or loose soil, and no portion of the area has more than 2 inches of sediment or loose soil/rock.

At a minimum, the inspection shall consist of measurements using a sediment/overburden measuring system. The Contractor shall provide access, equipment and personnel for checking the cleanliness and condition of the cofferdam excavation. The sediment/overburden measuring system shall consist of manual sounding for depth and hardness via a steel probe consisting of a 24-inch long No. 10 steel reinforcing bar with a flat end suspended on a non-stretch cable or tape. Location-Depth-Hardness-Soil Thickness readings shall be recorded from the soundings. Measurements shall be taken at a spacing of 5 feet along the perimeter cofferdam walls, and on an additional grid of equally spaced internal locations each representative of no more than 25 square feet of the seal base area.

In addition, and if required by the Resident, the cofferdam inspection shall include an illuminated underwater video. The video shall be recorded by a diver, under live observation by the Department, and communication shall be available between the diver and Department representative to request video coverage of specific locations. The Contractor shall have a spotter that can indicate the general location of the diver within the cofferdam. The video inspection shall continue until the Department is satisfied that the conditions have been adequately recorded. In the event that conditions render visual inspection impossible, the above-described measuring system may utilize hand probing by the divers in lieu of visual inspection.

The Contractor shall prepare and submit an Inspection Report for each cofferdam. The Report shall include results of video inspection/diver probing and soundings that conclusively show the cleanliness and loose soil content of each 25 square foot segment of the seal cofferdam excavation. The Contractor's Inspection Report will be submitted to the Department for approval.

The Contractor shall notify the Resident at least 48 hours prior to when each seal cofferdam excavation will be ready for final inspection by the Department. The Contractor shall allow adequate time for each occurrence of cofferdam excavation inspection by the Department. Facilities and equipment shall be provided and maintained for the Department to independently inspect the cofferdam using steel probes and/or the Department's Dive Team prior to depositing the seal concrete.

No seal concrete placement shall begin until the Department has approved the cofferdam excavation.

SPECIAL PROVISION
SECTION 521
FINGER JOINT AND FABRIC TROUGH/FABRIC CURTAIN
(Fabric Trough Material)

521.04 Materials - Fabric Trough or Curtain

Replace the first paragraph and following table of Physical Properties with the following:

The fabric for the trough or curtain shall be a preformed, multi-layered sheet composed of multiple plies of 15 ounces per square yard (± 5%), polyester fabric laminated with butadiene acrylonitrile, and vulcanized to form an integral laminate.

Physical properties of the laminate shall meet the material requirements in the following table.

Trough/Curtain Fabric Properties	Number of Plies		
	2	3 – 4	5 – 8
Minimum mass (weight) per unit area of laminate (lbs/ft^2)	0.75	0.85	4.00
Minimum thickness (inches)	1/8	5/32	3/4
Minimum Ultimate Tensile Strength of Laminate (lbs/inch of width)	800	1,200	2,000
Maximum Elongation at Ultimate Tensile	30%	30%	30%
Maximum elongation at 10% of ultimate tensile	3%	3%	3%

SPECIAL PROVISION
SECTION 524
TEMPORARY STRUCTURAL SUPPORTS
(Temporary Structural Support)

The following is added to Standard Specification Section 524:

524.01 Description

This work shall consist of designing, fabricating, erecting, maintaining, and dismantling (as applicable) temporary structural support walls as required for the purpose of supporting partially excavated Roadway embankments or structures. Temporary Structural Supports shall include sheeting, shoring, bracing, or otherwise stabilizing any structures disturbed or partially removed as part of the Work.

524.03 Design

The temporary structure and approaches shall achieve acceptable minimum factors of safety. Minimum factors of safety for slope stability are 1.3 for approach embankment slopes and 1.5 for embankment slopes that contain or support structures. The minimum factor of safety for sliding and overturning is 1.3.

The design for the Temporary Structural Support shall be submitted to the Resident at least 3 weeks prior to the start of Work.

524.04 Erection and Removal

Replace paragraph 3 with the following:

Temporary structural supports installed at Abutment 1 and Abutment 2 to support the Phase I roadway during demolition and construction of the Phase II abutment may remain in place permanently. The Contractor shall not leave in place any material which will leave a void as it degrades. In all other locations, upon completing the work requiring the use of the temporary structural supports, the temporary support structures shall be removed and the area under and around them shall be restored to its original or design condition as applicable.

524.05 Method of Measurement

Add to this subsection the following:

Temporary Structural Supports for earth retainage as specified herein will be measured as one lump sum satisfactorily designed, installed, maintained, dismantled, and removed for each location noted in the pay items. Installation and reinstallation of Temporary Structural Supports at

a single location between construction phases, if required, will not be measured separately, but will be considered incidental to that Temporary Structural Support Pay Item. Any work associated with support, bracing, or otherwise stabilizing any structures disturbed or partially removed as part of the Work or with removal and reinstallation of existing highway appurtenances (e.g. guardrails, sign supports, etc.) to facilitate the erection of Temporary Structural Supports will not be measured for payment, but will be considered incidental to the respective Temporary Structural Support Pay Item.

524.06 Basis of Payment

Add to this subsection the following:

Temporary Structural Support for earth retainage will be paid for at the Contract lump sum price, which shall be full compensation for all materials, equipment, labor, and incidentals necessary for the design, installation, maintenance, dismantling, and removal of such supports at each location noted in the pay items in accordance with the Standard Specifications and as specified herein.

Payments will be made under:

Pay Item		Pay Unit
524.301	Temporary Structural Support	Lump Sum

SPECIAL PROVISION
SECTION 524
TEMPORARY STRUCTURAL SUPPORT
(Temporary Structural Support – Consolidated Communications)

524.01 Description This work shall consist of furnishing and installing temporary structural utility supports and related connection plates as shown on the Communications Plan sheets and as directed by the Resident. The temporary structural utility supports will be installed on existing girders that may contain lead paint. The Contractor is responsible for containment of all hazardous waste resulting from drilling or damaging lead paint in accordance with State and Federal regulations.

524.02 Materials Utility construction work performed as part of this federal-aid Project is subject to the requirements of Buy America in accordance with Federal Regulation 23 CFR 635.410 Section 1518. Specific requirements are presented in MaineDOT Standard Specification Section 100, Appendix A, Section 3.A., Buy America.

Unless otherwise shown in the Plans stamped by the Engineer for the communications utility company, materials shall meet the requirements of the following sections of Standard Specification Division 700, Materials:

Structural Steel	713.01
High Strength Bolts	713.02

Structural steel utility supports shall conform to ASTM A709, Grade 50 unless otherwise noted on the plans and shall be hot dip galvanized in accordance with ASTM A123 and Section 506, Shop Applied Protective Coating - Steel. Structural Steel Utility Supports shall be fabricated in accordance with the requirements of Section 504, Structural Steel. High strength bolts shall be A325, Type 1 and shall be hot dipped galvanized in accordance with ASTM A153 and Section 504, Structural Steel.

524.03 Design The Contractor shall submit a lead containment plan and shall prepare shop drawings in accordance with Section 105.7, Working Drawings. The Department and Consolidated Communications will review the drawings in accordance with the applicable requirements of Section 105.7, Working Drawings.

524.04 Erection and Removal The Contractor shall install the temporary utility supports in accordance with the Working Drawings and the Communications Plans.

After installation of the permanent Structural Steel Utility Support described in the Plans and SP 845.10, and the transfer of all communications utility hangers to the permanent structural steel utility support, the Contractor will remove and dispose of the temporary utility supports.

524.05 Method of Measurement Temporary structural support – Consolidated Communications properly placed and accepted shall be measured for payment by the lump sum.

524.06 Basis of Payment The accepted quantity of Temporary Structural Support – Consolidated Communications for the bridge crossing shall be full compensation for furnishing and installing the temporary structural steel utility supports and connection plates as shown on the Plans and described herein. Price shall include all equipment, tools, labor, and incidental materials related thereto.

Hangers, nuts and washers, conduit, and conduit support assemblies shall be supplied and installed under a separate item.

Pay Item		Pay Unit
524.301	Temporary Structural Support - Consolidated Communications	Lump Sum

SPECIAL PROVISION
SECTION 524
TEMPORARY STRUCTURAL SUPPORTS
(Temporary Access Construction)

524.01 Description This work consists of the design, construction, maintenance, and removal, restoration work, and all labor, materials and equipment required to construct temporary access roads, embankments, rock roads, bridges, trestles, and work platforms, hereafter referred to as Temporary Access Construction, deemed necessary by the Contractor to adequately access and complete the Work.

This work does not include temporary fills, structures or platforms that serve exclusively as cofferdams, stream diversions, demolition platforms, or that are constructed for purposes other than providing construction access to the work area.

524.02 Materials Construction materials shall be selected at the Contractor's option and, whether new or used, shall be sound and of adequate cross section for the intended loads. Used materials will be acceptable provided appropriate allowances are made for their condition.

524.03 Design Temporary Access Construction shall be designed to support all vertical loads including live load and impact, differential settlement forces, horizontal and longitudinal forces, and forces from river and ice flows. Detailed plans showing sizes, arrangements, connections, bracing and quality of materials to be used shall be submitted to the Resident for documentation. Temporary Access Construction shall be designed by a Professional Engineer licensed in the State of Maine. All plans and Working Drawings shall be signed and sealed by that Engineer.

The consent of the Department regarding design, construction or use of Temporary Access Construction shall not be construed, in any way, as relieving the Contractor of responsibility for providing means for temporary access that are adequately designed and constructed to carry the loads and forces that will be placed upon them.

The Department will have no obligation to review or comment on any design, construction, maintenance, or removal of Temporary Access Construction. No review or comment by the Department, or any lack of review or comment by the Department, shall relieve the Contractor of its responsibility to properly design, construct, maintain in good condition, and completely remove Temporary Access Construction in accordance with the Contract, or shall shift any responsibility to the Department. The Contractor shall be responsible for all damages resulting from the failure of their temporary works.

Any temporary fill placed within the limits of the waterway shall be constructed using methods, and erosion-resistant materials, that will resist stream flow and minimize erosion to the extent practicable. Temporary fill within the waterway shall be removed to the extent practicable, and to the satisfaction of the Resident, upon completion of the project.

The limits of temporary fill within the waterway shall not encroach into the channel located near the Winslow river bank as shown on the temporary impacts plan submitted to the Army Corps of Engineers and included in the Appendix of these Contract Documents.

524.031 Submittals The Contractor shall submit plans and Working Drawings to the Resident for record at least 45 Calendar Days prior to beginning construction of the Temporary Access Construction.

524.041 Construction Requirements The installation of Temporary Access Construction shall be in conformance with the Contractor's design and details, constructed within the acquired right-of-way and applicable environmental permits, and shall use only the materials specified.

All related work including preparing, improving and restoring roads as required to provide access to the construction site and Temporary Access Construction shall be performed in accordance with the applicable governing specifications and the plans. Such work may involve clearing, grading, slope stabilization, geotextiles, construction of base courses and temporary roadways, temporary fencing and gates, temporary drainage, dust abatement where required, and maintenance of affected embankments and slopes, guardrail and drainage structures as directed by the Resident.

Disturbed slopes steeper than 1.5 horizontal to 1.0 vertical will require restoration with riprap and permanent erosion control as shown on the plans or as determined appropriate by the Contractor's engineer.

All Temporary Access Construction shall be removed completely, and to the satisfaction of the Resident, upon completion of the project. Where foundation elements are socketed or otherwise anchored into bedrock, the foundation elements shall be removed to either the top of bedrock, or to one foot below the streambed elevation, whichever is higher. Areas of disturbance shall be graded, landscaped and restored to the satisfaction of the Resident to a condition equal to, or better, than the condition that existed prior to the start of construction.

524.07 Method of Measurement Temporary Access Construction shall be measured as one Lump Sum.

524.08 Basis of Payment Temporary Access Construction will be paid for at the Contract Lump Sum price, which price shall be full compensation for all materials, equipment, labor and

incidentals necessary for the design, erection, maintenance, repair, replacement, dismantling and removal of the Temporary Access Construction. Reconstruction, grading, restoration and erosion control required in the area(s) of the Temporary Access Construction will be included in this item unless already covered under the permanent Work Items.

Payment for Temporary Access Construction will be done in partial payments using the following schedule:

	% of Lump Sum price
Upon receiving all submittals required in this provision:	50
Upon installation of all Work covered in this provision:	40
Upon completing site restoration and removal of this item:	10

Payment will be made under:

Pay Item		Pay Unit
524.304	Temporary Access Construction	Lump Sum

November 7, 2019

SPECIAL PROVISION
SECTION 534
PRECAST STRUCTURAL CONCRETE

Revise Paragraph 2 of 534.07 Quality Control to say:

Provide a copy of the Quality System Manual (QSM) to the Fabrication Engineer for review and approval.

Add the following Paragraph to 534.07 Quality Control:

QC staff shall be separate from production and shall not perform any production work.

Revise Sentence 1 in 534.17 Finishing Concrete to say:

Concrete Products shall be finished to meet the Standard Grade finish as described in the MNL-116.

SPECIAL PROVISION
SECTION 603
PIPE CULVERTS AND STORM DRAINS

603.12 Basis of Payment: This section shall be amended with the addition of the following:

Pay Item		Pay Unit
603.155	12 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.165	15 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.175	18 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.1752	18 Inch Reinforced Concrete Pipe Class IV	Linear Foot
603.191	24 Inch Corrugated Metal Pipe	Linear Foot
603.195	24 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.205	30 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.215	36 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.225	42 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.235	48 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.245	54 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.255	60 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.265	66 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.275	72 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.431	36 Inch Reinforced Concrete Pipe Class V	Linear Foot

SPECIAL PROVISION
SECTION 609
CURB

606.09 Basis of Payment: This section shall be amended with the addition of the following:

Pay Item		Pay Unit
609.221	Terminal Curb Type 1	Linear Foot
609.222	Terminal Curb Type 1 – Circular	Linear Foot

SPECIAL PROVISION
SECTION 620
GEOTEXTILES
(Drainage Geocomposite)

Description This work shall consist of furnishing and placing Drainage Geocomposite and Weep Hole Connections as specified herein, as shown on the plans, and as directed by the Resident. Geocomposite Drainage shall consist of a formed polystyrene core covered on one side with a non-woven, needle-punched polypropylene filter fabric.

Materials Drainage Geocomposite must be a composite system consisting of permeable geotextile and three-dimensional polymeric core providing equal flow in two perpendicular directions.

The Contractor shall furnish and install a Drainage Geocomposite as a hydrostatic water relief system. The Drainage Geocomposite shall be tied in to a water discharge system or weep holes. The weep holes shall be fitted with Weep Hole Connections, that effectively drain water from the geocomposite through the weep holes. The Weep Hole Connections may consist of Sitedrain AWD-102, Option 2 – Drain Gate connections, or equivalent.

Drainage Geocomposite work shall consist of furnishing all materials and labor required for placing and securing Drainage Geocomposite material, connection pipes, footing drains, weep holes and Weep Hole Connections, and horizontal drains, as shown on the Plans or as directed by the Resident.

Quality Assurance Testing Drainage Geocomposite must be backed by a Letter of Certification from the Manufacturer that the flow rate in the plane of the core meets or exceeds the specified flow given herein and determined by ASTM D4716.

Submittals The required submittals are as follows:

A. Submit Letter of Certification that material meets or exceeds physical properties per the following table.

B. The design layout of the Drainage Geocomposite including type, spacing, overlap, collection drainage, and other information.

Product Specification The Drainage Geocomposite shall consist of Miradrain 6000XL, Amerdrain 500, or equal that meets or exceeds the following properties:

TYPICAL PROPERTIES	Typical Value	Test Method
Fabric Properties		
Material	Non-woven Polypropylene	
Grab tensile strength	100 lbs	ASTM D4632
Puncture strength	65 lbs	ASTM D4833
AOS	70 sieve	ASTM D4751
Permeability	0.3 cm/sec	ASTM D4491
Core properties		
Material	Polystyrene	
Compressive strength	15,000 psf	ASTM D1621 (Mod.)
Product properties		
Flow capacity per unit width[1]	16 gpm/ft	ASTM D4716

[1] In Plane Flow Rate, Gradient = 1.0

All numeric values in the above table, except AOS, represent minimum average roll values in the weakest principal direction (i.e., average test results of any roll in a lot sampled for conformance or quality assurance testing shall meet or exceed the minimum values). Values for AOS represent maximum average roll values.

Placement Requirements The Drainage Geocomposite shall be installed by methods approved by the Manufacturer.

The installer shall place the Drainage Geocomposite at the elevations and alignment shown on the Plans, as noted and as directed by the Resident. The Drainage Geocomposite shall be installed with the fabric side toward the soil.

When installing the Drainage Geocomposite:

- Start at the low point of the wall and attach the panel to the wall.
- Weep Hole Connections shall be installed in conjunction with the Drainage Geocomposite.
- Adjacent panels may be:

  (1) Joined together with the lateral edge of the next/upper panel placed over the flanged edge of the lower panel;

  (2) Overlap the dimples of the preceding panel onto the dimples of the previous panel by 2 inches.

The Drainage Geocomposite from the adjacent panels shall overlap the preceding panel. The overlap fabric can be adhered with the Manufacturer's approved tape or duct tape. The Drainage Geocomposite shall be attached to non-waterproofed walls with contact adhesive, tape or concrete nails. The Drainage Geocomposite will be permanently secured prior to completion of backfilling.

Backfilling shall be placed within seven days of Drainage Geocomposite installation. Backfill to at least 6 inches above the top edge of the Drainage Geocomposite.

The top or terminal edge of the Drainage Geocomposite shall be covered by applying a piece of filter geotextile, meeting the requirements of MaineDOT Standard Specification Section 722.03, over the edge sufficient in width to prevent soil or other foreign construction materials from intruding into or behind the Drainage Geocomposite panels.

If necessary, the Drainage Geocomposite and filter geotextile shall be positioned by hand to minimize wrinkles.

Unanticipated subsurface drainage features exposed in the excavation shall be drained independently of the Drainage Geocomposite.

Backfill Requirements Structural backfill as shown on the Plans shall be placed immediately against the Drainage Geocomposite. Care shall be taken during the backfill operation not to damage the geotextile surface of the drain. The backfill shall be placed and compacted in accordance with the project Plans and specifications. Care shall also be taken to avoid excessive settlement of the backfill material. The Drainage Geocomposite, once installed, shall not be exposed for more than seven days prior to backfilling.

Storage Requirements The Contractor shall check the Drainage Geocomposite upon delivery to ensure that the proper material has been delivered. The Contractor shall be responsible for the storage of the Drainage Geocomposite material at the site.

Drainage Geocomposite shall be provided in rolls wrapped with a protective covering and stored in a manner, which protects the material from temperatures greater than 140° F, mud, dirt, dust, and debris. Protective wrapping shall not be removed until immediately before the Drainage Geocomposite is installed.

Drainage Geocomposite material shall be delivered and stored in original packages bearing the Manufacturer's name. The fabric shall not be exposed to direct sunlight for more than seven days during its storage and installation. The Drainage Geocomposite material shall be stored in a clean, dry environment out of the pathway of construction equipment. Each roll of Drainage Geocomposite material shall be labeled to identify the production run.

Repair Requirements Prior to the placement of the Drainage Geocomposite each roll shall be inspected for damage resulting from construction.

Any ripped, torn, or damaged areas of the Drainage Geocomposite material shall be removed and patched by placing a patch large enough to cover the damaged area and provide a sufficient overlap on all sides to fasten. The patch shall be secured to the original Drainage Geocomposite material using the Manufacturer’s approved methods. If the hole width or tear width across the panel is more than 50% of the width of the material, the damaged area shall be cut out and the two

portions of the Drainage Geocomposite material shall be joined in accordance with the placement requirement.

If the damage occurs to the Drainage Geocomposite material during shipping, handling, or installation, the damaged areas shall be cut out and a repair section of Drainage Geocomposite shall be installed at the Contractor's expense.

Method of Measurement Drainage Geocomposite installation shall be measured by the square yard in place and accepted. Measurements will not be made for overlaps, patches, and repairs.

Basis of Payment The accepted quantity of Drainage Geocomposite installed shall be paid for at the contract unit price per square yard, which shall be full compensation for off-loading, inspection, storage, materials, equipment, and any incidentals necessary to complete the installation.

The cost and placement of the drainage collection pipe will be incidental to the installation of the Drainage Geocomposite.

Payment will be made under:

	Pay Item	Unit
620.66	Drainage Geocomposite	Square Yard

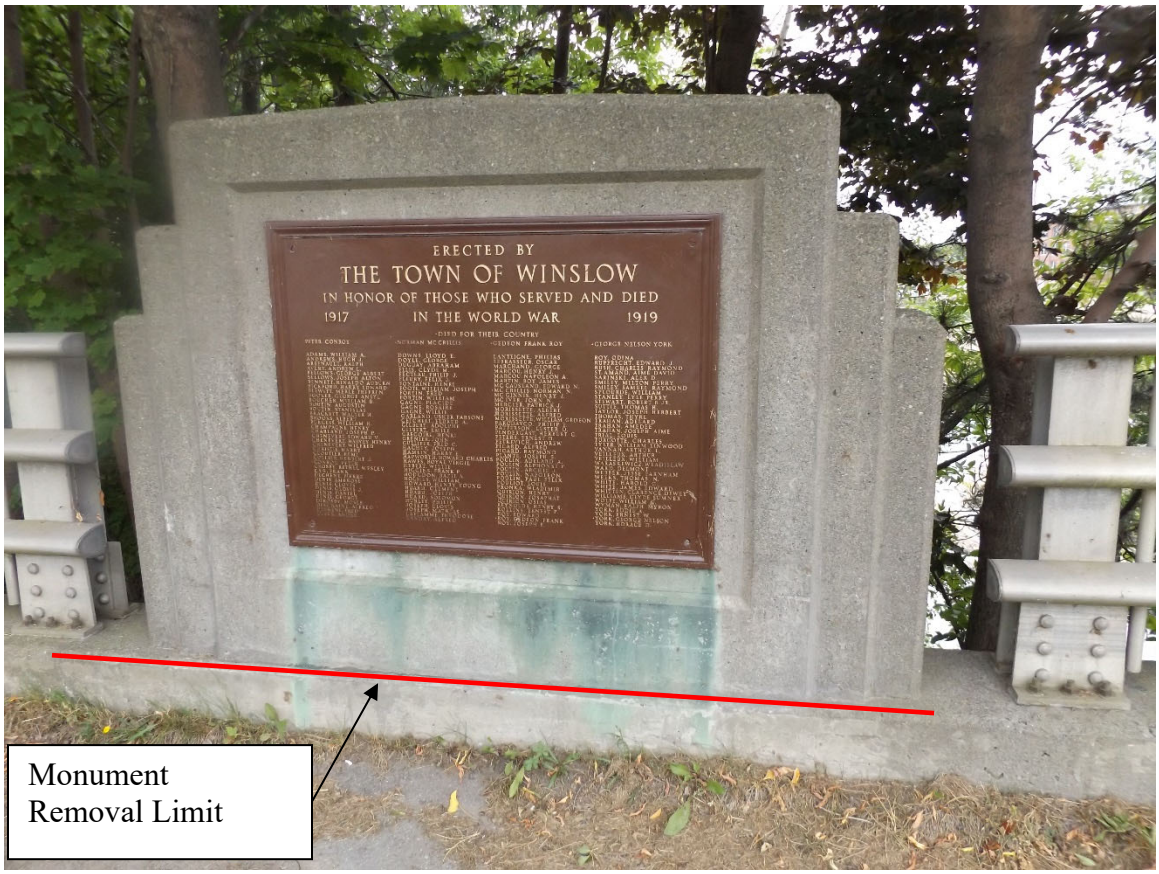
SPECIAL PROVISION
SECTION 623
MONUMENT
(Remove and Load Monument)

Description

This work consists of removing the existing Veterans Monument from the southeast wingwall of the Ticonic Bridge and loading it onto a vehicle provided by the Town of Winslow, in accordance with the plans, this specification, and as directed by the Resident. The work is intended to remove and load the monument prior to bridge demolition. The Contractor shall take care to salvage the monument in a manner that does not result in irreparable damage to the items to be salvaged. The Monument consists of the plaque and surrounding concrete.

Materials

Monument: All items noted in Description and shown in photo below.



Construction Requirements

The Contractor shall sawcut the concrete full depth along the top of the curb to separate the monument from the bridge and shall then load it on to a vehicle owned by the Town. Removal and lifting methods shall be selected to avoid damage to the monument and plaque and shall be approved by the Resident prior to the start of work.

Contractor shall notify Paul Fongemie at 207-649-8496 from the Town of Winslow at least five (5) working days before monument will be ready to be loaded onto a Town Vehicle.

Method of Measurement

Remove and Load Monument will be measured as one lump sum, complete, in place and accepted.

Basis of Payment

Remove and Load Monument will be paid for at the Contract lump sum price, complete in place. Payment shall be full compensation for furnishing all labor, equipment, materials, and incidentals necessary to complete the work as called for on the plans or described herein.

Payment will be made under:

Pay Item		Pay Unit
623.11	Remove and Load Monument	Lump Sum

SPECIAL PROVISION
SECTION 634
HIGHWAY LIGHTING
(Ornamental Lighting)

634.01 Description The Contractor shall furnish and install all materials and equipment required for complete, functioning and accepted ornamental light standards with light emitting diode (LED) luminaires, as shown on the plans, as described herein, and as directed by the Resident.

634.02 General Ornamental light standards with LED luminaires for bridge and sidewalk lighting on this project shall be Series: (NYA) North Yorkshire aluminum pole and Series: (WAE3) Glass Washington Postlite LED both as manufactured by Holophane Lighting and specified on the plans and in this special provision or an approved equal.

All materials and installation requirements for Ornamental Lighting shall comply with Section 634 of the Standard Specifications except as modified on the project plans or in this Special Provision.

634.092 Method of Measurement Ornamental Lighting, satisfactorily installed and accepted, will be measured for payment by the single unit each.

634.093 Basis of Payment The accepted quantity of Ornamental Lighting will be paid for at the contract unit price each. Payment for each shall be full compensation for the ornamental light standard, ornamental pole base, ornamental fixture housing, light emitting diode luminaire fixture and incidentals necessary for installation of the pole and fixture.

Conduit for power to Ornamental Lighting, foundations, and junction boxes will be paid separately under applicable Section 626 pay items of the contract. All other work and materials necessary to provide the bridge and sidewalk lighting system shown on the plans will be paid by lump sum payment under Item 634.160 Highway Lighting.

Payment will be made under:

Pay Item	Pay Unit
634.70 Ornamental Lighting	Each

SPECIAL PROVISION
SECTION 643
TRAFFIC SIGNALS
(Temporary Traffic Signal Timing Adjustments)

643.01 Description:

During stage construction activities related to the Ticonic Bridge, traffic signal timing and phasing shall be adjusted at all signalized intersections along the detour route and at all adjacent intersections coordinated with detour route signals as defined in WIN 24301.00 (Build Grant Signals) final coordination plan. This includes but is not limited to: coordinated signals along Spring Street, Main Street, and Kennedy Memorial Drive and the individual intersections of Augusta Road/Carter Memorial Drive, Augusta Road/China Road, Augusta Road/Halifax Street, and Bay Street/Bridge Street/Clinton Avenue/Benton Avenue.

Signal timing shall be adjusted for each construction stage. Changes in timing plans are to be made with Resident approval only. When traffic returns to the pre-construction configuration, original signal timing and phasing is to be re-activated unless otherwise indicated on the plans or provided by the Resident.

Signal timings for each intersection will be provided during the construction phase. Effort required to adjust the timings at each intersection for each construction stage will be considered incidental to Item 652.361 Maintenance of Traffic Control Devices.

SPECIAL PROVISION
SECTION 643
TRAFFIC SIGNALS
(Traffic Signal Modifications)

The provisions of Section 643 of the 2020 Standard and Supplemental Specifications with the following additions and modifications shall apply:

643.02 General

This work shall include any and all modifications to the Winslow intersections of Bridge Street/Benton Avenue/Clinton Avenue/Bay Street and to the Winslow intersection of Carter Memorial Drive/Augusta Road as defined and noted on the plans. This work may include furnishing the signal heads required for the final condition earlier in construction, for use during staged construction.

The work at both intersections includes but is not limited to the installation of new traffic signal heads as shown in the plans as well as modifications to the signal system to implement the proposed signal configuration. Signal timing and phasing will be provided during construction. The Build Grant Signal improvements related to WIN 24301.00 are anticipated to be complete prior to construction of this project and that all proposed modifications will tie into those improvements.

643.19 Basis of Payment

Payment will be made under:

Pay Item	Description	Pay Unit
643.71	Traffic Signal Modification at: Bridge Street/Benton Avenue/Clinton Avenue/Bay Street	Lump Sum
643.71	Traffic Signal Modification at: Carter Memorial Drive/Augusta Road	Lump Sum

SPECIAL PROVISION
SECTION 643
TRAFFIC SIGNALS
(Temporary Traffic Signal Modification)

643.01 Description

During staged construction activities related to the Ticonic Bridge, the Contractor shall temporarily modify the traffic signal systems at the two intersections of Spring Street/Main Street/Water Street/Front Street/Bridge Street and Bridge Street/Benton Avenue/Clinton Avenue/Bay Street. The traffic signal modifications will change during each construction stage.

This item includes all materials required to provide a fully functioning signal system for each stage of construction. This includes but is not limited to signal wiring, stop bar and advanced detection adjustments, furnishing and installing of temporary signal heads, relocation of existing signal heads, and adjustments to the preemption system. Furnishing and installation of signal heads for the final condition shall be paid for under 643.71.

As a supplement to the existing signal system, a temporary signal structure, supplied by the Contractor, shall be erected across the Clinton Avenue approach as needed to maintain MUTCD sight distance standards when traffic is shifted north as shown on the plans. All signal heads shall have 12” LED indications with 5” backplates and 3” yellow retroreflective tape along all borders. Signal heads shall face traffic for each intersection approach in accordance with MUTCD standards.

Signal timing and phasing will be provided during the construction phase, modifications shall be submitted to the Resident for approval.

Unless otherwise approved, wooden utility poles, span wire and guy wires shall be used for the temporary signal system. The design of the temporary signal components shall be the responsibility of the Contractor and shall be submitted for review and approval.

Non-invasive stop bar detection shall be maintained for each approach.

643.19 Basis of Payment

Payment for all signal modifications including the temporary signal structure required for all stages will be paid for under the lump sum item per intersection.

Payment will be made under:

Pay Item		Pay Unit
643.711	Temporary Traffic Signal Modifications at: Spring Street/Main Street/Water Street/Front Street/Bridge Street	Lump Sum
643.711	Temporary Traffic Signal Modifications at: Bridge Street/Benton Avenue/Clinton Avenue/Bay Street	Lump Sum

SPECIAL PROVISION
SECTION 643
TRAFFIC SIGNALS
(Temporary Emergency Preemption System Modifications)

The provisions of Section 643 of the 2020 Standard and Supplemental Specifications with the following additions and modifications shall apply:

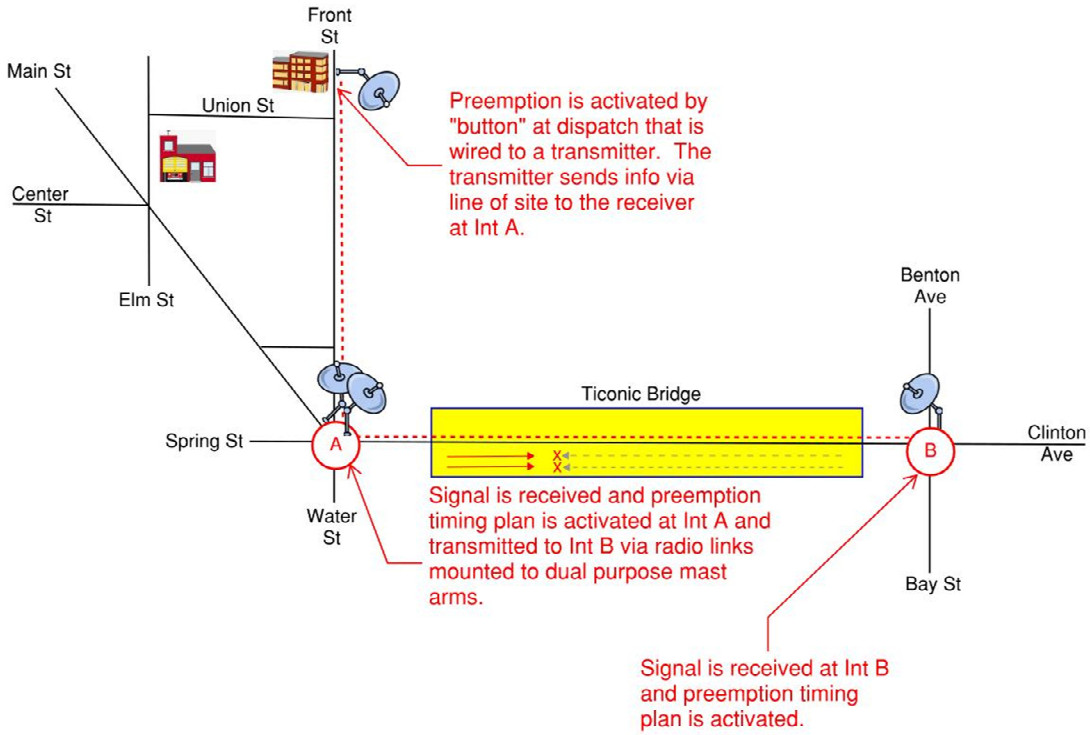
643.02 General

This work shall include any and all modifications to the Waterville and/or Winslow signal systems to provide preemption options during the one-way detour so that emergency services traveling from Winslow to Waterville can cross the Ticonic Bridge westbound safely against traffic, requiring eastbound vehicles to halt travel across the bridge. This includes but is not limited to design, build and installation of an activation "button" to remotely trigger a preemption call, wireless or cable communication, signal equipment/communications to the equipment inside the cabinet and work with Waterville IT to broadcast video from surveillance camera to Waterville Police dispatcher's office (video monitor/work-station provided by Waterville).

Specifically, this work includes providing communications from a "button" at the Waterville Police dispatcher's office to the preemption systems at the intersections directly adjacent to either end of the Ticonic Bridge (Water Street/Main Street/Spring Street/Front Street and Benton Avenue/Clinton Avenue/and Bay Street) and the installation of a video camera for confirmation. It is the contractor's responsibility to confirm communications equipment and FCC compliance with municipalities to ensure an acceptable bandwidth is used and to coordinate with the Build Grant Signal improvements project related to WIN 24301.00.

Signal timing and phasing updates for this phase of construction will be provided during construction. The Water Street/Main Street/Spring Street/Front Street intersection may be coordinated with additional intersections in the downtown Waterville Area.

A potential layout sketch is included for additional clarification. This does not take the place of contractor design and it is the contractor's responsibility to ensure the communication system provided has adequate line of site communication and is performing as expected prior to formal activation. It is the sole responsibility of the contractor to ensure equipment is of appropriate type and location with ancillary devices to provide a fully operational system. This temporary modification to the preemption system and all ancillary related equipment will be removed and returned to the contractor upon project completion.



643.1712 Basis of Payment

Payment will be made under:

Pay Item		Pay Unit
643.713	Temporary Emergency Preemption System Modification	Lump Sum

Highway Lighting Quality Control Checklist

Subsection 634.09 Field Testing

Project Pin # _____

Location (if multiple services, please be specific)- _____

Grounding Electrode Resistance at service _____

Number of Circuits _____

Hand-Off-Auto Switch? _____

Circuit #1

Open Circuit Resistance- (Ohm out both hot legs at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Megger Test- (Meg out both hot legs to ground at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Current draw- (during normal operation) Leg #1 _____ Leg #2 _____

Operating Voltage at last pole _____

Circuit #2

Open Circuit Resistance- (Ohm out both hot legs at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Megger Test- (Meg out both hot legs to ground at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Current draw- (during normal operation) Leg #1 _____ Leg #2 _____

Operating Voltage at last pole _____

I, _____, certify that this work was done in accordance with subsection 643.14 and current NEC _____ guidelines, and when tested, was functioning as intended.

(YEAR)

Electrician's Signature _____

Electrician's License # _____

Highway Lighting Quality Control Checklist

Subsection 634.09 Field Testing

Project Pin # _____

Location (if multiple services, please be specific)- _____

Grounding Electrode Resistance at service _____

Number of Circuits _____

Hand-Off-Auto Switch? _____

Circuit #3

Open Circuit Resistance- (Ohm out both hot legs at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Megger Test- (Meg out both hot legs to ground at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Current draw- (during normal operation) Leg #1 _____ Leg #2 _____

Operating Voltage at last pole _____

Circuit #4

Open Circuit Resistance- (Ohm out both hot legs at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Megger Test- (Meg out both hot legs to ground at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Current draw- (during normal operation) Leg #1 _____ Leg #2 _____

Operating Voltage at last pole _____

I, _____, certify that this work was done in accordance with subsection 643.14 and current NEC _____ guidelines, and when tested, was functioning as intended.

(YEAR)

Electrician's Signature _____

Electrician's License # _____

Traffic Signal Quality Control Checklist

Subsection 643.14 Field Testing

Project Pin # _____

Grounding Electrode Resistance at service _____

ID tags on loop amps / detector cards? _____

Location _____

Street Approach _____

Loop #	_____	**Resistance**	_____
Phase #	_____	**Meg to ground**	_____
L,C, or R Lane	_____	**Amount of bondo covering loop**	_____
Pulse or Presence	_____		

Street Approach _____

Loop #	_____	**Resistance**	_____
Phase #	_____	**Meg to ground**	_____
L,C, or R Lane	_____	**Amount of bondo covering loop**	_____
Pulse or Presence	_____		

Street Approach _____

Loop #	_____	**Resistance**	_____
Phase #	_____	**Meg to ground**	_____
L,C, or R Lane	_____	**Amount of bondo covering loop**	_____
Pulse or Presence	_____		

I, _____, certify that this work was done in accordance with subsection 643.14 and current NEC _____ guidelines, and when tested, was functioning as intended.

(YEAR)

Electrician's Signature _____

Electricain's License # _____

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC
(Construction Requirements - General)

Subsection 652.3.6 is amended by adding the following requirements:

During Stages 1 and 2 of construction, westbound traffic travelling to Waterville across the Ticonic Bridge shall be detoured along the detour route shown in the Contract plans. Two lanes of eastbound traffic shall be maintained on the Ticonic Bridge during Stage 1 and Stage 2 of construction, except when lane restrictions or full closure of the bridge is permitted. Refer to Special Provision Section 107 for allowed lane restriction and bridge closure periods. Once the bridge is restricted to two lanes of eastbound traffic, the westbound detour shall remain in place until the completion of Stage 2 construction.

During times when traffic on the Ticonic Bridge may be reduced to a single lane of eastbound or westbound traffic as defined in Special Provision Section 107, the minimum roadway width shall be 13 feet wide.

During times when traffic on the Ticonic Bridge may be reduced to two lanes of eastbound traffic as defined in Special Provision Section 107, the minimum roadway width shall be 24 feet wide.

During bridge closure periods as defined in Special Provision Section 107 and during Stage 1 construction, all pedestrians shall be detoured as shown in the Plans.

The off-site road and signal improvements at the intersection of Carter Memorial Drive (Route 137) and Augusta Road (Routes 100/201) shall be completed and open to traffic prior to detouring westbound traffic.

The signal and striping modifications at the intersection of Bridge/Benton/Clinton/Bay as shown on the Plans shall be in place prior to detouring westbound traffic.

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 xxxx[1].
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 and milling 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
Portable/Temporary Traffic Signals
Automated Flagging Assistance Devices (AFADs)

652.01 Description Portable/Temporary Traffic Signals or Remotely Controlled Automated Flagging Assistant Devices (AFADs) may be used in conformance with this Special Provision at the option of the Contractor in lieu of Flaggers and as approved by the Department.

Portable/Temporary Traffic Signals shall conform to Part 4H.02 of the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD) and shall be the Dolly Type (SQ2) or the Trailor Mounted Type (SQ3). AFADs shall conform to Part 6E.04 of the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).

Portable/Temporary Traffic Signals and AFADs must satisfy applicable crashworthiness standards based on device weight which shall be in accordance with National Cooperative Highway Research Program (NCHRP) Report 350 and the American Associated for State Highway and Transportation Officials (AASHTO) Manual for Assessing Safety Hardware. The use of Portable/Temporary Traffic Signals may be suspended at any time at the discretion of the Resident.

652.02 Portable/Temporary Traffic Signals Operation

The Contractor shall submit a Traffic Control Plan to the Resident for approval which shall detail Portable/Temporary Traffic Signals operation.

Portable/Temporary Traffic Signals may be used during daytime or nighttime operations; however, Dolly Types (SQ2) shall not be in operation when the work site is unattended.

Work zones utilizing Portable/Temporary Traffic Signals shall add A Signal Ahead symbol (W3-3) sign that will replace the Flagger symbol sign. An 18-inch-wide removable stop line with a STOP HERE ON RED (R10-6) sign shall be installed at the intended stopping point.

The Resident may waive the requirement for a stop line if the roadway is unpaved or it is otherwise impractical to install a stop line and the STOP HERE ON RED sign is in place.

The distance between Portable/Temporary Traffic Signals units shall not exceed the phase timing and distances as designed by a Professional Engineer, registered in the state of Maine, or as designated on the Charts provided in this specification.

When the work no longer necessitates use of the Portable/Temporary Traffic Signals, the units shall be removed or turned off and moved out of view from the traveled way.

652.03 Automated Flagging Assistance Devices (AFADs)

AFADs shall be used only for short-term or intermediate-term lane closures in situations where there is one lane of approaching traffic that needs to be controlled. AFAD use is acceptable in either of the following cases: The first case employs an AFAD unit at each end of the work zone while the second case employs an AFAD unit at one end and a flagger at the other end. Utilizing an AFAD, a single flagger may remotely control two or more AFAD units provided that the flagger has a clear view of each unit, and of approaching traffic in both directions. Other cases may be used as approved by the Resident.

AFAD use is permitted during daytime or nighttime operations; but, if used at night, the AFADs must be illuminated in accordance with Section 6E.08 of the latest edition of the MUTCD.

AFADs are not traffic control signals, they should not be used to replace traffic signals or other continuously operating traffic control devices.

A competent, certified flagger, who has been trained on the operation of the AFADs shall operate and not leave the AFADs unattended at any time. The flagger shall have an unobstructed view of the AFADs and approaching traffic in both directions at all times. The distance between AFAD units shall not exceed one-half mile.

Work zones utilizing AFADs shall comply with the Standard Sheet for flagger operation on a 2-lane 2-way roadway, where an AFAD unit, or units, is used in lieu of a flagger a BE PREPARED TO STOP sign (W3-4) is to be used in lieu of the Flagger symbol sign. Red/Yellow lens AFADs shall have a STOP HERE ON RED (R10-6) sign installed on the right-hand shoulder at least 8 feet in advance of the RCRYLS unit where vehicles are expected to stop and Stop/Slow AFADs shall have WAIT ON STOP (R1-7) and GO ON SLOW (R1-8) signs immediately adjacent to the AFAD.

The Contractor's Traffic Control Plan shall detail AFAD operation including a list of competent, certified flaggers trained to operate the AFADs. When the work no longer necessitates use of the AFADs, units shall be moved out of view from the traveled way.

652.04 General Operation

Portable/Temporary Traffic Signal and AFAD units shall be placed in the shoulder on the right-hand side of the road with a sight distance as designated in the Minimum Sight Distance for Signal Visibility chart provided in this specification.

If the shoulder is not adequate, the Portable/Temporary Traffic Signals or AFADs may encroach on the travel lane provided that the appropriate sight distance is available and as approved by the Resident. Re-positioning of the Portable/Temporary Traffic Signals or AFADs shall need the approval of the Resident.

Appropriate flagger apparel and equipment shall be maintained near each Portable/Temporary Traffic Signal or AFAD unit to facilitate flagging in the event of a malfunction or operational need due to frequent disruptions of traffic flow. The Contractor shall immediately provide traffic control with flaggers if a Portable/Temporary Traffic Signal or AFAD unit malfunctions; fails to properly or adequately control traffic; creates congestion, queues or gridlock which cannot be remedied by timely on-site adjustments to the signal operation; or is otherwise inadequate; all of which shall be determined by the Resident.

When Flaggers are being utilized, Portable/Temporary Traffic Signals shall not be in operation.

Portable/Temporary Traffic Signals or AFADs shall not be located within 200 feet of a grade crossing unless the temporary traffic control signal is provided with preemption in accordance with MUTCD Section 4D.27, or unless a uniformed officer or flagger is provided at the crossing to prevent vehicles from stopping within the crossing.

652.05 Method of Measurement Portable/Temporary Traffic Signals or AFADs shall be measured by the hour for each approach that are in place and operating.

652.06 Basis of Payment Portable/Temporary Traffic Signals shall be paid at the Flagger Hourly Rate for each approach in operation.

AFADs shall be paid at the Flagger Hourly Rate for each unit in operation and for the operator.

(1st Example: One set of AFADs (one unit), plus operator, would be paid as 2 X Flagger hourly rate X hours in use.)

(2nd Example: One set of AFADs (two units), plus operator, would be paid as 3 X Flagger hourly rate X hours in use.)

Payment will be made under:

Item Number	Description	Unit
652.38	Flagger	Hour

Minimum Sight Distance for Signal Visibility	
Posted Speed Limit (mph)	**Minimum Sight Distance (ft)**
25	270
30	325
35	390
40	460
45	540
50	625
55	715



Example of Dolly type or SQ2



Example of Trailer Mounted type or SQ3



Example of an AFAD

All red Clearance Intervals
Less Than 40 mph
Assumed Travel Speed 15 mph

Posted Speed Limit	**Distance Between Stop Bars**		**Minimum All red Clearance Time**
	Yards	Feet	Seconds
25, 30 & 35	33	100	4.6
	50	150	6.9
	67	200	9.1
	83	250	11.4
	100	300	13.7
	117	350	16.0
	133	400	18.2
	150	450	20.5
	167	500	22.8
	183	550	25.0
	200	600	27.3
	217	650	29.6
	233	700	31.9
	250	750	34.1
	267	800	36.4
	283	850	38.7
	300	900	41.0
	333	1000	45.5
	350	1050	47.8
	367	1100	50.0
	383	1150	52.3
	400	1200	54.6
	417	1250	56.9
	433	1300	59.1
	450	1350	61.4
	467	1400	63.7
	483	1450	66.0
	500	1500	68.2
	517	1550	70.5

All red Clearance Intervals
40 mph and Above
Assumed Travel Speed 25 mph

Posted Speed Limit	**Distance Between Stop Bars**		**Minimum All red Clearance Time**
	Yards	Feet	Seconds
40,45,50 & 55	33	100	3.5
	50	150	5.2
	67	200	6.9
	83	250	8.6
	100	300	10.3
	117	350	12.0
	133	400	13.7
	150	450	15.4
	167	500	17.1
	183	550	18.8
	200	600	20.5
	217	650	22.2
	233	700	23.9
	250	750	25.6
	267	800	27.3
	283	850	29.0
	300	900	30.7
	317	950	32.4
	333	1000	34.1
	350	1050	35.8
	367	1100	37.5
	383	1150	39.2
	400	1200	40.9
	417	1250	42.7
	433	1300	44.4
	450	1350	46.1
	467	1400	47.8
	483	1450	49.5
	500	1500	51.2
	517	1550	52.9

SPECIAL PROVISION
SECTION 717
ROADSIDE IMPROVEMENT MATERIALS
(Seed)

717.03 Seed Revise this Sub Section by removing the material property tables for "Method #1 - Park Mixture" and "Method #2 - Roadside Mixture #2" and replace with the following:

Seed Mixtures shall consist of seed proportioned percent by weight as follows:

Method #1 – Park Mixture	
Specification	**Property**
Turf Type Tall fescue	40% +/- 2%
85/80 Kentucky Bluegrass	25% +/-2%
Perennial Rye Grass	20% +/-2%
Annual Ryegrass	15% +/- 2%

Method #2 – Roadside Mixture #2	
Specification	**Property**
Turf Type Tall fescue	60% +/-2%
White Clover	5% +/-2%
Perennial Rye Grass	15% +/-2%
Annual Ryegrass	20% +/-2%

This special provision is temporary while supplies are limited and may be Modified to the Seed Mix in the March 2020 Standard Specification Book when supplies are available again.

SPECIAL PROVISION
SECTION 801
UTILITY & DRAINAGE TEST PITS

Description This work shall consist of excavating and back filling test holes to locate existing utilities or drainage at locations shown on the plans or as directed by the Resident.

Construction Requirements The work shall be done in a manner that provides safe passage of the traveling public at all times. Coordination with the utilities is required prior and during the test pit activities. An authorized representative from the utility shall be present during the test pit activity. Test pits shall be completed in a manner that does not damage any utilities. Any damage to utilities or other roadway features by the test pit operations, including areas of asphalt pavement, shall be repaired by the Contractor to the satisfaction of the Resident at no additional cost.

The Contractor shall coordinate with the Resident on locating the utilities once exposed.

Once the location work is complete, the Contractor shall backfill the hole, place gravel and pavement over the test pits in a manner consistent with the existing conditions and in accordance with the standard specifications for backfilling.

Basis of Payment The accepted quantity of Test Pits will be paid for at the contract unit price per each, which shall be full compensation for all labor, materials, tools, equipment, asphalt pavement, and incidentals necessary to the complete the work. Associated traffic control will not be paid for separately and is considered incidental to the test pit item.

Payment will be made under:

Pay Item		Pay Unit
801.03	Test Pits	Each

SPECIAL PROVISION
SECTION 845
STRUCTURAL STEEL UTILITY SUPPORT
(Utility Support – Central Maine Power)
(Utility Support – Charter)
(Utility Support – Consolidated)

845.01 Description This work shall consist of furnishing and installing structural steel utility supports and related connection angles and plates, denoted *Utility Support Type U2, U3, and U5* on the Plans, and as directed by the Resident.

845.02 Materials Utility construction work performed as part this federal-aid Project is subject to the requirements of Buy America in accordance with Federal Regulation 23 CFR 635.410 Section 1518. Specific requirements are presented in MaineDOT Standard Specification Section 100, Appendix A, Section 3.A., Buy America.

Materials shall meet the requirements of the following sections of Standard Specification Division 700, Materials:

Structural Steel	713.01
High Strength Bolts	713.02

Structural steel utility supports shall conform to ASTM A709, Grade 50 unless otherwise noted on the plans and shall be hot dip galvanized in accordance with ASTM A123 and Section 506, Shop Applied Protective Coating - Steel. Structural Steel Utility Supports shall be fabricated in accordance with the requirements of Section 504, Structural Steel. High strength bolts shall be A325, Type 1 and shall be hot dipped galvanized in accordance with ASTM A153 and Section 504, Structural Steel.

845.03 Installation The Contractor shall install utility support diaphragms at each location indicated on the Drawings.

845.04 Drawings Prepare shop drawings in accordance with Section 105.7, Working Drawings. The Department and Consolidated Communications will review the drawings in accordance with the applicable requirements of Section 105.7, Working Drawings.

845.05 Method of Measurement Structural steel utility supports properly placed and accepted shall be measured for payment by the lump sum.

845.06 Basis of Payment The accepted quantity of Structural Steel Utility Support for the bridge crossing shall be full compensation for furnishing and installing structural steel supports and connection angles and plates as shown on the Plans. Price shall include all equipment, tools, labor, and incidental materials related thereto.

Hangers, nuts and washers, conduit, and conduit support assemblies shall be supplied and installed under a separate item.

Pay Item		Pay Unit
845.10	Structural Steel Utility Support - Central Maine Power	Lump Sum
845.10	Structural Steel Utility Support - Charter Communications	Lump Sum
845.10	Structural Steel Utility Support - Consolidated Communications	Lump Sum

SPECIAL PROVISION
SECTION 910
SPECIAL WORK
(Utility Conduit and Hangers on Bridge – Consolidated Communications)

910.01 Description This item shall consist of all Consolidated Communications bridge conduit and support work shown in the Plans, as referenced in Special Provision Section 104 - Utilities, and described herein.

This work shall consist of furnishing and installing all materials and labor for the installation of fifteen (15) 4 - inch inner diameter fiber reinforced plastic (FRP) American Util or approved equal conduits as detailed on the Communications Plans throughout the entire length of the bridge, through the bridge abutments, and approximately 10 feet past the back of backwall on both sides of the bridge after the conduits reach the communications duct bank in SP 910, Special Work (Utility Conduit – Concrete Duct Bank – Consolidated Communications). On the bridge superstructure, this work shall also include furnishing and installing conduit support hangers, hardware and components from American Utel or approved equal, and incidentals required to complete the work. At the duct bank, this work shall include the installation of a FRP to steel conduit adapter at the end of the FRP duct. The provisions for installing the underground conduit past the FRP to steel adapter and for installing the temporary and permanent communications utility diaphragms on the bridge are covered in separate provisions.

This work includes transferring the conduit and hangers from the temporary utility diaphragms described in SP 524, Temporary Structural Supports – Consolidated Communications to the permanent steel utility diaphragms described in SP 845 Structural Steel Utility Supports.

The abutment penetrations shall either be cast directly into the abutment backwall at the time of backwall construction or the conduits may be installed in a blockout using a template for placement and packed with non-shrink grout. The length of conduit between the front face of the abutment backwall and the end diaphragm shall be wrapped in a waterproofing membrane.

The pulling, installation and tie-in of the actual utility cables will be handled by the respective utility companies after all of the conduit is in place.

910.02 Materials The Contractor shall be responsible for furnishing and installing all material and associated hardware as shown in the Plans and described in this specification.

Within 60 days following execution of the contract, the Contractor shall submit a list of materials which are to be installed. The list shall include the manufacturer, size, and identifying number of each item. The list shall be supplemented by such data as may be required, including detailed scale drawings of proposed minor deviations from the plans. The Contractor shall submit for review, design data and sample articles of the material proposed for use.

Conduits shall be of the sizes noted on the Plans, which are indicated as the nominal inside diameter.

910.03 Construction Workmanship shall conform to the requirements of: NEC, NESC, ASTM Standards, and the ANSI, the local Utility Companies, the State of Maine, Manufacturers Specifications and any local ordinances that may apply except when otherwise noted on the Plans or in the Special Provisions.

The Contractor shall be responsible for and shall repair all damage caused to underground drainage structures, utilities, or lighting conduit, which are encountered during construction.

The Contractor shall install pull-lines in all conduits. The ends of the lines shall be secured in such manner as to prevent accidental withdrawal of the wire. All conduit ends shall be capped with watertight conduit caps.

Conduit must be fully transferred from temporary supports to permanent supports prior to starting stage 2 demolition as shown in the plans.

910.04 Method of Measurement Special Work - Utility Conduit and Hangers on Bridge – Consolidated Communications shall be measured for payment as one lump sum, complete, in place, and accepted.

910.05 Basis of Payment Payment for Special Work - Utility Conduit and Hangers on Bridge – Consolidated Communications shall be full compensation for all materials, equipment, labor, and hardware necessary to install the utility conduits and support system, as described herein and shown in the Plans. Payment for work shall include furnishing and installing bridge utility support system including hanger brackets, spacers, and threaded anchor rods, as well as furnishing and installing FRP conduits and pull-line for each conduit. The permanent and temporary steel utility support diaphragms attached to the bridge girders shall be supplied, installed, and paid for under a separate item.

Pay Item	Pay Unit
910.301 Special Work - Utility Conduit and Hangers on Bridge - Consolidated Communications	Lump Sum

SPECIAL PROVISION
SECTION 910
SPECIAL WORK
(Utility Conduit –Concrete Duct Bank - Consolidated Communications)

Description This work shall consist of all work shown in the Plans, as referenced in Special Provision 104 and described in this Special Provision. This work shall consist of furnishing and installing all materials and labor for the installation of one concrete duct bank consisting of fifteen (15) 4-inch steel conduit, all trenching and backfilling, temporary earth support, sand bed, any gradual sweeps (48-inch minimum if necessary), pull rope, tracer wire, warning tape, and all associated hardware and incidentals related to these items necessary to complete the work. See trench details in the plans. The duct bank is in both approaches of the bridge and is not continuous due to the location of the proposed bridge. The work also includes sawcutting or core boring into an existing communications vault in the Waterville intersection and a proposed communications vault being installed by others in the Winslow intersection. The annular space around the conduit and the hole created by sawcut or core bore shall be grouted to prevent material leaking into the vault. The utility owners' name shall be clearly labeled and visible at each terminus on their respective conduit to differentiate it from conduits intended for other utility owners. Consolidated Communications will be responsible for identifying the respective utility conduits for companies contained within the duct bank system

Materials The Contractor shall be responsible for the furnishing and installation of all material and associated hardware as shown in the Plans and described in this specification.

The materials furnished by the Contractor shall be new. All materials shall conform to NEMA or UL standards as applicable. Steel conduit shall be in conformance with Section 715.02. Pull-lines shall be polypropylene rope of a minimum of ¼ inch diameter from the existing manhole at approximate Sta. 13+61 LT to the proposed manhole (by others) at approximate Sta. 21+98 RT.

The Contractor shall within 60 days following execution of the contract, submit a list of materials which are to be installed. The list shall include the manufacturer, size, and identifying number of each item. The list shall be supplemented by such data as may be required, including detailed scale drawings of proposed minor deviations from the plans. The Contractor shall submit for review, design data and sample articles of the material proposed for use. All of the data shall be submitted in duplicate.

Workmanship shall conform to the requirements of: NEC, NESC, ASTM Standards, and the ANSI, the local Utility Companies, the State of Maine, Manufacturers Specifications, and any local ordinances that may apply except when otherwise noted on the Plans or in the Special Provisions.

Conduits shall be of the sizes noted on the Plans, which are indicated as the nominal inside diameter.

The Contractor shall be responsible for and shall repair all damage caused to underground drainage structures, utilities, or lighting conduit, which are encountered during construction.

Construction Trenches for conduits shall be excavated to a width that will permit proper installation of the conduit and to the depth shown on the Plans or as directed. Minimum cover below the roadway shall be 36 inches (36"+) over the top of the concrete encasement. After the trench has been excavated as specified, the bottom of the trench shall be prepared with a sand bedding material. After placing the conduit and concrete encasement, sand shall be placed around the sides and over the top of the conduit. The entire trench shall be backfilled with an approved material, placed in layers not exceeding eight inches (8"), and thoroughly tamped. Concrete encasement shall have a minimum compressive strength of 2,900 psi with a maximum aggregate size of 1".

All underground conduits shall be placed to at least the depth shown on the Plans and shall not interfere with poles, guardrail posts, approach rail anchor block, sign foundations or other objects. Steel conduit shall be made watertight by joining with solvent or in accordance with the manufacturer's specifications. Conduits shall be bent carefully to avoid damage and without the use of an open flame. Bends sharper than 45 degrees will not be permitted. The total angle of all bends in one run and the radius of bends shall conform to the NEC requirements.

Where steel conduit runs are placed parallel to other conduits, they shall be separated by a minimum of 2" of sand or soil cushion. The bottom of trenches shall be lined with a 3" bedding material of tamped sand before forming the concrete encasement. Backfill to a compacted depth of 6" above the top of the conduit shall be sand, free from rocks or hard lumps.

The Contractor shall install pull-lines in all conduits. The ends of the lines shall be secured in such manner as to prevent accidental withdrawal of the wire. All conduit ends shall be capped with watertight conduit caps.

The Contractor shall provide a metal tracer wire and a 2" wide "buried cable" plastic warning tape located 12" below grade at all underground conduits.

Method of Measurement Special Work – Utility Conduit –Concrete Duct Bank - Consolidated Communications shall be measured for payment as one lump sum.

Basis of Payment Payment for Special Work – Utility Conduit – Concrete Duct Bank - Consolidated Communications shall be full compensation for all materials, equipment, labor, and hardware necessary to install the utility conduits in a concrete encased duct bank. Payment for work shall include furnishing and installing conduits, matching into existing and proposed utility vaults (splice boxes), concrete encasement, and the required excavation, backfill and temporary earth support.

No additional payment shall be made for grade adjustments to the top of the utility vault (splice box) that may be necessary due to phasing or changes between temporary and permanent

condition. Access to utility boxes shall be maintained at all times.

Pay Item		Pay Unit
910.301	Special Work – Utility Conduit –Concrete Duct Bank – Consolidated Communications	Lump Sum

SPECIAL PROVISION
SECTION 910
SPECIAL WORK
(Utility Conduit – Charter Communications)

Description This work shall consist of all work shown in the Plans, as referenced in Special Provision 104 and described in this Special Provision. This work shall consist of furnishing and installing all materials and labor for the installation of one 4-inch schedule 40 or 80 PVC/fiberglass conduit in a trench, all trenching and backfilling, temporary earth support, sand bed, any gradual sweeps (36-inch minimum if necessary), steel conduit on riser pole west of the bridge, pull rope, tracer wire, warning tape, and all associated hardware and incidentals related to these items necessary to complete the work. The conduit is in both approaches of the bridge and is not continuous due to the location of the proposed bridge. The work also includes matching into an existing riser pole in the Waterville intersection and extending to the limit of work in the Winslow intersection. The utility owners' name shall be clearly labeled and visible at each terminus on their respective conduit.

Materials The Contractor shall be responsible for the furnishing and installation of all material and associated hardware as shown in the Plans and described in this specification.

The materials furnished by the Contractor shall be new. All materials shall conform to NEMA or UL standards as applicable. Non-metallic conduit shall be rigid unplasticized polyvinylchloride (PVC) conduit, schedule 40 or schedule 80 fiberglass, suitable for burial. Pull-lines shall be polypropylene rope of a minimum of ¼ inch diameter.

The Contractor shall within 60 days following execution of the contract, submit a list of materials which are to be installed. The list shall include the manufacturer, size, and identifying number of each item. The list shall be supplemented by such data as may be required, including detailed scale drawings of proposed minor deviations from the plans. The Contractor shall submit for review, design data and sample articles of the material proposed for use. All of the data shall be submitted in duplicate.

Workmanship shall conform to the requirements of: NEC, NESC, ASTM Standards, and the ANSI, the local Utility Companies, the State of Maine, Manufacturers Specifications and any local ordinances that may apply except when otherwise noted on the Plans or in the Special Provisions.

Conduits shall be of the sizes noted on the Plans, which are indicated as the nominal inside diameter.

The Contractor shall be responsible for and shall repair all damage caused to underground drainage structures, utilities, or lighting conduit, which are encountered during construction.

Construction Trenches for conduits shall be as described in Sections 626.031 and 626.033 in the Standard Specifications.

All underground conduits shall be placed to at least the depth shown on the Plans and shall not interfere with poles, guardrail posts, approach rail anchor block, sign foundations or other objects. PVC conduit shall be made watertight by joining with solvent or in accordance with the manufacturer's specifications. Conduits shall be bent carefully to avoid damage and without the use of an open flame. Bends sharper than 45 degrees will not be permitted. The total angle of all bends in one run and the radius of bends shall conform to the NEC requirements.

Where PVC conduit runs are placed parallel to other conduits, they shall be separated by a minimum of 2" of sand or soil cushion. The bottom of trenches shall be lined with a 3" bedding material of tamped sand before laying the conduit. Backfill to a compacted depth of 6" above the top of the conduit shall be sand, free from rocks or hard lumps.

The Contractor shall install pull-lines in all conduits. The ends of the lines shall be secured in such manner as to prevent accidental withdrawal of the wire. All conduit ends shall be capped with watertight conduit caps.

The Contractor shall provide a metal tracer wire and a 2" wide "buried cable" yellow plastic warning tape located 12" below grade at all underground conduits.

Method of Measurement Special Work – Utility Conduit – Charter Communications shall be measured for payment as one lump sum.

Basis of Payment Payment for Special Work – Utility Conduit – Charter Communications shall be full compensation for all materials, equipment, labor, and hardware necessary to install the utility conduits as shown on the plans. Payment for work shall include furnishing and installing conduits in approach roadway and on riser pole, and the required excavation, backfill and temporary earth support.

No additional payment shall be made for grade adjustments that may be necessary due to phasing or changes between temporary and permanent condition.

Pay Item		Pay Unit
910.301	Special Work – Utility Conduit – Charter Communications	Lump Sum

SPECIAL PROVISION
SECTION 910
SPECIAL WORK
(Utility Conduit and Hangers on Bridge – Charter Communications)

910.01 Description This item shall consist of all Charter Communications bridge conduit and support work shown in the Plans, as referenced in Special Provision Section 104 - Utilities, and described herein.

This work shall consist of furnishing and installing all materials and labor for the installation of one (1) 4-inch inner diameter (ID) extra heavy wall (XW) fiber reinforced plastic (FRP) conduit throughout the entire length of bridge, steel conduits through the bridge abutments, and PVC conduits past the end of the approach slabs on both sides of the bridge. On the bridge superstructure, this work shall also include furnishing and installing the conduit support hangers, hardware and components, and incidentals required to complete the work. At the bridge abutment, this work shall include the installation of a 4-inch diameter galvanized steel conduit through the bridge abutments to a distance of 6-inches past the back wall with steel to polyvinyl chloride (PVC) adapters on the approach side and steel to FRP adapters on the bridge side. The provisions for installing the underground conduit past the limits of the approach slab and for installing the cable utility diaphragms on the bridge is covered in a separate provision.

The steel conduit shall be cast directly into the abutment backwall at the time of backwall construction. The length of conduit between the front face of the abutment backwall and the end diaphragm shall be wrapped in a waterproofing membrane.

The pulling, installation and tie-in of the actual utility cables will be handled by the respective utility companies after all of the conduit is in place.

910.02 Materials The Contractor shall be responsible for furnishing and installing all materials and associated hardware as shown in the Plans and described in this specification.

Conduits placed in the bridge superstructure shall be securely supported and fastened as shown on the Plans to maintain the conduits position. The support rods, intermediate rods, and all metallic hardware shall be hot dipped galvanized steel and shall meet or exceed requirements of ASTM A507 with ASTM 153 for galvanizing. Metal components that are custom fabricated shall have hot dipped galvanizing applied in accordance with ASTM A153 with a minimum coating of 2.0 oz./sq. ft. using high grade zinc conforming to ASTM B6-00 with less than 0.03% lead used in the process. Each vertical portion of the support hanger in contact with the conduit shall be sleeved with a FRP tube and all horizontal members such as flat bars or square tubing shall be constructed of FRP. FRP conduit and FRP support hangers shall be manufactured by Champion Fiberglass, Inc. or approved equal.

Expansion fittings in the superstructure shall be double “O”-ring type expansion couplings

with a movement capacity as indicated on the Plans. To allow for expansion and contraction of FRP conduit during installation on long runs, one end shall be left unconnected, or a double "O"-ring expansion coupling inserted near one end of the run until the final covering of the conduit is in progress.

The materials furnished by the Contractor shall be new and shall conform to NEMA or UL standards as applicable. FRP conduit shall be FRP extra heavy wall reinforced thermosetting resin conduit (RTRC) and shall have a minimum wall thickness of ¼ inch. Steel conduit shall be Schedule 40 steel pipe meeting the requirements of ASTM A53 Grade B and shall be hot dip galvanized per ASTM A 123. PVC conduit shall be Schedule 40 PVC pipe meeting the requirements of ASTM D 1785.

Within 60 days following execution of the contract, the Contractor shall submit a list of materials which are to be installed. The list shall include the manufacturer, size, and identifying number of each item. The list shall be supplemented by such data as may be required, including detailed scale drawings of proposed minor deviations from the Plans. The Contractor shall submit for review, design data and sample articles of the material proposed for use. All of the data shall be submitted in duplicate.

Conduits shall be of the sizes noted on the Plans, which are indicated as the nominal inside diameter.

910.03 Construction Workmanship shall conform to the requirements of: NEC, NESC, ASTM Standards, and the ANSI, the local Utility Companies, the State of Maine, Manufacturers Specifications and any local ordinances that may apply except when otherwise noted on the Plans or in the Special Provisions.

The Contractor shall be responsible for and shall repair all damage caused to underground drainage structures, utilities, or lighting conduit, which are encountered during construction.

The Contractor shall install pull-lines in all conduits. The ends of the lines shall be secured in such manner as to prevent accidental withdrawal of the wire. All conduit ends shall be capped with watertight conduit caps.

910.04 Method of Measurement Special Work Utility Conduit and Hangers on Bridge – Charter shall be measured for payment as one lump sum, complete, in place, and accepted.

910.05 Basis of Payment Payment for Special Work Utility Conduit and Hangers on Bridge – Charter shall be full compensation for all materials, equipment, labor, and hardware necessary to install the utility conduits and support system, as described herein. Payment for work shall include furnishing and installing bridge utility support system including hanger brackets, spacers, and threaded anchor rods, furnishing and installing FRP, steel, and PVC conduit and pull-line. The steel utility support angles attached to the beams shall be supplied, installed, and paid for under a separate item.

Pay Item		Pay Unit
910.301	Special Work Utility - Conduit and Hangers on Bridge - Charter Communications	Lump Sum

SPECIAL PROVISION
SECTION 910
SPECIAL WORK
(Utility Conduit and Hangers on Bridge - Central Maine Power)

910.01 Description This item shall consist of all Central Maine Power bridge conduit and support work shown in the Plans, as referenced in Special Provision Section 104 - Utilities, and described herein.

This work shall consist of furnishing and installing all materials and labor for the installation of four (4) 6-inch inner diameter (ID) extra heavy wall (XW) fiber reinforced plastic (FRP) conduits throughout the entire length of the bridge, through the bridge abutments, and approximately 10 feet past the back of backwall on both sides of the bridge where the conduit meets the concrete duct bank. On the bridge superstructure, this work shall also include furnishing and installing conduit support hangers, hardware and components, and incidentals required to complete the work. At the bridge abutment, this work shall include the installation of the conduits sleeved in an 8-inch diameter, galvanized steel pipe through the bridge abutments to a distance of approximately 10 feet past both bridge backwalls. There shall be enough space between the steel encased FRP conduit and the concrete duct bank to install an FRP to steel conduit adapter. The provisions for installing the underground conduit past the FRP to steel adapter and for installing the electrical utility diaphragms on the bridge is covered in a separate provision.

The steel pipe sleeves shall be cast directly into the abutment backwall at the time of backwall construction. The space between the steel pipe sleeve and the conduit shall be sealed with a waterproof foam duct sealant at both ends of the steel pipe sleeve. The length of conduit between the front face of the abutment backwall and the end diaphragm shall be wrapped in a waterproofing membrane.

The pulling, installation and tie-in of the actual utility cables will be handled by the respective utility companies after all of the conduit is in place.

910.02 Materials The Contractor shall be responsible for furnishing and installing all material and associated hardware as shown in the Plans and described in this specification.

Conduits placed in the bridge superstructure shall be securely supported and fastened as shown on the Plans to maintain the conduits position. The support rods, intermediate rods, and all metallic hardware shall be hot dipped galvanized steel and shall meet or exceed requirements of ASTM A507 with ASTM 153 for galvanizing. Metal components that are custom fabricated shall have hot dipped galvanizing applied in accordance with ASTM A153 with a minimum coating of 2.0 oz./sq. ft. using high grade zinc conforming to ASTM B6-00 with less than 0.03% lead used in the process. Each vertical portion of the support hanger in contact with the conduit shall be sleeved with a FRP tube as shown in the plans and all horizontal members such as flat bars or square tubing shall be constructed of FRP. FRP conduit and FRP support hangers shall be

manufactured by Champion Fiberglass, Inc. or approved equal.

Expansion fittings in the superstructure shall be double "O"-ring type expansion couplings with a movement capacity as indicated on the Plans. To allow for expansion and contraction of FRP conduit during installation on long runs, one end shall be left unconnected or a double "O"-ring expansion coupling inserted near one end of the run until the final covering of the conduit is in progress.

The materials furnished by the Contractor shall be new and shall conform to NEMA or UL standards as applicable. All conduit for this item shall be FRP extra heavy wall reinforced thermosetting resin conduit (RTRC) and shall have a minimum wall thickness of ¼ inch. Steel pipe sleeves shall be Schedule 40 steel pipe meeting the requirements of ASTM A53 Grade B and shall be hot dip galvanized per ASTM A 123.

Within 60 days following execution of the contract, the Contractor shall submit a list of materials which are to be installed. The list shall include the manufacturer, size, and identifying number of each item. The list shall be supplemented by such data as may be required, including detailed scale drawings of proposed minor deviations from the plans. The Contractor shall submit for review, design data and sample articles of the material proposed for use.

Conduits shall be of the sizes noted on the Plans, which are indicated as the nominal inside diameter.

910.03 Construction Workmanship shall conform to the requirements of: NEC, NESC, ASTM Standards, and the ANSI, the local Utility Companies, the State of Maine, Manufacturers Specifications and any local ordinances that may apply except when otherwise noted on the Plans or in the Special Provisions.

The Contractor shall be responsible for and shall repair all damage caused to underground drainage structures, utilities, or lighting conduit, which are encountered during construction.

The Contractor shall install pull-lines in all conduits. The ends of the lines shall be secured in such manner as to prevent accidental withdrawal of the wire. All conduit ends shall be capped with watertight conduit caps.

910.04 Method of Measurement Special Work - Utility Conduit and Hangers on Bridge – Central Maine Power shall be measured for payment as one lump sum, complete, in place, and accepted.

910.05 Basis of Payment Payment for Special Work - Utility Conduit and Hangers on Bridge – Central Maine Power shall be full compensation for all materials, equipment, labor, and hardware necessary to install the utility conduits and support system, as described herein. Payment for work shall include furnishing and installing bridge utility support system including hanger brackets, spacers, and threaded anchor rods, furnishing and installing FRP conduits and pull-line

for each conduit and steel sleeves. The steel utility support angles attached to the beams shall be supplied, installed, and paid for under a separate item.

Pay Item	Pay Unit
910.301 Special Work - Utility Conduit and Hangers on Bridge - Central Maine Power	Lump Sum

SPECIAL PROVISION
SECTION 910
SPECIAL WORK
(Utility Conduit – Concrete Duct Bank – Central Maine Power)

Description This work shall consist of all work shown in the Plans, as referenced in Special Provision 104 and described in this Special Provision. This work shall consist of furnishing and installing all materials and labor for the installation of one concrete duct bank consisting of four (4) 6-inch steel conduit, all trenching and backfilling, temporary earth support, sand bed, traffic rated electrical vaults (splice boxes) with round cast iron frames and covers (detail included in this specification), crushed stone bases, bricks, mortar, covers, any gradual sweeps (36-inch minimum if necessary), pull rope, tracer wire, warning tape, and all associated hardware and incidentals related to these items necessary to complete the work. See vault details included in this Special Provision and trench details in the Plans. The duct bank is in both approaches of the bridge and is not continuous due to the location of the proposed bridge and proposed electrical vaults to be installed along the path. The work also includes matching into an existing electrical vault in the Waterville intersection and an existing electric manhole in the Winslow intersection. The utility owners' name shall be clearly labeled and visible at each terminus on their respective conduit to differentiate it from conduits intended for other utility owners.

Materials The Contractor shall be responsible for the furnishing and installation of all material and associated hardware as shown in the Plans and described in this specification.

The materials furnished by the Contractor shall be new. All materials shall conform to NEMA or UL standards as applicable. Steel conduit shall be in conformance with Section 715.02. Pull-lines shall be polypropylene rope of a minimum of ¼ inch diameter from the existing splice box at approximate Sta. 13+70 LT to the existing manhole at approximate Sta. 22+73 RT.

The Contractor shall within 60 days following execution of the contract, submit a list of materials which are to be installed. The list shall include the manufacturer, size, and identifying number of each item. The list shall be supplemented by such data as may be required, including detailed scale drawings of proposed minor deviations from the plans. The Contractor shall submit for review, design data and sample articles of the material proposed for use. All of the data shall be submitted in duplicate.

Workmanship shall conform to the requirements of: NEC, NESC, ASTM Standards, and the ANSI, the local Utility Companies, the State of Maine, Manufacturers Specifications, and any local ordinances that may apply except when otherwise noted on the Plans or in the Special Provisions.

Conduits shall be of the sizes noted on the Plans, which are indicated as the nominal inside diameter.

The Contractor shall be responsible for and shall repair all damage caused to underground drainage structures, utilities, or lighting conduit, which are encountered during construction.

Construction Trenches for conduits shall be excavated to a width that will permit proper installation of the conduit and to the depth shown on the Plans or as directed. Minimum cover below the roadway shall be 36 inches (36"+) over the top of the concrete encasement. After the trench has been excavated as specified, the bottom of the trench shall be prepared with a sand bedding material. After placing the conduit and concrete encasement, sand shall be placed around the sides and over the top of the conduit. The entire trench shall be backfilled with an approved material, placed in layers not exceeding eight inches (8"), and thoroughly tamped. Concrete encasement shall have a minimum compressive strength of 2,900 psi with a maximum aggregate size of 1".

All underground conduits shall be placed to at least the depth shown on the Plans and shall not interfere with poles, guardrail posts, approach rail anchor block, sign foundations or other objects. Steel conduit shall be made watertight by joining with solvent or in accordance with the manufacturer's specifications. Conduits shall be bent carefully to avoid damage and without the use of an open flame. Bends sharper than 45 degrees will not be permitted. The total angle of all bends in one run and the radius of bends shall conform to the NEC requirements.

Where steel conduit runs are placed parallel to other conduits, they shall be separated by a minimum of 2" of sand or soil cushion. The bottom of trenches shall be lined with a 3" bedding material of tamped sand before forming the concrete encasement. Backfill to a compacted depth of 6" above the top of the encasement shall be sand, free from rocks or hard lumps.

The Contractor shall install pull-lines in all conduits. The ends of the lines shall be secured in such manner as to prevent accidental withdrawal of the wire. All conduit ends shall be capped with watertight conduit caps.

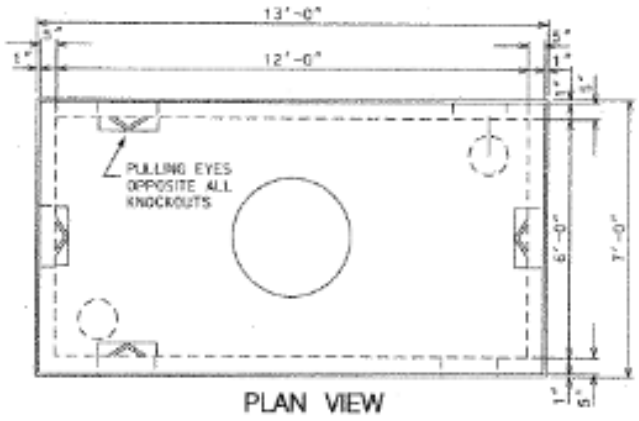
The Contractor shall provide a metal tracer wire and a 2" wide "buried cable" plastic warning tape located 12" below grade at all underground conduits.

Method of Measurement Special Work – Utility Conduit – Concrete Duct Bank - Central Maine Power shall be measured for payment as one lump sum.

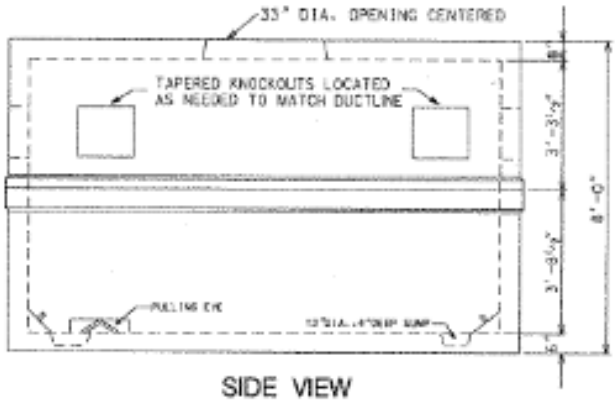
Basis of Payment Payment for Special Work – Utility Conduit –Concrete Duct Bank - Central Maine Power shall be full compensation for all materials, equipment, labor, and hardware necessary to install the utility conduits in a concrete encased duct bank. Payment for work shall include furnishing and installing conduits, utility vaults (splice boxes), concrete encasement, the required excavation and backfill, temporary earth support, and connections to existing vaults and manholes.

No additional payment shall be made for grade adjustments to the top of the utility vault (splice box) that may be necessary due to phasing or changes between temporary and permanent condition. Access to utility boxes shall be maintained at all times.

Pay Item		Pay Unit
910.301	Special Work – Utility Conduit – Concrete Duct Bank – Central Maine Power	Lump Sum

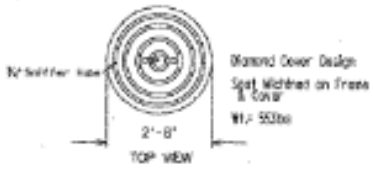


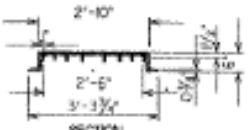
PLAN VIEW



SIDE VIEW

MANHOLE DETAIL
N.T.S.
(Ref. Type: 38Y)





Brick as required to reach finished grade.

COVER DETAIL
N.T.S.

NOTES

1) Vault shall be designed to withstand H20 wheel loading with 6 inches of overburden. The design shall also comply with the strength requirements of National Electrical Safety Code Section 323A. Provide shop drawings stamped by a State of Maine Registered Professional Engineer upon Request
2) Joints sealed with asphalt.
3) Mountings for cable racks etc. cast in wall by further plans or field located.
4) Manhole shall be set on a suitable gravel base.
5) Cables are to be racked along one wall only.

Professional Engineer Seal

STATE OF MAINE
BRENT C. BROOKS
No. 8709
LICENSED PROFESSIONAL ENGINEER

CADD Drawing, DO NOT REVISE MANUALLY.

CENTRAL MAINE POWER CO.
IBERDROLA USA

IUSA ENGINEERING
CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION
Property of Iberdrola, USA

PRECAST CONCRETE 38Y MANHOLE

REV.	DATE	BY	DESCRIPTION	APP.	DATE:	SCALE: N.T.S.	
2	8/13/12	VS	ADDED SNIFFER HOLE	CS	DR.	FILE:	
1	12/12/03	REC		BAC	CK.	NO. 905A-1	REV. 2
0	9/16/97	MSR		TSB	APP.		

TICONIC BRIDGE WATER MAIN CROSSING

KENNEBEC WATER DISTRICT

WATERVILLE/WINSLOW, MAINE

BIDDING/CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS

AUGUST 2022

20961A

WRIGHT-PIERCE
Engineering a Better Environment

KENNEBEC WATER DISTRICT

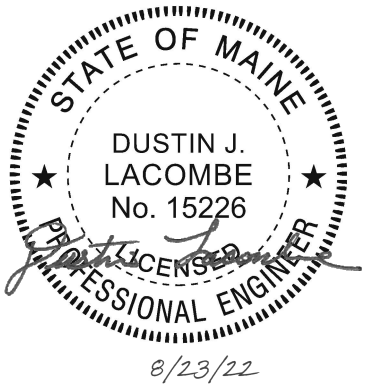
WATERVILLE/WINSLOW, MAINE

BIDDING/CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS

FOR

TICONIC BRIDGE WATER MAIN CROSSING

AUGUST 2022



Prepared By:

Wright-Pierce
11 Bowdoin Mill Island, Suite 140
Topsham, Maine 04086
Phone: 207-725-8721

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SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.1 DESCRIPTION:

A. Work Included: Replacing the water main on the Ticonic Bridge concurrent with the Maine Department of Transportation's (MaineDOT's) replacement of the bridge, including replacement of segments of buried main on each side of the bridge

1. Construction of new 12-inch water main using pre-insulated ductile iron (DI) restrained join pipe on the new bridge. The work will also include:
   a. Installation of buried ductile iron water mains on each side of the bridge
   b. Connections to the existing buried 24-inch ductile iron mains on each side of the bridge
   c. Water main hanger assemblies and utility supports
   d. 8" DI fire service relocation as shown on drawings
   e. Keeping the existing 24" water main in service until the new 12" water main is commissioned and placed online
   f. Other appurtenances as shown on the Drawings and specified herein.
2. Remove and salvage existing hydrants, demolish existing water main along the bridge, install caps and abandon water mains as shown on drawings. All abandoned piping materials except for valves and hydrants will be the property of the contractor. The valves and hydrants shall be carefully removed and delivered unbroken to the Kennebec Water District's operational facilities at 133 Drummond Avenue, Waterville, ME 04901.
3. Testing of water mains, valves and for proper installation and performance.
4. All related site work including trench excavation, ledge excavation as necessary, groundwater dewatering, disposal of excess excavated materials, filter fabric, bedding, backfill, compaction, road/drive subbase, paving, loam/seed and landscaping.
5. Other miscellaneous work shown in the Specifications for a complete and operational system.

B. Related Work Specified Elsewhere

1. Site work, piping, structures, testing requirements are specified in Division 2.

C. Removals, Relocations and Rearrangements

1. Examine the existing site for the work of all trades which will influence the cost of the work under the bid. This work shall include removals, relocations and rearrangements which may interfere with, disturb or complicate the performance of the work under the general bid involving systems, equipment and related service lines, which shall continue to be utilized as part of the finished project. The Contractor is responsible for all coordination in this regard.
2. Provide in the bid a sufficient amount to include all removals, relocations, rearrangements and reconnections herein specified, necessary or required to

provide approved operation and coordination of the combined new and existing systems and equipment.

3. Provide in the bid a sufficient amount to include all temporary facilities required to maintain flows during the construction period, including bypass pumping, temporary piping, temporary metering, etc. The cost shall include the cost for all labor, tools, equipment and materials necessary.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 MAINTAIN EXISTING WORKS

A. Continuous Operations Criteria:
   1. The Contractor shall conduct operations in such a manner and sequence which shall neither result in a disruption of, nor interfere with, the functional workings of any existing utilities outside of planned shutdown periods. Refer to construction sequence below for further details.

B. Minimize Interference
   1. The Contractor shall at all times conduct operations so as to interfere as little as possible with existing works. The Contractor shall develop a program, in cooperation with the Engineer, Owner, MaineDOT, affected customers, and interested officials, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as deviations therefrom are expressly permitted
   2. Work of connecting with, cutting into and reconstructing existing pipes or structures shall be planned to interfere with the operation of the existing facilities for the shortest possible time and when the demands on the facilities best permit such interference. It may be necessary to work outside of normal working hours to minimize interference. Before starting work which will interfere with the operation of existing facilities, the Contractor shall do all possible preparatory work and shall see that all tools, materials, and equipment are made ready and at hand.

3.2 CONSTRUCTION SEQUENCE

A. Construction of the proposed facilities will disrupt the existing structures and operations. To maintain continuous operations, the construction must be divided into phases or sequenced appropriately.

B. The Contractor shall submit to the Engineer for review and acceptance a complete schedule of the proposed sequence of construction operations prior to commencing any work. This schedule shall include the Contractor's plans for doing the work.

C. The Contractor shall submit to the Engineer a written request to deviate from the above sequence with adequate supporting information to demonstrate to the Engineer that the continuity and degree of treatment will not be adversely affected.

D. The Contractor shall sequence construction such that the following criteria can be complied with:

E. Installing new 12-inch water main across Ticonic Bridge:
   1. Existing 24-inch water main shall remain in service until the new 12-inch water main is installed, tested, and placed online.
   2. Perform test pits at each tie in location (3 total) to determine location and depth of existing infrastructure to be ties into. Refer to the drawings.
   3. Install new buried water main, hydrant assemblies, fire service, insulated pipe across the bridge and air release corporation up to the point of connection on each side. Restrain cap at the end of new buried water main on Waterville side.
   4. Isolate the 24-inch butterfly valve on the Winslow side of bridge to keep the existing 8-inch fire service to the Hathaway building active.
   5. Complete the tie in on the Winslow side of the bridge. Swab disinfect the new pipe and fittings east of the new valve.
   6. Flush the new main from Winslow to Waterville through newly installed hydrant. Perform pressure test and chlorination on the new water main. Highly chlorinated water shall be dechlorinated prior to discharge.
   7. Collect bacteria tests with assistance from the District.
   8. Once pressure and bacteria tests receive passing results, tie in the new 8-inch fire service to the Hathaway building. Swab disinfect the pipe and fittings used for the fire service tie in. Coordinate this effort with the Owner of the building.
   9. Connect to the existing water main on the Waterville side of the bridge with fittings and adaptors as necessary. Swab disinfect the pipe and fittings used for tie in.
   10. Open the isolation valves and commission the new water main.
   11. Cut, fill with flowable fill, cap and abandon the existing water mains as required.

END OF SECTION

SECTION 01150B

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 DESCRIPTION

A. For lump sum items, payment shall be made to the contractor in accordance with an accepted progress schedule and schedule of values on the basis of actual work completed.

B. For unit-price items, payment shall be based on the actual amount of work accepted and for the actual amount of materials in place, as shown by final measurements.

1. All units of measurement shall be standard United States convention as applied to the specific items of work by tradition and as interpreted by the Water District's Engineer.
2. At the end of each day's work, the Contractor's Superintendent or other authorized representative of the Contractor shall meet with the Water District's Project Representative and determine the quantities of unit price work accomplished and/or completed during the workday.
3. The Water District's Project Representative will then prepare two "Daily Progress Reports" which shall be signed by both the Water District's Project Representative and Contractor's Representative.
4. Once each month the Water District's Project Representative will prepare two "Monthly Progress Summation" forms from the month's accumulation of "Daily Progress Reports" which shall also be signed by both the Water District's Project Representative and Contractor's Representative.
5. These completed forms will provide the basis of the Water District's Engineer monthly quantity estimate upon which payment will be made. Items not appearing on both the Daily Progress Reports and Monthly Progress Summation will not be included for payment. Items appearing on forms not properly signed by the Contractor will not be included for payment.
6. After the work is completed and before final payment is made, the Water District's Engineer will make final measurements to determine the quantities of various items of work accepted as the basis for final settlement.
7. As administrator to the construction contract, the MaineDOT's on site Resident shall be responsible for authorizing all payments relating to Utility Work, issuing all directives to the Project's Contractor, and making the final determination in the event of any disagreements. The Water District's Project Representative shall provide to MaineDOT's Resident copies of all the Daily Progress Reports of completed and accepted utility work, as well as copies of all the Monthly Progress Summation Reports. The reports will be used by MaineDOT to authorize payment to the project Contractor.

1.2 SCOPE OF PAYMENT

A. Payments to the Contractor will be made for the actual quantities of the Contract items performed and accepted in accordance with the Contract Documents. Upon

completion of construction, if these actual quantities show either an increase or decrease from the quantities given in the Proposal Form, the Contract Unit Prices will still prevail as per MaineDOT's Standard Specifications.

B. The Contractor shall accept compensation, as herein provided, in full payment for furnishing all materials, labor, tools, equipment, and incidentals necessary to the completed work and for performing all work contemplated and embraced by the Contract; also for all expenses incurred in consequence of the suspension of the work as herein authorized.

C. The payment of any partial estimate or of any retained percentage except by and under the approved final invoice, in no way shall affect the obligation of the Contractor to repair or renew any defective parts of the construction or to be responsible for all damage due to such defects.

1.3 PAYMENT FOR INCREASED OR DECREASED QUANTITIES

A. When alterations in the quantities of work not requiring supplemental agreements, as hereinbefore provided for, are ordered and performed, the Contractor shall accept payment in full at the Contract price for the actual quantities of work done. No allowance will be made for anticipated profits. Increased or decreased work involving supplemental agreements will be paid for as stipulated in such agreements.

1.4 OMITTED ITEMS

A. Should any items contained in the bid form be found unnecessary for the proper completion of the work contracted, the Engineer may eliminate such items from the Contract, and such action shall in no way invalidate the Contract, and no allowance will be made for items so eliminated in making final payment to the Contractor.

1.5 PAYMENT FOR MATERIAL DELIVERED

A. When requested by the Contractor and at the discretion of the Owner, payment may be made for all or part of the value of acceptable, non-perishable materials and equipment which are to be incorporated into bid items, have not been used and have been delivered to the construction site, or placed in storage places acceptable to the Owner. Payment shall be subject to the provisions of the General and Supplemental Conditions.

B. No payment shall be made upon fuels, supplies, lumber, false work, or other materials, or on temporary structures of any kind which are not a permanent part of the Contract.

1.6 FINAL PAYMENT

A. After final measurements are made by the MaineDOT and the Water District's Engineer, the Contractor will prepare a final quantity invoice of the amount of the Work performed and the value of such Work. Owner shall make final payments of the sum found due less retainages subject to provisions of the General and Supplemental Conditions.

1.7 INCIDENTAL WORK

A. Incidental work items for which separate payment will not be made includes, but is not limited to, the following items:

1. Clearing, grubbing and stripping
2. Dust control
3. Dewatering
4. Clean-up and Erosion control
5. Loam, seeding, grading, liming, fertilization, mulching and watering
6. Restoration of property, and replacement of fences, curbs, structures, sign posts, guard rails, rock wall, mail boxes, traffic loop detectors and other minor items disturbed by the water main construction activities
7. Utility crossings and relocations, unless payment is otherwise made
8. Trench boxes, steel and/or wood sheeting as required, including that left in place
9. Project record documents
10. Cleaning, testing and disinfection of all water lines and appurtenances
11. Buried Utility Markings
12. Temporary utility services to buildings as required to maintain service during construction
13. Quality assurance testing
14. Temporary construction and other facilities not to be permanently incorporated into the Work necessary for construction sequencing and maintenance of operations
15. Weather protection
16. Visits to the Project site or elsewhere by personnel or agents of the Contractor, including manufacturer's representatives, as may be required
17. On-site and other facilities acceptable to Water District Engineer for the storage of materials, supplies and equipment to be incorporated into the Work
18. Removal of existing pavement and driveway restoration
19. Trench Excavation (except ledge)
20. Pipe abandonment including flowable fill
21. Removal and salvage or existing fire hydrants as property of the Water District.

1.8 DESCRIPTION OF PAY ITEMS

A. The following sections describe the measurement of and payment for the work to be done under the respective items listed in the Bid Form.

B. Each unit or lump-sum price stated in the Bid Form shall constitute full compensation, as herein specified, for each item of the work completed.

Item 202.15 – Removing Existing Manhole or Catch Basin

A. Method of Measurement: Removal of a manhole or catch basin measured for payment shall be per each for all work as shown on the drawings.

B. Basis of Payment: The per each price for manhole/catch basin removal shall be full compensation for all labor, materials and equipment necessary to complete this work including demolition, removal, disposal, backfill, compaction, coordination, cleaning, and for all other work and expenses incidental thereto for which payment is not provided under other items.

Item 203.21 – Rock Excavation

A. Method of Measurement: Rock excavation measured for payment shall be the number of

cubic yards of ledge removed during construction. This quantity shall be determined by:

1. Exposing the ledge profile for measurement. Excavation and backfill of the earth overburden shall be considered incidental, and no separate payment shall be made therefore.
2. Should the Contractor elect to pre-drill and blast ledge without exposing the ledge surface for measurement, ledge depths shall be determined by the Resident Project Representative at the time of drilling or, when direct drilling observation is not conducted, the ledge profile shall be measured after excavation, and 20% of the ledge volume thus measured shall be deducted due to ledge expansion caused by the blasting operation.
3. The payment limit for trench width shall be between vertical planes which are a distance apart equal to the sum of 18 inches plus 1-1/3 times the nominal outside diameter of pipe which is to be installed in the trench (min. of 3 feet) and extending from the top of the ledge surface to a depth of 6 inches below the invert grade of the pipe. Where two pipes are installed in the same trench, trench ledge excavation shall be measured as the actual volume of ledge removed between vertical planes which are a distance apart equal to the sum of 3 feet plus the sum of the pipes nominal outside diameter. Where three pipes are installed in the same trench, trench ledge excavation shall be measured as the actual volume of ledge removed between vertical planes which are a distance apart equal to the sum of 4.5 feet plus the sum of the pipes nominal outside diameter.
    a. Rock excavation for structures (including manholes) shall be measured as 18 inches outside the structure and extending to a depth of 6 inches below the base of the structure indicated on the Drawings.
    b. Rocks or boulders greater than two cubic yards volume shall be considered as ledge excavation. Volume of rocks shall be determined from their average length, width, and depth as measured by the Engineer.

B. Basis of Payment: The contract unit price per cubic yard for ledge excavation shall be full compensation for all labor, materials, tools and equipment necessary to complete the excavation including conducting the pre-blast survey, drilling, blasting, excavating, loading and disposing the excess or unusable material outside the work limits, suitable replacement backfill, and all else incidental thereto for which payment is not provided under other items.

<u>Item Nos. 403.2131, and 461.131 – Hot Mix Asphalt 12.5 mm HMA and Temporary Pavement</u>

A. Method of Measurement: The quantity to be paid for under Item Nos. 403.208 and 461.131 shall be the actual tons of pavement rolled and compacted in place, calculated by the following formula: [0.055 x length (ft) x width (ft) x depth (in)]/9.
    1. Permanent Trench Pavement (12.5 mm) – The number of tons of final pavement placed at the direction of the Engineer, calculated as described herein, within the payment limits shown on the Drawings.
    2. Temporary Trench Pavement (12.5 mm) – The number of tons of temporary pavement placed and removed at the direction of the Water District Engineer, calculated as described herein, within the payment limits of trench paving shown on the Drawings.

B. Basis of Payment: The pavement shall be paid for at the unit price per ton stated in the Bid Schedule. Said unit price shall be full compensation for furnishing all materials, labor, equipment and tools necessary for the placement and removal of pavement, preparation of

base material, application of tack coat, placement and grading of gravel shoulder material to back up overlay pavement, and installation of pavement markings. No additional payment will be made to the Contractor for repair work done by them in maintaining bituminous concrete pavement.

Item No 501.25 – Steel Casing, 24-inch Galvanized

A. Method of Measurement: The quantity of casing pipe to be paid for under Item No. 501.25 shall be the actual length in feet as measured along the center line of the pipe as laid, including all casing spacers and seals.
B. Basis of Payment: Installation of casing pipe shall be paid for at the unit price per linear foot stated in the Bid Schedule. Said unit price shall be full compensation for furnishing all labor, materials, tools, and equipment to construct all steel casing sleeves and all required appurtenances, except for work included for payment under other items.

Item No 602.30 – Flowable Concrete Fill

A. Method of Measurement: Quantity to be paid for under this item shall be the number of cubic yards of flowable fill used as backfill as authorized by the Engineer. The payment limit for this item shall be between vertical planes that are a distance apart equal to a maximum of 6-feet and extending to a depth and length as directed by the Engineer.
B. Basis of Payment: Backfill with flowable fill shall be paid for at the unit price per cubic yard stated in the Bid Schedule. Said unit price shall be full compensation for furnishing all labor, equipment, and tools necessary for excavation; furnishing installing and compacting flowable fill, coordination with utility companies, and for all other work and expenses incidental thereto for which payment is not provided under other items.

Item No 652.38 – Flaggers

A. Method of Measurement: The quantity to be paid for under Item No. 652.38 shall be the actual hours of Flaggers used.
B. Basis of Payment: Payment for flaggers shall be paid for at the unit price as stated in the Bid Schedule. Said unit price shall constitute full compensation for all flagger traffic regulation and control efforts and including all labor, materials, equipment, signage and supervision required to provide comprehensive and professional traffic regulation and control at all project locations.

Item No. 801.03 – Test Pit

A. Method of Measurement: The quantity to be paid for under Item No. 801.03 shall be the actual number of exploratory excavations as authorized by the Water District's Engineer.
B. Basis of Payment; Test pit excavations shall be paid for at the unit price per each as stated in the Bid Schedule. Said unit price shall be full compensation for furnishing all labor, tools, and equipment; for backfilling and compacting; for temporary pavement; and for all other work and expenses incidental thereto.

Item Nos. 822.33, 822.34, 822.363, and 822.50 – 6-inch Ductile Iron Pipe, 8-inch Class 52 Ductile Iron Pipe, 12-inch Class 52 Ductile Iron Pipe and 24-inch Class 52 Ductile Iron Pipe

A. Method of Measurement: The quantity of water main to be paid for under Item Nos. 822.33, 822.34, 822.363, 822.50 shall be the actual length in feet as measured along the center line of the pipe as laid including all fittings.

B. Basis of Payment: Installation of ductile iron water main shall be paid for at the unit price per linear foot stated in the Bid Schedule. Said unit price shall be full compensations for installing all pipes (excluding pre-insulated and temporary water mains), fittings of all sizes (except valves), caps, solid sleeves, polyethylene encasement, joint restrainer glands; labor, equipment, tools, and other materials required for the installation of the pipelines; for clearing and grubbing, cutting trees; for dewatering; for installing the pipelines; for excavating, removing, and disposal of the existing water mains where required; laying, setting, and jointing all pipes and fittings; for furnishing and placing all temporary sheeting and bracing; furnishing and installing all pipe bedding, blanket, and backfill; aggregate base; for compaction of trenches; for cleaning, testing, and disinfecting water mains; connections to existing water mains and abandoning existing water mains; for all labor, tools, and construction equipment; and for all other work and expenses incidental thereto.

Item No. 823.33, 823.3251 & 823.311– 6-inch, 8-inch & 12-inch Gate Valves with Box

A. Method of Measurement: The quantity of gate valves to be paid for under Item Nos. 823.33, 823.3251 and 823.311 shall be defined as the actual number of valves, valve operators, and valve boxes installed complete in place.

B. Basis of Payment: Installation of gate valves shall be paid for at the unit price per each stated in the Bid Schedule. Said unit price shall be full compensation for installing all materials, labor, equipment, and tools; for installing, setting, and jointing; for restraining joints; for testing all valves, valve operators, and valves boxes; and for all other work and expenses incidental thereto.

Item No. 824.30 – Fire Hydrant

A. Method of Measurement: The quantity of fire hydrants to be paid for under Item No. 824.30 shall be defined as the actual number of hydrants installed complete in place.

B. Basis of Payment: Installation of fire hydrants shall be paid for at the unit price per each stated in the Bid Schedule. Said unit price shall be full compensation for installing all materials, labor, equipment, and tools; for installing, setting, and jointing; for excavation, bedding and backfill; for all thrust blocks; joint restraining glands and hydrant; hydrant snow markers; location tape; for cleaning, testing and disinfection of all hydrants; and for all other work and expenses incidental thereto.

Item No. 825.321 – 1-inch Corporation

A. Method of Measurement: The quantity of corporation stops and taps to be paid for under Item No. 825.321 shall be the actual number furnished and installed for service connections.

B. Basis of Payment: Corporation stops and taps shall be paid for at the unit price per each stated in the Bid Schedule. Said unit price shall be full compensation for all fittings, labor, equipment, and tools necessary for the installation of the corporation stops; tapping the main; and for the entire work and expenses incidental thereto.

Item No 827.33 – Trench Insulation

A. Method of Measurement: The quantity to be paid for under Item No. 827.33 shall be the actual number of linear feet.

B. Basis of Payment: Rigid insulation shall be paid for at the unit price as stated in the Bid Schedule. Said unit price shall be full compensation for furnishing all labor, tools, equipment, and other materials necessary to provide and install 2-inch rigid foam insulation including, excavation, dewatering, installation, bedding, backfill, compaction as directed by the Water District Engineer and all other work and expenses incidental thereto, except that work included for payment under other items.

Item No. 830.104 – Water Main Bridge Crossing, 12-inch Pre-Insulated

A. Method of Measurement: The quantity of pre-insulated water main to be paid for under Item No. 830.104 shall be the actual length in feet as measured along the center line of the pipe as laid including all fittings.

B. Basis of Payment: Installation of pre-insulated water main shall be paid for at the unit price per linear foot stated in the Bid Schedule. Said unit price shall be full compensation for furnishing all labor, materials, tools and equipment required to install the pre-insulated water main and related work complete to the limits shown on the Drawings and as specified and all its appurtenances in its entirety, including pre-insulated piping and fittings, casing spacers, seals, intermediate hanger supports, adjustable roller supports, insulation shields, and all required appurtenances, except for work included for payment under other items. Subbase, paving, pavement markings, and all other work related to construction of the bridge will be paid for under the MaineDOT general bid items.

END OF SECTION

SECTION 01340

SUBMITTALS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included:
   1. Submit to the Water District's Engineer, Shop Drawings, Operation and Maintenance Manuals, Manufacturers' Certificates, Project Data, and Samples required by the Specification Sections.

B. Related Work Specified Elsewhere:
   1. Project Record Documents: Section 01720

1.2 SHOP DRAWINGS

A. Shop Drawings are required for each and every element of the work. Each shop drawing shall be assigned a sequential number for purposes of easy identification, and shall retain its assigned number, with appropriate subscript, on required resubmissions.

B. Shop Drawings are generally defined as all fabrication and erection drawings, diagrams, brochures, schedules, bills of material, manufacturers data, spare parts lists, and other data prepared by the Contractor, their subcontractors, suppliers, or manufacturers which illustrate the manufacturer, fabrication, construction, and installation of the work, or a portion thereof.

C. The Contractor shall submit to the Water District's Engineer one electronic copy of Shop Drawings and approved data. The Water District's Engineer will distribute digital copies (for Owner's, Water District's Engineer's and Field Representative's files) and the Contractor. It's the contractor's responsibility to distribution to subcontractors, suppliers and manufacturers. If the Contractor requires hardcopies, that shall be coordinated with the Water District's Engineer accordingly. All shop drawing comments will be summarized on the Submittal Review Form.

D. The Contractor shall provide a completed Contractor Submittal Certification Form (copy provided for Contractor's use at the end of this Specification Section) which shall be attached to every copy of every shop drawing and signed by the Contractor and Manufacturer (where applicable). Shop Drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for the work.
   1. Each shop drawing submittal shall include a complete copy of the relevant specification section markup up to reflect "compliance" or "deviation" on an item-by-item basis.

E. Shop Drawings shall be submitted as a complete package by specification section, unless otherwise reviewed and approved by the Water District's Engineer. It is the intent that all information, materials and samples associated with each specification section be included as a single submittal for the Water District Engineer's review. Any deviation from this requirement, such as submitting miscellaneous metals grouped by structure, shall be requested in writing with an anticipated shop drawing breakdown/schedule prior to any associated submittal.

F. The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings so that there shall be no delay to the work due to the absence of such drawings.

G. No material or equipment shall be purchased or fabricated especially for the Contract until the required shop and working drawings have been submitted as hereinabove provided and reviewed for conformance to the Contract requirements. All such materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by said drawings.

H. Until the necessary review has been made, the Contractor shall not proceed with any portion of the work (such as the construction of foundations), the design or details of which are dependent upon the design or details of work, materials, equipment or other features for which review is required.

I. All shop and working drawings shall be submitted to the Water District's Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. Shop drawings shall be of standardized sizes to enable the Owner to maintain a permanent record of the submissions. Approved standard sizes shall be: (a) 24 inches by 36 inches; (b) 11 inches by 17 inches, and (c) 11 inches by 8-1/2 inches. Provision shall be made in preparing the shop drawings to provide a binding margin on the left-hand side of the sheet. Shop drawings submitted other than as specified herein may be returned for resubmittal without being reviewed.

J. Only drawings which have been checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Water District's Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all respects. All drawings which are correct shall be marked with the date, checker's name, and indication of the Contractor's approval, and then shall be submitted to the Water District Engineer.

K. If a shop drawing shows any deviation from the Contract requirements, the Contractor shall make specific mention of the deviations in his letter of transmittal. Shop Drawings that contain significant deviations that are not brought to the attention of the Water District's Engineer may be subject to rejection.

L. Should the Contractor submit equipment that requires modifications to the structures, piping, electrical conduit, wires and appurtenances, layout, etc., detailed on the Drawings, he shall also submit details of the proposed modifications. If such equipment and modifications are accepted, the Contractor, at no additional cost to the Owner, shall do all work necessary to make such modifications.

M. A maximum of two submissions of each Shop Drawing will be reviewed, checked, and commented upon without charge to the Contractor. Any additional submissions which are ordered by the Water District's Engineer to fulfill the stipulations of the Drawings and Specifications, and which are required by virtue of the Contractor's neglect or failure to comply with the requirements of the Drawings and Specifications, or to make those modifications and/or corrections ordered by the Water District Engineer in the review of the first two submissions of each Shop Drawing, will be reviewed and checked as deemed necessary by the Water District's Engineer, and the cost of such review and checking, as determined by the Owner, and based upon Water District Engineer's documentation of time and rates established for additional services

in the Owner-Water District's Engineer Agreement for this Project, may be deducted from the Contractor to make all modifications and/or corrections as may be required by the Water District's Engineer in an accurate, complete, and timely fashion. Resubmittals for the sole purpose of providing written responses to review comments will not be considered a resubmittal counting towards the two-submission limit.

N. Shop Drawings that include drawings or other material that is illegible or too small may be returned without review.

1.3 SAMPLES

A. The Contractor shall submit samples when requested by the Water District Engineer to establish conformance with the specifications, and as necessary to define color selections available.

1.4 MANUFACTURER'S CERTIFICATES

A. Prior to accepting the installation, the Contractor shall submit manufacturer's certificates for each item specified.

B. Such manufacturer's certificates shall state that the equipment has been installed under either the continuous or periodic supervision of the manufacturer's authorized representative, that it has been adjusted and initially operated in the presence of the manufacturer's authorized representative, and that it is operating in accordance with the specified requirements, to the manufacturer's satisfaction. All costs for meeting this requirement shall be included in the Contractor's bid price.

1.5 SUBMISSION REQUIREMENTS

A. Accompany submittals with transmittal letter, containing:
   1. Sequential Transmittal Number.
   2. Date.
   3. Project title and number.
   4. Contractor's name and address.
   5. The sequential shop drawing number (called the Water District Engineer's Shop Drawing number) of each shop drawing, project data and sample submitted shall be:
      a. Water District Engineer's shop drawing number shall start at 001 for the first shop drawing in the first transmittal and continue sequentially until the last shop drawing is submitted.
      b. Resubmissions shall be denoted with a letter following the number. For example the first resubmission of Shop Drawing 001 shall be numbered 001A, a second resubmission of shop 001 shall be numbered 001B, and that sequence shall continue for any subsequent resubmissions.
      c. O&M submittals shall be numbered with separate and unique Water District Engineer's shop drawing numbers.
   6. The Contractor's Shop Drawing number (if a different numbering system to the Water District Engineer's number is used by the Contractor).
   7. Notification of deviations from Contract Documents.
   8. Other pertinent data.

B. A completed Submittal Certification Form shall be attached to each copy of each shop drawing and must include:
   1. Identification of deviations from Contract Documents.

2. Contractor's stamp, initialed or signed, certifying review of the submittal, verification of field measurements and compliance with Contract Documents.
3. Where specified or when requested by the Water District Engineer, manufacturer's certification that equipment, accessories and shop painting meet or exceed the Specification requirements.
4. Where specified, manufacturer's guarantee.

C. Additional Requirements for Electronic Submittals:
1. Each individual shop drawing or O&M submittal shall be contained in one PDF.
2. The first page of the PDF shall be the Submittal Certification Form, which clearly identifies the submittal, specification section and shop drawing number. File names shall also identify the submittal contained in the PDF. Example file name: 02444-(Shop Drawing No.).pdf
3. The electronic copy in PDF form shall be **exactly** as submitted in the hard copy, if applicable. Electronic copies in PDF form shall be submitted to designated file sharing site, electronic mail, or on a CD or DVD and shall accompany the hard copies.
4. The electronic PDF shall include an electronic table of contents that is bookmarked for each section of the submittal.
5. The electronic PDF shall be configured such that is fully searchable.
6. PDF versions of 24x36 drawings shall be converted to 24 x 36 PDFs so as not to lose the clarity of the original drawing.
7. Electronic submittals that are not submitted in accordance with the requirements stated above will not be reviewed by the Water District Engineer.

1.6 RESUBMISSION REQUIREMENTS

A. Revise initial submittals as required and resubmit as specified for initial submittal.
B. Indicate on drawings any changes which have been made other than those required by Water District Engineer. All renumbering of shop drawings, relabeling of individual pieces or assemblies or relocating of pieces or assemblies to other Drawings within the submittal shall be clearly brought to the attention of the Water District Engineer.
C. All resubmittals shall include a summary of the previous submittal review comments with the vendors' written response as to how the previous comments were addressed.

1.7 ENGINEER'S REVIEW

A. The review of shop and working drawings hereunder will be general only, and nothing contained in this specification shall relieve, diminish or alter in any respect the responsibilities of the Contractor under the Contract Documents and in particular, the specific responsibility of the Contractor for details of design and dimensions necessary for proper fitting and construction of the work as required by the Contract and for achieving the result and performance specified thereunder.
B. The Water District Engineer's review comments will be summarized on a Submittal Review Form, which includes an action code. A description of each action code is provided below.
1. **No Exceptions Taken (Status 0 on shop drawing log)**. The shop drawing complies with the Contract Document requirements. No changes or further information are required. Where appropriate, the submittal review form will be

used to alert the Contractor, Owner and Field personnel of remaining items within that specification section that still needs to be submitted.

2. **Make Corrections Indicated (Status 1 on shop drawing log)**. The shop drawing complies with the Contract Document requirements except for minor changes, as indicated. Resubmittal is not required unless it is specifically called for; however, Water District Engineer requires that all comments will be addressed by the Contractor, unless otherwise notified in writing prior to execution of the relevant work.
3. **Conditional to Remarks (Status 2 on shop drawing log)**. The shop drawing potentially complies with the Contract Document requirements, contingent upon satisfactory resolution of review comments. Remarks will explicitly list what information needs to be resubmitted. Resubmittal from the Contractor should include a cover letter or summary which indicates how each review comment has been addressed. This action code will not be used, or will be sparingly used, for electronic submittals.
4. **Revise and Resubmit (Status 3 on shop drawing log)**. The shop drawing does not comply with the Contract Document requirement as submitted, but may with changes indicated and/or submission of additional information. The entire package must be resubmitted with the necessary information and a cover letter which indicates how each review comment has been addressed and where to find the information in the resubmittal.
5. **Rejected (Status 4 on shop drawing log)**. The shop drawing does not comply with the Contract Document requirements, for the reasons indicated in the remarks, and is unacceptable.
6. **For Information Only (Status 5 on shop drawing log)**. The shop drawing review was informational only.
7. **In Review (Status 6 on shop drawing log)**. The shop drawing is currently under review.

CONTRACTOR SUBMITTAL CERTIFICATION FORM

PROJECT: _____ CONTRACTOR'S PROJ. NO: _____

CONTRACTOR: _____ ENGINEER'S PROJ. NO: _____

ENGINEER: _____

SHOP DRAWING NUMBER: _____ (SPECIFICATION SECTION OR DRAWING NO:) - _____ (SEQUENTIAL NUMBER (& ALPHA SUFFIX FOR RESUBMITTAL))

DESCRIPTION: _____

MANUFACTURER: _____

The above referenced submittal has been reviewed by the undersigned and I/we certify that the material and/or equipment meets or exceeds the project specification requirements with

☐ NO DEVIATIONS

or

☐ A COMPLETE LIST OF DEVIATIONS AS FOLLOWS[a]:

_____
_____
_____
_____

By: _____ Contractor[b] By: _____ Manufacturer[c]

Date: _____ Date: _____

a Any deviations not brought to the attention of the Engineer for review and concurrence shall be the responsibility of the Contractor to correct, if so directed.
b Required on all submittals
c When required by specifications Page ___ of ___

General Contractor's Stamp

END OF SECTION

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included:
   1. Keep accurate record documents for all additions, demolition, changes of material or equipment (from that shown on the Drawings), variations in work, and any other additions or revisions to the Contract (via Change Order, Work Change Directive, Field Order or Clarification).

B. Related Work Specified Elsewhere:
   1. Shop Drawings, Project Data, and Samples are specified in "General Conditions" and Section 01340, Submittals.

1.2 MAINTENANCE OF DOCUMENTS

A. Maintain at job site, one copy of:
   1. Contract Drawings
   2. Specifications
   3. Addenda
   4. Reviewed Shop Drawings
   5. Change Orders
   6. Any other modifications to the Contract
   7. Field Test Reports

B. Store documents in files and racks specifically identified for Record Drawing use, that are apart from documents used for construction.

C. File documents in a logical manner indexed for easy reference.

D. Maintain documents in clean, dry, legible condition.

E. Do not use record documents for construction purposes.

F. Make documents available at all times for inspection by the Engineer and Owner, and by the end of the project, transmit these documents to the Engineer.

G. Failure to maintain current records, as specified herein, shall be grounds for withholding additional retainage from monthly partial payment requests.

1.3 RECORDING

A. Label each document "PROJECT RECORD" in large high printed letters.

B. Keep record documents current and do not permanently conceal any work until required information has been recorded.

C. General Field Recording Issues:
   1. All swing ties shall be taken from existing, permanent features such as utility poles, corners of buildings and hydrants. Porches, sheds or other house additions shall be avoided as they could be torn down. A minimum of two swing ties shall be taken. Survey grade GPS coordinates are also acceptable.
   2. Stations shall be recorded to the nearest foot.
   3. Inverts shall be recorded to the nearest hundredth of a foot.

4. Elevations shall be recorded to the nearest hundredth of a foot.
5. Building dimensions shall be recorded to the nearest 1/4".
6. Equipment and Piping shall be recorded to the nearest tenth of a foot, and the overall dimensions and layout of the equipment shall be adjusted to reflect the equipment provided.

D. Project Record Drawings - Legibly mark Contract Drawings to record existing utilities and actual construction of all work, including but not limited to the following (where applicable):
   1. Existing Utilities
      a. Water mains and services, water main gate valves, sewer mains and services, storm drains, culverts, steam lines, gas lines, tanks and other existing utilities encountered during construction must be accurately located and shown on the Drawings. In congested areas supplemental drawings or enlargements may be required.
      b. Show any existing utilities encountered in plan and profile and properly labeled showing size, material and type of utility. Ties shall be shown on plan. Utility shall be drawn to scale in section (horizontally and vertically) and an elevation shall be called out to the nearest hundredth of a foot.
      c. When existing utility lines are broken and repaired, ties shall be taken to these locations.
      d. If existing water lines are replaced or relocated, document the area involved and pipe materials, size, etc. in a note, and with ties.
   2. Water Mains
      a. Show ties to the location of all valves, bends (horizontal and vertical), tees and other fittings. The use of thrust blocks shall be recorded.
      b. Revise elevations indicated on the Drawings to reflect actual construction.
   3. Water Services
      a. Draw all water services (even to empty lots) on plan, and show ties.
      b. Show ties or distances to valve/curb from main.
      c. The Wright-Pierce “Water Service Location” forms shall be used to record water service information. A copy of these forms shall be provided to the Owner, along with the Record Drawing Set.
   4. Ledge
      a. Ledge profiles shall be shown. Note whether the plotted ledge profile reflects undisturbed or expanded conditions.
   5. Utilities
      a. When encountered, additional utilities (e.g., gas, cable, telephone, fiber optic, etc.) shall be indicated on the Record Drawings.

E. Specifications and Addenda - Legibly mark up each section to record:
   1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
   2. Changes made by Change Order, Field Order, or other method.

1.4 SUBMITTALS

A. At the completion of the project, and prior to the release of retainage, deliver record documents to the Engineer.
B. Accompany submittal with transmittal letter, in duplicate, containing:

1. Date, project title and number.
2. Contractor's name and address.
3. Title and number of each record document with certification that each document is completed and accurate.
4. Signature of Contractor, or their authorized representative.

C. Failure to supply all information on the Project Record Drawings as specified in Part 1.3 may result in withholding final completion and in non-approval of final payments of the Contract. If Contract Time has elapsed, this shall be grounds for imposing liquidated damages.

1.5 QUALITY ASSURANCE

A. All horizontal and vertical dimensions, swing-ties, and elevations shall be accurate to within one-tenth of a foot, unless greater accuracy is specified elsewhere in the Specifications (e.g., concrete elevations, weir elevations, etc.).

PART 2 - PRODUCTS – NOT APPLICABLE

PART 3 - EXECUTION

3.1 MAINTAINING AND PROVIDING RECORDS

A. Records shall be kept current as the work progresses.

B. Records shall be made available for review by the Owner, Engineer, Resident Project Representative and/or Funding Agency(s) upon request.

C. Records shall be kept current as the work progresses. Failure to maintain current records, as specified herein, shall be grounds for withholding additional retainage from monthly partial payment requests. Failure to provide records shall also be grounds for withholding of final payment and, if beyond contract time, shall be grounds for imposing liquidated damages.

END OF SECTION

SECTION 02614

PRE-INSULATED WATER MAIN

PART 1 - GENERAL

1.1 BUY AMERICA

A. All iron and steel shall meet Buy America requirements and American Iron and Steel (AIS) requirements.

1.2 DESCRIPTION

A. Work Included: Furnish and install pre-insulated pipe system and accessories where shown on the Drawings.

B. Related work specified elsewhere (when applicable):

1. Carrier pipe materials are specified elsewhere.

1.3 QUALITY ASSURANCE

A. Provide pipe and fittings manufactured in America.

B. Acceptable Manufacturers:

1. Urecon, Ltd.
2. Or approved equal meeting all requirements of Part 2 of this Section.

C. Manufacturer shall submit shop drawings for approval.

1. Shop drawings shall show jacket system, insulation, end seals, joint kits, etc.
2. The entire system shall be factory engineered.
3. The product shall be manufactured in accordance with ISO 9001-2000 Standards or approved equal.

D. A representative of the manufacturer shall be present for all critical periods.

1. Critical periods shall include but not be limited to:
   a. Inspection of materials for damages after receipt at jobsite.
   b. Supervision of joint assembly.
   c. Supervision of hydrostatic testing.
   d. Other supervision as required to provide a complete integral system.

PART 2 - PRODUCTS

2.1 BUY AMERICA

A. All iron and steel shall meet Buy America requirements and American Iron and Steel (AIS) requirements.

2.2 MATERIALS

A. Core Pipe

1. 12-inch Water Main - Ductile Iron Restrained Joint Pipe is detailed in Specification Section 02615.

B. Insulation

1. Material: rigid polyurethane foam, factory applied.

2. Thickness: 3 in. minimum or as required.
3. Density: (ASTM D 1622)2.2 to 3.0 lbs/ft^3.
4. Closed cell content: (ASTM D 2856) 90%, minimum.
5. Water absorption: (ASTM D 2842) 4.0% by volume.
6. Thermal conductivity: (ASTM C518) 0.14 to 0.17 Btu• in/ft^2•hr•^{0}F.

C. Outer Jacket
1. 18-gauge, hot-dipped galvanized steel, spiral lock seam jacket.
2. Jacket outer diameter shall be 18-inches minimum for 12-inch ductile iron water main and as recommended by the manufacturer for water service pipe.

D. Insulation Kits for Fittings
1. Insulation kits for fittings shall consist of rigid polyisocyanurate or urethane foam insulation complete with a thin elastomeric coating on the outside surfaces for strength during transit and installation, and fabricated galvanized steel or aluminum outer protective jacket consistent with that on the factory insulated pipe. All kits to be supplied complete with stainless steel bands, band-it clips, and screws to suit.

E. Pipe Spacers
1. Pipe spacers for use between the insulated jacket and bridge abutment casing pipe shall be a two-piece 14-gauge T-304 stainless steel assembly with stainless steel bolts. Assembly shall be the restrained positioning type. The runners shall be an ultra-high molecular weight polymer with a maximum coefficient of friction 0.12. The assembly shell liner shall be 0.090" (2.3 mm) ribbed PVC with 85-90 durometer. Spacer assembly shall be as manufactured by Cascade Waterworks MFG. Co. or approved equal.

F. Insulation Shields
1. All insulated pipe shall be furnished with a pipe insulation shield at each pipe support location as specified herein.
2. Insulation shields shall be constructed of 12-gauge carbon steel and have a lay length of 24-inches. Insulation shields shall be hot dipped galvanized.
3. Acceptable Manufacturers:
   a. NEFCO FIG. N167
   b. Anvil International, Inc
   c. Carpenter & Paterson Inc
   d. Or Equal

G. Roller Assemblies
1. Insulated pipe shall be supported with adjustable double roller guides for supporting and guiding pipe where longitudinal movement and vertical adjustments are required.
2. Roller assemblies shall be of cast iron and conform to Federal Specification WW-H-171E and A-A-1192A, Type 42 and Manufacturers Standardization Society ANSI/MSS SP-69 and SP-58, Type 41. Roller assemblies shall be hot dipped galvanized.
3. Assembly shall consist of two threaded support rods with 1.5-inch diameter and 12 HN hex nuts. Threaded support rods shall be hot dipped galvanized.
4. Acceptable Manufactures:
   a. Eaton B-Line Series
   b. Or Equal

PART 3 - EXECUTION

3.1 INSTALLATION

A. All pre-insulated piping shall be installed per the manufacturer's recommendations.

B. Bridge crossing water main pipe section shall be pressure tested and disinfected in accordance with Specification Section 02675 - Cleaning, Testing and Disinfection of Water Mains.

END OF SECTION

SECTION 02615

DUCTILE IRON PIPE & FITTINGS (BURIED APPLICATIONS)

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: Provide and install ductile iron pipe and fittings of the type(s) and size(s) in the location(s) shown on the Drawings and as specified herein.

B. Related Work Specified Elsewhere:

1. Cleaning, Testing and Disinfection of Water Mains is specified in Section 02675.

1.2 SUBMITTALS

A. Submit shop drawings in accordance with the applicable section of Division 1 and the General Conditions of the Construction Contract.

B. Submit manufacturer's "Certification of Conformance" that pipe and fittings meet or exceed the requirements of these Specifications.

C. Submit manufacturers installation instructions and specifications for all pipe and fittings.

1.3 QUALITY ASSURANCE

A. All iron and steel shall meet Buy America requirements and American Iron and Steel Requirements (AIS)

B. Standards (As Applicable):

1. Cement-mortar lining for water: ANSI A2l.4 (AWWA C104).
2. Rubber gasket joints: ANSI A2l.ll (AWWA C111).
3. Ductile iron pipe thickness: ANSI A2l.50 (AWWA C150).
4. Ductile iron pipe centrifugally cast in metal or sand lined molds: ANSI A2l.51 (AWWA C151).
5. Pipe flanges and fittings: ANSI Bl6.l and ANSI A21.10 (AWWA C110).
6. Threaded, flanged pipe: ANSI A21.15 (AWWA C115).
7. Cast and ductile iron fittings: ANSI A2l.l0 (AWWA C110).
8. Ductile Iron Compact Fittings: ANSI 21.53 (AWWA C153).

C. Acceptable Manufacturers (All pipe and fittings shall be manufactured in the US):

1. Tyler
2. Griffin
3. Union
4. US Pipe
5. Or approved equal.

1.4 DELIVERY, STORAGE & HANDLING

A. Exercise extra care when handling ductile iron pipe because it is comparatively brittle.

B. Exercise extra care when handling cement lined pipe because damage to the lining

will render it unfit for use.

C. Protect the spherical spigot ends and the plain ends of all pipe during shipment by wood lagging securely fastened in place.

PART 2 - PRODUCTS

2.1 PIPE MATERIALS

A. General:

1. All exterior (buried) ductile iron pipe shall have push-on or mechanical joints unless otherwise specified or shown on the Drawings. Pipe within valve pits and other structures is considered interior pipe and shall be flanged.
2. All exterior pre-insulated bridge crossing pipe shall be retrained joint DI having similar bell diameter as push on pipe to minimize required insulation diameter. Restrained joint bridge crossing pipe shall be TR-Flex, HDSS or approved equal.
3. Unless otherwise shown on the Drawings or in the pipe schedule, the minimum thickness of ductile iron pipe shall be:
   a. For pipe 4 inches in diameter and smaller: Class 51.
   b. For pipe 6 inches in diameter and larger: Class 52
   c. Pipe with flanges: Class 53.
4. Pipe for use with sleeve type couplings shall have plain ends (without bells or beads) cast or machined at right angles to the axis.
5. Pipe shall be double thickness cement lined and seal coated unless noted otherwise on the Drawings, and except for air piping lines which shall be completely unlined.
6. Pipe shall be provided in 18-foot sections to accommodate hanger assemblies. **All bridge crossing pipe shall be provided in 18'-0" nominal length unless otherwise noted on the plans to match required pipe hanger locations.** Alternative pipeline lengths will not be allowed without written authorization of the Engineer and detailed redesign of the bridge hanger locations.
7. Pipe for use with split type couplings shall have ends with cast or machined shoulders or grooves that meet the requirements of the manufacturer of the couplings.

B. Coatings

1. Finish layer of factory applied bituminous coatings (in accordance with AWWA C151) shall be furnished on the exterior of all underground piping unless specified otherwise.
2. The outside of pipe within structures and exposed shall not be coated with bituminous coating, but shall be thoroughly cleaned and given one shop coat of Intertol Rustinhibitive Primer 621 by Koppers Co.; Multiprime by PPG Industries; Chromox 13R50 Primer made by Mobil Chemical Co.; or equivalent.

C. Joints (as shown on Drawings or as specified):

1. Push-on and Mechanical Joint:
   a. The plain ends of push-on pipes shall be factory machined to a true circle and chamfered to facilitate fitting the gasket.

b. Provide gaskets manufactured from a composition material suitable for exposure to the fluid to be contained within the pipe. On high temperature applications such as air lines, the gaskets shall be suitable for service from 40*F to 250*F.
c. Bolts and nuts for buried mechanical joints shall meet the AWWA C-111 requirements and be made of high strength, low alloy steel.

2. Restrained Joint:
   a. U.S. Pipe TR Flex or HDSS push on pipe with integral bell slots for locking segment retainers or approved equal.
   b. Working pressure equal to equivalent push-on pipe.
   c. Joint assembly per manufacturer's recommendations.
   d. Push-on Joint Restrained Gaskets:
      i. Gaskets designed to match profiled of supplied push-on pipe joints.
      ii. Stainless steel locking segments vulcanized to into the gasket to grip the pipe to prevent joint separation.
      iii. Boltless integrated restraining system rated to 350 psi in accordance with the requirements of ANSI/AWWA C111/A21.11.
      iv. Acceptable manufacturers:
         (1) Fast-Grip by American
         (2) Field Loc 350 by US Pipe
         (3) Sure Stop 350 by McWane
3. Flanged:
   a. Provide specially drilled flanges when required for connection to existing piping or special equipment.
   b. Flanges shall be long-hub screwed tightly on pipe by machine at the foundry prior to facing and drilling.
   c. Gaskets:
      i. Ring type of rubber with cloth insertion.
      ii. Thickness of gaskets 12 inches in diameter and smaller: 1/16 inch.
      iii. Thickness of gaskets larger than 12 inches in diameter: 3/32 inch.
      iv. On high temperature applications such as air lines, the gaskets shall be suitable for service from 40°F to 200°F.
   d. Fasteners:
      i. Make joints with bolt, studs with a nut on each end, or one tapped flanged with a stud and nut.
      ii. The number and size of bolts shall meet the requirements of the applicable ANSI standard.
      iii. Nuts, bolts, and studs shall be Grade B meeting the requirements of ASTM A307.
      iv. After jointing, coat entire joint with bituminous material compatible with pipe coating.
   e. When applicable, provide and install flange clamps as shown on the Drawings.
4. Joint Bracing:
   a. Provide joint bracing to prevent the piping from pulling apart under pressure as required and as shown on the Drawings.

b. Types of bracing:
   i. Pipe and fittings furnished with approved lugs or hooks cast integrally for use with socket pipe clamps, tie rods, or bridles. Bridles and tie rods shall be a minimum of 3/4 inch diameter except where they replace flange bolts of a smaller size, in which case they shall be fitted with a nut on each side of the pair of flanges. The clamps, tie rods, and bridles shall be coated with bituminous paint in buried installations and shall be coated with the same coatings as the piping system in interior installations after assembly or, if necessary, prior to assembly.
   ii. Mechanical joint follower gland pipe restrainers.
      (1) Ductile iron gland and restraining ring.
      (2) Gasket shall be standard MJ gasket -ANSI/AWWA-C111/A21.11.
      (3) Working pressure 350 psi, up to 8 inches; 250 psi, 10 inches to 16 inches.
      (4) Test pressure two times working pressure.
      (5) Grip Rings™, Romac Industries, or other equivalent as approved by Engineer.
   iii. Other types of bracing as shown on the Drawings.

2.2 FITTINGS

A. Standard Fittings:
   1. Pressure rating of 350 psi for D.I. compact fittings and 250 psi for all others unless indicated otherwise on the Drawings or as specified.
   2. Joints the same as the pipe with which they are used or as shown on the Drawings.
   3. Cement lining and seal coat as specified for pipe.
   4. Factory applied bituminous coatings shall be furnished for all underground fittings.

PART 3 - EXECUTION

3.1 INSPECTION

A. Provide all labor necessary to assist the Engineer to inspect pipe, fittings, gaskets, and other materials.
B. Carefully inspect all materials at the time of delivery and just prior to installation.
C. Carefully inspect all pipe and fittings for:
   1. Defects, such as weak structural components, that adversely affect the execution and quality of work.
   2. Deviations beyond allowable tolerances for pipe clearances.
D. Immediately remove all rejected materials from the project site.

3.2 INSTALLATION

A. General:

1. Install in strict accordance with the pipe and fitting manufacturer's instructions and recommendations and as specified or as shown on the Drawings.
2. Concrete thrust blocks or other acceptable thrust resistant systems are required to be provided and installed at all valves and fittings on pressure pipe. Where thrust blocks are used, these shall be placed against undisturbed soil or screened gravel compacted to 95 percent and shall be placed so that the joints are accessible for repairs.
3. Provide and install thrust restraint at each pipe joint, as necessary to meet the thrust restraint requirements per Drawings and manufacturer recommendations, whichever provide the larger thrust requirements.

B. Assembling Joints:
   1. Push-on Joints:
      a. Insert the gasket into the groove of the bell.
      b. Uniformly apply a thin film of special lubricant over the inner surface of the gasket that will contact the spigot end of the pipe.
      c. Insert the chamfered end of the plain pipe into the gasket and push until it seats against the bottom of the socket.
      d. **Install three brass continuity wedges at each joint.**
   2. Bolted Joints:
      a. Remove rust preventive coatings from machined surfaces prior to assembly.
      b. Thoroughly clean and carefully smooth all burrs and other defects from pipe ends, sockets, sleeves, housings and gaskets.
      c. After jointing coat all bolts with bituminous material compatible with the pipe coating required herein and/or in Section 09900.
   3. Flanged Joints:
      a. Insert the nuts and bolts (or studs), finger tighten, and progressively tighten diametrically opposite bolts uniformly around the flange to the proper tension.
      b. Execute care when tightening joints to prevent undue strain upon valves, pumps, and other equipment.
   4. Mechanical Joints:
      a. Thoroughly clean, with a wire brush, surfaces that will be in contact with the gaskets.
      b. Lubricate the gasket, bell, and spigot by washing with soapy water.
      c. Slip the gland and gasket, in that order, over the spigot and insert the spigot into the bell until properly seated.
      d. Evenly seat the gasket in the bell at all points, center the spigot, and firmly press the gland against the gasket.
      e. Insert the bolts, install the nuts finger tight, and progressively tighten diametrically opposite nuts uniformly around the joint to the proper tension with a torque wrench.
      f. The correct range of torque (as indicated by a torque wrench) and the length of wrench (if not a torque wrench) shall not exceed:
         i. Range or Torque: 60-90 ft.-lbs.
         ii. Length of Wrench: 10 inches.

g. If effective joint sealing is not attained at the maximum torque specified above, disassemble, thoroughly clean, and reassemble the joint. Do not overstress the bolts to tighten a leaking joint.

5. Bell and Spigot Joints:
   a. Thoroughly clean the bell and spigots and remove excess tar and other obstructions.
   b. Insert the spigot firmly into place and hold securely until the joint has been properly completed.

C. Fabrication:
1. Tapped Connections:
   a. Make all tapped connections as shown on the Drawings or as required by the Engineer.
   b. Make all connections watertight and of adequate strength to prevent pullout.
   c. Drill and tap normal to the longitudinal axis of the pipe.
   d. Taps in fittings shall be located where indicated by the manufacturer for that particular type of fitting.
   e. The maximum sizes of taps in pipes and fittings without busses shall not exceed the sizes listed in the appendix of ANS A2l.51 based on 2 full threads for ductile iron and 3 full threads for cast iron.
2. Cutting:
   a. Perform all cutting as set forth in AWWA C600.
   b. Carefully chamfer all cut ends to be used with push-on joints to prevent damage to gaskets when pipe is installed.

D. Pipe Deflection:
1. Push-on and Mechanical Joints:
   a. The maximum permissible deflection of alignment at joints shall be limited to that given in AWWA C600.
2. Flexible Joints:
   a. The maximum deflection in any direction shall not exceed the manufacturer's instructions and recommendations.

END OF SECTION

SECTION 02616

DUCTILE IRON MAIN ANTI-CORROSION POLYETHYLENE ENCASEMENT (POLYWRAP)

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: Furnish all materials and install polyethylene encasement (polywrap) of ductile iron water and sewer main for all ductile iron main, valves and fittings and as specified herein.

B. Related Work Specified Elsewhere: Ductile Iron pipe and fittings, trench excavation, valves.

1.2 QUALITY ASSURANCE

A. A competent laboratory must be maintained by the manufacturer of the polywrap at the point of manufacture to insure quality control.

B. During all periods of shipment and storage, the fabric shall be wrapped in a heavy duty protective covering to protect the fabric from direct sunlight, ultraviolet rays, and temperatures greater than 140oF, mud, dirt, dust and debris.

1.3 SUBMITTALS

A. Manufacturer shall furnish certified test reports with each shipment of material attesting that the polywrap meets the requirements of this Specification.

B. Contractor shall submit product information they intend to use and the installation method they intend to employ.

PART 2 - PRODUCTS

2.1 MATERIALS

A. **Linear low density polyethylene (LLDPE)** Polyethylene encasement protection wrap for ductile iron pipe. 8 mil thickness. Tubes or sheets

TABLE 1

Geotextile Mechanical Property	Test Method	Minimum Permissible Value
Tensile Strength (both directions)	ASTM D882	3600 psi
Elongation	ASTM D882	800 percent

Geotextile Mechanical Property	Test Method	Minimum Permissible Value
Dielectric Strength	ASTM D149	800 V/mil
Impact Resistance	ASTM D1709-B	600 g
Propagation Tear Resistance Strength	ASTM D1922	2550 gf

B. Polywrap shall meet all requirements of ANSI/AWWA C105/A21.5
C. Polywrap shall consist of 3 layers of co-extruded linear low density polyethylene fused into a single layer, minimum 8 Mil thickness.
D. Inside surface of Polywrap shall be infused with an antimicrobial compound to mitigate microbiologically induced corrosion (MIC) and a volatile corrosion inhibitor to control galvanic corrosion.
E. The polywrap shall meet or exceed the minimum values stated above as determined by the most recent test methods specified above. The product must be marked with the specification conformance, applicable pipe sizes and the words "corrosion protection".

PART 3 - EXECUTION

3.1 GENERAL

A. Quality of installation is more important than the actual sequence followed.
B. Polyethylene shall not be stored in the sun.
C. When lifting polyethylene-encased pipe with a crane, use a synthetic sewn "sling" or padded wire rope sling to protect the polyethylene.
D. Remove all lumps of clay, mud, cinders, etc., on the pipe surface before encasing the pipe.
E. Prevent soil or bedding material from becoming trapped between the pipe and the polyethylene.
F. When installing polyethylene encasement below the water table or in areas subject to tidal action, seal as thoroughly as possible both ends of each polyethylene tube with polyethylene adhesive tape or plastic tie straps at the joint overlap. Additionally, place circumferential wraps of tape or plastic tie straps at two-foot intervals along the barrel of the pipe to help minimize the space between the polyethylene and the pipe.

3.2 DUCTILE IRON PIPE AND FITTINGS

A. Installation of the polywrap shall be done in accordance with one of the three recommended methods as outlined in ANSI/AWWA C105/A21.5. Methods A and B use polyethylene tubes, and method C uses polyethylene sheets.
B. Method A uses one length of polyethylene tube, overlapped at the joints, for each length of pipe. A minimum of 2' overlap shall be used. The polyethylene wrap shall be cut approximately 2 feet longer than that of the pipe section. After assembling the pipe joint, the polyethylene shall be overlapped approximately one (1) ft. and at all joints sealed with approved adhesive tape. Additional taping shall be used at 3 foot (3') intervals along the pipe. Any rips, punctures or other damage to the polyethylene shall be repaired immediately with adhesive tape. All copper service connections shall be wrapped for a distance of 3 feet from the centerline of the main. Before installing the polyethylene wrap, the exterior of the pipe shall be free of foreign material.
C. Method B uses a length of polyethylene tube for the barrel of the pipe and a separate length of polyethylene tube or sheet for the joints. The national standard does not recommend Method B for bolted-type joints unless an additional layer of polyethylene is provided over the joint area as in Methods A and C. If this method is chosen an additional layer of polyethylene will be provided over the joint area.

D. In Method C, each section of pipe is completely wrapped with a flat polyethylene sheet.

3.3 JOINTS, VALVES, APPURTENANCES AND TAPS

A. All ductile iron pipe, fitting and valves will be wrapped in accordance with C105/A21.5.

B. Pipe-shaped appurtenances: bends, reducers, offsets, and other pipe-shaped appurtenances in shall be covered in the same manner as the pipe.

C. Odd-shaped appurtenances: Wrap odd-shaped appurtenances such as valves, tees, and crosses with a flat sheet or split length of polyethylene tube by passing the sheet under and then over the appurtenance and bringing it together around the body of the appurtenance. Make seams by bringing the edges of the polyethylene together, folding over twice, and taping them down.

D. Joints: Overlap joints as in normal installation; then tape the polyethylene securely in place at valve stems and other penetrations. When bolted-type joints are used, care should always be taken to prevent bolts or other sharp edges of the joint configuration from penetrating the wrap.

E. Branches, blow offs, air valves: To provide openings for branches, blow-offs, air valves, and similar appurtenances, make an X-shaped cut in the polyethylene and temporarily fold back the film. After installing the appurtenance, tape the slack securely to the appurtenance and repair the cut and any other damaged areas in the polyethylene with tape.

F. Service taps: Wrap a minimum of two layers of polyethylene adhesive tape completely around the pipe to cover the area where the tapping machine and chain will be mounted. Then install the corporation stop directly through the tape and polyethylene. After the tap is made, inspect the entire circumferential area for damage and make any necessary repairs.

G. Hydrants: Do not wrap hydrants that do not have drain port plugs installed. Note: Self draining hydrants not allowed in Maine per EPA rules. Tape the polyethylene securely in place on the hydrant branch after the valve, before reaching the hydrant.

END OF SECTION

SECTION 02641

GATE VALVES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: Furnish, install and test gate valves of the type(s) and size(s) and in the location(s) shown on the Drawings and as specified.

B. Related Work Specified Elsewhere:

1. "Valve Box" and "Ductile Iron Pipe & Fittings for Buried Applications" are specified in this Division.

1.2 QUALITY ASSURANCE

A. All iron and steel shall meet Buy America requirements and American Iron and Steel (AIS) requirements.

B. All gate valves of same type and style shall be manufactured by one manufacturer.

C. Acceptable Manufacturers:

1. American Flow Control
2. Kennedy
3. Darling.
4. Mueller
5. Or approved equal.

D. All valves shall be compliant with NSF 61 and NSF 372.

1.3 SUBMITTALS

A. Submit shop drawings in accordance with the applicable section of Division 1 and the General Conditions of the Construction Contract.

B. Submit manufacturer's "Certification of Conformance" that valves meet or exceed the requirements of these Specifications.

C. Submit manufacturers installation instructions and specifications for all valves.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Waterworks type NRS valves (AWWA):

1. Valve Body, bonnet and stuffing box - Cast iron (ASTM A126 C1B), or Ductile iron (ASTM A536), coated inside and out with fusion bonded epoxy meeting AWWA C550. Face-to-face dimensions shall comply with ANSI B16.10 and flanges to comply with ANSI B16.1.
2. Resilient Wedge - Ductile iron wedge with bonded EPDM or Nitrile (Buna-N/NBR) rubber covering.
3. Stem - Manganese bronze, ASTM B584
4. Stuffing box O-rings
   a. Two O-rings, each nitrile rubber.
   b. Capable of changing under pressure.
5. Wedgenut - Bronze, ASTM B62

6. Bolting - stainless steel Type 18-8 (304 SS), ASTM F593, GP1
7. End Connections
   a. Buried valves – gasketed and bolted mechanical joints in conformance with AWWA standards for appropriate pipe material.
8. Operation
   a. Buried valves – 2-inch square nut, cast iron, ASTM A126, C1B. Provide a sufficient number of tee-handle valve wrenches for operation valves of various depths.
   b. Opening Direction –clockwise (open right)
9. Water working pressure: 250 psi
10. Standards - valves shall meet or exceed AWWA C515-09, latest edition.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install valves with stem position vertical.
B. Valve box vertical and centered over operating nut.
C. Valve box supported during backfilling and maintained vertical.
D. Install valve box alignment sleeve, Posi-Cap or approved equal, when installing valve box base.
E. Install and test in accordance with AWWA C500 and AWWA C-509 or AWWA C515, latest revision.
F. For PVC or PE main, install anchor rods around the valve body or through the mounting lugs and embed the rods in concrete beneath the valve.

END OF SECTION

SECTION 02642

CORPORATION STOPS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: Furnish and install corporation stops of the type(s) and size(s) and in the location(s) shown on the Drawings and as specified herein.

1.2 QUALITY ASSURANCE

A. All iron and steel shall meet Buy America requirements and American Iron and Steel (AIS) requirements.
B. All corporation stops shall be manufactured by one manufacturer.
C. Qualifications of Manufacturer: Products have proven reliable in similar installations over a reasonable number of years.
D. Acceptable Manufacturers:
   1. Ford Meter Box Company Inc. (FB1000)
   2. A. Y. MacDonald Manufacturing Company (74701)
   3. Mueller Company
   4. Or equivalent

1.3 SUBMITTALS

A. Submit shop drawings in accordance with the applicable section of Division 1 and the General Conditions of the Construction Contract.
B. Submit manufacturers product data and installation instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Ball style corporation valve conforming to AWWA C 800. Valve shall have solid one-piece tee head and stem, dual o-rings in the stem, coated brass ball with no metal-to-metal contact, and integral or secured ends to prevent unintentional disassembly.
B. Constructed of “Lead free” brass in compliance with NSF 372, NSF 61 and Safe Drinking Water Act Section 1417. Lead free fittings shall contain less than 0.25% lead on a weighted average and installed using flux and solder containing not more than 0.2% lead.
C. Inlet shall have AWWA standard thread (a.k.a. Mueller or “CC” thread).
D. Outlet shall be copper pipe packed joint (CPPJ) or approved restrained grip joint
E. Working pressure of 300 psi shall be required.
F. Valve shall open **right**.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install at locations shown on the Drawings and as specified in accordance with manufacturer's instructions.

B. Check and adjust all corporation stops for smooth operation.

END OF SECTION

SECTION 02643

CURB STOPS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: Furnish and install curb stops of the type(s) and size(s) and in the location(s) shown on the Drawings and as specified herein.

1.2 QUALITY ASSURANCE

A. All iron and steel shall meet Buy America requirements and American Iron and Steel (AIS) requirements.
B. All curb stops shall be manufactured by one manufacturer.
C. Qualifications of Manufacturer: Products shall have proven reliable in similar installations over a reasonable number of years.
D. Acceptable Manufacturers:
   1. Ford Meter Box Company (B44)
   2. A.Y. MacDonald
   3. Mueller Company
   4. Or equivalent

1.3 SUBMITTALS

A. Submit shop drawings in accordance with the applicable section of Division 1 and the General Conditions of the Construction Contract.
B. Submit manufacturers product data and installation instructions.

PART 2 - PRODUCTS

2.1 PRODUCT CONSTRUCTION

A. Ball style valve conforming to AWWA C 800. Valve shall have solid one-piece tee head and stem, dual o-rings in the stem, coated brass ball with no metal-to-metal contact, ring lock to lock stem solidly into the body and non-directional seats to support the valve and assure watertight.
B. Constructed of “Lead free” brass in compliance with NSF 372, NSF 61 and Safe Drinking Water Act Section 1417. Lead free fittings shall contain less than 0.25% lead on a weighted average and installed using flux and solder containing not more than 0.2% lead.
C. Inlet and outlet shall be copper pipe packed joint (CPPJ) type or approved restrained grip joint.
D. Working pressure of 300 psi shall be required.
E. Valve shall open **right**.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install at locations shown on the Drawings and in accordance with manufacturer's instructions.

3.2 ADJUSTMENTS

A. Check and adjust all curb stops for smooth operation.

END OF SECTION

SECTION 02644

HYDRANT ASSEMBLIES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: Furnish and install hydrant assemblies of the type(s) and size (s) and in the locations (s) shown on the Drawings and as specified herein.

B. Hydrant Assemblies consist of:
   1. Hydrant anchoring tee, swivel tee or standard tee, as required.
   2. 6 inch gate valve and valve box.
   3. 6 inch hydrant branch piping.
   4. Hydrant.
   5. Drainage material.
   6. Thrust blocking and joint bracing.

C. Related Work Specified Elsewhere:
   1. Excavation and backfill, pavement, dewatering, borrow and bedding are specified in MaineDOT specifications.

1.2 QUALITY ASSURANCE

A. All iron and steel shall meet Buy America requirements and American Iron and Steel (AIS) requirements.

B. Hydrants shall conform to AWWA C502 and all hydrants shall be from one manufacturer.

C. Gate valves shall conform to AWWA C5090 (Resilient-Seated Gate Valves for Water Supply).

D. Acceptable Manufacturers:
   1. Eddy F-2641.
   2. Or approved equal.

1.3 SUBMITTALS

A. Submit shop drawings in accordance with the applicable section of Division 1 and the General Conditions of the Construction Contract.

B. Submit manufacturer's "Certification of Conformance" that all hydrant assemblies meet or exceed the requirements of these Specifications.

C. Submit manufacturers installation instructions and specifications for all hydrant assemblies.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Fire Hydrants:
   1. Dry barrel type with a 5 inch minimum valve opening.
   2. **Two** 2-1/2 inch hose connections and **one** 4-1/2 inch pumper connection.
      a. 2-1/2 inch outlets: 60o V threads, 7-1/2 threads to the inch, external threads 3-1/16 inches, O.D. National Standard threads.

b. 4-1/2 inch outlet: 4 threads to the inch, external threads 5-3/4 inches, O.D. National Standard threads.
c. Supply adapters if existing fire fighting equipment does not match the threads specified above.

3. 150 pounds working pressure and 300 pounds hydrostatic test pressure.
4. Working parts shall be bronze and open clockwise (right) unless otherwise specified.
5. Designed with standpipe breaking ring or breakable sections.
6. Supply **one** collision repair kit for every **twenty-five** hydrants installed.
7. Caps shall be attached to hydrant body by chains.

B. Gate Valves: Waterworks type non-rising stem AWWA valve as specified in the appropriate section of this Division.

C. Valve Boxes:
1. Cast iron, minimum thickness 3/10 inch with the word "WATER" cast in covers.
2. Be of such length as required without full extensions.
3. As specified in this Division.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install hydrants as shown in the details and using manufacturer's written instructions.
B. No hydrant assembly shall be backfilled until approved by the Engineer.
C. Hydrants shall be installed plumb with the pumper nozzle facing perpendicular to the street, or as directed otherwise by Owner (Water District).
D. Breakaway connections shall me installed no more than 6-inches or less than 4-inches above finished grade.
E. The centerline of the hydrant barrels shall be no less than 36-inches from its respective branch valve centerline.
F. Provide drainage material and thrust blocks as shown.
G. Provide barrel extensions as required for hydrant to be installed at proper grade.
H. Provide finish paint on all exposed surfaces. Color shall meet Owner's (Water District) requirements as approved by the Engineer.

3.2 CLEANING

A. Clean all hydrants of concrete, etc. and repaint as necessary to the satisfaction of the Engineer.

END OF SECTION

SECTION 02645

CURB BOXES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: Furnish and install curb boxes of type (s) and size (s) and in the locations shown on the Drawings and as specified herein.

1.2 QUALITY ASSURANCE

A. All iron and steel shall meet Buy America requirements and American Iron and Steel (AIS) requirements.
B. All curb boxes shall be manufactured by one manufacturer.
C. Qualifications of Manufacturer: Products have proven reliable in similar installations over a reasonable number of years.
D. Acceptable Manufacturers:
   1. Bingham and Taylor
   2. Quality Water Products.
   3. Mueller Co.
   4. Hayes Manufacturing Co.
   5. Or equivalent.

1.3 SUBMITTALS

A. Submit shop drawings in accordance with the applicable section of Division 1 and the General Conditions of the Construction Contract.
B. Submit manufacturer's "Certification of Conformance" that all curb boxes meet or exceed the requirements of these Specifications.
C. Submit manufacturers installation instructions and specifications for all curb boxes.

PART 2 - PRODUCTS

2.1 MATERIALS AND FABRICATION

A. Cast iron base piece, steel upper, cast iron lid, and threaded bronze plug with pentagon nut (Rope Thread).
B. Extension type and arch pattern base with 1/2" diameter stainless steel minimum, 30" stationary rod.
C. All curbs installed in pavement or concrete shall have a valve box top installed over the curb box to protect the curb box.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install as shown on the Drawings and/or as requested by the Engineer.
   1. When installation is complete no pressure shall be exerted by the curb box on either the curb stop or the service pipe.

END OF SECTION

SECTION 02646

VALVE BOXES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: Furnish and install valve boxes of type(s) and size(s) and in the locations shown on the Drawings and as specified herein.

1.2 QUALITY ASSURANCE

A. All iron and steel shall meet Buy America requirements and American Iron and Steel (AIS) requirements.
B. All valve boxes shall be manufactured by one manufacturer.
C. Qualifications of Manufacturer: Products to have been proven reliable in similar installations over a reasonable number of years.
D. Acceptable Manufacturers:
   1. Bingham and Taylor
   2. Tyler
   3. Quality Water Products
   4. Bibby-Ste-Croix
   5. McWane
   6. Or Equivalent

1.3 SUBMITTALS

A. Submit shop drawings in accordance with the applicable section of Division 1 and the General Conditions of the Construction Contract.
B. Submit manufacturer's "Certification of Conformance" that all valve boxes meet or exceed the requirements of these Specifications.
C. Submit manufacturers installation instructions and specifications for all valve boxes.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The valve box shall be ductile iron or cast iron, slip type two-piece integral base, 5-1/4 inch shaft. Top section with flanges.
B. The cover shall be ductile iron or cast iron, with the word "Water" cast in cover.

Belled Base Section shall fit the posi-cap snuggly.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Installation as shown on the Drawings and/or as specified herein.
   1. When installation is complete, no pressure shall be exerted by valve box on the water main or on the valve.
   2. Be of such length as required without full extension. Minimum lap 6 inches.

END OF SECTION

SECTION 02650

BURIED UTILITY MARKINGS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included:
   1. This work shall consist of providing and installing utility line markings above all buried lines installed as part of this contract and replacing existing markings disturbed as part of this contract. Buried utilities are indicated on the Water Main Civil Drawings and MDOT Utility Drawings.

B. Related Work Specified Elsewhere:
   1. Pipe and pipe insulation are specified in the appropriate Sections in this Division.
   2. Excavation and backfill, borrow and bedding are specified in MaineDOT specifications.

1.2 SUBMITTALS

A. Submit shop drawings in accordance with the applicable section of Division 1 and the General Conditions of the Construction Contract.

B. Submit manufacturer's "Certification of Conformance" that utility markings meet or exceed the requirements of these Specifications.

C. Submit manufacturers specifications for utility markings.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials and color shall be in accordance with latest AASHTO specifications for pipe and utility marking.

B. Marking tape color shall be in accordance with latest American Public Works Association (APWA) Uniform Color Code and American National Standards Institute ANSI Standard Z535.1, Safety Color Code specifications for buried utility marking as noted in the Schedule below.
   1. Schedule

Marker Color	Buried Utility
Blue	Potable Water &Associated lines
Green	Sanitary Sewers, Storm Drain and other Drain lines
Orange	Telecommunication, signal, alarm
Purple	Reclaimed, Recycled, Irrigation Water and Slurry Lines
Red	Electric Power lines cables conduits and lighting cables
Yellow	Gas, Oil, Steam, Petroleum or Gaseous Material Lines

   2. Warning Information shall be in Black Letters with typical wording of:
      a. "CAUTION: BURIED (NAME OF UTILITY LINE) BELOW"

C. For ferrous pipe material use 0.004" minimum polyethylene film; 6" wide clearly marking type of buried utility.
D. For non-ferrous pipe material (e.g. Concrete, PVC, PE, etc.) use detection tape composite of polyethylene and metallic core 6" wide clearly marking type of buried utility.
E. Seton Identification Products, New Haven, CT, Utility Safeguard LLC or equal.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Marking tape shall be installed over utility lines centerline and buried 24" below grade.
B. Markings damaged during opening of trench shall be reinstalled with 2' overlap at broken sections.

END OF SECTION

SECTION 02655

COUPLINGS & CONNECTORS FOR BURIED APPLICATIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Furnish and install couplings and connectors of the type and size in the location shown on the Drawings and as specified herein.

1.2 QUALITY ASSURANCE

A. All iron and steel shall meet Buy America requirements and American Iron and Steel (AIS) requirements.
B. Minimum pressure rating equal to that of the pipeline in which they are to be installed.
C. Couplings and connectors, other than those specified herein, are subject to the Engineer's approval. Acceptable Manufacturers:
   1. Romac Industries
   2. Krausz
   3. Smith Blair
   4. For Meter Box Company
   5. Or Equal
D. Reference Standards:
   1. AWWA C104 – Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
   2. AWWA C111 – Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
   3. AWWA C116 – Protective Fusion-Bonded Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings
   4. AWWA C153 – Ductile-Iron Compact Fittings
   5. AWWA C213 – Fusion-Bonded Epoxy Coatings and Linings for Steel Water Pipe and Fittings
   6. AWWA C219 – Bolted, Sleeve-Type Couplings for Plain-End Pipe

1.3 SUBMITTALS

A. Submit shop drawings in accordance with the applicable section of Division 1 and the General Conditions of the Construction Contract.
B. Submit manufacturers product data and installation instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All Couplings and Connectors:
   1. Gasket Materials: Composition suitable for exposure to the liquids to be contained within the pipes.
   2. Diameters to properly fit the specific types of pipes on which couplings and connectors are to be installed.
B. Sleeve Type Transition Couplings (for 4 – 12” pipe size)
   1. Buried Non-Restrained Couplings:

a. Two top facing bolt design
b. Fusion bonded epoxy ductile iron center sleeve, end rings and bolt guides. Ductile iron meeting or exceeding ASTM A536, Grade 65-45-12.
c. Two wedge-section EPDM or NBR rubber gaskets compounded for water service. NSF-61 certified for potable water service.
d. Ductile iron heat treated grippers, 304 stainless steel draw hooks, and reinforced nylon ramp runners.
e. Nuts and bolts shall be 304 Stainless Steel with rolled thread and anti-galling compound.
f. Coupling shall be fusion bonded epoxy coated meeting AWWA C213 and NSF-61 standards for potable water applications.
g. Acceptable Manufacturers:
    i. Romac Industries – Macro HP™
    ii. Krausz – Hymax® 2
    iii. Smith Blair – Model 421
    iv. Or Equal

2. Buried Restrained Couplings:
    a. Two top facing bolt design
    b. Fusion bonded epoxy steel or ductile iron center sleeve and end rings.
    c. Two wedge-section EPDM or NBR rubber gaskets compounded for water service and NSF-61 certified.
    d. 304 Stainless Steel bridge or Armor over gasket in expansion zone.
    e. Nuts and bolts shall be 304 Stainless Steel with rolled thread and anti-galling compound.
    f. Coupling shall be fusion bonded epoxy coated meeting AWWA C213 and NSF-61 standards for potable water applications
    g. Acceptable Manufacturers:
        i. Romac Industries – Alpha™
        ii. Krausz – Hymax Grip
        iii. Smith Blair – Pipe Lock Coupling
        iv. Or Equal

C. Solid Sleeve Couplings
    1. Solid sleeves shall be ductile iron with mechanical joint ends.
    2. Couplings shall meet AWWA/ANSI C-153/A21.53 and C-111/A21.11 for joints, and C-104/A21.4 for cement lining in sizes 3"-24".
    3. Nuts and bolts shall be ductile iron low alloy steel per ANSI/AWWA A21.11/C-111.
    4. Acceptable Manufacturers:
        a. Romac – Model 501
        b. Smith Blair – Model 441.
        c. Ford – Model FC1 or FC2A
        d. Or Equal

D. Flexible Couplings for drain connections (Fernco or equal)
    1. Rubber material with stainless steel clamps
    2. Must provide a positive seal against infiltration and exfiltration

3. Coupling materials must conform to applicable portions of ASTM C443 (Concrete), C564 (Cast Iron), D1869 (A.C.), D5926 (PVC), C1173 (transition) and CSA B602.

E. Mechanical Joint Adaptors (Foster Adaptor® – Infact Corporation)
   1. Required to connect fittings and valves with mechanical joints
   2. Ductile iron construction mechanical joint bolt pattern.
   3. Bolts and nuts shall meet AWWA C-111.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Sleeve Type Couplings:
   1. Thoroughly clean pipe ends a minimum of 12-inches from the ends prior to installing couplings and use soapy water as a gasket lubricant.
   2. Slip an end ring and gasket over each pipe and place the center sleeve centered over the joint.
   3. Insert the other pipe length into the center sleeve the proper distance.
   4. Press the gaskets and end rings evenly and firmly into the center sleeve flares.
   5. For two-bolt systems, insert or tighten the bolts, finger tighten and progressively tighten nuts on the top of the coupling with a torque wrench applying the torque recommended by the manufacturer. For multiple bolt systems, insert or tighten the bolts, finger tighten and progressively tighten diametrically opposite nuts around the coupling with a torque wrench applying the torque recommended by the manufacturer.
   6. Insert and tighten the tapered threaded lock pins as needed.

B. Install thrust rods, supports, and other provisions to properly support pipe weight and axial equipment loads.

END OF SECTION

SECTION 02675

CLEANING, TESTING AND DISINFECTION OF WATER MAINS

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work of this section includes the furnishing of all labor, tools, equipment and materials and performing all operations necessary for the flushing, pressure testing, leakage testing and chlorination of water mains as specified herein and as required to complete the work.

1.2 QUALITY ASSURANCE

A. All iron and steel shall meet Buy America requirements and American Iron and Steel (AIS) requirements.

B. Standards (as applicable):

1. All work shall be in accordance with this specification and AWWA C651. Where conflicts appear between these specifications and AWWA C651 the more stringent requirement shall apply.
2. Chlorine solution for disinfecting water mains and appurtenances shall be made from either liquid sodium hypochlorite, or solid calcium hypochlorite, which shall conform to the latest AWWA B300 Standard for Hypochlorite.
3. Chlorine test kits shall be as described in the current edition of AWWA M12 - Simplified Procedures for Water Examination.
4. Disposal of chlorinated water as per AWWA C651, Appendix B.

1.3 COORDINATION

A. Use of water will only be as approved and coordinated by the Owner (Water District).

B. All flushing, pressure and leakage testing and chlorinating shall be done by the Contractor in the presence of the Water District's Engineer and in the presence of the Owner (Water District) or Water District's Representative in accordance with the requirements of the local and state plumbing codes and the appropriate Sections of these Specifications, at no additional cost to the Owner (Water District).

PART 2 - PRODUCTS

2.1 MATERIALS

A. Each temporary blow-off shall consist of a corporation cock, type K copper tubing and a curb stop, each of not less than 1-inch diameter.

B. A pumping unit or proportionate feeder suitable for delivering a hypochlorite solution to the isolated main shall be provided. The unit used shall prevent chlorine solution from flowing back into the existing system.

PART 3 - EXECUTION

3.1 GENERAL

A. Thoroughly clean all piping prior to testing. Remove all dirt, dust, oil, grease and

other foreign material. Exercise care while cleaning to avoid damage to linings and coatings.

B. Supply all labor, equipment, materials, gages, and pumps required to conduct the tests. The drawings do not detail taps, gages, plugs and other related materials required to perform testing. These materials are the responsibility of the Contractor.

C. Flushing, testing and chlorinating of the mainline shall closely follow main laying work. As the mainline is installed, it shall be tested approximately every 1,000 feet, or between line valves, whichever is less. Should the mainlines fail to be flushed, tested, and chlorinated as specified, the main laying work shall be suspended until the flushing, testing and chlorinating is done.

D. Final acceptance of the water main shall be based on successful (negative) results of bacteriological tests, which shall be done on samples taken from the main following chlorination and final flushing. Locations of samples shall be determined by the Engineer.

E. The testing and related procedures described herein, shall be performed in the order listed.

F. The Contractor, with the assistance of the Owner, shall fill mains as slowly as practicable so as not to cause dirty water and serious pressure drops within the existing system.

3.2 FLUSHING

A. All new water mains, and existing water mains that have been drained and cut-into for making connections, shall be thoroughly flushed prior to pressure or leakage testing or final chlorination. Flushing shall be accomplished by partially opening and closing valves, hydrants, and blowoffs, several times, under expected line pressure, with flow velocities of not less than 3 feet per second, in the main. The size and number of hydrant outlets and/or main taps to provide the required flow (at 40 psi residual pressure) is as follows:

Minimum Required Flow and Openings Required to Flush Water Mains
(Assuming 40 psi Residual Pressure in Water Mains)

Main Diameter (in.)	Flow Required to Produce 3 fps in Main (gpm)	Minimum Size of Taps (in.)	Hydrant Outlets	
			Number	Size (in.)
4	120	15/16	1	2-1/2
6	265	1-3/8	1	2-1/2
8	470	1-7/8	1	2-1/2
10	735	2-5/16	1	2-1/2
12	1,055	2-13/16	1	2-1/2
16	1,880	3-5/8	2	2-1/2

1. If less than a 40 psi residual is available in the main, with the size tap shown above then a larger, or more tap(s) or hydrant outlets will be required, as determined by the Engineer.

2. The length of time for flushing, at or above the minimum allowable velocity, shall be computed to allow a minimum of 3 times the total volume of water in the main to be flushed to waste. Flushing shall be done in the presence of the Engineer.

3.3 AIR REMOVAL

A. Following flushing, and before applying the specified test pressure, air shall be completely expelled from the mains, valves, and hydrants. After all air has been expelled, the air blowoffs can be closed, and the test pressure applied.

3.4 PRESSURE TEST

A. All new water mains, or any sections thereof, shall be subjected to a hydrostatic pressure of at least 1.5 times the working pressure that will exist at the point of testing, or 150 psi, whichever is greater. Test pressures shall meet the following requirements:
   1. Be of at least 2-hour duration.
   2. Be not less than 1.25 times the expected system working pressure at the highest point along the test section.
   3. Not exceed main or thrust-restraint design pressures.
   4. Not vary by more than + 5 psi for the duration of the test.
   5. Not exceed 2-times the rated pressure of the valves or hydrants when the pressure boundary includes closed valves or hydrants. Valves shall not be operated in either direction at differential pressure greater than the rated pressure.
   6. Not exceed 1.5-times the rated pressure of the valves when the pressure boundary of the test section includes closed butterfly valves or resilient seated gate valves.

B. Each section of main shall be slowly raised to the specified test pressure for two separate periods. The first period shall be for 15-minutes, after which the pressure shall be allowed to drop slowly back to system pressure. The pressure shall then be slowly raised again to the specified test pressure and maintained for 2-hours. The test pressure shall be based on the elevation of the lowest point of the main, in the test section and shall be corrected to the elevation of the test gauge, as directed by the Engineer. The test pressure shall be applied by means of a pump connected to the main, in an approved manner, and which will prevent any backflow into the existing system. Valves shall not be operated in either the closing or opening direction, at differential pressure greater than the rated pressure.

C. Any exposed main, fittings, valves, hydrants and joints shall be carefully examined during the test. Any damaged or defective main, fittings, hydrants, or valves discovered following, or as a result of the pressure test shall be repaired or replaced with sound material. If faulty materials are removed and replaced, the pressure testing procedure shall be repeated.

3.5 LEAKAGE TEST

A. Leakage testing shall be conducted concurrently with the pressure test.

B. Leakage is defined as the quantity of water that must be pumped into the new main during the test, or any section thereof, required to maintain pressure within 5 psi of

the starting test pressure. Leakage shall be recorded to the nearest one-tenth of a gallon. The Contractor shall employ qualified personnel throughout the testing. Leakage shall not be measured by a drop in pressure over a period of time.

C. Leakage in the test section must be less than an amount determined as follows:

$$L = \frac{SD(P^{0.5})}{148{,}000}, \text{ where}$$

L = allowable gallons of leakage per hour
S = the length of main tested, in feet
D = the nominal main diameter in inches
P = the average test pressure during the test, in psi

D. The leakage formula is based allowable leakage of 11.65 gallons per day, per mile of main, per inch (nominal) of main diameter, at a pressure of 150 psi. Allowable leakage under various conditions is shown below.

Allowable Leakage (gph) per 1,000 Feet of Mainline

Average Test Pressure(psi)	Nominal Diameter (inches)						
	6	8	10	12	16	20	24
250	0.64	0.85	1.07	1.28	1.71	2.14	2.56
225	0.61	0.81	1.01	1.22	1.62	2.03	2.43
200	0.57	0.76	0.96	1.15	1.53	1.91	2.29
175	0.54	0.72	0.89	1.07	1.43	1.79	2.15
150	0.50	0.66	0.83	0.99	1.32	1.66	1.99
125	0.45	0.60	0.76	0.91	1.21	1.51	1.81
100	0.41	0.54	0.68	0.81	1.08	1.35	1.62

1. If the mainline under test contains sections of various diameters, the allowable leakage will be the sum of the computed leakage for each size.
2. When testing against closed metal seated valves, an additional leakage shall be allowed per closed valve of 0.0078 gallons per hour, per inch of nominal valve diameter.
3. When hydrants are in the test section, the test shall be made against the closed hydrant(s).

E. Acceptance shall be determined on the basis of allowable leakage. If leakage in any test is greater than that specified, the Contractor shall locate and make repairs as necessary until the leakage is within the specified allowance.
1. All visible leaks are to be repaired regardless of the amount of leakage.
2. All water mains shall be pressure and leakage tested in the presence of the Engineer, in order to qualify for acceptance.

3.6 CHLORINATION

A. The method of chlorination shall be the Continuous Feed Method as described

hereinafter. Chlorination procedures will not be allowed until acceptable flushing and pressure testing has been performed and accepted. The continuous feed method consists of the following steps:

1. Prior to the application of chlorine, confirm that valves are closed to prevent back-feeding chlorine solution into the existing system.
2. At a point not more than 10 feet downstream from the beginning of the new main, fill the main with chlorinated potable water, having an initial concentration of 25 mg/l free chlorine residual.
    a. Water from the existing distribution system or other approved source of supply shall flow at a constant measured rate, into the new main. In the absence of a meter, the rate may be approximated by measuring the discharge rate at the end of the test section with a pito-gauge or by measuring the time to fill a container of known volume.
3. The application of chlorine solution shall continue until the entire main is filled with water having 25 mg/l of free available chlorine. To assure that 10 mg/l free chlorine residual concentration is achieved throughout the test section, the Contractor shall measure chlorine concentration at regular intervals.

B. The amount of chlorine required to obtain a concentration of 25 mg/l per 100 feet of various diameter mains is as follows.

Chlorine Required to Obtain 25 mg/l per 100 feet of Various Diameters

Main Diameter (inches)	Sodium Hypochlorite (gallons)				Calcium Hypochlorite (ounces)
	5% Available Chlorine	10% Available Chlorine	12.5% Available Chlorine	15% Available Chlorine	65% Available Chlorine
4	0.03	0.02	0.02	0.01	0.02
6	0.08	0.04	0.03	0.03	0.75
8	0.13	0.07	0.06	0.06	1.30
10	0.20	0.10	0.09	0.07	2.10
12	0.28	0.15	0.12	0.10	2.90
16	0.50	0.25	0.22	0.17	5.30
20	0.80	0.40	0.34	0.28	8.40
24	1.30	0.60	0.50	0.40	12.00

1. The above quantities are to be added to a sufficient quantity of water, dissolved, and mixed. The solution shall be injected into the main as specified.
2. The quantities shown are based on concentrations of available chlorine by volume. Extended or improper storage may have caused a loss of available chlorine.

C. The chlorinated water shall be retained in the main for a minimum of 24-hours. At the end of this 24-hour period, retest portions of the main to confirm that a minimum of 10 mg/l free available chlorine residual exists in the main. If the residual chlorine

is less than 10 mg/L, acceptable bacteria results may not be obtained.

D. All water main disinfection shall be performed in the presence of the Engineer and potentially the regulatory agency, in order to qualify for acceptance.

3.7 FINAL FLUSHING OF CHLORINATED WATER

A. After the initial 24-hour period, the heavily chlorinated water shall be flushed from the main until chlorine measurements show the concentration in water leaving the main is no higher than that generally prevailing in the system.

B. The Contractor shall obtain approval of location(s) for discharging the heavily chlorinated water, which will result from the chlorination procedures. Great care shall be exercised in the selection of the rate of flow and the discharge points, in order to minimize complaints, and damage to public or private property.

C. The heavily chlorinated water shall be suitably and thoroughly neutralized prior to disposal into the environment. In no case shall chlorinated or neutralized water be discharged directly into a water body. If necessary, state, federal, and local regulatory agencies should be contacted to determine special provisions for the disposal of heavily chlorinated water.

3.8 BACTERIOLOGICAL TESTS

A. After final flushing and before the water main is placed in service, water samples shall be collected twice (at least 16-hours apart) by the Water District's Engineer or Owner (Water District) and tested for bacteriological quality in accordance with standard methods. Water samples shall show the absence of coliform organisms and background bacteria.

B. If, during construction, trench water has entered the main, or if in the opinion of the Water District's Engineer excessive quantities of dirt or debris have entered the main, bacteriological samples shall be taken at intervals of approximately 200 feet and shall be identified as to location. Samples shall be taken of water that has stood in the main for at least 24-hours after final flushing has been completed.

C. Samples shall be obtained through a corporation cock and copper tubing installed by the Contractor.

D. The Water District Engineer or Owner (Water District) shall deliver samples to a laboratory approved by the Department of Health Services for bacterial analysis. The Owner shall pay for the cost of analysis. Only after each consecutive sample is approved shall the mains be incorporated into the water system. In the event that positive reports of contamination are received, the mains shall be flushed and chlorinated as many times as may be necessary to obtain approved (negative) results.

3.9 RE-CHLORINATION

A. If the initial chlorination fails to produce satisfactory bacteriological samples, the main shall be re-flushed and re-sampled. If re-sampling fails to produce acceptable results, the main shall be re-chlorinated until satisfactory results are obtained.

3.10 CHLORINATION PROCEDURES WHEN CUTTING INTO OR REPAIRING EXISTING MAINS

A. Trench Treatment. If during excavation the trench is either wet or filled with water, it is recommended that liberal quantities of hypochlorite tablets be applied to open

trench areas to lessen the danger from pollution.

B. The interior of all main and fittings used in making a repair shall be swabbed or sprayed with a 1 percent hypochlorite solution before they are installed.

C. If valve and hydrant locations permit thorough flushing toward the work location from both directions, it shall be done. Flushing shall be started as soon as the repairs are completed and shall be continued until discolored water is eliminated.

D. Slug Chlorination. Where practical and in addition to the procedures above, a section of main in which the break is located shall be isolated. All service connections shall be shut off, and the section flushed and chlorinated by the Slug Chlorination method. This method allows the chlorine dose to be increased to as much as 300 mg/l, and the contact time reduced to as little as 1-hour. After chlorination, the section shall be properly flushed until discolored water is eliminated and the water is free of noticeable chlorine odor.

E. Bacteriological samples shall be taken after repairs. If the direction of flow is unknown, samples shall be taken on each side of the main break. If positive samples are recorded, daily sampling shall be continued until two consecutive negative samples are recorded.

END OF SECTION

SECTION 15092

PIPE SLEEVES & SEALS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: Furnish and install wall sleeves and seals of the type(s) and sizes(s) and in the location(s) shown on the Drawings and specified herein.

1.2 QUALITY ASSURANCE

A. All iron and steel shall meet Buy America requirements and American Iron and Steel (AIS) requirements.
B. Provide and install all sleeves of the types specified herein, as shown on the Drawings and as directed by the Engineer.
C. Provide sleeves that are airtight, gastight or watertight as required.

PART 2 - PRODUCTS

2.1 TYPES AND LOCATIONS

A. Rubber Link Compression Seals:
    1. Acceptable Manufacturers:
        a. Link Seal by Thunderline Company
        b. Innerlynx by Advance Products and Systems
        c. Or equivalent.
    2. Multi-rubber link type with pressure plates, bolts, nuts and sealing element providing a leak proof seal. Model numbers provided below are based on Link Seal and are to establish type and level of quality.
    3. Potable/Clean Water Service (Model S61)
        a. Blue reinforced Nylon polymer pressure plates.
        b. 316 stainless steel nuts and bolts.
        c. Sealing element: Black EPDM NSF 61 certified.
        d. Temperature Rating: -40º to 250º F.
        e. Certified to NSF/ANSI standard 61.
    4. Refer to details on Drawings.
B. Rubber Casing End Seals:
    1. Rubber casing end seals shall be used on the earthen side of connections between casing pipes and carrier pipes.
    2. Wrap around style 1/8” synthetic rubber end seals with self-healing seam and stainless-steel restraint bands. Two 304 stainless steel bands shall be used on each end of the casing end seal for positive seal. Bands shall be a minimum of ¾” width and non-magnetic worm gear mechanism.
    3. Acceptable manufacturers:
        a. Model AW by Advance Products and Systems
        b. Model W by GPT
        c. Or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Rubber Link Compression Seals: Install as required and in strict accordance with the manufacturer's instructions and recommendations.

B. Rubber Casing End Seals: Install as required and in strict accordance with the manufacturer's instructions and recommendations.

END OF SECTION

WRIGHT-PIERCE
Engineering a Better Environment

TICONIC BRIDGE GAS MAIN CROSSING

SUMMIT NATURAL GAS

WATERVILLE/WINSLOW, MAINE

BIDDING/CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS

AUGUST 2022

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SUMMIT NATURAL GAS

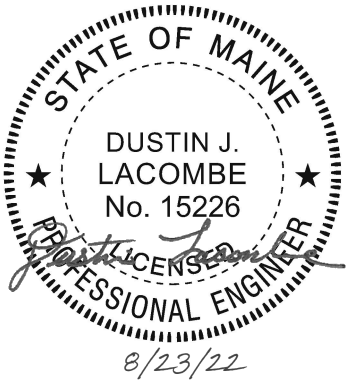
WATERVILLE/WINSLOW, MAINE

BIDDING/CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS

FOR

TICONIC BRIDGE GAS MAIN CROSSING

AUGUST 2022



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SUMMARY OF WORK

PART 1 - GENERAL

1.1 DESCRIPTION:

A. Work Included: Installing a new gas main on the Ticonic Bridge concurrent with the Maine Department of Transportation's (MaineDOT's) replacement of the bridge
   1. Construction of new 8-inch gas main on the new bridge. The work will also include:
      a. Furnish and install structural utility support members, clips and hardware.
      b. Furnish and install gas main hanger assemblies with galvanized threaded rod/hardware, and non-conductive rollers.
      c. Furnish and install 12-inch galvanized steel, flanged by plain end casing pipe, casing spacers, link seals, 12"x8" split flange plate, and hardware.
      d. Provide labor and equipment to support the installation of utility furnished 8-inch welded standard pipe, coated steel, 0.322in thick wall, API 5L, X-52, ERW, Beveled, 14-16 mil FBE (min.), DRL, 8.625in OD. Provide labor and equipment to support the installation of utility furnished expansion joints and end caps. Utility to preform all tasks associated with pipeline welding, joining, coating, testing and inspection.
      e. Other appurtenances as shown on the Drawings and specified herein.
   2. Provide labor and equipment to support utility performed testing of gas main, welds and completed pipeline.
   3. Other miscellaneous work shown in the Specifications to support the installation of a complete and operational system.

B. Related Work Specified Elsewhere
   1. N/A

C. Removals, Relocations and Rearrangements
   1. N/A

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 MAINTAIN EXISTING WORKS

A. Continuous Operations Criteria:
   1. The Contractor shall conduct operations in such a manner and sequence which shall neither result in a disruption of, nor interfere with, the functional workings of any existing utilities outside of planned shutdown periods. Refer to construction sequence below for further details.

B. Minimize Interference

1. The Contractor shall at all times conduct operations so as to interfere as little as possible with existing works. The Contractor shall develop a program, in cooperation with the Engineer, Owner, MaineDOT, affected customers, and interested officials, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as deviations therefrom are expressly permitted

3.2 CONSTRUCTION SEQUENCE

A. The Contractor shall submit to the Engineer for review and acceptance a complete schedule of the proposed sequence of construction operations prior to commencing any work. This schedule shall include the Contractor's plans for doing the work.

END OF SECTION

SECTION 01150B

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 DESCRIPTION

A. For lump sum items, payment shall be made to the contractor in accordance with an accepted progress schedule and schedule of values on the basis of actual work completed.

B. For unit-price items, payment shall be based on the actual amount of work accepted and for the actual amount of materials in place, as shown by final measurements.

1. All units of measurement shall be standard United States convention as applied to the specific items of work by tradition and as interpreted by the Utility's Engineer.
2. At the end of each day's work, the Contractor's Superintendent or other authorized representative of the Contractor shall meet with the Utility's Project Representative and determine the quantities of unit price work accomplished and/or completed during the workday.
3. The Utility's Project Representative will then prepare two "Daily Progress Reports" which shall be signed by both the Utility's Project Representative and Contractor's Representative.
4. Once each month the Utility's Project Representative will prepare two "Monthly Progress Summation" forms from the month's accumulation of "Daily Progress Reports" which shall also be signed by both the Utility's Project Representative and Contractor's Representative.
5. These completed forms will provide the basis of the Utility's Engineer monthly quantity estimate upon which payment will be made. Items not appearing on both the Daily Progress Reports and Monthly Progress Summation will not be included for payment. Items appearing on forms not properly signed by the Contractor will not be included for payment.
6. After the work is completed and before final payment is made, the Utility's Engineer will make final measurements to determine the quantities of various items of work accepted as the basis for final settlement.
7. As administrator to the construction contract, the MaineDOT's on site Resident shall be responsible for authorizing all payments relating to Utility Work, issuing all directives to the Project's Contractor, and making the final determination in the event of any disagreements. The Utility's Project Representative shall provide to MaineDOT's Resident copies of all the Daily Progress Reports of completed and accepted utility work, as well as copies of all the Monthly Progress Summation Reports. The reports will be used by MaineDOT to authorize payment to the project Contractor.

1.2 SCOPE OF PAYMENT

A. Payments to the Contractor will be made for the actual quantities of the Contract items performed and accepted in accordance with the Contract Documents. Upon

completion of construction, if these actual quantities show either an increase or decrease from the quantities given in the Proposal Form, the Contract Unit Prices will still prevail as per MaineDOT's Standard Specifications.

B. The Contractor shall accept compensation, as herein provided, in full payment for furnishing all materials, labor, tools, equipment, and incidentals necessary to the completed work and for performing all work contemplated and embraced by the Contract; also for all expenses incurred in consequence of the suspension of the work as herein authorized.

C. The payment of any partial estimate or of any retained percentage except by and under the approved final invoice, in no way shall affect the obligation of the Contractor to repair or renew any defective parts of the construction or to be responsible for all damage due to such defects.

1.3 PAYMENT FOR INCREASED OR DECREASED QUANTITIES

A. When alterations in the quantities of work not requiring supplemental agreements, as hereinbefore provided for, are ordered and performed, the Contractor shall accept payment in full at the Contract price for the actual quantities of work done. No allowance will be made for anticipated profits. Increased or decreased work involving supplemental agreements will be paid for as stipulated in such agreements.

1.4 OMITTED ITEMS

A. Should any items contained in the bid form be found unnecessary for the proper completion of the work contracted, the Engineer may eliminate such items from the Contract, and such action shall in no way invalidate the Contract, and no allowance will be made for items so eliminated in making final payment to the Contractor.

1.5 PAYMENT FOR MATERIAL DELIVERED

A. When requested by the Contractor and at the discretion of the Owner, payment may be made for all or part of the value of acceptable, non-perishable materials and equipment which are to be incorporated into bid items, have not been used and have been delivered to the construction site, or placed in storage places acceptable to the Owner. Payment shall be subject to the provisions of the General and Supplemental Conditions.

B. No payment shall be made upon fuels, supplies, lumber, false work, or other materials, or on temporary structures of any kind which are not a permanent part of the Contract.

1.6 FINAL PAYMENT

A. After final measurements are made by the MaineDOT and the Utility's Engineer, the Contractor will prepare a final quantity invoice of the amount of the Work performed and the value of such Work. Owner shall make final payments of the sum found due less retainages subject to provisions of the General and Supplemental Conditions.

1.7 INCIDENTAL WORK

A. Incidental work items for which separate payment will not be made includes, but is not limited to, the following items:

1. Dust control

2. Clean-up
3. Trench boxes, steel and/or wood sheeting as required, including that left in place
4. Project record documents
5. Quality assurance testing
6. Temporary construction and other facilities not to be permanently incorporated into the Work necessary for construction sequencing and maintenance of operations
7. Weather protection
8. Visits to the Project site or elsewhere by personnel or agents of the Contractor, including manufacturer's representatives, as may be required
9. On-site and other facilities acceptable to Utility's Engineer for the storage of materials, supplies and equipment to be incorporated into the Work.

1.8 DESCRIPTION OF PAY ITEMS

A. The following sections describe the measurement of and payment for the work to be done under the respective items listed in the Bid Form.

B. Each unit or lump-sum price stated in the Bid Form shall constitute full compensation, as herein specified, for each item of the work completed.

Item No 501.25 – Steel Casing, Flanged, 12-inch Galv

A. Method of Measurement: The quantity of casing pipe to be paid for under Item No. 501.25 shall be the actual length in feet as measured along the center line of the pipe as laid, including all casing spacers and seals.

B. Basis of Payment: Installation of casing pipe shall be paid for at the unit price per linear foot stated in the Bid Schedule. Said unit price shall be full compensation for furnishing all labor, materials, tools, and equipment to construct all flanged by plane end steel casing sleeves and all required appurtenances, except for work included for payment under other items.

Item No. 822.3407 - 8-inch Expansion Joint (Owner Furnished)

A. Method of Measurement: The quantity of gate valves to be paid for under Item Nos. 822.3407 shall be defined as the actual number of expansion joints installed complete in place.

B. Basis of Payment: Installation of expansion joints shall be paid for at the unit price per each stated in the Bid Schedule. Said unit price shall be full compensation for installing all materials, labor, equipment, and tools; for installing, setting, and jointing; for restraining joints; for testing all expansion joints and fittings (furnished by utility); and for all other work and expenses incidental thereto.

Item No 830.163 – Gas Main Bridge Crossing, Owner Furnished – 8 Inch Steel LF

A. Method of Measurement: The quantity of welded gas main to be paid for under Item No. 830.163 shall be the actual length in feet as measured along the center line of the pipe as installed including all fittings.

B. Basis of Payment: Installation of gas main shall be paid for at the unit price per linear foot stated in the Bid Schedule. Said unit price shall be full compensation for furnishing all labor, materials, tools and equipment required to support the installation of utility furnished gas main and utility welding, coating, joining, piping assembly testing and inspection to gas utility specifications and related work complete to the limits shown on the Drawings and as

specified and all its appurtenances in its entirety, including piping (furnished by utility), casing spacers, seals, split flange restraint plate, hardware, gaskets as necessary, and all required appurtenances, except for work included for payment under other items. Gas utility to perform all tasks associated with gas pipe welding, joining, coating, testing and inspection.

Item No 830.164 – Hanger/Roller Assemblies

A. Method of Measurement: The quantity of hanger assemblies to be paid for under Item No. 830.164 shall be the actual quantity installed.

B. Basis of Payment: Installation of hanger assemblies shall be paid for at the unit price per each stated in the Bid Schedule. Said unit price shall be full compensation for furnishing all labor, materials, tools, and equipment to construct all hanger assemblies, threaded rod, shields, rollers, hardware and all required appurtenances, except for work included for payment under other items.

Item No 845.102 – Single Structural Steel Utility Support (L5x5x5/16")

A. Method of Measurement: The quantity of structural steel utility support to be paid for under Item No. 845.102 shall be the actual quantity of units installed.

B. Basis of Payment: Installation of structural steel utility support shall be paid for at the unit price per each stated in the Bid Schedule. Said unit price shall be full compensation for furnishing all labor, materials, tools, and equipment to construct all intermediate utility support beams, clips, hardware and all required appurtenances, except for work included for payment under other items.

END OF SECTION

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APPENDIX B
CODE OF FAIR PRACTICES AND AFFIRMATIVE ACTION

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "Railroad") agrees as follows:

1. **Compliance with Regulations:** The Railroad shall comply with the Regulation relative to nondiscrimination in federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The Railroad, with regard to the work performed by it during the contract, shall 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 Railroad shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
3. **Solicitations for Subcontractors, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the Railroad for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Railroad of the Railroad's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** The Railroad shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the MaineDOT or its designee to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of the Railroad is in the exclusive possession of another who fails or refuses to furnish this information the Railroad shall so certify to MaineDOT or its designee as appropriate, and shall set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of the Railroad's noncompliance with the nondiscrimination provisions of this contract, MaineDOT shall impose such contract sanctions as it or its federal partner may determine to be appropriate, including, but not limited to:
   (a.) withholding of payments to the Railroad under the contract until the Railroad complies, and/or
   (b.) cancellation, termination or suspension of the contract, in whole or in part.
6. **Incorporation of Provisions:** The Railroad shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The Railroad shall take such action with respect to any subcontract or procurement as MaineDOT or its federal partner may direct as a means of enforcing such provisions including sanctions for non-compliance; Provided, however, that, in the event a Railroad becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Railroad may request that MaineDOT to enter into such litigation to protect MaineDOT’s interests, and, in addition, the Railroad may request the United States to enter into such litigation to protect the interests of the United States.

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APPENDIX C
"BUY AMERICA" CLAUSE

If the cost of products made of steel and purchased for permanent use in this project exceeds either 0.1 percent of the contract amount or $2,500.00, whichever is greater, the products shall have been manufactured and 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, may be from outside the United States; however, all other manufacturing processes of steel 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 jurisdiction thereof.

Products of steel include, but are not limited to, such products as structural steel, piles, guard rail, steel culverts, reinforcing steel, structural plate and steel supports for signs, luminaires and signals.

To assure compliance with this Special Provision, the Railroad shall submit a certification letter on its letterhead to the Project Inspector 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 in the United States."**

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APPENDIX D
PREVENTION OF HARASSMENT AMONG EMPLOYEES

It is the policy of the Maine Department of Transportation (MaineDOT) to enforce the provisions contained in all MaineDOT construction project contracts which provide that all parties have a right to work in an environment free from harassment, including sexual harassment. The MaineDOT prohibits all forms of sexual harassment in the workplace, on the job site or that which may have an effect on the work environment.

THEREFORE:

The Contractor hereby agrees to the following requirements in order to provide and promote a nondiscriminatory workplace free of sexual harassment:

1. No Contractor, supervisor or employee shall allow repeated, objectionable or unwanted verbal or physical advances, sexually explicit derogatory statements, or sexually discriminatory remarks that cause discomfort, humiliation or are in any way offensive to the recipient or which interfere with the quality of any employee's work environment in any way. Furthermore, no one on any job shall threaten or insinuate either explicitly or implicitly that any employee's submission to or rejection of sexual advances will have any effect on that person's employment, job assignment, training, evaluation, promotion, wages or any other term or condition of employment or future job opportunity. Contractors are responsible for ensuring and maintaining a work environment which is free from sexual harassment.

2. Any Contractor whose employee sexually harasses another employee shall be subject to disciplinary action. Contractors who fail to adequately and expeditiously investigate sexual harassment claims at the request of the MaineDOT or other authorized Federal or State agency may be subject to enforcement proceedings and such sanctions as are authorized by law. Contractors are required to provide detailed written reports to MaineDOT when so requested which shall describe the investigation and corrective actions taken by Contractors in all instances of sexual harassment allegations.

3. Contractors shall also be responsible for ensuring that no retaliation, reprisal or intimidation be directed against any complainant or other employee who provides information to any person or agency investigating an allegation or complaint of sexual harassment.

AUTHORITIES:

1. Executive Order 11246
2. Title VII of the Civil Rights Act of 1964
3. EEOC Guidelines on Sexual Harassment
4. PL 94-369 Title I, Section 110
5. 42 U.S.C. Chapter 80, Section 6709
6. 42 U.S.C. Chapter 21, Sections 2000e-2, 2000e-3(a) and 2000e-5(b)
7. 23 U.S.C. Chapter 1, Section 140(a) and Chapter 3, Section 324

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Town: **Winslow**
Route: **Benton Avenue**
WIN: **23138.00**
Date: **July 28, 2021**

APPENDIX E

PROTECTION OF RAILROAD TRAFFIC AND STRUCTURES SPECIAL PROVISIONS

1. GENERAL REQUIREMENTS

Part of the work required by the Contract will be performed within a railroad right of way and/or adjacent to the tracks, telephone, telegraph, signal and electric supply lines of a railroad or railroads. The Contractor agrees to perform all such work in compliance with all of the terms of this Special Provision and all safety rules, regulations, or standards applicable to the Railroad. The Contractor shall be fully responsible for all damages arising from his failure to comply with the requirements of this Special Provision. The Contractor shall be deemed to have included all costs in the unit prices of the Schedule of Prices and the Proposal.

2. AMOUNT OF RAILROAD WORK

The estimated amount of work to be done within (**50** feet) of the track **Springfield Terminal Railway** is **5%**of the contract.

3. NUMBER OF TRAINS AND TRAIN SPEED

The Contractor is notified that a maximum speed of (**10** mph) will be considered as prevailing for the operation of trains of the Railroad at this project and that the approximate number of trains per day at this project is **2**.

4. PRIORITY OF RAILROAD OPERATIONS

The train movements of the Railroad, and its lessees, and licensees shall have absolute priority over the performance of the Construction Project within the railroad right of way. The Contractor hereby agrees that the hours and times of work within the Railroad right of way must be coordinated through the Railroad and that such hours and times are subject to change without prior notice to the Contractor, unless other prior arrangements have been made through the Railroad.

5. AUTHORITY OF RAILROAD TO STOP WORK

If the Contractor fails to comply with the safety terms of this Special Provision, or if the Chief Engineer of the Railroad determines that the Contractor is using unsafe practices that threaten the safety of rail traffic, rail workers, or the general public, the Railroad shall have the right to immediately order the Contractor to cease work and vacate the

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Railroad's property. The Railroad agrees to confirm any cessation of work in writing by delivering to the Department's Construction Manager a completed Stop Work Order form attached as Exhibit A within 24 hours of giving any such order.

6. ENTRY UPON RAILROAD PROPERTY

The Railroad hereby agrees to permit the Contractor, together with their subcontractors, suppliers, consultants and engineers (the "Contractor"), to enter upon the Railroad property for the purpose of performing the Construction Project, PROVIDED THAT the Contractor complies with all of the terms of this Special Provision and all safety requirements and directions of the Chief Engineer of the Railroad, or his authorized representative (the "Railroad's Chief Engineer").

7. NOTICE REQUIRED BEFORE ENTRY

The Contractor shall give written notice to the Railroad's Chief Engineer at least **7** calendar day(s) in advance of the time it proposes to do work within the limits of the Railroad right-of-way or perform operations that may create a Hazard as specified by this Special Provision. The Contractor shall give such notice regardless of whether the work may also be within the limits of a public highway.

8. HAZARDS

The Contractor shall assess to its own satisfaction hazards which may be caused by its operations. At a minimum, the Contractor agrees that the following shall constitute Hazards.

An operating track shall be considered fouled and subject to hazard when any object is brought nearer than (**5** feet) to the gauge line of the near rail of the track.

A signal line or communication line shall be considered fouled and subject to hazard when any object is brought nearer than (**4** feet) to any wire or cable.

An electric supply line shall be considered fouled and subject to hazard when any object is brought nearer than (**10** feet) to any wire of the line.

Cranes, trucks, power shovels or any other equipment shall be considered as fouling and subjecting to hazard a track, signal line, communication or electric supply line when working in such position that failure of equipment, with or without load, could foul the track, signal line, communication or electric supply line.

Railroad operation will be considered subject to hazard when explosives are used in the vicinity of railroad premises, or during the driving or pulling of sheeting for any footing adjacent to a track, or when erecting structural steel adjacent to a track, or when

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performing work under, across or adjacent to a track, or when operations involve swinging booms or chutes that could in any way come nearer then (**15** feet) to the gauge line of the near rail of the track, or when erection or removal of staging, false work or forms fouls a track or wire line.

None of the operations specified as a Hazard above shall be carried on during the approach or passing of a train or without permission from the Railroad's Chief Engineer and the presence of a railroad inspector/flagman, unless other prior arrangements have been made through the Railroad.

9. MINIMUM CLEARANCES

During the construction of staging, false work or forms, the Contractor shall at all times maintain a minimum vertical clearance of (**22.5** feet) above the top of high rail and a minimum side clearance of (**10** feet) from the gauge line of the near rail where track is tangent. Additional side clearance must be maintained where track is on a curve.

10. WORK PLAN SUBMITTAL AND APPROVAL

The Contractor shall submit in writing to the Railroad's Chief Engineer or duly authorized representative, and the Department's Railroad Property Manager or his appointed representative, at least **30** calendar day(s) in advance of the start of the project, an outline of his plan for work within the Railroad right of way including contemplated method(s) of construction. This plan must meet with the approval of the Railroad's Chief Engineer and the Department's Railroad Property Manager in every respect. If the Contractor contemplates the use of "on the track equipment", it should so state and obtain from the Railroad the conditions pertaining to such operations. All Railroad costs included in this operation will be borne by the Contractor. In a like manner, any of the Contractor's equipment or material on cars for this project shall be handled in conformance with existing traffic rules with all costs borne by the Contractor.

Prior to submitting their Proposal, the Contractor shall have ascertained from the Railroad and from the Department's Railroad Property Manager or his appointed representative, all information relating to its requirements and regulations and all costs in connection with compliance thereto.

11. EXCAVATIONS

Before excavation for footings adjacent to tracks and/or within the Railroad's right-of-way may commence, whether or not also within the limits of a public highway, plans and calculations for such excavations, prepared by a Professional Engineer authorized to practice in Maine, shall be submitted to the Railroad's Chief Engineer for review and approval. Unless other prior arrangements have been made, the Railroad's Chief Engineer shall have **2** week(s) to perform such review and approval and issue a written

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permission to proceed with the excavation. No excavation shall proceed without such permission.

At a minimum, excavations must utilize proper bracing, shoring, sheeting or other support as determined by the Railroad's Chief Engineer, to support the tracks with railroad traffic. Open excavation shall be suitably planked over when construction operations are not in progress. No excavation work shall be performed by the Contractor within the limits of the Railroad right of way, whether or not also within the limits of a public highway, until the Contractor has ascertained from the Chief Engineer of the Railroad the location of any wires, conduits, pipes, cables or other railroad facilities below the surface of the ground. Damage to any such facilities caused by the failure of the Contractor to ascertain the location of such facilities or by failure to use due care to avoid injury to such facilities shall be at the expense of the Contractor.

12. EQUIPMENT

Equipment of the Contractor shall be in such condition so as to prevent failure that would cause delay in the operation of trains or damage to railroad facilities. Equipment shall not be placed or put in operation adjacent to a track without first obtaining permission of the Railroad. The Railroad agrees that such permission shall not be unreasonably withheld.

13. RAILROAD SERVICES - GENERALLY

When work is to be performed within the Railroad's right-of-way, the Railroad shall provide the services, equipment and materials provided in this Special Provision including, but not limited to, engineering, flagging, inspection, signal protection and/or relocation, and restoration or replacement of the Railroad's track structure or ballast. Further, if the Railroad's Chief Engineer determines that the Contractor's operations do not comply with all of the safety requirements of this Special Provision and all safety requirements and directions of said Chief Engineer, the Railroad will employ the necessary qualified employees to protect its trains and other facilities. The Contractor shall pay to the Railroad the cost for performing all Railroad Services unless said costs are to be paid by the Department as specified in this Special Provision.

14. INSPECTION / FLAGGING

The Railroad shall furnish and assign all inspectors / flaggers for general inspection purposes of general protection of railroad property and operations during construction as the Railroad's Chief Engineer determines are necessary to preserve safety.

(a) Responsibility for Cost. The Department will bear the cost of flagging or inspection (including travel time) or any combination thereof up to **200**-man days of said flagging or inspection. If, in the opinion of the Railroad's Chief Engineer, further

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services of a flagger or inspector will be required due to the operations of the Contractor, the services will be furnished and the cost thereof (salary, expenses, insurance, taxes and vacation allowance, etc.) shall be paid to the Railroad by the Department, and will be recovered by the Department from the Contractor.

(b) Terms. The minimum hours per day for the Railroad employees engaged in inspection flagging services shall be eight (8) hours. Time at rates for straight time, overtime or for deadheading starts in accordance with established practices in effect in the territory in which the project is located. Information as to these practices should be obtained from the Railroad's Chief Engineer.

The Contractor shall notify the Railroad's Chief Engineer and the Chief Engineer of the Department in writing **7** calendar day(s) before beginning, resuming or suspending work within (**25** feet) of the track, so that an inspector may be provided or removed in accordance with the requirements of this Special Provision. An inspector may be removed upon **3** calendar day(s) notice. Failure to give notice of intent to suspend work shall be cause of charge to the Contractor the cost of inspection during the period when work is suspended.

(c) Estimated Cost. The following is an estimate of the cost per day of inspection/flagging necessary for this project. The rates shown include all overhead charges, travel time, deadheading and personal expenses.

Date of estimate **3/1/2021**

Estimated daily rate for four (4) consecutive hours Monday-Friday (straight time): $**500**

Estimated daily rate for four (4) consecutive hours Saturday, Sunday, Holiday (overtime): **$750**

Estimated rate for hours worked in excess of eight (8) hours in any one day: $**187.50/hour**

Rates charged will be those in effect at the time of the performing the inspection/ flagging which may be different than the rates used at the date of the Estimate. The Railroad agrees to notify the Department if rates used to calculate the above estimates change before the date of bids are received for this Contract.

(d) Definitions.

Man day (M.D.) - eight (8) consecutive hours or any portion thereof.

Overtime - Each additional hour or fraction thereof consecutive to and beyond the standard man day will count as 3/16 of a man day.

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Standard Man day - Eight (8) consecutive hour, Monday - Friday between the hours of **7** a.m. to **3:30** p.m. unless otherwise noted and agreed to by all parties.

Travel Time - Time required by flagger and/or inspector to commute between his or her point of headquarters to the project site. This time shall not be charged in determining available man days.

15. OTHER CONTRACTOR RESPONSIBILITIES

The restoring and resurfacing of tracks, if disturbed due to Contractor's operations, shall be at the expense of the Contractor.

Any other changes made, or services furnished by the Railroad as a result of the Contractor will be at the Contractor's expense.

16. EXTRA-CONTRACT SERVICES

Temporary and permanent changes of tracks and telephone, signal and electric supply lines made necessary by or to clear the permanent work of the Contractor as shown on the construction plans and included in the Railroad force account as recollect able from the State will be made or caused to be made by the Railroad without expense to the Contractor.

17. INDEMNIFICATION

Where work is being performed over, under, across or adjacent to Railroad premises, the Contractor shall defend, indemnify and save harmless the Railroad and the Maine Department of Transportation from and against any and all loss, cost, damage, claims, suits, demands, or liability for damages for personal injury including death and for damage to property, which may arise from or out of the operations conducted under his contract, occurring by reason of any act or omission of the Contractor, his agents, servants or employees, or by reason of any act or omission of any subcontractor, his agents, servants or employees.

18. INSURANCE

In addition to any other forms of insurance or bonds required under the terms of the Contract, the Contractor will be required to procure and maintain, at its sole cost and expense, the following insurance coverages naming the Railroad as an insured.

(a) Railroad Protective Liability Insurance with limits not less than **$2 Million** per single occurrence and **$6 Million** per aggregate total occurrences.

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(b) Comprehensive General Liability Insurance protecting against liability from bodily injury or property damage arising out of the Construction Project with limits of not less than **$2 Million** per single occurrence and **$6 Million** per aggregate total occurrences.
(c) Workers Compensation and Occupational Disease Insurance, as required by law.

(d) Automobile Liability Insurance covering all motor vehicles used about or in connection with the Construction Project.

If any part of the work is sublet, these insurance coverages shall be provided by or on behalf of the subcontractors to cover their operations

Each policy shall carry an endorsement covering the "save harmless" clause in favor of the Railroad and the Maine Department of Transportation, as set forth in the paragraph, "Responsibility for Damage Claims".

If blasting is to be done in the vicinity of the Railroad, the insurance policies shall include such coverage.

The policies shall be in force before any work is done on the project and shall remain in effect until all work required to be performed under the terms of the contract is satisfactorily completed as evidenced by the formal acceptance by the State and the Railroad.

Before any work is done on the project, the Department of Transportation and the Railroad's Chief Engineer shall be furnished certificates of each policy. Further, the original policy of the Comprehensive General Liability Insurance and the Railroad Protective Liability Insurance shall be furnished to the Railroad's Chief Engineer and a duplicate shall be furnished to the Department of Transportation.

The policy or policies of the Railroad's protective public liability and property damage liability shall be written by a Company authorized to do business in the State of Maine, and shall be signed by the President and Secretary of the Insurance Company and shall be countersigned by an authorized representative of the Company.

19. **ROADWAY WORKER SAFETY REGULATION**

Notice to all Contractors/Subcontractors and individuals must be aware of the Federal Roadway Worker Safety Regulation, CFR 49, Part 214(c). They may be required to comply with this regulation. Any requirements for them to comply will be discussed at the pre-construction utility meeting.

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Town: **Winslow**
Route: **Benton Avenue**
WIN: **23138.00**
Date: **July 28, 2021**

EXHIBIT A
ORIGINAL TO CONTRACTOR

MDOT/RAILROAD STOP WORK ORDER

Section A - Contractor	Town
	DOT Railroad Project #
Railroad Name	Location
	Notice #
DESCRIPTION OF SAFETY HAZARD/REASON FOR ORDER	
Standard Violated	RAC (Risk Assessment Code) **N/R**
Railroad Official (Flagger/Inspector) Name Signature	Date
SECTION B - ACTION TAKEN:	

cc: MDOT - R.E. or Inspector
MDOT - Utility Section
MDOT - Construction Division
Railroad - Chief Engineer

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1. Risk Assessment. Each identified/validated hazard shall be assigned a Risk Assessment Code (RAC) by the Safety Office. The RAC represents the degree of risk associated with the deficiency and combines the elements of hazard severity and mishap probability. The RAC is derived as follows:

a. Hazard Severity. The hazard severity is an assessment of the worst potential consequence: Defined by degree of injury, occupational illness, or property damage, which is likely to occur as a result of a deficiency. Hazard severity categories shall be assigned by roman numeral according to the following criteria.

(1) Category I - Catastrophic: The hazard may cause death or loss of a facility.

(2) Category II - Critical: May cause severe injury, severe occupational illness, or major property damage.

(3) Category III - Marginal: May cause minor injury, minor occupational illness, or minor property damage.

(4) Category IV - Negligible: Probably would not affect personnel safety or health but is nevertheless in violation of a NAVOSH standard.

b. Mishap Probability. The mishap probability is the probability that a hazard will result in a mishap, based on an assessment of such factors as location, exposure in terms of cycles or hours of operation, and affected population. Mishap probability shall be assigned an Arabic letter according to the following criteria:

(1) Sub-category A - Likely to occur immediately or within a short period of time.

(2) Sub-category B - Probably will occur in time.

(3) Sub-category C - May occur in time.

(4) Sub-category D - Unlikely to occur.

c. Risk Assessment Code. The RAC is an expression of risk which combines the elements of hazard severity and mishap probability. Using the matrix shown below, the RAC is expressed as a single Arabic number that can be used to help determine hazard abatement priorities.

	Mishap Probability					RAC
		A	B	C	D	1 - Critical
Hazard Severity	I	1	1	2	3	2 - Serious
	II	1	2	3	4	3 - Moderate
	III	2	3	4	5	4 - Minor
	IV	3	4	5	5	5 - Negligible

July 08, 2022
Supersedes June 10, 2022

2020 STANDARD DETAIL UPDATES

Standard Details and Standard Detail updates are available at:
http://maine.gov/mdot/contractors/publications/standarddetail/

Detail #	Description	Revision Date
502(19)	Bridge Drains	12/08/2021
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	2/11/2021
507(23)	Steel Approach Railing 3-Bar	2/11/2021
507(27)	Steel Approach Railing	2/11/2021
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
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(23)	Standard Bridge Transition – Type “1”	2/11/2021
606(24)	Standard Bridge Transition – Type “1A”	2/11/2021
608(02)	Detectable Warnings	6/10/2021
609(09)	Precast Concrete Vertical Curb	2/11/2021
627(07)	Crosswalk	2/22/2022
627(08)	Crosswalk	2/22/2022
643(11)	ATCC Cabinet	12/14/2020
801(11)	Pedestrian Ramp Notes	6/10/2021
801(12)	Pedestrian Ramp Requirements	8/13/2021
801(13)	Ramp Length Table	6/10/2021

801(14)	Parallel Pedestrian Ramp	6/10/2021
801(15)	Perpendicular Pedestrian Ramp – Option 1	6/10/2021
801(16)	Parallel Pedestrian Ramp – Option 2A	6/10/2021
801(17)	Perpendicular Pedestrian Ramp – Option 2A	6/10/2021
801(18)	Parallel Pedestrian Ramp – Option 2B	6/10/2021
801(19)	Perpendicular Pedestrian Ramp – Option 2B	6/10/2021
801(20)	Parallel Pedestrian Ramp – Option 3	6/10/2021
801(21)	Perpendicular Pedestrian Ramp – Option 3	6/10/2021
801(22)	Side Street Pedestrian Ramp	6/10/2021
801(23)	Parallel Pedestrian Ramp – Esplanade	6/10/2021
801(24)	Perpendicular Pedestrian Ramp – Esplanade	6/10/2021
801(25)	Island Crossings	6/10/2021
801(26)	Blended Transition	6/10/2021
801(27)	Pedestrian Ramp Adjacent to Driveway or Entrance	6/10/2021
802(05)	Roadway Culvert End Slope Treatment	1/03/2017

SUPPLEMENTAL SPECIFICATIONS
(Corrections, Additions, & Revisions to Standard Specifications – March 2020)

SECTION 101
CONTRACT INTERPRETATION

101.2 Definitions

Holidays Amend this paragraph by adding "**Juneteenth**" between 'Memorial Day' and 'Independence Day'.

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 104
GENERAL RIGHTS AND RESPONSIBILITIES

104.2.1 Furnishing of Right-of-Way Revise the last sentence in the first paragraph by removing "105.4.5 – Special Detours" and replacing it with "**105.4.5 – Maintenance of Existing Structures**.".

SECTION 105
GENERAL SCOPE OF WORK

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."

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"

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

108.4.1 Price Adjustment for Hot Mix Asphalt Revise the first paragraph of this section by replacing the first sentence with the following:

"**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."**

SECTION 110
INDEMNIFICATION, BONDING, AND INSURANCE

110.3.9 Administrative & General Provisions Amend this subsection by adding "**Automobile Liability**" under letter A) Additional Insured to the list of exceptions.

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 502
STRUCTURAL CONCRETE

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: "

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 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 sublot
Compressive Strength	AASHTO T-22 @ 7days	On Project	One set per sublot

* 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.**

502.18, 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 Size								
Bar Type	#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 accordancewith 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."

SECTION 506
SHOP APPLIED PROTECTIVE COATING – STEEL

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 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 ¼ inch per 10 feet of barrier section and shall not exceed ¾ inches per section.

c. Location of anchoring holes shall not vary by more than ½ inch from the dimensions shown in the concrete barrier details on the Plans.

d. Surface straightness shall not vary more than ¼ 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:

	Pay Item	Pay Unit
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”

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

535.24, 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.

Anchorages 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 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:

Pay Item		Pay Unit
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 608.022Detectable 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

609.02 Materials Revise the paragraph beginning "The Contractor shall submit a concrete mix…" so that it reads:

"**The Contractor shall submit a concrete mix design for the Portland Cement Concrete to the Resident, with a minimum designed compressive strength of 3000 psi concrete fill**."
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609.03 Vertical Stone Curb, Terminal Section and Transition Sections and Portland Cement Concrete Curb, Terminal Sections and Transition Sections Revise this section by underlining the section number and title so that it reads in the spec book as:

"**609.03 Vertical Stone Curb, Terminal Section and Transition Sections and Portland Cement Concrete Curb, Terminal Sections and Transition Sections**"

Revise the last paragraph beginning with "The Contractor may elect…" so that it reads:

"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 Department's Qualified Products list (QPL). Concrete backfill shall be completed in conformance with a Department supplied concrete backfill detail."**

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 626.031Conduit 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

627.06 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 reflectivety 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 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."

643.09 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

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."

652.4 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 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
⅜ 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 ⅜ 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	A	AA	S	LATEX
Aggregate Size	1 inch	¾ inch	1½ inch	½ inch
2 inch			100	
1½ inch	100		95-100	
1 inch	95-100	100	-	
¾ inch	-	90-100	35-70	100
½ inch	25-60	-	-	90-100
⅜ inch	-	20-55	10-30	40-70
No. 4	0-10	0-10	0-5	0-15
No. 8	0-5	0-5	-	0-5
No. 16	-	-	-	-
No. 50	-	-	-	-
No. 200	0 - 1.5	0 - 1.5	0 - 1.5	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:

a. Class F Coal Fly Ash meeting the requirements of AASHTO M 295
b. Ground Granulated Blast Furnace Slag (Grade 100 or 120) meeting the requirements of AASHTO M 302
c. Densified Silica Fume meeting the requirements of AASHTO M 307
d. Lithium-based admixtures
e. 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.

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.

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 AWPA 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 AWPA approved species, or spruce, cedar, tamarack or other AWPA 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 AWPA 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 AWPA 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 AWPA U1, UC4A Commodity Specification B: Posts.

710.08 Guardrail Hardware Revise this subsection by replacing "**AASHTO M 298**" with "**ASTM B965**"

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 713.02 High Strength Bolts
Revise the second sentence of this subsection so that it reads "**Nuts shall meet the requirement ofASTM A563**". Revise the third sentence of this subsection so that it reads "**Circular and beveled washers shall conform to the requirement of ASTM F436**".

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 720
STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS

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 AWPA 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 AWPA 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 then 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."

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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.

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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 that 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.

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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:

Goals for female participation in each trade 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 0.5%
(Androscoggin)

6403 Portland, ME 0.6%
(Cumberland, Sagadahoc)

Non-SMSA Counties: 0.5%
(Franklin, Kennebec, Knox, Lincoln, Oxford, Somerset, York)

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 make 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 through 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 sat 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

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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) 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.

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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."

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Start of FHWA 1273 REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS (As revised through July 5, 2022)

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Non-segregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
XI. Certification Regarding Use of Contract Funds for Lobbying
XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient 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, which may include, but is 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.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding (29 CFR 5.5)

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records (29 CFR 5.5)

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or

subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees (29 CFR 5.5)

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the

corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility (29 CFR 5.5)

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1 of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph 1 of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1 of this section. 29 CFR 5.5.

* $27 as of January 23, 2019 (See 84 FR 213-01, 218) as may be adjusted annually by the Department of Labor; pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990).

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 2 of this section. 29 CFR 5.5.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 1 through 4 of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1 through 4 of this section. 29 CFR 5.5.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance

with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.326.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.326.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant

who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is

submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(a) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(b) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(c) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier

subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor 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. 46 CFR 381.7.

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 (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

End of FHWA 1273

APPENDIX A

To

2022 Title VI Implementation Plan

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 the ***Federal Highway Administration (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 ***Highway Program:***

1. The Recipient agrees that each "activity," "facility," or "program," as defined in §§ 21.23(b) and 21.23(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 ***Federal-Aid Highway Program activities*** and, in adapted form, in all proposals for negotiated agreements regardless of fundingsource:

> "The ***Maine Department of Transportation,*** in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 US.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 C and G of this Assurance in every contract or agreement subject to the Acts and the Regulations.

4. The Recipient will insert the clauses of Appendix E 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 D and Appendix F 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, the ***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 and USDOT*** 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 and USDOT***. You must keep records, reports, and submit the material for review upon request to ***FHWA and USDOT***, 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.

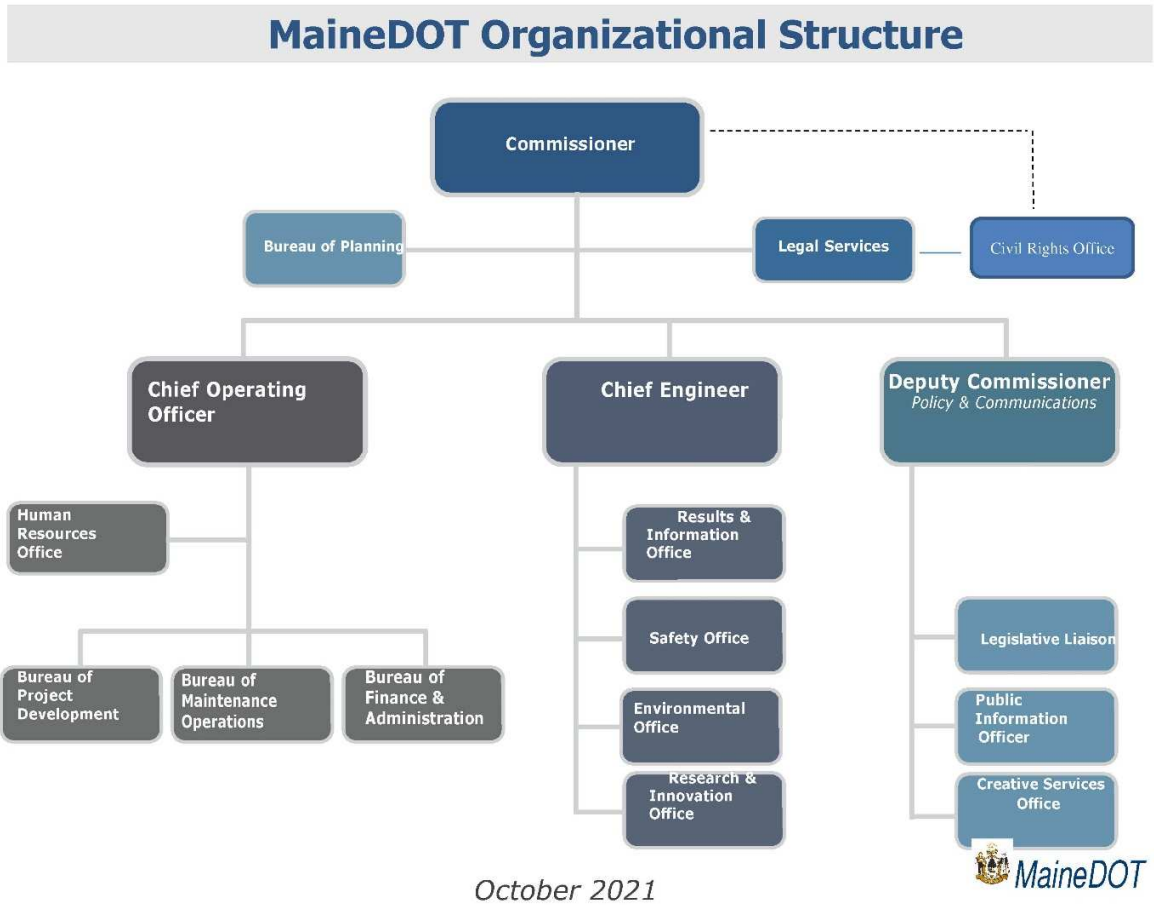
The ***Maine Department of Transportation*** gives this ASSURANCE in consideration of and for obtaining any Federal grants, loans, contracts, agreements, property, and/or discounts, or other Federal-aid and Federal financial assistance extended after the date hereof to the recipients by the U.S. Department of Transportation under the ***Federal Aid Highway Program***. This ASSURANCE is binding on ***Maine,*** other recipients, sub-recipients, sub-grantees, contractors, subcontractors and their subcontractors', transferees, successors in interest, and any other participants in the ***Federal Aid Highway Program***. The person(s) signing below is authorized to sign this ASSURANCE on behalf of the Recipient.

MAINE DEPARTMENT OF TRANSPORTATION
(***Name of Recipient***)

by _____
Bruce A. Van Note, Commissioner

DATED Sept. 13, 2021

APPENDIX B


MaineDOT Organizational Structure
Commissioner
Bureau of Planning
Legal Services
Civil Rights Office
Chief Operating Officer
Chief Engineer
Deputy Commissioner
Policy & Communications
Human Resources Office
Bureau of Project Development
Bureau of Maintenance Operations
Bureau of Finance & Administration
Results & Information Office
Safety Office
Environmental Office
Research & Innovation Office
Legislative Liaison
Public Information Officer
Creative Services Office
MaineDOT
October 2021

APPENDIX C

Performance Requirements

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 Highway Administration (FWHA), 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 Nondiscrimination 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 D

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 23 IJ.S. Code 5 107, the Regulations for the Administration of the Federal Aid Highway 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. S 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 l,] [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, US. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination 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 [i 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 E

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 Nondiscrimination 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 F

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 the 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 Nondiscrimination covenants, the 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 Nondiscrimination covenants, the Maine Department of Transportation 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 G

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 nondiscrimination 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. 5 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.Ce 5 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. 5 324 et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. S 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. 5 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC 5 471, 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 Il and Ill 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. 55 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. 5 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 Non-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).

APPENDIX H

FEDERAL HIGHWAY ADMINISTRATION CIVIL RIGHTS ASSURANCE

The Maine Department of Transportation HEREBY CERTIFIES THAT, as a condition of receiving Federal financial assistance under the Federal Transit Act of 1964, as amended, it will ensure that:

1. No person on the basis of race, color or national origin will be subjected to discrimination in the level and quality of transportation services and transportation-related benefits.

2. The Maine Department of Transportation will compile, maintain, and submit in a timely manner Title VI information required in compliance with the Department of Transportation's Title VI regulation, 49 CFR Part 21.9.

3. The Maine Department of Transportation will make it known to the public that those person or persons alleging discrimination on the basis of race, color or national origin as it relates to the provision of transportation services and transportation-related benefits may file a complaint with the Federal Highway Administration and/or the U.S. Department of Transportation.

The person or persons whose signature appears below is authorized to sign this assurance on behalf of the grant applicant or recipient.

DATE: 7/23/21

Bruce A. Van Note, Commissioner
Maine Department of Transportation

APPENDIX I

TITLE VI/NONDISCRIMINATION POLICY STATEMENT

The Commissioner of the Maine Department of Transportation (MaineDOT) is ultimately responsible for and committed to the effective implementation of the Title VI Program to achieve compliance with Title VI of the Civil Rights Act of 1964, as amended, the Civil Rights Restoration Act of 1987, and related statutes and regulations in all Federal programs and activities. Understanding that the Commissioner will not be performing any day-to-day implementation duties, the MaineDOT conducts its Title VI/Environmental Justice Program in a team approach by involving personnel from all program areas, with guidance from the Title VI Coordinator. Responsibility for the day to day administration of the Program will be delegated to the Title VI Program Coordinator who is currently the Director of the Civil Rights Office. The Title VI Program Coordinator has been delegated sufficient authority and responsibility to effectively carry out her duties.

The Title VI Program Coordinator ensures MaineDOT's compliance with Title VI/Environmental Justice implementing regulations. Bureau Directors are responsible for Program implementation in their Bureaus and shall identify and delegate Title VI/Nondiscrimination Federal Program Area Liaisons to perform the routine data collection/data analysis and process reviews.

Inquiries concerning the MaineDOT's policies, investigations, complaints, compliance with applicable laws, regulations, and concerns regarding compliance with Title VI/Environmental Justice may be directed to:

Maine Department of Transportation
16 State House Station
Augusta, Maine 04333-1116
Telephone (207) 624-3066 | TTY users Dial Relay: 711
sherry.tompkins@maine.gov

MaineDOT is committed to ensuring that the fundamental principles of equal opportunity are upheld in all decisions involving our employees and contractors/consultants, and to ensuring that the public-at-large is afforded access to all of our programs and services whether those programs and activities are federally funded or not.

This Policy Statement will be circulated throughout the MaineDOT, made available to the public, and be included by reference in all contracts, agreements, programs and services administered by the Department of Transportation.

Date: 7/23/21

Bruce A. Van Note, Commissioner

APPENDIX J

SAMPLE QUESTIONS FOR PROGRAM AREA REVIEWS

Bureau of Planning

- What measures do you take to ensure that a cross-section of people representative of the populations affected by the Department's projects, including identifying and proactively reaching out to various and diverse social, economic and ethnic groups, participate in the Department's Public Involvement Process?
- How do you ensure that appropriate accommodations are made for persons with Limited English Proficiency (LEP) (persons who have difficulty speaking, reading, writing and/or understanding English)? Were interpreters available when needed to assist with LEP needs?
- How do you collect and analyze statistical data on race, color and national origin of populations in all areas impacted by the Department's programs or services?

Bureau of Project Development

Property Office

- What mechanisms are used to identify what communities (minority, LEP) are represented in the negotiation phase of property acquisition?
- How do you ensure that Property Office staff who have direct contact with persons affected by the Department's acquisition of property needed for projects, including compliance with the Uniform Relocation Act of 1970?
- Have you received any complaints related to discrimination on the basis of race, color or national origin? How many and how did you process them?

Multimodal Program

- How do you ensure that Local Public Agencies (LPA) provide the Department with signed Title VI assurances (Form 1050.2A), including Appendices A and K, annually?
- How do you ensure that LPAs include in their subcontracts FHWA Form 1273 and Title VI Assurances, including Appendices A and K?
- Have you received any complaints related to discrimination on the basis of race, color or national origin? How many and how did you process them?
- How do ensure that public meetings and notices related to LPA projects comply with Title VI?

Bureau of Maintenance and Operations

- How do you ensure that the Bureau's activities comply with Title VI requirements of nondiscrimination on the basis of race, color or national origin?
- Have you received any complaints related to discrimination on the basis of race, color or national origin? How many and how did you handle them?

APPENDIX K

Subrecipient Reviewed: _____ Date(s) of Desk Audit _____

Reviewer(s) _____

- ☐ Title VI/Nondiscrimination Policy Statement
- ☐ Title VI/Nondiscrimination Assurances
- ☐ Name and position of Title VI/Nondiscrimination Coordinator
- ☐ Title VI/Nondiscrimination Plan
- ☐ Procedures for processing external discrimination complaints
- ☐ A list of external discrimination complaints and lawsuits
- ☐ Any Accommodations for Limited English Proficient Persons
- ☐ Addressing Environmental Justice in minority populations and low-income populations
- ☐ Ensuring nondiscrimination in the public participation process
- ☐ Collecting and analyzing data to ensure nondiscrimination in programs and activities
- ☐ Process for ensuring that solicitations for bid/requests for proposals contain the Title VI/Nondiscrimination Assurance paragraph
- ☐ Process for ensuring subcontracts contain the appropriate contract provisions and language from the Title VI Assurances
- ☐ Process for Ensuring nondiscrimination in the award of contracts
- ☐ Developing a Title VI/Nondiscrimination Annual Work Plan & Accomplishment Report

APPENDIX L

SUB-RECIPIENT TITLE VI COMPLIANCE ASSESSMENT TOOL

23 Code of Federal Regulations (CFR) Part 200.9 (b)(7) requires that the Maine Department of Transportation (MaineDOT) conduct periodic reviews of cities, planning agencies and other recipients of federal-aid highway funds, including locally public agencies, to ensure that they are complying with Title VI of the Civil Rights Act of 1964. Title VI states that "no person in the United States shall be excluded from participation, denied the benefits of, or be subjected to discrimination in any Federally-funded program, policy or activity on the basis of race, color or national origin."

MaineDOT has developed this assessment as a means of determining sub-recipient compliance; helping sub-recipients understand their Title VI responsibilities; and assisting MaineDOT in planning future training and technical assistance.

This assessment is part of MaineDOT's Title VI review process and has been designed to take only a few minutes of your time. Please fax (207-624-3021) or mail (16 State House Station, Augusta, ME 04333-0016) the completed questionnaire with attachments to: Sherry Tompkins, Director of Civil Rights, no later than August 30, 2021

Questions or concerns may be emailed to: sherry.tompkins@maine.gov or you may reach Sherry by phone at (207) 624-3066.

Baseline Questionnaire

1. Name of your Agency: _____

2. Number of full-time and part-time employees: F/T _____ P/T _____

3. Has your agency provided written Title VI Assurances to MaineDOT? If not, please attach a copy. _____

4. Does your agency physically include the Civil Right Special Provisions (FHWA-Form 1273) in all contracts and ensure that they are included in all sub-contracts, including third-tier contracts? _____

5. Who is the Title VI contract person for your agency? _____.
Does this person accept complaints from the public? _____ If not, who does?_____.
Please include title, email and telephone number for each person listed. _____

6. In the past three years, has your agency been named in a discrimination complaint or lawsuit? _____. If so, when and what was the nature of the complaint or lawsuit and the outcome. _____

_____

_____

_____

7. Does your agency have a written discrimination complaint process? If so, please attach a copy. _____

8. Has your agency made the public aware of the right to file a complaint? _____ If so, by what mechanism _____

_____. Please attach a copy.

9. Does your agency provide free translation services for persons with Limited English Proficiency (LEP)? _____. Please explain _____

_____

_____

_____

10. In the past twelve (12) months, what has your agency done to receive and consider input from all citizen groups, especially minority, low income, disabled and transit-dependent? Please describe, if applicable. _____

_____

_____

_____

11. Does your agency have a method to collect racial and ethnic data on citizens impacted by your projects? _____. If so, please describe. _____

_____

_____

_____

12. Does your agency include the required Disadvantaged Business Enterprise (DBE) assurance language at 49 CFR 26.13(a) and (b) verbatim in all financial agreements, contracts and sub-contracts? (Please see DBE Assurance language below.) _____

****

§26.13 What assurances must recipients and contractors make?

(a) Each financial assistance agreement you sign with DOT operating administration (or a primary recipient) must include the following assurance:

The recipient 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. The recipient shall take all necessary and reasonable steps under 49 CFR Part 26 to ensure nondiscrimination in the award and administration of DOT assisted contracts. The recipient's DBE program, as required, by 49 CFR Part 26 and as approved by DOT, is incorporated by reference in this agreement. 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 recipient of its failure to carry out its approved program, the Department may impose sanctions as provided for under Part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S. C. 3801 et seq.).

(b) Each contract you sign with a contractor (and each sub-contract the prime contractor signs with a sub-contract) must include the following assurance:

The contractor, sub recipient or sub-contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contactor 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 breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

****

13. Does your agency monitor DBEs on construction projects to ensure they are performing a commercially useful function (CUF)? _____. If so, where is this documented? _____.
If a DBE is not performing a CUF, what actions for steps have you taken? _____

_____

_____

Who do you notify? _____

14. Do you have any questions regarding this assessment or Title VI? _____ Please include them here along with your email address and/or phone number and a MaineDOT representative will respond. _____

15. Would your agency like Title VI training or other Civil Rights technical assistance from MaineDOT? _____. If yes, please explain. _____

Does your agency have teleconferencing ability? _____

16. Please provide the name, title and contact information of the person who completed this baseline assessment. _____

17. Provide an annual report on Title VI accomplishments for the previous year and goals for the next year. _____

APPENDIX M

Maine Department of Transportation
External Discrimination Complaint Form

(Title VI/Nondiscrimination and ADA/Section 504 Complaints)

Name	Phone	Name of Person(s) That Discriminated Against You

Address	Location and Position of Person (If Known)
City, State, Zip	**City, State, Zip**

Agency involved	Date of Alleged Incident
Discrimination Because of: ☐ Race ☐ Color ☐ National Origin ☐ Sex ☐ Age ☐ Disability	**What Remedy are you requesting?**

Explain As Briefly And Clearly As Possible What Happened And How You Were Discriminated Against. Indicate Who Was Involved. Be Sure To Include How Other Persons Were Treated Differently Than You. Also Attach Any Written Material Pertaining To Your Case.

Signature	Date

Please Mail Complaint to:

Maine Department of Transportation
Civil Rights Office
 # 16 State House Station
Augusta, Maine 04333-0016
Or Call (207) 624- 3066 or TYY Relay 711

APPENDIX N

MaineDOT

Integrity • Competence • Service

NON-DISCRIMINATION/TITLE VI POSTER

Title VI and Nondiscrimination Commitment to all USDOT funded programs:
Pursuant to Title VI of the Civil Rights Act of 1964 and related laws and regulations, MaineDOT will not exclude from participation in, deny the benefits of, or subject to discrimination anyone on the grounds of race, color, national origin, sex, age or disability.

Complaint Procedures:
MaineDOT has established a discrimination complaint procedure and will take prompt and reasonable action to investigate and eliminate discrimination when found. Any person who believes that he or she has been aggrieved by an unlawful discriminatory practice under Title VI has a right to file a formal complaint with MaineDOT. Any such complaint must be in writing and filed with the MaineDOT Title VI Coordinator within one hundred eighty (180) calendar days following the date of the alleged discriminatory occurrence. For more information, please contact the MaineDOT's Title VI Coordinator.

ADA/504 Statement:
Pursuant to Section 504 of the Rehabilitation Act of 1973 (Section 504), the Americans with Disabilities Act of 1990 (ADA) and related federal and state laws and regulations, MaineDOT will make every effort to ensure that its facilities, programs, services, and activities are accessible to those with disabilities. MaineDOT will provide reasonable accommodation to disabled individuals who wish to participate in public involvement events or who require special assistance to access MaineDOT facilities, programs, services or activities. Because providing reasonable accommodation may require outside assistance, organization or resources, MaineDOT asks that requests be made at least five (5) calendar days prior to the need for accommodation. Questions, concerns, comments or requests for accommodation should be made to MaineDOT's ADA Coordinator.

Services are provided free without charge for individuals with special needs with disabilities. Any fees will be paid by the recipient or subrecipient. The public will have access to translators, "I Speak Cards", TTY/TDD services and vital documents translated when requested.

MaineDOT Title VI

Sherry Y. Tompkins, Director
Civil Rights Office
Maine Department of Transportation
16 State House Station
Augusta, Maine 04333
Office Phone: (207) 624-3066
Cell Phone: (207) 592-0686
TYY: Users Dial MAINE RELAY 711

Call Us with Questions

If you believe that you have been discriminated against because of your race, color, national origin, sex, age, disability or income level, or because you have difficulty with the English language, call us at 207-624-3056. MaineDOT's Civil Rights Office will explain the process for filing a complaint. Complaint forms are on our website.

mainedot.gov/civilrights/title-vi

Language translation services available upon request.

Services de traduction de langue disponibles sur demande.

Servicios de traducción disponibles bajo petición.

要求提供的 语言翻译服务。

Lugha ya tafsiri huduma inapatikana juu ya ombi.
Ladenan panarjamahan Basa aya kana paménta.

خدمات الترجمة اللغة متاحة عند الطلب

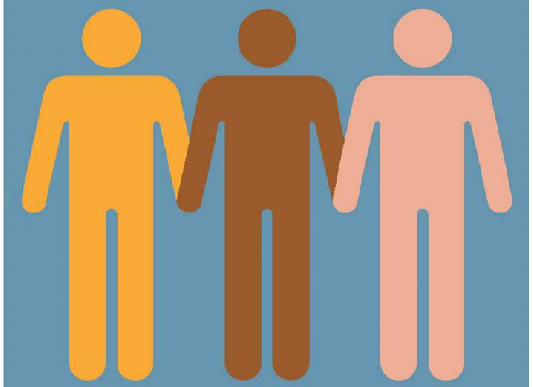
Có các dịch vụ phiên dịch khi quý vị yêu cầu.

MaineDOT

Maine Department of Transportation
Civil Rights Office
16 State House Station
Augusta, Maine 04333-0016
Phone: 207-624-3056
TTY Users Dial Maine Relay 711

mainedot.gov

Know YOUR Rights



MaineDOT
Civil Rights Office

TITLE VI PROGRAM *of the Civil Rights Act*

MaineDOT's mission is to provide the people of Maine with a safe, efficient and effective transportation system. Our work is intended to serve the transportation needs of all people in Maine, regardless of race, color, national origin, sex, age, disability, income level or limited English proficiency.

MaineDOT is committed to assuring that none of its activities or programs encourage discrimination. We manage our programs without regard to race, color, national origin, sex, age, disability, income level, or the ability to speak or understand English.



MaineDOT will not allow discrimination by a MaineDOT employee or by recipients of federal-aid funds such as cities, counties, contractors, or planning agencies. MaineDOT prohibits all discriminatory practices which may result in:

- Unfair denial of any service, financial aid or benefit provided by the federally funded program;
- Different standards or requirements for participation in programs;
- Segregation or separate treatment within our programs;
- Differences in the quality, quantity or way in which a benefit is provided;
- Discrimination in any activities in a facility built with federal funds.

To ensure compliance with Title VI, and other related laws, MaineDOT:

- Avoids or reduces harmful health and environmental impacts which programs or activities might have on minority and low-income populations;
- Ensures the full and fair participation by all communities in its decision-making process;
- Prevents the denial, reduction or delay of benefits for minority and low-income populations;
- Provides language interpreters to people who have difficulty understanding English.

How to File a Complaint

If you believe you have been discriminated against, you will need to file a written complaint. The complaint must be submitted within 180 days of the alleged discrimination. The complaint form is on our website for you to download.

Be prepared to fill in:

- Your name, address and phone number;
- The name and address of the organization you believe discriminated against you;
- Details of the alleged discrimination and any other relevant information; and
- The names of anyone we could contact regarding the alleged discrimination.

Once you have filled in the form, mail it to us:

MaineDOT Civil Rights Office
16 State House Station
Augusta, Maine 04333-0016
207-624-3056

DEPARTMENT OF THE ARMY PERMIT

Permittee Maine Department of Transportation, 16 State House Station, Augusta, Maine 04333-0016

Permit No. NAE-2022-01337

Issuing Office New England District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Place temporary and permanent fill below the ordinary high-water mark of the Kennebec River at Waterville, Maine in order to replace the existing Ticonic Bridge. The replacement would result in approximately 1,820 s.f. of permanent and 59,810 s.f. of temporary riverbed impact. Two-lane temporary traffic flow eastbound is expected to be maintained.

The work is shown on the enclosed plans entitled “Project Location” in one sheet, undated, and “Ticonic Bridge, Waterville-Winslow, Kennebec” in four sheets, undated.

Project Location:

Route 201/100/137 crossing of the Kennebec River at Waterville, Maine

44.54723, -69.62712

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2027. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. The permittee shall ensure that a copy of this permit is at the work site (and the project office) authorized by this permit whenever work is being performed, and that all personnel with operational control of the site ensure that all appropriate personnel performing work are fully aware of its terms and conditions. The entire permit shall be made a part of any and all contracts and sub-contracts for work that affects areas of Corps jurisdiction at the site of the work authorized by this permit. This shall be achieved by including the entire permit in the specifications for work. The term "entire permit" means this permit (including its drawings, plans, appendices and other attachments) and also includes permit modifications.

If the permit is issued after the construction specifications, but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. If the permit is issued after receipt of bids or quotes, the entire permit shall be included in the contract or sub-contract. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps jurisdiction.

2. The permittee shall complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated starting date.

3. The permittee shall complete and return the enclosed Compliance Certification Form to this office within one month following the completion of the authorized work.

4. Adequate sedimentation and erosion control devices, such as geo-textile silt fences or other devices capable of filtering the fines involved, shall be installed and properly maintained to minimize impacts during construction. These devices must be removed upon completion of work and stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to a waterway or wetland.

5. No additional fill (e.g., access roads, cofferdams) may be placed in waters or wetlands unless specifically authorized by this permit. If temporary fill is used, it shall be disposed of at an upland site and suitably contained to prevent its subsequent erosion into a water of the U.S., and the area shall be restored to its original contours (but not higher) and character upon completion of the project. During use, such temporary fill must be stabilized to prevent erosion or, in the case fill placed in flowing water (rivers or streams), clean washed stone should be used.

6. Except where stated otherwise, reports, drawings, correspondence and any other submittals required by this permit shall be sent to the U.S. Army Corps of Engineers at , cenae-r-me@usace.army.mil with the subject line "Permit No. NAE-2022-01337" Documents which are not marked and addressed in this manner may not reach their intended destination and do not comply with the requirements of this permit.

7. The permittee shall implement all avoidance and minimization measures listed in Appendix A of the Biological Assessment for Atlantic and shortnose sturgeon, submitted to the National Marine Fisheries Service on January 10, 2022 and concurrence received on March 9, 2022.

Permit Special Conditions Resulting From Formal Endangered Species Act Consultation Between the Federal Highway Administration (FHWA) and the U.S. Fish & Wildlife Service (USFWS) (Reference USFWS Biological Opinion (BO) dated "April 19, 2022")

1. The Maine Department of Transportation (MDOT) will hold a pre-construction meeting for appropriate Environmental Office staff from the MDOT, other MDOT staff, and the MDOT construction crew or contractor(s) to review all procedures and requirements for avoiding and lessening effects to Atlantic salmon and to ensure the protection of Atlantic salmon and its critical habitat. The Corps, the FHWA, and the Service will be provided an invitation to attend this meeting as well.

2. As a component of the SEWPCP, the MDOT or their contractor will develop and implement a Spill Prevention Control and Countermeasure Plan (SPCCP) designed to avoid any stream impacts from hazardous chemicals associated with construction activities, such as diesel fuel, oil, lubricants, and other hazardous materials. All refueling or other construction equipment maintenance will be done at a location consistent with SPCCP and in a manner that avoids chemical or other hazardous materials getting into the stream. These measures include the following:

a. All vehicle and equipment refueling activities shall occur more than 100 feet (30.5 meters) from any water source.
b. All vehicles carrying fuel shall have specific equipment and materials needed to contain or clean up any incidental spills at the project site. Equipment and materials would include spill kits appropriately sized for specific quantities of fuel, shovels, absorbent pads, straw bales, containment structures and liners, and/or booms.
c. During use, all pumps and generators shall have appropriate spill containment structures and/or absorbent pads in place.
d. All equipment used for in-stream work shall be cleaned of external oil, grease, dirt, and mud. Any leaks or accumulations of these materials would be corrected before entering streams or areas that drain directly to streams or wetlands.

3. The MDOT will implement their BMPs in accordance with the MDOT: Best Management Practices for Erosion and Sedimentation Control (MDOT 2008). This BMP manual outlines means and methods to prevent sedimentation into streams from construction activities or storm events. This document is included by reference. These BMP measures include many filtering and sedimentation control techniques designed to dissipate water discharge energy (flow), filtering out sediments, and allowing particulate matter to settle out from suspension to the greatest extent practicable
.
4. Vegetation clearing adjacent to the stream will be minimized to the maximum extent practicable. All areas of disturbed soil will be mulched and seeded with an approved native or noninvasive herbaceous seed mix following construction and/or planted with native woody vegetation and trees appropriate during the first available planting season, except where riprap has been placed.

5. To minimize the spread of noxious weeds into the riparian zone, all off-road equipment and vehicles (operating off of existing open and maintained roads) must be cleaned prior to entering the construction site to remove all soil, seeds, vegetation, or other debris that could contain seeds or reproductive portions of plants. All equipment will be inspected prior to off-loading to ensure that they are clean.

6. All Atlantic salmon mortalities shall be reported to the Service's Maine Field Office at (207) 902-1585 (Nicole Pauley) or (207) 902-1586 (Patrick Dockens) within 48 hours of occurrence. Any Atlantic salmon death(s) shall be immediately preserved (refrigerate or freeze) for delivery to the Service's office in East Orland, Maine. If the Service is not available, contact the National Marine Fisheries Service in Orono, Maine (207) 866-3755 (Dan Tierney) to arrange for delivery.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
( ) Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408).
(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).
( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d, This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from Natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interested decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

David Gardner — 8/9/2022

(Permittee) ***(Date)***

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Frank J Del Giudice — Digitally signed by Frank J Del Giudice Date: 2022.08.09 14:25:16 -04'00'

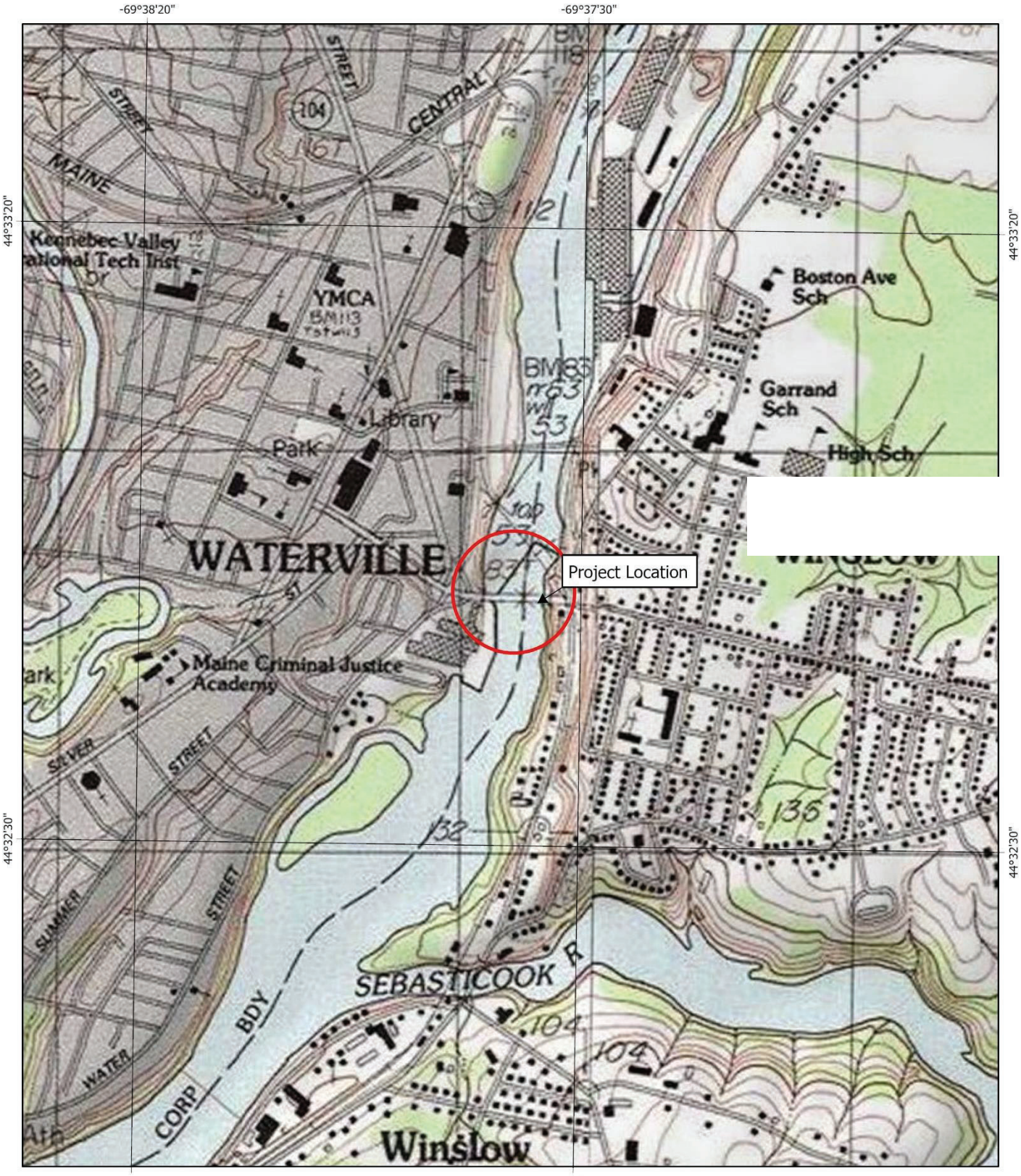
(District Engineer) ***(Date)***

Frank J. Del Giudice
Chief, Permits & Enforcement Branch
Regulatory Division
For: District Engineer

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(Transferee) ***(Date)***

Project Location



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WATERVILLE-WINSLOW
KENNEBEC COUNTY
TICONIC BRIDGE
OVER
KENNEBEC RIVER
U.S. ROUTE 201
FEDERAL AID PROJECT NO. 2313800
PROJECT LENGTH 0.156 mi.
BRIDGE NO. 2854

TRAFFIC DATA

Current (2021) AADT	17,430
Future (2041) AADT	20,920
DHV - % of AADT	10%
Design Hour Volume	2092
Heavy Trucks (% of AADT)	3%
Heavy Trucks (% of DHV)	1%
Directional Distribution (% of DHV)	57%
18 kip Equivalent P 2.0	224
18 kip Equivalent P 2.5	214
Design Speed (mph)	25

HYDROLOGIC DATA

River Flow (Design Low)	2,690 cfs
River Flow (Design High)	21,100 cfs
Head Pond	
Headwater Elevation (Design Low)	50.9 ft
Headwater Elevation (Normal)	52.2 ft
Headwater Elevation (Design High)	55.5 ft
Headwater Elevation (Q50)	65.9 ft
Headwater Elevation (Q100)	67.6 ft
Lower Basin	
Headwater Elevation (Design Low)	30.5 ft
Headwater Elevation (Normal)	32.0 ft
Headwater Elevation (Design High)	36.5 ft
Headwater Elevation (Q50)	60.9 ft
Headwater Elevation (Q100)	64.9 ft

LIST OF DRAWINGS

Title Sheet	1
Plan	2
Profile	3-4

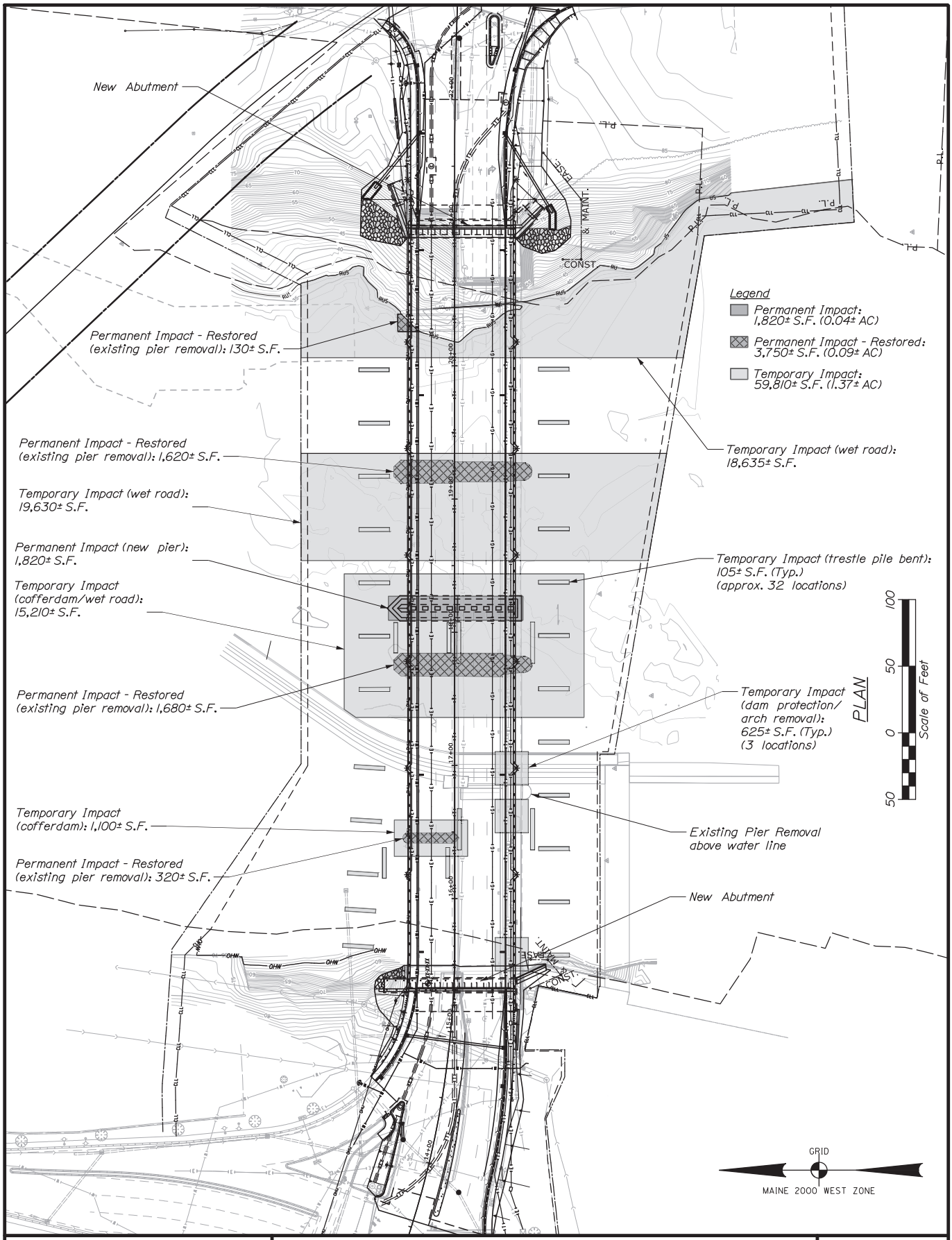
UTILITIES

Central Maine Power
Consolidated Communications
Charter Communications
Kennebec Water District
Waterville Sewer District
Kennebec Sanitary Treatment District
Oxford Networks
Summit Natural Gas
PanAm Railways
Brookfield

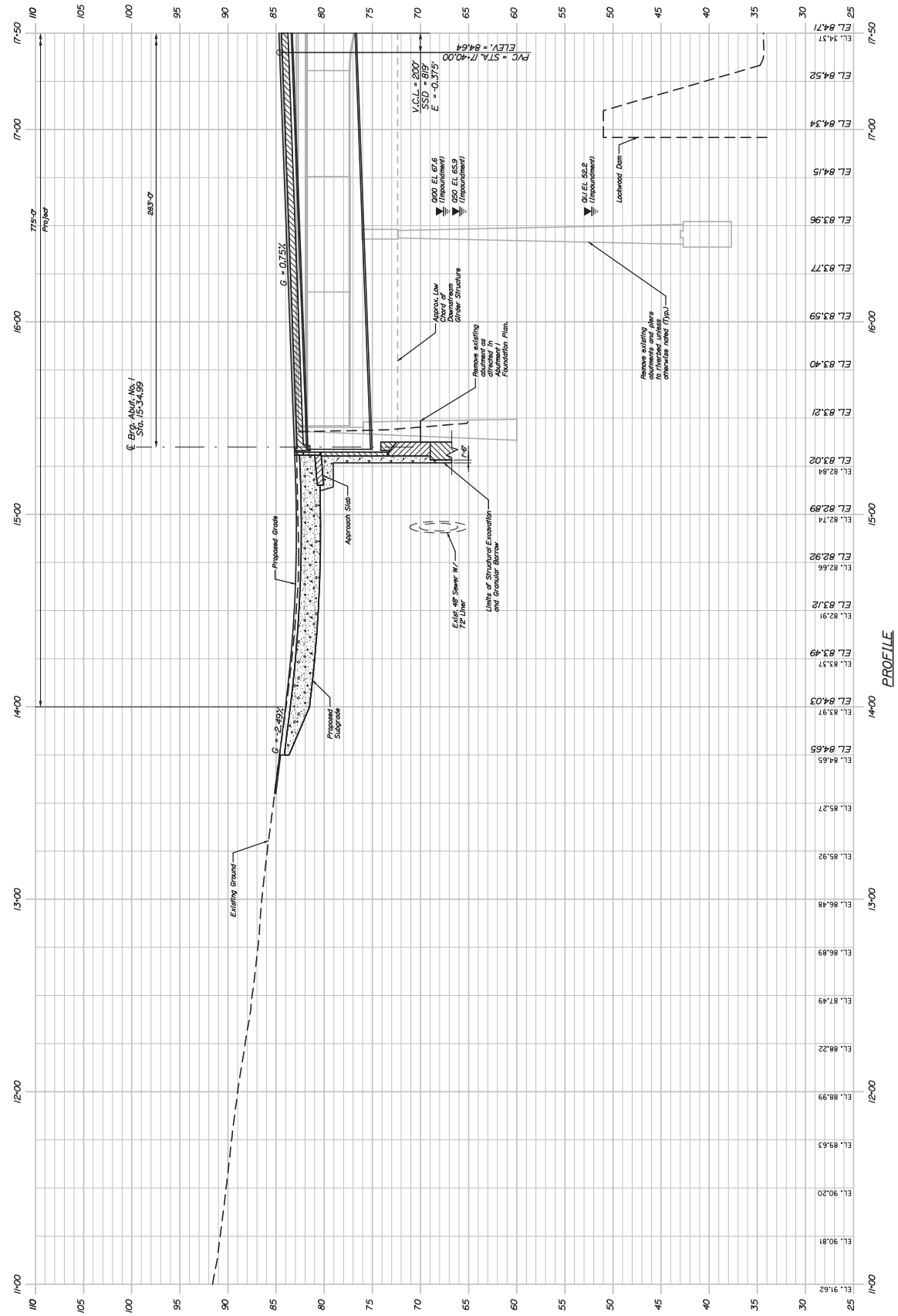
MAINTENANCE OF TRAFFIC

Maintain two lanes of eastbound one-way traffic and pedestrians on the bridge. Westbound traffic will be detoured off site.

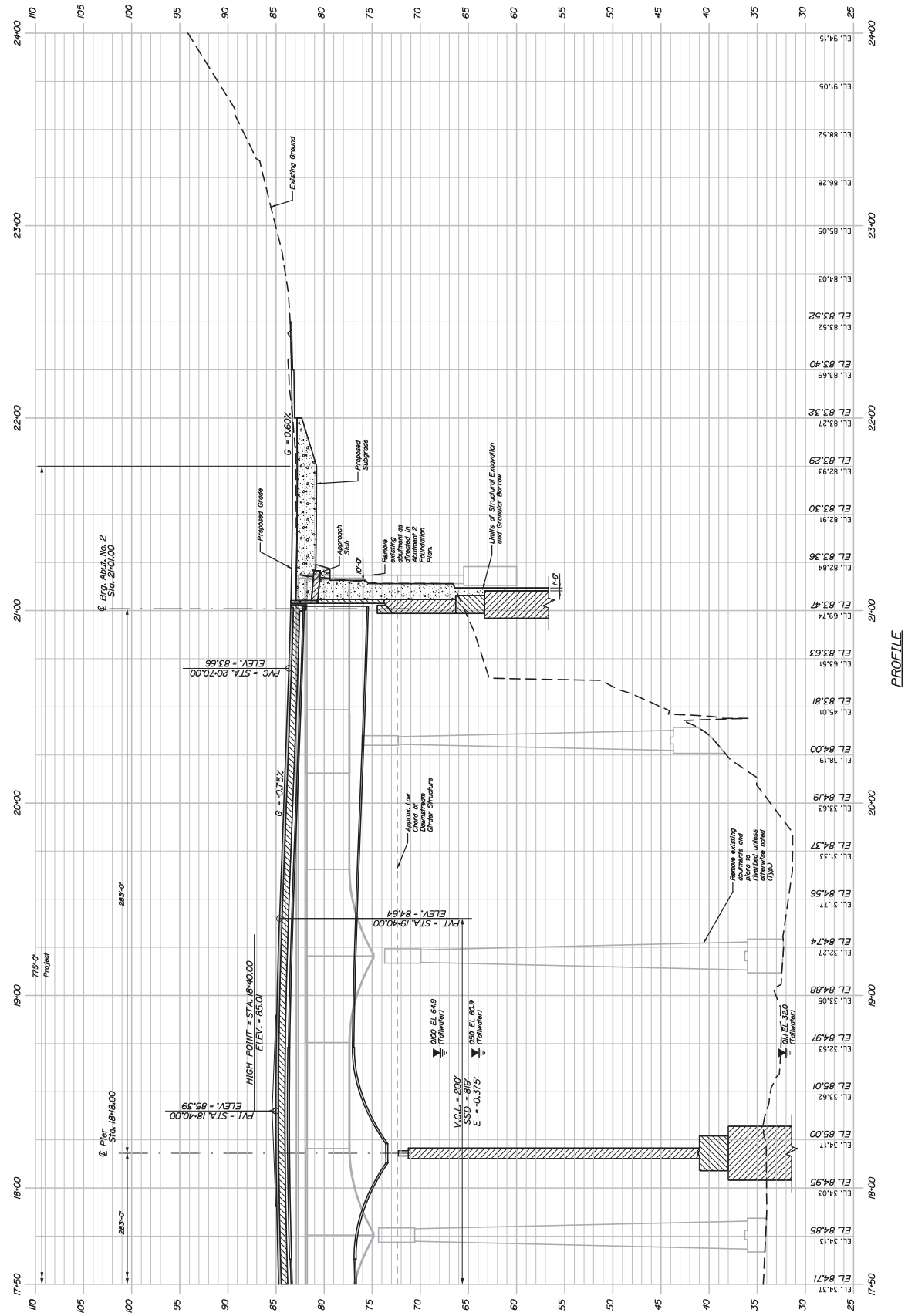
STATE OF MAINE DEPARTMENT OF TRANSPORTATION	TICONIC BRIDGE WATERVILLE-WINSLOW, KENNEBEC	SHEET NUMBER 1
023138.00	TITLE SHEET	OF 4



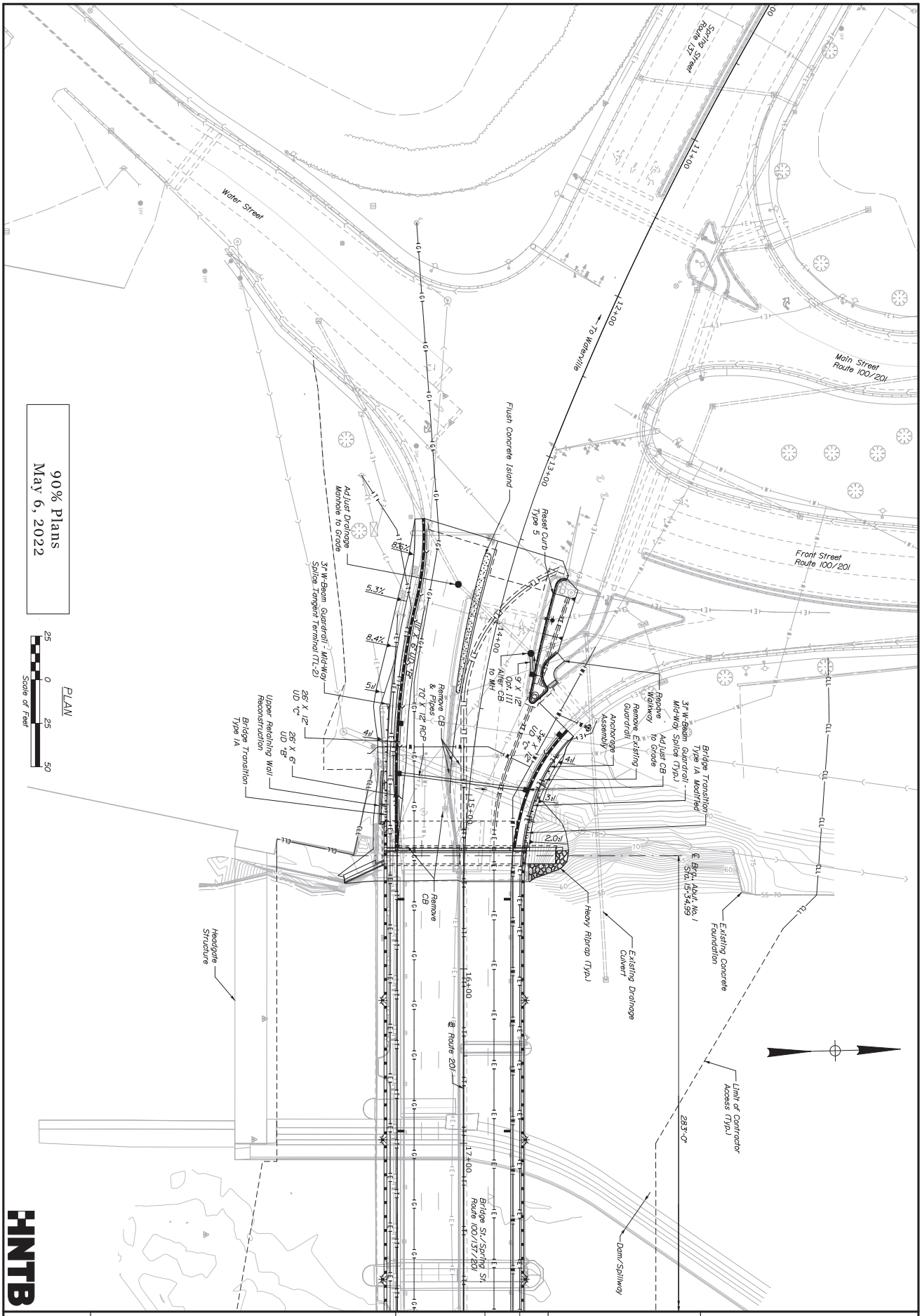
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023138.00	PLANS	OF 4



STATE OF MAINE DEPARTMENT OF TRANSPORTATION	TICONIC BRIDGE WATERVILLE-WINSLOW, KENNEBEC	SHEET NUMBER 3
023138.00	PROFILE I	OF 4 414



STATE OF MAINE DEPARTMENT OF TRANSPORTATION	TICONIC BRIDGE WATERVILLE-WINSLOW, KENNEBEC	SHEET NUMBER 4
023138.00	PROFILE II	OF 4



HNTB

SHEET NUMBER 4 OF 105

TICONIC BRIDGE
KENNEBEC RIVER RESERVOIR
WATERVILLE-WINSLOW KENNEBEC

BRIDGE ST./SPRING ST.
GENERAL PLAN 1

PROJ. MANAGER	M. Parlin	BY	DATE
DESIGN-DETAILED	C. Helmick	C. Helmick	
CHECKED-REVIEWED	L. Driscoll	R. Hanf	
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

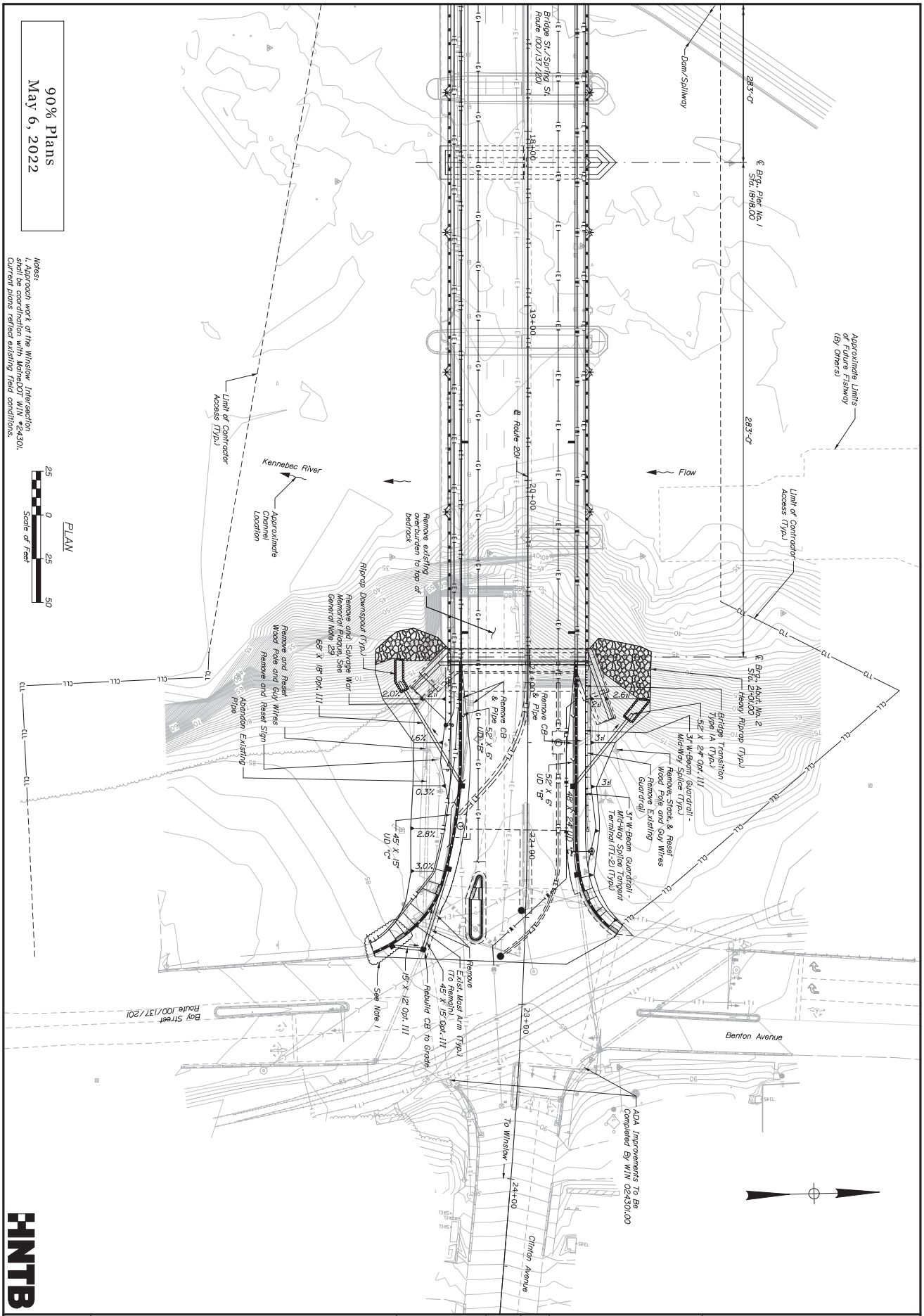
2313800

WIN 023138.00

Bridge No. 2854 BRIDGE PLANS

90% Plans
May 6, 2022

Notes:
1. Approach work at the Winslow Intersection shall be coordinated with MaineDOT WIN #24301. Current plans reflect existing field conditions.



HNTB

SHEET NUMBER 5 OF 105	TICONIC BRIDGE KENNEBEC RIVER RESERVOIR WATERVILLE-WINSLOW KENNEBEC BRIDGE ST./SPRING ST. GENERAL PLAN 2	PROJ. MANAGER M. Parlin BY DATE DESIGN-DETAILED C. Helmick C. Helmick CHECKED-REVIEWED L. Driscoll R. Hanf DESIGN2-DETAILED2 DESIGN3-DETAILED3 REVISIONS 1 REVISIONS 2 REVISIONS 3 REVISIONS 4 FIELD CHANGES	SIGNATURE P.E. NUMBER DATE

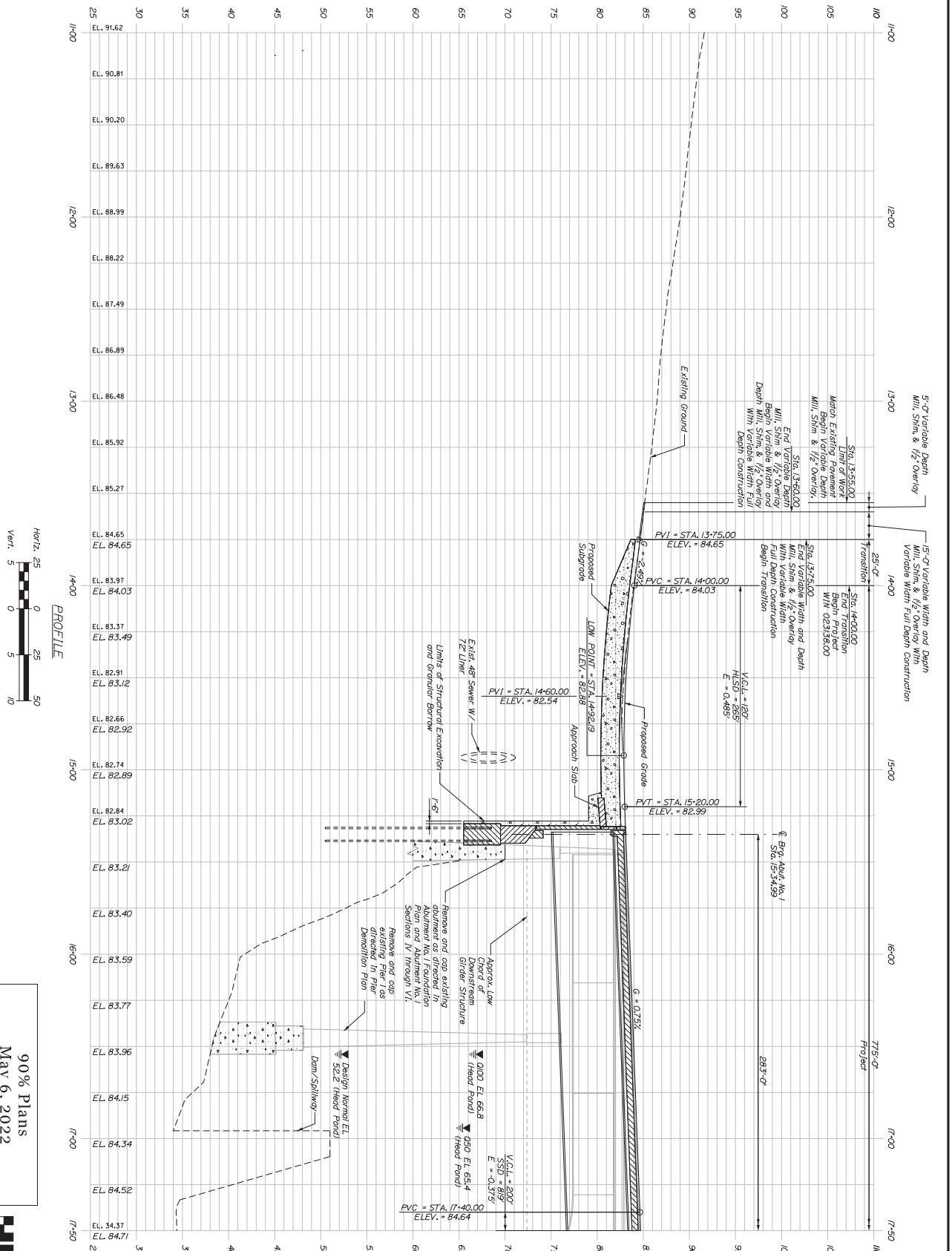
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2313800

WIN 023138.00

Bridge No. 2854 BRIDGE PLANS

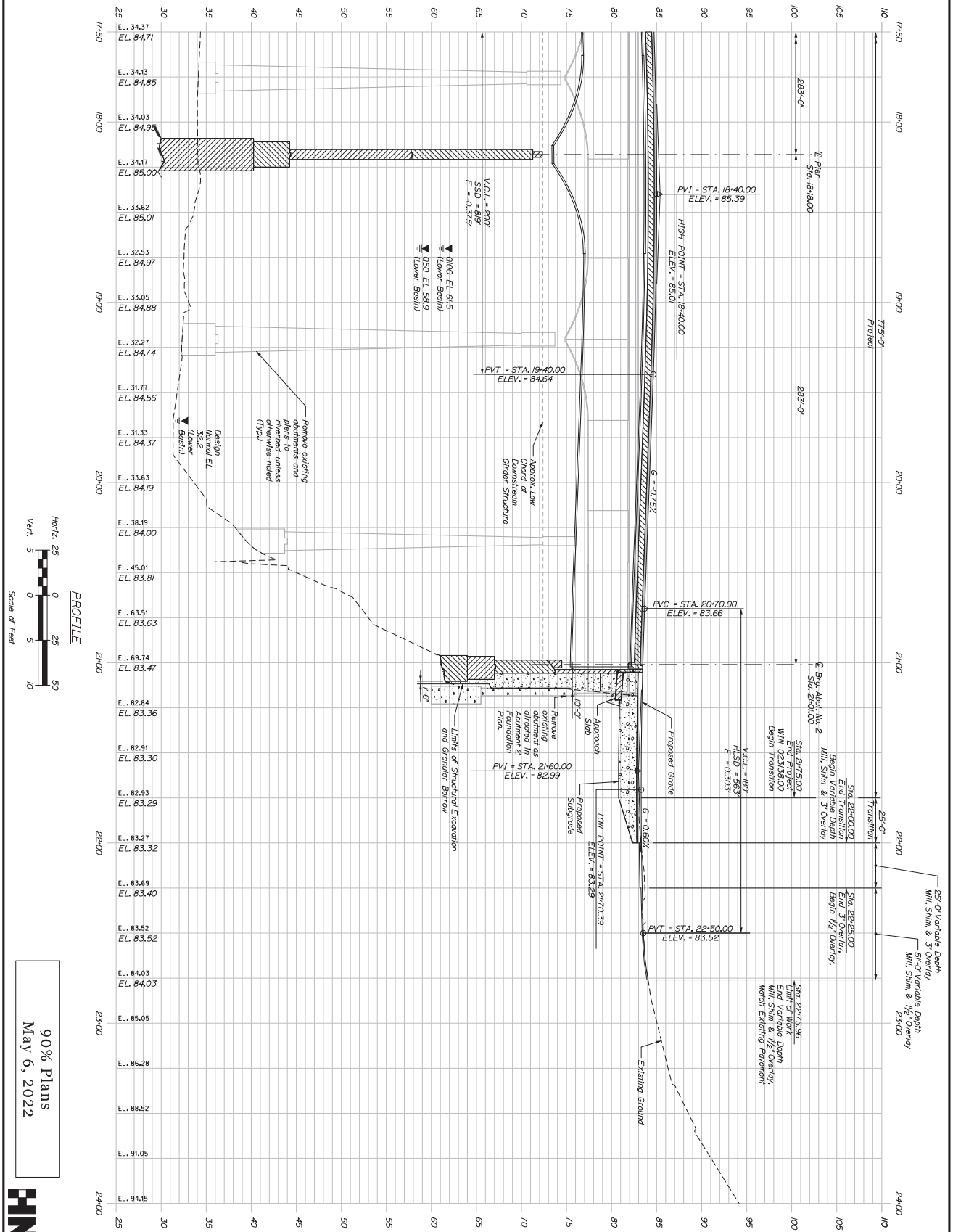
Filename: 007_Profile_01.dgn Division: Username: Date:5/6/2022



90% Plans
May 6, 2022

HNTB

SHEET NUMBER 7 OF 105	TICONIC BRIDGE KENNEBEC RIVER RESERVOIR WATERVILLE-WINSLOW KENNEBEC BRIDGE ST./SPRING ST. PROFILE 1	PROJ. MANAGER M. Parlin BY DATE DESIGN-DETAILED C. Helmick C. Helmick CHECKED-REVIEWED L. Driscoll R. Hanf DESIGN2-DETAILED2 DESIGN3-DETAILED3 REVISIONS 1 REVISIONS 2 REVISIONS 3 REVISIONS 4 FIELD CHANGES	SIGNATURE P.E. NUMBER DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION 2313800 WIN 023138.00 Bridge No. 2854 BRIDGE PLANS



90% Plans
May 6, 2022

HNTB

PROJ. MANAGER	M. Parlin	BY	DATE
DESIGN-DETAILED	C. Helmick	C. Helmick	
CHECKED-REVIEWED	L. Driscoll	R. Hanf	
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SHEET NUMBER 8 OF 105

TICONIC BRIDGE
KENNEBEC RIVER RESERVOIR
WATERVILLE-WINSLOW KENNEBEC

BRIDGE ST./SPRING ST.
PROFILE 2

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

2313800

WIN 023138.00

Bridge No. 2854 BRIDGE PLANS

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Permit-by-Rule & Notice of Intent Review Form

Natural Resources Protection Act **PBR #** 74507
Stormwater Management Law **PBR #**
Maine Construction General Permit **NOI #**

Applicant: DOT **Town:** Waterville
Project Address: Ticonic Bridge **Tax Map/Lot #:**

NRPA PBR Sections – Ch. 305

- ☐ Sec. 2 Act. Adj. to Prot. Natural Res.
- ☐ Sec. 3 Intake Pipes
- ☐ Sec. 4 Replacement of Structures
- ☐ Sec. 6 Movement of Rocks or Veg.
- ☐ Sec. 7 Outfall Pipes
- ☐ Sec. 8 Shoreline Stabilization
- ☐ Sec. 9 Utility Crossing
- ☐ Sec. 10 Stream Crossing
- ☑ Sec. 11 State Transport. Facilities
- ☐ Sec. 12 Restoration Natural Areas
- ☐ Sec. 13 F&W Creat./Water Quality
- ☐ Sec. 15 Public Boat Ramps
- ☐ Sec. 16 Coastal Sand Dune Project
- ☐ Sec. 17 Transfer/Permit Extension
- ☐ Sec. 18 Maintenance Dredging
- ☐ Sec. 19 Act. Near SVP Habitat
- ☐ Sec. 20 Act. Near Waterfowl/Bird Habitat

Notes:

permit accepted as presented

Department staff may inspect project upon completion for compliance

Reviewer: **Deficient Date:** ☐ NRPA ☐ SW ☐ NOI
Reviewer: Cameron Dufour **Accepted Date:** 4/12/2022 ☑ NRPA ☐ SW ☐ NOI

DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT BY RULE NOTIFICATION FORM

(For use with DEP Regulation, Natural Resources Protection Act - Permit by Rule Standards, Chapter 305)

APPLICANT INFORMATION (Owner)		AGENT INFORMATION (If Applying on Behalf of Owner)	
Name:	MaineDOT	Name:	Andrea Brady, MaineDOT ENV
Mailing Address:	16 Station House Station	Mailing Address:	
Mailing Address:		Mailing Address:	
Town/State/Zip:	Augusta, ME 04344	Town/State/Zip:	
Daytime Phone #:	(207) 624-3000 Ext:	Daytime Phone #:	(207) 592-0523 Ext:
Email Address:	Andrea.F.Brady@maine.gov	Email Address:	Andrea.F.Brady@maine.gov

PROJECT INFORMATION

Part of a larger project? (check 1):	❑ Yes ■ No	After the Fact? (check 1):	❑ Yes ■ No	Project involves work below mean low water? (check 1):	■ Yes ❑ No	Name of waterbody:	Kennebec River
Project Town:	Waterville - Winslow, ME	Town Email Address:				Map and Lot Number:	
Brief Project Description:	Replacement of a structurally deficient bridge with a 575 ft span. Eastbound-only traffic will be maintained by 2 lanes throughout construction, Westbound-only traffic will be detoured to an alternate route. Temporary work trestle supported by temp pile bents will be utilized on both up and downstream sections for contractor access only.						
Project Location & Brief Directions to Site:	Ticonic Bridge #2854, carrying Routes 201/100/137 over the Kennebec River, connecting Waterville and Winslow, Maine.						

PERMIT BY RULE (PBR) SECTIONS (Check at least one): I am filing notice of my intent to carry out work that meets the requirements for Permit-by-Rule (PBR) under DEP Rules, Chapter 305. I and my agent(s), if any, have read and will comply with all of the standards in the Sections checked below.

- ❑ **Sec. (2) Act. Adj. to Prot. Natural Res.**
- ❑ **Sec. (3) Intake Pipes**
- ❑ **Sec. (4) Replacement of Structures**
- ❑ **Sec. (6) Movement of Rocks or Veg.**
- ❑ **Sec. (7) Outfall Pipes**
- ❑ **Sec. (8) Shoreline Stabilization**
- ❑ **Sec. (9) Utility Crossing**
- ❑ **Sec. (10) Stream Crossing**
- ■ **Sec. (11) State Transportation Facilities**
- ❑ **Sec. (12) Restoration of Natural Areas**
- ❑ **Sec. (13) F&W Creat./Water Qual. Improv.**
- ❑ **Sec. (15) Public Boat Ramps**
- ❑ **Sec. (16) Coastal Sand Dune Projects**
- ❑ **Sec. (17) Transfer/Permit Extension**
- ❑ **Sec. (18) Maintenance Dredging**
- ❑ **Sec. (19) Act. Near SVP Habitat**
- ❑ **Sec. (20) Act. Near Waterfowl/Bird Habitat**

NOTE: Municipal permits also *may* be required. Contact your local code enforcement office for information. Federal permits may be required for stream crossings and for projects involving wetland fill. Contact the Army Corps of Engineers at the Maine Project Office for information.

NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS AND FEE

- ❑ ***Attach*** **all required submissions for the PBR Section(s) checked above. The required submissions for each PBR Section are outlined in Chapter 305 and may differ depending on the Section you are submitting under.**
- ❑ ***Attach*** a location map that clearly identifies the site (U.S.G.S. topo map, Maine Atlas & Gazetteer, or similar).
- ❑ ***Attach*** *Proof of Legal Name* if applicant is a corporation, LLC, or other legal entity. Provide a copy of Secretary of State's *registration information* (available at http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x). Individuals and municipalities are not required to provide any proof of identity.

FEE: Pay by credit card at the Payment Portal. The Permit-by-Rule fee may be found here https://www.maine.gov/dep/feeschedule.pdf and is currently $266.

- ❑ ***Attach*** **payment confirmation from the Payment Portal when filing this notification**

Internal Billing-State Agency: WIN 23138.00

Signature & Certification:

- I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules**.**
- I understand that this PBR becomes effective 14 calendar days after receipt by the Department of this completed form, the required submissions, and fee, *unless the Department approves or denies the PBR prior to that date.*

By signing this Notification Form, I represent that the project meets all applicability requirements and standards in Chapter 305 rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.

Signature of Agent or Applicant (may be typed):	Andrea F. Brady	Date:	3/31/2022

***Keep a copy as a record of permit*.** Email this completed form with attachments to DEP at: DEP.PBRNotification@maine.gov. DEP will send a copy to the Town Office as evidence of DEP's receipt of notification. No further authorization will be issued by DEP after receipt of notice. A PBR is valid for two years, except Section 4, "Replacement of Structures," are valid for three years. **Work carried out in violation of the Natural Resources Protection Act or any provision in Chapter 305 is subject to enforcement.**

11. State transportation facilities

A. Applicability

(1) This section applies to the maintenance, repair, reconstruction, rehabilitation, replacement or minor construction of a State Transportation Facility carried out by, or under the authority of, the Maine Department of Transportation (MaineDOT) or the Maine Turnpike Authority, including any testing or preconstruction engineering, and associated technical support services.

(2) This section does not apply to an activity within a coastal sand dune system.

NOTE: The construction of a transportation facility other than roads and associated facilities may be subject to the Storm Water Management Law, 38 M.R.S.A. Section 420-D.

B. Standards

(1) Photographs of the area to be altered by the activity must be taken before work on the site begins. The photographs must be kept on file and be made available at the request of the DEP.

(2) The activity must be reviewed by the Department of Inland Fisheries and Wildlife and the Department of Marine Resources, as applicable. The applicant must coordinate with the reviewing agencies and incorporate any recommendations from those agencies into the performance of the activity.

(3) All construction activities undertaken must be detailed in a site-specific Soil Erosion and Water Pollution Control Plan and conducted in accordance with MaineDOT's Best Management Practices for Erosion and Sediment Control, dated January 2000, and Standard Specifications, dated December 2002.

(4) Alignment changes may not exceed a distance of 200 feet between the old and new center lines in any natural resource.

(5) The activity may not alter more than 300 feet of shoreline (both shores added together) within a mile stretch of any river, stream or brook, including any bridge width or length of culvert.

(6) The activity may not alter more than 150 feet of shoreline (both shores added together) within a mile stretch of any outstanding river segment identified in 38 M.R.S.A. 480-P, including any bridge width or length of culvert.

(7) The activity must minimize wetland intrusion. The activity is exempt from the provisions of Chapter 310, the Wetland and Waterbodies Protection Rules, if the activity alters less than 15,000 square feet of natural resources per mile of roadway (centerline measurement) provided that the following impacts are not exceeded within the 15,000 square foot area:

(a) 1,000 square feet of coastal wetland consisting of salt tolerant vegetation or shellfish habitat; or

(b) 5,000 square feet of coastal wetland not containing salt tolerant vegetation or shellfish habitat; or

(c) 1,000 square feet of a great pond.

All other activities must be performed in compliance with all sections of Chapter 310, the Wetland Protection Rules, except 310.2(C), 5(A), 9(A), 9(B) and 9(C).

(8) The activity may not permanently block any fish passage in any watercourse containing fish. The applicant must coordinate with the reviewing agencies listed in paragraph 2 above to improve fish passage and incorporate any recommendations from those agencies into the performance of the activity.

NOTE: For guidance on meeting the design objectives for fish passage, including peak flow, maximum velocity, mining depth and gradient, see the MaineDOT Waterbody and Wildlife Crossing Policy and Design Guide (July 2008), developed in conjunction with state and federal resource and regulatory agencies.

(9) Rocks may not be removed from below the normal high water line of any coastal wetland, freshwater wetland, great pond, river, stream or brook except to the minimum extent necessary for completion of work within the limits of construction.

(10) If work is performed in a river, stream or brook that is less than three feet deep at the time and location of the activity, the applicant must isolate the work area from the resource and divert stream flows around the work area, maintaining downstream flows while work is in progress.

(11) Wheeled or tracked equipment may not operate in the water. Equipment operating on the shore may reach into the water with a bucket or similar extension. Equipment may cross streams on rock, gravel or ledge bottom. If avoiding the operation of wheeled or tracked equipment in the water is not possible, the applicant must explain the need to operate in the water. Approval from the DEP to operate in the water must be in writing, and any recommendations from the DEP must be incorporated into the performance of the activity.

(12) All wheeled or tracked equipment that must travel or work in a vegetated wetland area must travel and work on mats or platforms.

(13) Any debris or excavated material must be stockpiled either outside the wetland or on mats or platforms. Erosion and sediment control best management practices must be used, where necessary, to prevent sedimentation. Any debris generated during the activity must be prevented from washing downstream and must be removed from the wetland or water body. Disposal of debris must be in conformance with the Maine Hazardous Waste, Septage and Solid Waste Management Act, 38 M.R.S.A. Section 1301 *et seq.*

(14) Work below the normal high water line of a great pond, river, stream or brook must be done at low water except for emergency work or work agreed to by the resource agencies listed in paragraph 2 above.

(15) Perimeter controls must be installed before the work starts. Disturbance of natural resources beyond the construction limits shown on the plans is not allowed under this rule.

NOTE: Guidance on the location of construction limits can be obtained from the on site Construction Manager.

(16) The use of untreated lumber is preferred. Lumber pressure treated with chromated copper arsenate (CCA) may be used only if necessary and only if use is allowed under federal law and not prohibited from sale under 38 M.R.S.A. 1682, and provided it is cured on dry land in a manner that exposes all surfaces to the air for a period of at least 21 days prior to construction. Wood treated with creosote or pentachlorophenol may not be used where it will contact water.

(17) A temporary road for equipment access must be constructed of crushed stone, blasted ledge, or similar materials that will not cause sedimentation or restrict fish passage. Such roads must be completely removed at the completion of the activity. In addition, any such temporary roads which are in rivers, streams or brooks, must allow for a passage of stormwater flows associated with a 10-year storm.

(18) Non-native species may not be planted in restored areas.

(19) Disposal of debris must be in conformance with Maine Hazardous Waste, Septage and Solid Waste Management Act, 38 M.R.S.A. Sections 1301 *et seq.*

(20) Disturbance of vegetation must be avoided, if possible. Where vegetation is disturbed outside of the area covered by any road or structure construction, it must be reestablished immediately upon completion of the activity and must be maintained.

(21) A vegetated area at least 25 feet wide must be established and maintained between any new stormwater outfall structure and the high water line of any open water body. A velocity reducing structure must be constructed at the outlet of the stormwater outfall that will create sheet flow of stormwater, and prevent erosion of soil within the vegetated buffer. If the 25 foot vegetated buffer is not practicable, the applicant must explain the reason for a lesser setback in writing. Approval from the DEP must be in writing and any recommendations must be incorporated into the activity.

C. Definitions. The following terms, as used in this chapter, have the following meanings, unless the context indicates otherwise:

(1) Diversion. The rerouting of a river, stream or brook around a construction site and then back to the downstream channel.

(2) Fill. a. (verb) To put into or upon, supply to, or allow to enter a water body or wetland any earth, rock, gravel, sand, silt, clay, peat, or debris; b. (noun) Material, other than structures, placed in or immediately adjacent to a wetland or water body.

(3) Floodplain wetlands. Freshwater wetlands that are inundated with flood water during a 100-year flood event based on flood insurance maps produced by the Federal Emergency Agency or other site specific information.

(4) Riprap. Heavy, irregularly shaped rocks that are fit into place, without mortar, on a slope as defined in the MaineDOT Standard Specifications, dated **November 2014**.

Environmental Summary Sheet

WIN: **23138.00** **Date Submitted:** August 19, 2022
Town: **Waterville-Winslow**
CPD Team Leader: Andrea Brady
ENV Field Contact: Ryan Annis

NEPA Complete: 4/27/2022 – Programmatic Categorical Exclusion: 771.117.d.13

☐ **Section 106**

SHPO Concurrence – No adverse effect
Section 106 Resources: 4 architectural properties eligible for NR listing:

- Lockwood Mill Historic District (10+12R to 17+00R) – NR-listed
- Maine Central Railroad Historic District (Maine Central Railroad Company, 20+50L to 23+50R) – NR-eligible
  - Maine Central Road Bridge – NR-eligible
- Arnold Trail to Quebec Historic District (10+12 to 24+04) – NR-listed

☐ **Section 4(f) and 6(f)**

Section 4(f)
No Use
Section 6(f)
No Takes

☒ **Maine Department of Inland Fisheries and Wildlife Essential Habitat**

☒ **Section 7**

Species of Concern: Atlantic Salmon – Located within Gulf of Maine DPS and Critical Habitat
Comments/References: Likely to Adversely Affect. Formal Consultation with USFWS - Biological Opinion (BO) from USFWS was issued on April 19, 2022. **Special Conditions apply; see Special Provision 105**

Species of Concern: Atlantic & Shortnose Sturgeon – Located within range of several DPSs, and within Critical Habitat for GOM DPS of Atlantic sturgeon.
Comments/References: Not Likely to Adversely Affect. Informal Consultation with NMFS was concluded on March 9, 2022. **Special Conditions apply; see Special Provision 105**

Species of Concern: Northern Long-Eared Bat – Not Likely to Adversely Affect
Comments/References: Streamlined 4(d) Consultation Complete. The status of NLEB is expected to change from Threatened to Endangered in December 2022. However, an acoustic survey was completed in Summer 2022, and no NLEB calls were recorded or identified. Therefore, it is likely that no AMMs will be required at this location.

☒ **Essential Fish Habitat**

EFH for Atlantic Salmon. Adverse Effect – Not Substantial. EFH consultation was completed on April 13, 2022

☒ **Maine Department of Conservation/Public Lands**

Not Applicable

☐ **Maine Land Use Regulation Commission**

Not Applicable

☒ **Maine Department of Environmental Protection**

Permit by Rule (PBR) signed 4/12/2022

**Applicable Standards and Permit are included with the contract*

☒ **Army Corps of Engineers, Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act.**

Individual Permit #: NAE-20l22-01337

- Work Start Notification Form and Compliance Certification Form to be completed by ENV Field Contact and submitted to ACOE with copy to Andrea Brady
- **Special Conditions apply; see Special Provision 105**

**Applicable Standards and Permit are included with the contract*

☐ **Stormwater Review**

N/A

☒ **Special Provisions Required**

Special Provision 105-Environmental Requirements	**N/A**☐	**Applicable**☒
Special Provision 656-Minor Soil Disturbance	**N/A**☒	**Applicable**☐
Standard Specification 656-Erosion Control Plan	**N/A**☐	**Applicable**☒
Special Provision 203-Dredge Material	**N/A**☐	**Applicable**☒
Special Provision 203-Special Fill-Streambed Materials	**N/A**☒	**Applicable**☐
Special Provision 610-Stream Channel Rock	**N/A**☒	**Applicable**☐
General Note for Hazardous Waste	**N/A**☐	**Applicable**☒
Special Provision 203-Hazardous Waste	**N/A**☒	**Applicable**☐

**All permits and approvals based on plans/scope as of: 4/26/2022*