Updated 10/04/12

FEDERAL PROJECT

BIDDING INSTRUCTIONS

FOR ALL PROJECTS:

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

For a Paper Bid:

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

For an Electronic Bid:

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, Revision of December 2002.

January 19, 2012
Supersedes September 09, 2011

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 planholders 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 provide an email address to Diane Barnes or David Venner at 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 Patrick Corum at patrick.corum@maine.gov , 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 infrormation:

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:

_____

_____

_____

PRINCIPAL:

By_____

By:_____

By:_____

WITNESS

_____

_____

_____

SURETY:

By_____

By:_____

Name of Local Agency: _____

NOTICE

Bidders:

Please use the attached “Request for Information” form when faxing questions and comments concerning specific Contracts that have been Advertised for Bid. Include additional numbered pages as required. Questions are to be faxed to the number listed in the Notice to Contractors. This is the only allowable mechanism 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.

State of Maine
Department of Transportation

REQUEST FOR INFORMATION

Date _____ Time _____

Information Requested: **PIN: _____** **Town(s): _____**

_____

_____

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_____

_____

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_____

Request by: _____ **Phone: (_____)_____**
Bid Date: _____ **Fax: (_____)_____**

Complete top portion of form and transmit to the number listed in the Notice to Contractors

RFI No: _____ **RFI received: _____**

Response:_____

_____

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Response By:_____ Date: _____

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 www.maine.gov/mdot/disadvantaged-business-enterprises/dbe-home.php

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

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 has established a DBE Program for disadvantaged business participation in the federal-aid highway and bridge construction program; MaineDOT contracts covered by the program include consulting, construction, supplies, manufacturing, and service contracts.

For FFY 2013-15 (October 1, 2012 through September 30, 2015) MaineDOT has established an annual DBE participation goal of **4.0%** 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, 2015. Maine DOT 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 4.0% 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

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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 >	

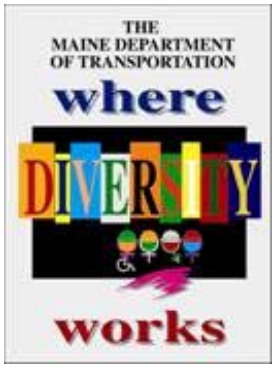
NOTE: THIS INFORMATION IS USED TO TRACK AND REPORT ANTICIPATED DBE PARTICIPATION IN ALL FEDERALLY FUNDED MAINE DOT CONTRACTS. THE ANTICIPATED DBE AMOUNT IS VOLUNTARY AND WILL NOT BECOME A PART OF THE CONTRACTUAL TERMS.

Equal Opportunity Use:

Form received: ___/___/___ Verified by: _____

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

Rev. 05/12



Maine Department of Transportation Civil Rights Office

Directory of Certified Disadvantaged Business Enterprises

Listing can be found at:

www.maine.gov/mdot/disadvantaged-business-enterprises/dbe-home.php

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 listings.

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 **Interchange Improvements and Park and Ride Lot** in the town of **Yarmouth**" will be received from contractors at the Reception Desk, Maine DOT Building, Capitol Street, Augusta, Maine, until 11:00 o'clock A.M. (prevailing time) on January 23, 2013 and at that time and place publicly opened and read. Bids will be accepted from all bidders. The lowest responsive bidder must have completed, or successfully complete, a (Highway Construction prequalification), or project specific prequalification to be considered for the award of this contract. We now accept electronic bids for those 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. IM-1108(600) / CM-1749(000)X, WINS. 11086.00 / 17490.00

Location: In Cumberland County, project IM-1108(600) is located on I-295 at Exit 15 NB and SB Ramps. Project CM-1749(000)X is located at Exit 15 in Yarmouth.

Outline of Work: Interchange Improvements and Park and Ride Lot and other incidental work.

For general information regarding Bidding and Contracting procedures, contact George Macdougall at (207) 624-3410. Our webpage at http://www.maine.gov/mdot/contractors/ contains a copy of the schedule of items, Plan Holders List, written portions of bid amendments (not drawings), and bid results. For Project-specific information fax all questions to **Project Manager** Ernie Martin at (207) 624-3431. Questions received after 12:00 noon of Monday 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 Maine DOT Building in Augusta, Maine and at the Department of Transportation's Regional Office in Scarborough . 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 $226.00 ($237.00 by mail). Half size plans $113.00 ($122.00 by mail), Bid Book $10 ($13 by mail), Single Sheets $2, payment in advance, all non-refundable.

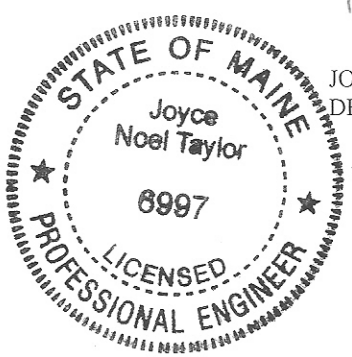
Each Bid must be made upon blank forms provided by the Department and must be accompanied by a bid bond at 5% of the bid amount or an official bank check, cashier's check, certified check, certificate of deposit, or United States postal money order in the amount of $175,000.00 payable to Treasurer, State 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, Revision of December 2002", price $10 [$13 by mail], and Standard Details, Revision of December 2002, price $20 [$25 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 Maine DOT to reject any or all bids.

Augusta, Maine
December 26, 2012



JOYCE NOEL TAYLOR P. E.
DEPUTY CHIEF ENGINEER

NOTICE

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

SPECIAL PROVISION 102.7.3
ACKNOWLEDGMENT OF BID AMENDMENTS

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

Amendment Number	Date

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

CONTRACTOR

_____ _____
Date Signature of authorized representative

_____
(Name and Title Printed)

CONTRACT ID: 011086.00 PROJECT(S): IM-1108(600)
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 Project Items					
0010	201.11 CLEARING	8.000 AC				
0020	201.12 SELECTIVE CLEARING AND THINNING	1.000 AC				
0030	202.15 REMOVING MANHOLE OR CATCH BASIN	5.000 EA				
0040	202.202 REMOVING PAVEMENT SURFACE	7980.000 SY				
0050	202.203 PAVEMENT BUTT JOINTS	150.000 SY				
0060	203.20 COMMON EXCAVATION	55770.000 CY				
0070	203.21 ROCK EXCAVATION	36800.000 CY				
0080	203.212 SPECIAL PERIMETER CONTROL BLASTING	1050.000 LF				
0090	203.213 SHATTER SOLID ROCK SUBGRADE	5880.000 SY				
0100	203.27 ROCK BORROW	1270.000 CY				

CONTRACT ID: 011086.00 PROJECT(S): IM-1108(600)
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0110	206.061 STRUCTURAL EARTH EXCAVATION - DRAINAGE AND MINOR STRUCTURES, BELOW GRADE	2954.000 CY				
0120	206.07 STRUCTURAL ROCK EXCAVATION - DRAINAGE AND MINOR STRUCTURES	900.000 CY				
0130	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	36510.000 CY				
0140	403.208 HOT MIX ASPHALT 12.5 MM HMA SURFACE	5880.000 T				
0150	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	22.000 T				
0160	403.213 HOT MIX ASPHALT 12.5 MM BASE	13060.000 T				
0170	409.15 BITUMINOUS TACK COAT - APPLIED	3661.000 G				
0180	462.30 ULTRATHIN BONDED WEARING COURSE	3180.000 SY				
0190	526.301 TEMPORARY CONCRETE BARRIER TYPE I	LUMP	LUMP			
0200	527.305 QUADGUARD CRASH CUSHION	1.000 UN				

CONTRACT ID: 011086.00 PROJECT(S): IM-1108(600)
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0210	527.34 WORK ZONE CRASH CUSHIONS	2.000 UN				
0220	603.155 12 INCH REINFORCED CONCRETE PIPE CLASS III	34.000 LF				
0230	603.159 12 INCH CULVERT PIPE OPTION III	78.000 LF				
0240	603.161 15 INCH CORRUGATED METAL PIPE	27.000 LF				
0250	603.169 15 INCH CULVERT PIPE OPTION III	69.000 LF				
0260	603.179 18 INCH CULVERT PIPE OPTION III	912.000 LF				
0270	603.191 24 INCH CORRUGATED METAL PIPE	8.000 LF				
0280	603.195 24 INCH REINFORCED CONCRETE PIPE CLASS III	74.000 LF				
0290	603.199 24 INCH CULVERT PIPE OPTION III	215.000 LF				
0300	604.09 CATCH BASIN TYPE B1	3.000 EA				
0310	604.092 CATCH BASIN TYPE B1-C	8.000 EA				

CONTRACT ID: 011086.00 PROJECT(S): IM-1108(600)
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0320	604.15 MANHOLE	1.000 EA				
0330	604.182 CLEAN EXISTING CATCH BASIN AND MANHOLE	12.000 EA				
0340	605.09 6 INCH UNDERDRAIN TYPE B	4729.000 LF				
0350	605.10 6 INCH UNDERDRAIN OUTLET	298.000 LF				
0360	606.1721 BRIDGE TRANSITION - TYPE 1	4.000 EA				
0370	606.23 GUARDRAIL TYPE 3C - SINGLE RAIL	6252.000 LF				
0380	606.265 TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	4.000 EA				
0390	606.353 REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	30.000 EA				
0400	606.356 UNDERDRAIN DELINEATOR POST	8.000 EA				
0410	606.79 GUARDRAIL 350 FLARED TERMINAL	11.000 EA				
0420	607.22 CEDAR RAIL FENCE	50.000 LF				

CONTRACT ID: 011086.00 PROJECT(S): IM-1108(600)
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0430	607.421 SCREENING FENCE	475.000 LF				
0440	609.34 CURB TYPE 5	3000.000 LF				
0450	609.35 CURB TYPE 5 - CIRCULAR	140.000 LF				
0460	610.08 PLAIN RIPRAP	140.000 CY				
0470	613.319 EROSION CONTROL BLANKET	100.000 SY				
0480	615.07 LOAM	2943.000 CY				
0490	615.25 BIORETENTION CELLS	LUMP	LUMP			
0500	618.1401 SEEDING METHOD NUMBER 2 - PLAN QUANTITY	300.000 UN				
0510	618.1411 SEEDING METHOD NUMBER 3 - PLAN QUANTITY	177.000 UN				
0520	619.1201 MULCH - PLAN QUANTITY	477.000 UN				
0530	619.13 BARK MULCH	2.000 UN				

CONTRACT ID: 011086.00 PROJECT(S): IM-1108(600)
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0540	620.54 STABILIZATION GEOTEXTILE	7700.000 SY				
0550	621.025 EVERGREEN TREES (3 FOOT - 4 FOOT) GROUP A	20.000 EA				
0560	621.031 EVERGREEN TREES (4 FOOT - 5 FOOT) GROUP A	10.000 EA				
0570	621.037 EVERGREEN TREES (5 FOOT - 6 FOOT) GROUP A	15.000 EA				
0580	621.044 EVERGREEN TREES (6 FOOT - 8 FOOT) GROUP B	10.000 EA				
0590	621.045 EVERGREEN TREES (6 FOOT - 8 FOOT) GROUP C	5.000 EA				
0600	621.18 MEDIUM DECIDUOUS TREES (6 FOOT - 8 FOOT) GROUP C	15.000 EA				
0610	621.202 MEDIUM DECIDUOUS TREE (2 INCH - 2.50 INCH CALIPER) GROUP B	8.000 EA				
0620	621.245 LARGE DECIDUOUS TREES (2 FOOT - 3 FOOT) GROUP A	20.000 EA				
0630	621.255 LARGE DECIDUOUS TREES (8 FOOT - 10 FOOT) GROUP A	10.000 EA				

CONTRACT ID: 011086.00 PROJECT(S): IM-1108(600)
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0640	621.273 LARGE DECIDUOUS TREE (2 INCH - 2.50 INCH CALIPER) GROUP A	16.000 EA				
0650	621.546 DECIDUOUS SHRUBS (2 FOOT - 3 FOOT) GROUP A	100.000 EA				
0660	621.552 DECIDUOUS SHRUBS (3 FOOT - 4 FOOT) GROUP A	40.000 EA				
0670	621.711 HERBACEOUS PERENNIALS GROUP B	650.000 EA				
0680	621.80 ESTABLISHMENT PERIOD	LUMP	LUMP			
0690	626.11 PRECAST CONCRETE JUNCTION BOX	68.000 EA				
0700	626.22 NON-METALLIC CONDUIT	11345.000 LF				
0710	626.31 18 INCH FOUNDATION	6.000 EA				
0720	626.33 30 INCH FOUNDATION	48.000 EA				
0730	627.18 12 " SOLID WHITE PAVEMENT MARKING	3880.000 LF				

CONTRACT ID: 011086.00 PROJECT(S): IM-1108(600)
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0740	627.733 4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	45400.000 LF				
0750	627.744 6" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	32000.000 LF				
0760	627.75 WHITE OR YELLOW PAVEMENT & CURB MARKING	1150.000 SF				
0770	627.76 TEMPORARY PAVEMENT MARKING LINE, WHITE OR YELLOW	LUMP	LUMP			
0780	629.05 HAND LABOR, STRAIGHT TIME	50.000 HR				
0790	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	50.000 HR				
0800	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	100.000 HR				
0810	631.32 CULVERT CLEANER (INCLUDING OPERATOR)	20.000 HR				
0820	634.180 RGS CONDUIT	140.000 LF				
0830	634.2042 LED LUMINARIES	54.000 EA				
0840	634.2082 REMOVE EXISTING LIGHT STANDARD	8.000 EA				

CONTRACT ID: 011086.00 PROJECT(S): IM-1108(600)
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0850	634.2101 TYPE A LIGHT STANDARD	48.000 EA				
0860	634.2102 TYPE B LIGHT STANDARD	6.000 EA				
0870	634.25 SERVICE POLE COMPLETE WITH CABINET AND CONTROLS	1.000 EA				
0880	634.313 # 4 AWG COPPER WIRING	33910.000 LF				
0890	634.316 #10 AWG COPPER WIRE	7500.000 LF				
0900	636.400 SOIL NAIL WALL DESIGN	LUMP	LUMP			
0910	636.411 SOIL NAIL WALL	1590.000 SF				
0920	639.18 FIELD OFFICE TYPE A	1.000 EA				
0930	643.72 TEMPORARY TRAFFIC SIGNAL EXIT 10 NB OFF RAMP	LUMP	LUMP			
0940	643.72 TEMPORARY TRAFFIC SIGNAL EXIT 17 NB RAMP	LUMP	LUMP			
0950	643.97 WOOD POLES WITH GUYS AND SPAN WIRE	1.000 EA				

CONTRACT ID: 011086.00 PROJECT(S): IM-1108(600)
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0960	645.103 DEMOUNT GUIDE SIGN	6.000 EA				
0970	645.106 DEMOUNT REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	50.000 EA				
0980	645.113 REINSTALL GUIDE SIGN	2.000 EA				
0990	645.116 REINSTALL REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	20.000 EA				
1000	645.251 ROADSIDE GUIDE SIGNS	350.000 SF				
1010	645.292 REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGNS TYPE II	650.000 SF				
1020	645.511 FLASHING WARNING SIGN RIGHT CHEVRON SIGN	3.000 EA				
1030	645.511 FLASHING WARNING SIGN WRONG WAY SIGN	4.000 EA				
1040	652.30 FLASHING ARROW BOARD	2.000 EA				
1050	652.31 TYPE I BARRICADE	70.000 EA				

SCHEDULE OF ITEMS **REVISED:**

CONTRACT ID: 011086.00 **PROJECT(S): IM-1108(600)**
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1060	652.312 TYPE III BARRICADE	45.000 EA				
1070	652.33 DRUM	260.000 EA				
1080	652.34 CONE	200.000 EA				
1090	652.35 CONSTRUCTION SIGNS	3300.000 SF				
1100	652.361 MAINTENANCE OF TRAFFIC CONTROL DEVICES	LUMP	LUMP			
1110	652.38 FLAGGER	10000.000 HR				
1120	652.381 TRAFFIC OFFICER	300.000 HR				
1130	652.41 PORTABLE CHANGEABLE MESSAGE SIGN	6.000 EA				
1140	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP	LUMP			
1150	658.20 ACRYLIC LATEX COLOR FINISH, GREEN	1310.000 SY				
1160	659.10 MOBILIZATION	LUMP	LUMP			
	SECTION 0001 TOTAL					

CONTRACT ID: 011086.00 PROJECT(S): IM-1108(600)
CM-1749(000)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	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, PINS. **11086.00 / 17490.00** for **Interchange Improvements and Park and Ride Lot** in the town of **Yarmouth**, County of **Cumberland**, 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 22, 2013.** 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, Revision of December 2002 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, Revision of December 2002, Standard Details Revision of December 2002 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 Revision of December 2002, Standard Details Revision of December 2002 as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

PINS. 11086.00 / 17490.00 - Interchange Improvements and Park and Ride Lot - in the town of Yarmouth,

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, Revision of December 2002, 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 Revision of December 2002 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: David Bernhardt, 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, PINS. **11086.00 / 17490.00** for **Interchange Improvements and Park and Ride Lot** in the town of **Yarmouth**, County of **Cumberland**, 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 22, 2013.** 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, Revision of December 2002 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, Revision of December 2002, Standard Details Revision of December 2002 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 Revision of December 2002, Standard Details Revision of December 2002 as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

PINS. 11086.00 / 17490.00 - Interchange Improvements and Park and Ride Lot - in the town of Yarmouth,

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, Revision of December 2002, 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 Revision of December 2002 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: David Bernhardt, Commissioner
_____	
Witness	

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and **(Name of the firm bidding the job)** a corporation or other legal entity organized under the laws of the State of Maine, with its principal place of business located at **(address of the firm bidding the job)**

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

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, PIN No.**1224.00**, 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, Revision of December 2002 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, Revision of December 2002, Standard Details Revision of December 2002, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

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

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in Appendix A to Division 100 of the Standard Specifications Revision of December 2002 (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, Revision of December 2002, Standard Details Revision of December 2002, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

PIN 1234.00 South Nowhere, Hot Mix Asphalt Overlay ,

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

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

As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items", which may be ordered by the Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the Standard Specifications, Revision of December 2002, 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 Revision of 2002 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)

G. Award.

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

MAINE DEPARTMENT OF TRANSPORTATION

Date	By: David Bernhardt, 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: .... TELEPHONE.....	NAME OF LOCAL AGENCY: ADDRESS ....……..... .....……..... .....……..... .....

BOND # _____

CONTRACT PAYMENT BOND
(Surety Company Form)

KNOW ALL MEN BY THESE PRESENTS: That _____ **_____ in the State of _____**, as principal, and.....…..... a corporation duly organized under the laws of the State of ..... and having a usual place of business in .....……., as Surety, are held and firmly bound unto the Treasurer of the State of Maine for the use and benefit of claimants as herein below defined, in the sum of **_____ and 00/100 Dollars ($)** for the payment whereof Principal and Surety bind themselves, their heirs, executors and administrators, successors and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Principal designated as Contractor in the Contract to construct Project Number _____ in the Municipality of _____ promptly satisfies all claims and demands incurred for all labor and material, used or required by him in connection with the work contemplated by said Contract, and fully reimburses the obligee for all outlay and expense which the obligee may incur in making good any default of said Principal, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

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

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

WITNESS:	SIGNATURES:
	CONTRACTOR:
Signature…….....	.....….....
Print Name Legibly .....……..	Print Name Legibly ….....….....
	SURETY:
Signature.....	...….....….....
Print Name Legibly	Print Name Legibly ….....….....
SURETY ADDRESS:	NAME OF LOCAL AGENCY:
...….....….....	ADDRESS ….....….....
.....….....	…….....….....
TELEPHONE	…….....….....

July 16, 2009

SPECIAL PROVISION
SECTION 102.3
EXAMINATION OF DOCUMENTS, SITE, AND OTHER INFORMATION
(Geotechnical Information)

Add the following to Section 102.3, Examination of Documents, Site and Other Information:

102.3.1 Geotechnical Information In most cases, Geotechnical Information pertaining to the project has been collected and assembled. Bidders and Contractors are obligated to examine and, if necessary, obtain geotechnical information. If one is available, the project geotechnical report may be accessed at the following web address:

http://www.maine.gov/mdot/comprehensive-list-projects/project-information.php.

The Department shall not be responsible for the Bidders' and Contractors' interpretations of or estimates or conclusions drawn from the Geotechnical Information. Data provided may not be representative of the subsurface conditions between the boring locations.

This section does not diminish the duties imposed upon parties in Section 102 or in any other sections.

General Decision Number: ME120050 06/15/2012 ME50

Superseded General Decision Number: ME20100061

State: Maine

Construction Type: Highway

County: Cumberland County in Maine.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Modification Number	Publication Date
0	01/06/2012
1	06/15/2012

* ENGI0004-006 06/01/2012

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
Milling Machine	$ 25.73	23.27

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* SUME2011-045 09/14/2011

	Rates	Fringes
CARPENTER, Includes Form Work	$ 17.10	1.95
CEMENT MASON/CONCRETE FINISHER	$ 16.94	0.00
ELECTRICIAN	$ 17.90	3.69
INSTALLER - GUARDRAIL	$ 16.47	1.85
IRONWORKER, REINFORCING	$ 18.79	0.00
IRONWORKER, STRUCTURAL	$ 18.75	4.56
LABORER: Asphalt Raker	$ 15.79	1.45
LABORER: Common or General	$ 13.15	1.08
LABORER: Flagger	$ 9.00	0.00
LABORER: Landscape	$ 14.92	2.30
LABORER: Wheelman	$ 18.76	4.93
OPERATOR: Backhoe	$ 19.38	2.52
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 17.64	4.50
OPERATOR: Bulldozer	$ 18.57	3.88

OPERATOR: Crane.....$ 21.15 0.00

OPERATOR: Excavator.....$ 18.81 1.31

OPERATOR: Grader/Blade.....$ 27.40 8.46

OPERATOR: Loader.....$ 16.40 3.39

OPERATOR: Mechanic.....$ 23.27 6.28

OPERATOR: Milling Machine
Reclaimer Combo.....$ 24.77 8.39

OPERATOR: Paver.....$ 18.16 4.74

OPERATOR: Roller excluding
Asphalt.....$ 17.00 4.08

OPERATOR: Screed.....$ 19.98 5.46

OPERATOR: Sweeper.....$ 14.92 2.31

PILEDRIVERMAN.....$ 19.95 5.26

TRUCK DRIVER, Includes all
axles including Dump Trucks.....$ 14.65 2.87

TRUCK DRIVER: Lowboy Truck.....$ 15.15 5.62

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

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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 union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and

the four-digit number, 0198, that follows indicates the local union number or district council number where applicable , i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

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 Regional Office for the area in which the survey was conducted because those Regional Offices have 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 DECISION

SPECIAL PROVISIONS
SECTION 104
Utilities

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.

Overview:

Utility/Railroad	Aerial	Railroad	Underground
Central Maine Power	X		
Time Warner Cable	X		
Fairpoint	X		X
St Lawrence Railroad		X	
Yarmouth Water District			X
CMP Transmission	X		

Temporary utility adjustments are **not** anticipated. If temporary relocation becomes necessary, sufficient time will need to be allowed prior to the construction for all required temporary relocation.

All utility crossings over highways will provide not less than 18 feet vertical clearance over existing ground in cut or over finished grade in fill, during construction of this project.

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.

Utility working days are Monday through Friday, conditions permitting. Times are estimated on the basis of a single crew for each utility.

Manholes, valve boxes, service connections, and similar incidental utility plant are to be adjusted by the appropriate utility in cooperation with work being done by the Contractor unless otherwise stated.

The Contractor shall not excavate around any pole, guy anchor or street light to a depth that compromises the stability of the pole.

Unless otherwise specified, any underground utility 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 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.

Special note to Contractor and the Utilities: The Contractor shall plan and schedule his work in such a manner that the utilities that are located on this project will not be harmed, damaged or impacted in any way. The Contractor and Utility will coordinate and communicate their work plans in an effort not to interfere with each other's progress or the completion of the project. The Contractor and Utilities shall communicate with each other using the names and numbers included in this spec.

AERIAL

The following list is the proposed aerial utility adjustments that are anticipated as part of this project. If poles are not relocated prior to paving the contractor shall have no claim against the department. All above ground utility locations (hydrants, poles, guys, etc.) will be reviewed for compliance with the Department's Above Ground Pole Policy following the completion of the paving operation. Any above ground utility locations not meeting the Department's Above Ground Pole Policy will require relocation to the proper offset.

The **Contractor** will provide an initial layout (stakes/nails) of the pole locations based on the pole list that is in the project proposal/specification book (below). The **Contractor** is then responsible for maintaining and or replacing the pole location stakes/nails until the poles are set by the respective utilities. The **Contractor** shall employ or retain competent Engineering and/or surveying personnel to fulfill these responsibilities. The **Contractor** must notify the **Department** of any errors or inconsistencies regarding the data and layout provided by the utilities.

Clearing and tree removal which is a part of this contract in areas where utilities are involved must be completed by the Contractor before the utilities can relocate their facilities. Any tree removal or tree trimming required within ten feet of the electrical conductors must be done by a qualified contractor. A list of tree removal contractors qualified to remove trees or limbs within ten feet of the electrical conductors may be obtained from the power company.

Fairpoint plans to relocate approximately 8 +/- poles as part of this project. The existing pole list and estimated times for setting and transferring is noted below. These pole locations may vary by a foot or two depending on possible conflicts. Once staked the poles should be checked by utility and the Contractors GPS for any possible conflicts with curb or drainage.

Pole #	Sta.	Right or Left	New Offset
520	447+80.82	Lt	43.0
519	447+95.33	Rt	36.0
CMP	450+24.84	Lt	60.3
37/15	452+80.61	Lt	67.2
11	462+62.28	Rt	39.0
37/10	465+07.03	Rt	33.0
10	469+50.33	Rt	47.0
09	471+13.32	Lt	51.0

Utility	Pole Set Days	Trans. Wires/ Cables	Remove Poles	Estimated Working Days
CMP		5		5
Time Warner		5		5
Fairpoint	6	5	2	13

Central Maine Power Company has transmission lines that cross the project. These wires do not appear to be issue given the project scope. No relocation or involvement of any kind is anticipated by the aerial utilities as part of the work but the contractor should inspect this location, prior to bid, and be aware of these lines when preparing their bid and using machines that are over legal heights. The contractor is urged to use caution around these lines. The Central Maine Power Company contact is: Jim Wright at 621-6686. james.wright@cmpco.com

SUBSURFACE

Fairpoint has buried cables on the south end of the project along Rte 1. This buried line appears to be outside the limits of the Project. Contractor shall notify **Fairpoint** at least five (5) days prior to any excavating, reclaiming or guardrail installation to allow the utility to determine the cable and splice box locations in that area.. Any damage to the buried cable caused by the Contractor during construction shall be repaired at the contractor's expense. The contact for **Fairpoint** is Marty Pease at 797-1119. mpease@fairpoint.com

The **Yarmouth Water District** has a water main that runs along the project on the north end of Rte 1. The **Yarmouth Water District** may have a few gates that may need to be adjusted. The **Contractor** shall notify the **Yarmouth Water District** one week prior to needing the gates adjusted and give the **District** two days to make their adjustments. The contact for the **Yarmouth Water District** is Bob MacKinnon at 846-5821. ywdbob@maine.rr.com

Tyler Technologies has extremely important underground cables that enter their property along Route 1 on the southerly end of the project. **This cable cannot go out of service.** These lines appear to be outside of the project limits. **Tyler Technologies** is not a member of dig-safe and will need to contact separately. The Contractor shall include **Tyler Technologies** in any utility communication. The contact for **Tyler Technologies** is Greg Mehlhorn at 518-4391. greg.mehlhorn@tylertech.com

RAILROAD

The **St. Lawrence & Atlantic Railroad Co.** has an existing facility near the project but outside the scope of the project. The **St. Lawrence & Atlantic Railroad Co.** will not require an agreement with the **Department** but will need notification 10 days in advance when working in the area of its right-of-way. Contractor must manage traffic in a way not to have cars stopped on the tracks. The Contractor must also **never** work in such a way that **any** equipment, vehicles, or personnel have the potential to foul the tracks. The project does not require any ditching between the **Departments** right-of -way and the **St. Lawrence & Atlantic Railroad Co.** right-of -way. If the scope of the project changes in anyway the **St. Lawrence & Atlantic Railroad Co.** must be consulted. The contact for the **St. Lawrence & Atlantic Railroad Co.** is Jason Birkel at 753-4229. jbirkel@gwrr.com

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.

SAFE PRACTICES AROUND UTILITY FACILITIES

The Contractor shall be responsible for complying with M.R.S.A. Title35-A, Chapter 7-A Sections 751 -761 Overhead High-Voltage Line Safety Act. Prior to commencing any work that may come within ten (10) feet of any aerial electrical line; the Contractor shall notify the aerial utilities as per section 757 of the above act.

DIG SAFE

The Contractor shall be responsible for determining the presence of underground utility facilities prior to commencing any excavation work and shall notify utilities of proposed excavation in accordance with M.R.S.A. Title 23 §3360-A, Maine "Dig Safe" System. If through this process a utility is identified that is not mentioned in this document, the Contractor must notify the Utility Coordinator immediately.

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.

THE CONTRACTOR SHALL PLAN AND CONDUCT HIS WORK ACCORDINGLY.

Utility Contacts	Coordinator	Phone
Central Maine Power Co.	Gerry Norton	242-1247
Time Warner Cable	Don Johnson	253-2291
Fairpoint	Marty Pease	797-1119
Yarmouth Water District	Bob MacKinnon	846-5821
CMP (transmission)	Jim Wright	621-6686
Tyler Technologies	Greg Mehlhorn	518-4391

December 17, 2010
Supersedes December 30, 2009

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

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

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

SPECIAL PROVISION
SECTION 104.5.5
GENERAL RIGHTS AND RESPONSIBILITIES
Prompt Payment of Subcontractors

104.5.5

104.5.5 Prompt Payment of Subcontractors

A. Pay When Paid The Contractor shall pay Subcontractors for all Work satisfactorily performed and Invoiced by the Subcontractor no later than 30 Days from the date the Contractor receives payment from the Department for such Subcontractor's Work.

B. Payment Tracking Federal Projects On federally funded projects, the prime contractor, subcontractors and lower-tier subcontractors will track and confirm the delivery and receipt of all payments through the Elation System. They will be responsible for entering all payments to all sub and lower tier contractors. MaineDOT will run a query monthly to ensure that contractors are complying and generate an e-mail to contractors who have not responded to confirm receipt of MaineDOT payment or contractor payment to lower tier subcontractors.

~~B~~ C. Retainage The Contractor shall return to the Subcontractor all retainage withheld from the Subcontractor within 30 Days after the date the Subcontractor's Work is satisfactorily completed. If there is a Delay in such return of retainage, the Subcontractor may pursue all rights it may have under the claims procedure referenced in Section 104.5.6 - Subcontractor Claims for Payment.

December 5, 2011
Supersedes December 1, 2010

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

105.11 Federal Requirements Add the following as the third and subsequent paragraphs:

"Prior to payment by the Department, the Contractor shall provide a certification from the producer of steel or iron, or any product containing steel or iron as a component, stating that all steel or iron furnished or incorporated into the furnished product was manufactured in the United States in accordance with the requirements of the Buy America provisions of 23 CFR 635.410, as amended. Such certification shall also include (1) a statement that the iron or steel product or component was produced entirely within the United States, or (2) a statement that the iron or steel product or component was produced within the United States except for minimal quantities of foreign steel and iron valued at $ (actual value).

All manufacturing processes must take place domestically. Manufacturing begins with the initial melting and mixing, and continues through the coating stage. Any process which modifies the chemical content, the physical size and shape, or the final finish is considered a manufacturing process. These processes include rolling, extruding, machining, bending, grinding, drilling, and coating. "Coating" includes epoxy coating, galvanizing, painting, or any other coating that protects or enhances the value of the material.

A Buy America Certification is required from each manufacturer, fabricator, supplier, subcontractor, etc. that meets the "manufacturing" definition above.

Buy America does not apply to raw materials (iron ore and alloys), scrap, pig iron, or processed, pelletized, and reduced iron ore."

SPECIAL PROVISION 105
GENERAL SCOPE OF WORK
Equal Opportunity and Civil Rights
(Disadvantaged Business Enterprises Program)

105.10.1.1 Disadvantaged Business Enterprises Program The Maine Department of Transportation (MaineDOT) has established a Disadvantaged Business Enterprise (DBE) program in accordance with regulations of the United States Department of Transportation (USDOT), 49 CFR Part 26. The MaineDOT receives federal financial assistance from USDOT, and as a condition of receiving this assistance, the Department has signed an assurance that it will comply with 49 CFR Part 26.The MaineDOT is responsible for determining the eligibility of and certifying DBE firms in Maine.

A DBE is defined as a for-profit business that is owned and controlled by one or more socially and economically disadvantaged person(s). For the purpose of this definition:

1. "Socially and economically disadvantaged person" means an individual who is a citizen or lawful permanent resident of the United States and who is Black, Hispanic, Native American, Asian, Female; or a member of another group or an individual found to be disadvantaged by the Small Business Administration pursuant to Section 3 of the Small Business Act.
2. "Owned and controlled" means a business which is:
   a. A sole proprietorship legitimately owned and controlled by an individual who is a disadvantaged person.
   b. A partnership or limited liability company in which at least 51% of the beneficial ownership interests legitimately are held by a disadvantaged person(s).
   c. A corporation or other entity in which at least 51% of the voting interest and 51% of the beneficial ownership interests legitimately are held by a disadvantaged person(s).

The disadvantaged group owner(s) or stockholder(s) must possess control over management, interest in capital, and interest in earnings commensurate with the percentage of ownership. If the disadvantaged group ownership interests are real, substantial and continuing and not created solely to meet the requirements of this program, a firm is considered a bona fide DBE.

105.10.1.2 Commercially Useful Function MaineDOT will count expenditures of a DBE contractor toward DBE goals only if the DBE is performing a commercially useful function on that contract. A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. Credit will only be given when the DBE meets all conditions for a CUF. Credit for labor will be in accordance with the responsibilities outlined in the contract. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the Contract, for negotiating price, determining quality and quantity, ordering the materials, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, MaineDOT will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the Contract is commensurate with the work it is actually performing and DBE credit claimed for its performance of the work, and other relevant factors.

Rented equipment used by the DBE must not be rented from the Prime Contractor on a job that the DBE is subcontracted with that Prime Contractor for regular course of business.

A current listing of certified DBEs that may wish to participate in the highway construction program and the scope of work for which they are certified can be found at http://www.maine.gov/mdot/disadvantaged-business-enterprises/pdf/directory.pdf. Credit will be given for the value described by a DBE performing as:

A. A prime contractor; 100% of actual value of work performed by own workforces.
B. An approved subcontractor; 100% of work performed by own workforces.
C. An owner-operator of construction equipment; 100% of expenditures committed.
D. A manufacturer; 100% of expenditures committed. The manufacturer must be a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Contractor. Brokers and packagers shall not be regarded as manufacturers.
E. A regular dealer; 60% of expenditures committed. A regular dealer is defined as a firm that owns, operates, or maintains a store, warehouse or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold to the public. For purposes of this provision a "Broker" is a DBE that has entered into a legally binding relationship to provide goods or services delivered or performed by a third party. Brokers and packagers shall not be regarded as regular dealers.
F. A bona fide service provider; 100% of reasonable fees or commissions. Eligible services include professional, technical, consultant, or managerial, services and assistance in the procurement of essential personnel, facilities, equipment, materials or supplies required for the performance of the contract. Eligible services also include agencies providing bonding and insurance specifically required for the performance of the contract.
G. A trucking, hauling or delivery operation. 100% of expenditures committed when trucks are owned, operated, licensed and insured by the DBE and used on the contract and, if applicable, includes the cost of the self supplied materials and supplies.100% of expenditures committed when the DBE leases trucks from another DBE firm including an owner-operator. 100% of reasonable fees or commissions the DBE receives as a result of a lease arrangement for trucks from a non-DBE, including an owner-operator.
H. Any combination of the above.

105.10.1.3 Race-neutral Goals The Maine DOT is required to set an annual goal (approved on a three year basis) for DBE participation in Federal-aid projects. In order to fulfill that goal, bidders are encouraged to utilize DBE businesses certified by the MaineDOT. MaineDOT seeks to meet the established DBE goal solely through race-neutral means. *Race-neutral* DBE participation occurs when a DBE is awarded a prime contract through customary competitive procurement procedures, is awarded a subcontract on a contract that does not carry a DBE contract goal, or wins a subcontract from a prime contractor that did not consider its DBE status in making the award. A DBE/subcontractor Utilization Proposed Form is required to be included in bid documents.

MaineDOT will analyze each project and create a Project Availability Target (PAT), based on a number of factors including project scope, available DBE firms, firms certified in particular project work, etc. Each bid will request that the contractor attempt to meet the PAT. This PAT is developed to assist contractors to better understand what the MaineDOT expectations are for a

specific project. The PAT is NOT a mandate but an assessment of what this particular project can bear for DBE participation. The Department anticipates that each contractor will make the best effort to reach or exceed this PAT for the project.

105.10.1.4 Race-conscious Project Goals If it is determined by the Department that the annual DBE goal will not be met through *race-neutral* means, the Department may implement *race-conscious contract goals* on some projects. Race-conscious contract goals are goals that are enforceable by the Department and require that the prime contractor use good faith effort to achieve the goal set by the Department for that particular project. If race conscious means are implemented on a project, the Prime must comply with the requirements of 49 CFR.

At the time of the bid opening, all Bidders shall submit with their bid a Disadvantaged Business Enterprise (DBE) Commitment Form provided by the Department. This form will list the DBE and non-DBE firms that are proposed to be used during the execution of the Work. The list shall show the name of the firm, the item/material/type of work involved and the dollar amount of work to be performed. The dollar total of each commitment shall be totaled and a percentage determined.

If the project goal is not met, acceptable documentation showing all good faith efforts made to obtain participation may be required in order to award the project. Failure to provide the required listing with the dollar participation total or acceptable documentation of good faith efforts to obtain DBE participation within 3 days after the bid opening date will be considered a lack of responsiveness on the part of the low bidder. Rejection of the low bid under these circumstances will require the low bidder to surrender the Proposal Guaranty to the Department. The submission and approval of the above forms does not constitute a formal subcontract.

If for any reason during the progress of the Work the Contractor finds that DBEs included on the list are unable to perform the proposed work, the Contractor, with written release by the committed DBE or approval of the Department, may substitute other DBE firms for those named on the list. If the Contractor is able to clearly document their inability to find qualified substitute firms to meet the project goal, the Contractor may request in writing approval to substitute the DBE with a non-DBE firm. If at any time during the life of the Contract it is determined that the Contractor is not fulfilling the goal or commitment(s) and is not making a good faith effort to fulfill the DBE requirement, the Department may withhold progress payments. If good faith effort is determined by the Department, failure to meet the DBE contract goal will not be a detriment to the bid award. Fulfillment of the goal percentage shall be determined by dividing the dollars committed to the DBEs by the actual contract dollars. These requirements are in addition to all other Equal Employment Opportunity requirements on Federal-aid contracts.

105.10.1.5 Certification of DBE attainment on Contracts The MaineDOT must certify that it has conducted post-award monitoring of all contracts to ensure that DBEs had done the work for which credit was claimed. The certification is for the purpose of ensuring accountability for monitoring which the regulation already requires. The MaineDOT will certify these contracts through review of CUF forms, Elations sub-contract payment tracking as well as occasional on-site reviews of projects and through the project's final closeout documentation provided by our Contracts Section.

105.10.1.6 Bidders' List Survey Pursuant to 49 CFR 26.11 the MaineDOT is required to "create and maintain" a bidders list and gather bidder information on our construction/consultant projects, Contractors will maintain information on all subcontract bids submitted by DBE and Non-DBE firms and provide that information to the Department. The Following information is required:

Firm Name
Firm Address
Firm status (DBE or non-DBE)
Age of firm (years)
And the annual gross receipts amount as indicated by defined brackets, i.e. $500,000 to $800,000, rather than requesting exact figures.

Not only is this information critical in determining the availability of DBE businesses relative to other businesses that do similar work, but the Federal Highway Administration requires that we obtain this information.

MaineDOT DBE Project Attainment Target (PAT)
for this Project is 6 %

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

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

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

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

SPECIAL PROVISION
SECTION 105
GENERAL SCOPE OF WORK

Prior to Northbound Ramps being fully closed to the traveling public, temporary signals at Exit 10 and 17 shall be fully functional and operating as approved by the Resident Engineer.

Northbound On and Off Ramps shall be completed and open to the traveling public on or before June 14, 2013.

Supplemental Liquidated Damages shall be accessed to the Contractor in the amount of Two Thousand Five Hundred Dollars ($2,500.00) for every calendar day that the On/ Off Ramps remain closed to the traveling public beyond June 14, 2013 and shall continue until ramps are complete and open as directed.

SPECIAL PROVISION
SECTION 105
GENERAL SCOPE OF WORK
(Limitation of Operations)

The Contractor shall maintain one lane of traffic in each direction from 7am to 7pm as directed by the Resident Engineer.

SPECIAL PROVISION
SECTION 107
TIME
(Scheduling of Work – Projected Payment Schedule)

Description The Contractor shall also provide the Department with a Quarterly Projected Payment Schedule that estimates the value of the Work as scheduled, including requests for payment of Delivered Materials. The Projected Payment Schedule must be in accordance with the Contractor's Schedule of Work and prices submitted by the Contractor's Bid. The Contractor shall submit the Projected Payment Schedule as a condition of Award.

SPECIAL PROVISION
SECTION 107
SCHEDULING OF WORK

Replace Section 107.4.2 with the following:

"107.4.2 Schedule of Work Required Within 21 Days of Contract Execution and before beginning any on-site activities, the Contractor shall provide the Department with its Schedule of Work. The Contractor shall plan the Work, including the activity of Subcontractors, vendors, and suppliers, such that all Work will be performed in Substantial Conformity with its Schedule of Work. The Schedule must include sufficient time for the Department to perform its functions as indicated in this Contract, including QA inspection and testing, approval of the Contractor's TCP, SEWPCP and QCP, and review of Working Drawings.

At a minimum, the Schedule of Work shall include a bar chart which shows the major Work activities, milestones, durations, **submittals and approvals**, and a timeline. Milestones to be included in the schedule include: (A) start of Work, (B) beginning and ending of planned Work suspensions, (C) Completion of Physical Work, and (D) Completion. If the Contractor Plans to Complete the Work before the specified Completion date, the Schedule shall so indicate.

Any restrictions that affect the Schedule of Work such as paving restrictions or In-Stream Work windows must be charted with the related activities to demonstrate that the Schedule of Work complies with the Contract.

The Department will review the Schedule of Work and provide comments to the Contractor within 20 days of receipt of the schedule. The Contractor will make the requested changes to the schedule and issue the finalized version to the Department."

Special Provision
Section 107
Prosecution and Progress
(Contract Time)

The contractor will be allowed to commence work on this project as long as all applicable plans as required under this contract have been submitted and approved.

The completion date for this contract is November 22, 2013.

The contractor shall adhere to Section 107.3.3 Sundays and Holidays.

There shall be no construction activities July 19th through July 21st (Yarmouth Clam Festival.)

Once work on this project commences, the Contractor shall continue to work until the project is complete.

SPECIAL PROVISION
SECTION 108
PAYMENT
(Asphalt Escalator)

108.4.1 Price Adjustment for Hot Mix Asphalt: For all contracts with hot mix asphalt in excess of 500 tons total, a price adjustment for performance graded binder will be made for the following pay items:

Item 403.102 Mot Mix Asphalt – Special Areas
Item 403.206 Hot Mix Asphalt - 25 mm
Item 403.207 Hot Mix Asphalt - 19 mm
Item 403.2071 Hot Mix Asphalt - 19 mm (Polymer Modified)
Item 403.2072 Hot Mix Asphalt - 19 mm (Asphalt Rich Base)
Item 403.2073 Warm Mix Asphalt - 19 mm
Item 403.208 Hot Mix Asphalt - 12.5 mm
Item 403.2081 Hot Mix Asphalt - 12.5 mm (Polymer Modified)
Item 403.20813 Warm Mix Asphalt - 12.5 mm (Polymer Modified)
Item 403.2083 Warm Mix Asphalt - 12.5 mm
Item 403.209 Hot Mix Asphalt - 9.5 mm (sidewalks, drives, & incidentals)
Item 403.210 Hot Mix Asphalt - 9.5 mm
Item 403.2101 Hot Mix Asphalt - 9.5 mm (Polymer Modified)
Item 403.2102 Hot Mix Asphalt - 9.5 mm (Asphalt Rich Base)
Item 403.2103 Warm Mix Asphalt - 9.5 mm
Item 403.2104 Hot Mix Asphalt - 9.5 mm (3/4” Surface)
Item 403.211 Hot Mix Asphalt – Shim
Item 403.2111 Hot Mix Asphalt – Shim (Polymer Modified)
Item 403.2113 Warm Mix Asphalt - Shim
Item 403.212 Hot Mix Asphalt - 4.75 mm (Shim)
Item 403.2123 Warm Mix Asphalt - 4.75 mm (Shim)
Item 403.213 Hot Mix Asphalt - 12.5 mm (base and intermediate course)
Item 403.2131 Hot Mix Asphalt - 12.5 mm (base and intermediate course Polymer Modified)
Item 403.2132 Hot Mix Asphalt - 12.5 mm (Asphalt Rich Base and intermediate course)
Item 403.2133 Warm Mix Asphalt - 12.5 mm (base and intermediate course)
Item 403.214 Hot Mix Asphalt - 4.75 mm (Surface)
Item 403.2143 Warm Mix Asphalt - 4.75 mm (Surface)
Item 404.70 Colored Hot Mix Asphalt – 9.5mm (Surface)
Item 404.72 Colored Hot Mix Asphalt – 9.5mm (Islands, sidewalks, & incidentals)
Item 461.13 Maintenance Surface Treatment

Price adjustments will be based on the variance in costs for the performance graded binder component of hot mix asphalt. They will be determined as follows:

The quantity of hot mix asphalt for each pay item will be multiplied by the performance graded binder percentages given in the table below times the difference in price between the base price and the period price of asphalt cement. Adjustments will be made upward or downward, as prices increase or decrease.

Item 403.102–6.2%
Item 403.206–4.8%

Item 403.207–5.2%	Item 403.2071–5.2%	Item 403.2072–5.8%	Item 403.2073–5.2%
Item 403.208–5.6%	Item 403.2081–5.6%	Item 403.20813–5.6%	Item 403.2083–5.6%
Item 403.209–6.2%			
Item 403.210–6.2%	Item 403.2101–6.2%	Item 403.2102–6.8%	Item 403.2103–6.2%
Item 403.2104–6.2%			
Item 403.211–6.2%	Item 403.2111–6.2%		Item 403.2113–6.2%
Item 403.212–6.8%			Item 403.2123–6.8%
Item 403.213–5.6%	Item 403.2131–5.6%	Item 403.2132–6.2%	Item 403.2133–5.6%
Item 403.214–6.8%			Item 403.2143–6.8%

Item 404.70–6.2%
Item 404.72–6.2%
Item 461.13–6.4%

Hot Mix Asphalt**:** The quantity of hot mix asphalt will be determined from the quantity shown on the progress estimate for each pay period.

Base Price: The base price of performance graded binder to be used is the price per standard ton current with the bid opening date. This price is determined by using the average New England Selling Price (Excluding the Connecticut market area), as listed in the Asphalt Weekly Monitor.

Period Price: The period price of performance graded binder will be determined by the Department by using the average New England Selling Price (Excluding the Connecticut market area), listed in the Asphalt Weekly Monitor current with the paving date. The maximum Period Price for paving after the adjusted Contract Completion Date will be the Period Price on the adjusted Contract Completion Date.

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

The December 2002 Revision of the Standard Specifications, Section 202-Removing Structures and Obstructions, subsection 202.061-Removing Pavement Surface, has been removed and replaced in it's 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 by the use of 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 grade wire, or from the existing pavement surface using a 30 foot (9m) minimum contact ski (floating beam), or 24 foot (8m) non-contact grade control beam.

The Contractor shall locate and remove all objects in the pavement through the work area that would be detrimental to the planing 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 12 mm [1/2 inch] under a 5 meter [16 foot] string line or straightedge placed parallel to the centerline will be corrected. Any deviations in the cross-slope that exceed 10 mm [3/8 inch] under a 3 meter [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 highways or expressways with directional traffic, the Contractor will be required to remove the pavement surface on the adjacent sections of travel lane and designated portions of adjacent shoulder before the end of the following calendar day unless the centerline edge is tapered to a 12:1. Failure to remove the centerline vertical edge by milling, using the approved taper, or matching the adjacent course the following day will constitute a traffic control violation unless an excusable delay is granted by the Department. The Contractor will be required to remove the specified pavement course over the full width of the mainline traveled ways prior to opening the sections to weekend or holiday traffic.

On roadways with two-way traffic, the Contractor will be required to remove the specified pavement course over the full width of the mainline traveled ways prior to opening the sections to weekend or holiday traffic.

During any period that a centerline vertical or tapered edge exists, the Contractor will be responsible for installing additional warning signage that clearly defines the centerline vertical or tapered edge and elevation differential hazard, as well as additional centerline delineation such as double RPM application, or temporary painted line. The Traffic Control Plan shall include 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 [0.80 km] for the entire length of the effected roadway section. All additional signing, labor, traffic control devices, or incidentals will not be paid for directly, but will be considered incidental to the appropriate 652 bid items.

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 as noted in Special Provision Section 105 – Limitations Of Operations.

SPECIAL PROVISION
SECTION 203
EXCAVATION AND EMBANKMENT
(BLASTING)

203 – EXCAVATION AND EMBANKMENT is amended to include the following:

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. The work to be done under this Special Provision includes furnishing all labor, equipment, materials and services and performing operations required to fragment and excavate materials classified as rock utilizing controlled blasting procedures specified herein to the grades and limits indicated on Drawings. The work shall be performed such that damage is prevented to adjacent structures (includes Route 1 Overpass Bridge), property (includes the Tyler Technology building), utilities and work. The work shall be performed such that damage is minimized to adjacent rock, and such that resulting ground vibrations and air blast overpressures are consistently maintained below the maximum levels specified in this Special Provision.

2. The purpose of the controlled blasting is to create a stable rock face with a fall zone to protect the traveling public from rock fall hazard.

3. Protecting existing structures, adjacent property, utilities, workers, Department personnel and consultants, and the general public from damage or injury from improper handling of explosives, flyrock, excessive ground vibrations and/or excessive air blast overpressure levels.

4. Furnishing, installing, and implementing an audible warning system to indicate impending blasting and familiarizing workers, Department personnel and consultants, and the general public with the system implemented.

1.02 SYSTEM DESCRIPTIONS

A. Definitions:

1. Earth is defined as all materials not classified as rock.

2. Rock excavation: Definition in Standard Specification Section 203.01.b shall apply.

1.03 QUALITY ASSURANCE

A. Qualifications:

1. Persons responsible for blasting shall be licensed blasters in the State of Maine. The Contractor shall document, with project descriptions, blast plans and references outlining successful experience performing controlled blasting for slopes greater than 30 ft in height adjacent to a highway facility that included careful perimeter control blasting, measures to prevent damage to pavement or other structures, and measures to eliminate the need for or to minimize the length of traffic stoppage. The Blasting Subcontractor shall demonstrate at least three similar projects in the last six (6) years.

B. Codes, Permits and Regulations:

1. The Contractor shall comply with all applicable Federal, State, and Local laws, rules, ordinances and regulations governing the transportation, storage, handling and use of explosives. All labor, materials, equipment and services necessary to make the blasting operations comply with such requirements shall be provided without additional cost to the Department.

2. The Contractor shall obtain and pay for all permits and licenses required to complete the work of this Special Provision.

3. In case of conflict between regulations or between regulations and Specifications, the Contractor shall comply with the strictest applicable codes, regulations, or Specifications.

C. Blasting Limit Criteria:

1. Existing Occupied Structures:

a. Peak Particle Velocity Limits - At nearby existing occupied structures, the maximum Peak Particle Velocity (PPV) shall not exceed the United States Bureau of Mines (USBM) Safe Limits (see Figure 1).

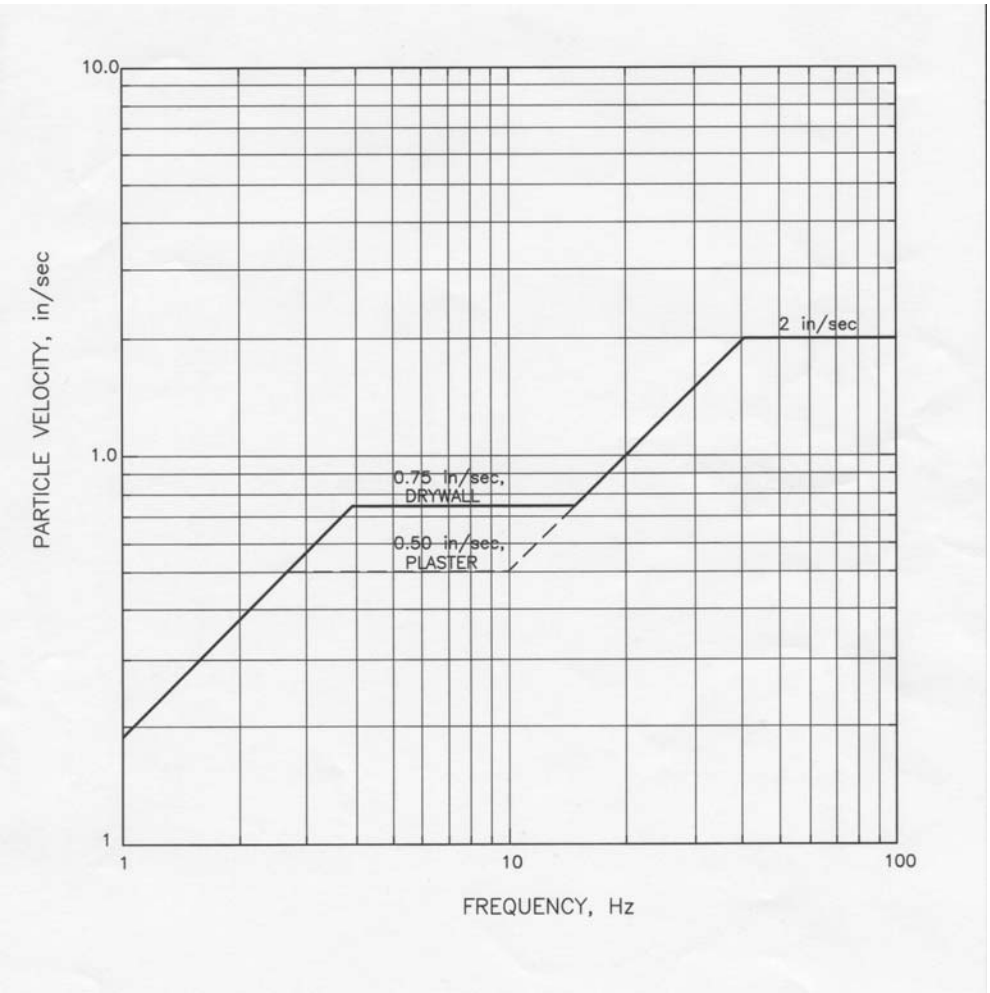

Figure 1 – Blasting Limit Criteria

b. Airblast Overpressure Limits – Maximum sound pressure level of 133 dB (peak, impulsive), measured with a seismograph.

2. The Route 1 Overpass Bridge and Utilities: The PPV shall not exceed 3 in/sec at the Route 1 Overpass Bridge or existing utilities.

3. The Contractor shall comply with the Blasting Limit Criteria during all blasting and rock excavation. Adjustments to the drilling and blasting program and procedures, to comply with the Blasting Limit Criteria, shall be made by the Contractor during execution of the work at no expense to the Department.

D. Blast Monitoring:

1. The Contractor shall conduct blast vibration monitoring of every blast round required to excavate rock during the conduct of construction. Monitoring shall include one seismograph at the closest utility, one seismograph at the nearest segment of the Route 1 Overpass Bridge and one seismograph adjacent to the nearest occupied structure.

2. The Contractor shall notify the Resident one hour prior to each blast.

3. The Contractor may perform additional blast monitoring at no additional cost to the Department.

4. Blast monitoring shall be conducted by qualified professionals trained in the use of a seismograph, and records shall be analyzed and results reported by persons familiar with analyzing and reporting the frequency content of a seismograph record.

5. All instrumentation proposed for use on the project shall have been calibrated within the previous twelve (12) months to a standard which is traceable to the National Bureau of Standards. Characteristics of required instrumentation are listed below:

   a. Measure and report the three (3) mutually perpendicular components of particle velocity in directions vertical, radial, and perpendicular to the vibration source.

   b. Measure and display the maximum peak particle velocity component and airblast overpressure, and the frequencies of each. The readings must be displayed and be able to be read in the field, immediately after each blast.

   c. Furnish a permanent time history record of particle velocity waveforms and airblast overpressure waveforms.

   d. Furnish a printout of USBM limits with vibration data.

6. The Contractor shall film each blast from a minimum of two (2) locations and shall submit films to the Resident within 24 hours of each blast event.

F. Blast Monitoring Reports:

1. Generally within 24 hours following each blast, a Blast Monitoring Report shall be submitted to the Resident. Any vibrations close to or exceeding the specified limits will be immediately reported to the Resident by the Contractor.

G. Notification: The Contractor shall be responsible for notification of representatives of the utilities prior to each blast.

H. The Contractor shall cooperate with the Resident in permitting observation of the Contractor's drilling and loading procedures, as well as in providing detailed information on blasting operations.

I. The Contractor shall be completely responsible for all damages resulting from the blasting operations and shall, as a minimum, take whatever measures are necessary to maintain peak particle velocities within the specified limits. Modifications to blasting and excavation methods required to meet these requirements shall be undertaken at no additional cost to the Department.

J. Airborne Dust and Noise Limits: The Contractor shall take precautions, such as the use of water, vacuums and mufflers to minimize noise and dust from air track drilling operations.

1.04 SUBMITTALS

A. Advance Blasting Plan Submittal:

The Contractor shall submit a Blasting Plan containing the following information to the Resident no more than ten (10) business days after removal of overburden soil and at least ten (10) business days prior to commencing the drilling/blasting operations. It is the Department's intent to respond to the major items in the Contractor's submittal within five (5) business days after receipt. A Blasting Plan shall also be submitted at any time the Contractor proposes to change the drilling and blasting methods. If the location of faces change or other conditions change, the Contractor is required to submit a new Blasting Plan.

1. Sequence and schedule of blasting rounds, including the general method of developing the excavation, lift heights, etc.

2. Listing of inclinometer device to be used to accurately position drill angle on all drill rigs, complete with catalog cuts, specifications and operation procedures.

3. Specifics of a typical blast round to be implemented in each of the following areas:

   a. At a test blast area within the excavation limits.

   b. At the highest rock cut area.

4. Include the following blast round details:

   a. Plan of a typical round design showing hole spacing and delay pattern, including test blasts and production blasts.

   b. Diameter, spacing, burden, depth and orientation of each blast hole for a typical round design, including test blasts, production blasts and blasts where controlled blasting techniques are required.

   c. Nomenclature and amount (in terms of weight and number of cartridges) of explosives and distribution of charge to be used within each hole, on each delay, and the total for the blast.

   d. Nomenclature and type of detonators; typical delay pattern wiring diagram for the round: type and capacity of firing source, size, type and location of safety switches and lightning gap.

   e. Type and amount of stemming to be used in holes.

   f. Calculations of anticipated vibration levels at the nearest adjacent structures and utilities.

5. Manufacturers data sheets for all explosives, primers and initiators to be employed.

6. Methods of matting or covering of the blast area in open excavations to prevent excessive throw of rock.

7. Written evidence of the licensing, experience and qualifications of the blasters who will be directly responsible for the loading of each shot and for firing it.

8. Name and qualifications of the person(s) responsible for design and directing the blasting. This submittal shall document by project lists and samples of blasting round design calculations that the person has the required experience in controlling open-cut blast vibrations in blasting rounds of the type required on the project.

9. Details of a traffic control plan specific to blast events.

10. Details of an audible advance signal system to be employed at the job site as a means of informing workers, Department personnel or its representatives, and the general public that a blast is about to occur.

11. Submit a certificate of insurance documenting that liability insurance coverage in an amount no less than $2,000,000 will be in force for the duration of blasting at the site. The Contractor shall ensure that all approved damage claims will be honored, pursuant to the terms of the insurance policies and/or applicable state law.

12. Submit a copy of the blasting permit(s) obtained to conduct blasting on the site (when received).

B. Blast Monitoring Report Submittals:

1. Within 24 hours following each blast, the Contractor shall submit to the Resident a Blast Monitoring Report. Each Blast Monitoring Report shall include all of the following applicable items:

a. Blast round design data, as indicated in Section 1.04.A.4 above.

b. Blast Monitoring Location Plan, indicating the location from the blast to the monitoring locations.

c. Vibration data from each seismograph, including a copy of the strip charge (or other permanent record of velocity/time waveform) with calibration and monitoring record marked with the date, time and location of the blast.

C. Progress Submittal:

1. In the event that the Contractor's design round results in ground vibrations which exceed the blasting limit criteria specified in this Special Provision, the Contractor shall immediately revise the round design appropriately and submit the revised round design to the Resident for review. The Contractor shall allow sufficient time for review, and shall not conduct additional blasting until the revised blast round design is approved.

2. Review by the Department of blast designs and techniques shall not relieve the Contractor of responsibility for the accuracy, adequacy and safety of the blasting, exercising proper supervision and field judgment and producing the results within the blasting limits required by this Special Provision.

3. The Contractor shall report to the Resident in writing all blasting complaints received by the Contractor within 24 hours of receipt. Each blast complaint report shall include the name and address of the complaintant, time received, date and time of blast complained about and a description of the circumstances which led to the complaint.

D. The time period(s) specified for submittal are the minimum required by the Resident to review, evaluate and respond to the Contractor. If, after review, the Resident requires re-submission for any reason, the specified time period(s) shall commence upon the date of receipt of the re-submittal(s). The Contractor is responsible for scheduling specified submittal and re-submittal so as to prevent delays in the work.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

3.01 MINIMUM SAFETY PRECAUTIONS

A. Clearing the Danger Area Before Blasting: No blasting shall be permitted until all personnel in the danger area have been removed to a place of safety. A loud, audible, warning system devised and implemented by the Contractor shall be sounded before each blast. The Contractor shall familiarize all personnel on the project and the general public with the implemented system. The danger area shall be patrolled before each blast to make certain that it has been completely cleared, and guards shall be stationed to prevent entry until the area has been cleared by the blaster following the blast.

B. Explosives shall be stored, handled and employed in accordance with Federal, State, and Local regulations including 29 CFR 1926 Subpart U – Blasting and the Use of Explosives. All other Standard Specification Section 105.2.6 – Use of Explosives shall apply.

C. No explosives, caps, detonators or fuses shall be stored on the site during non-working hours.

D. The Contractor shall be responsible for determining any other safety requirements unique to blasting operations on this particular site so as not to endanger life, property, utility services, any existing or new construction, or any property adjacent to the site.

E. No requirement of, or omission to require, any precautions under this Contract shall be deemed to limit or impair any responsibility or obligations assumed by the Contractor under or in connection with this Contract; and the Contractor shall at all times maintain adequate protection to safeguard the public and all persons engaged in the work, and shall take such precautions as will accomplish such end, without undue interference to the public. The Contractor shall be responsible for and pay for any damage to adjacent structures including all

utilities and the adjacent Route 1 Overpass Bridge, resulting from work executed under this Special Provision.

3.02 TEST BLASTING

A. The initial blasting at the site shall consist of at least one test blast, for the purpose of assessing the vibration attenuation characteristics at the site and the effectiveness of perimeter controlled blasting measures. The test blast shall take place in the area designated by the Resident.

B. Requirements for controlled and production blasting operations covered elsewhere in this specification shall also apply to blasting control carried out in conjunction with the test shots.

C. Blast rock shall be removed from the face at the test blast locations to allow for inspection of perimeter controlled blasting.

D. Contractor will not be allowed to drill ahead of the test blast area until the test section has been excavated and the results evaluated by the Resident.

E. If at any time during the progress of the work, the methods of drilling and blasting do not produce the desired result of a uniform slope and shear face, within the tolerances specified, the Contractor shall be required to drill, blast and excavate in short sections, not exceeding 100 ft in length, until a technique is arrived at that will produce the desired results. Extra cost resulting from this requirement shall be borne entirely by the Contractor.

3.03 GENERAL BLASTING PROCEDURES

A. Pre-blast meeting: A pre-blast meeting shall be held prior to the start of any drilling or blasting activities. The purpose of the meeting shall be to review the blasting procedures and vibration monitoring requirements and to facilitate coordination between all parties involved. Individuals attending the pre-blast meeting should include the Resident, the Contractor, the Contractor's blaster, any utility affected by the blasting operation and any other personnel the Department deems appropriate.

B. Blasting shall be limited to between sunrise and sunset Monday through Friday or as otherwise restricted by the Department. No blasting shall be conducted at night, on Saturdays, Sundays, holidays, or other times unless prior written permission is received from the Resident.

C. Blasting, staging and operations shall be performed in the area including the inside shoulder of the Interstate 295 Northbound Off-Ramp and the shoulder of the Interstate 295 Northbound travel lane. Other areas needed for staging and the barriers planned for protection of the lane shall be defined in the traffic control plan.

D. The Contractor shall notify the Resident at least 48 hours before blasting operations are to commence, and at least 24 hours prior to recommencing blasting if operations are suspended for any reason.

E. The Contractor shall conduct blasting operations such that damage is prevented to adjacent structures including the Route 1 Overpass Bridge, existing utilities, property and work, and such that peak particle velocity levels do not exceed the maximum specified limits at the locations specified herein.

F. Production blast holes shall be drilled on the patterns submitted by the Contractor and approved by the Resident. The production blast holes shall be drilled within two (2) blasthole diameters of the staked collar location. If more than 5 percent of the holes are drilled outside of this tolerance, at the option of the Resident, the Contractor may be required to refill these holes with crushed stone and redrill them at the proper location.

G. First-row-in production blast holes (adjacent to perimeter blast holes) shall be drilled and loaded such that no portion of these holes are closer than 5 ft to the presplit lines to avoid overbreak of the design rock face. Spacing and loading of the first-row-in holes should be 0.5 to 0.75 times the production hole loading and spacing.

H. In order to ensure good bearing material for the roadway, the Contractor shall conduct blasting such that overbreak and fracturing of rock is minimized below the required level described in Special Provision 203 – Shatter Rock Subgrade. Subdrill (depth of blasthole below required grade) should be kept to the minimum necessary to adequately fragment the rock to the required level. Subdrill shall not exceed 24 in. unless the Contractor has submitted an advance written request to the Resident indicating why additional subdrill is required.

I. All blasts shall be designed to move blastrock in the direction of the stress-relieved free face previously marked out or previously blasted. Blasts shall not be designed to push blastrock in the direction of Interstate 295.

J. Blasthole Drilling: Drilling logs shall be kept on each blasthole to show open bedding, jointing and open or mud filled seams, zones of soft or weathered rock, mud pockets, etc. These logs shall be provided to the Resident before any blastholes are loaded. The logs shall be used to properly design and load blastholes and protect from hazardous blasting effects.

K. Blastholes shall be stemmed with dry angular crushed stone material with a maximum particle size of ½-in.

L. No free-flowing, pourable or pumpable explosives shall be used unless approved in writing by the Resident. All explosives shall be in cartridges or other semi-rigid containers.

M. Immediately after blasting, the Contractor shall have sufficient equipment available at the site to clear the roadway of all blastrock and debris to the design subgrade level. The Contractor shall also use, as required, a mechanical sweeper to control dust and small stones.

O. At the completion of each blast round, the Contractor shall collect the fragmented rock and dispose of all material outside the limits of the Rock Cut area as indicated on the drawings (reuse on project) or as otherwise determined by the Contractor.

P. Blasting agent limitations: Blasting agents that contain perchlorates shall not be used for any blasting for the project.

3.04 SPECIAL CONTROLLED BLASTING PROCEDURES

A. Controlled blasting is defined as a blasting method which utilizes a line of closely spaced, lightly loaded blastholes that are fired either before or after the main production blast to define a break line on the perimeter of the excavation.

B. Cushion Blasting:

1. Cushion (trim) blasting shall be used where the designed slope is 4:1 (vertical to horizontal) or steeper and the rock cut is 12 ft or greater.

2. Prior to drilling, all soil and loose and disintegrated rock shall be removed down to solid rock for a distance of at least 30 ft beyond the end of the production hole drilling limits, or to the end of the cut, before drilling the cushion blast line.

3. Cushion blast holes shall be loaded and fired separately after the main round to create a fracture plane along the perimeter of the excavation. Alternatively, they may be fired as the last delay(s) of a round, a minimum of 25 milliseconds after detonation of adjacent production holes. In general, the cushion blast row should be detonated with a row-to-row timing of 1.5 to 3 times the production hole row-to-row timing.

4. Cushion blast holes shall be 4 in. or less in nominal diameter, spaced no greater than eight (8) times the hole diameter on-center, and shall be drilled along the cushion blast line and at the required slope inclination to the full depth of the cut or to a pre-determined stage (lift) elevation.

5. Drilling 24 in. below the payment line will be allowed to facilitate removal of the toe berm.

6. Continuous column charge explosives manufactured especially for cushion blasting shall be used for all cushion blasting. The top of the hole, for a minimum distance of 1.5 ft or 0.7 times the burden, whichever is greater, shall be unloaded and stemmed. The bottom charge concentration within the bottom 1 to 3 feet of hole shall be no greater than three (3) times the column charge concentration.

7. The maximum diameter of explosives used in cushion blast holes shall be not greater than ½ the diameter of the cushion blast hole. The maximum column charge concentration shall be 0.4 lb/ft.

8. The upper portion of all cushion blast holes, from the top most charge to the hole collar, shall be stemmed. Stemming materials shall be dry angular granular material with a maximum particle size of ½-in.

9. Cushion blast charges shall be fired with detonating cord extending the full depth of each hole.

10. The Contractor shall control drilling operations by the use of proper equipment and technique to ensure that no hole shall deviate from the plane of the planned slope by more than 9 in. either parallel or normal to the slope. Cushion blast holes exceeding

these limits shall not be paid for unless, in the Resident's opinion, satisfactory slopes are being obtained.

11. Cushion blast holes shall be drilled within 3 in. of the staked collar location. If more than 5 percent of the cushion blast holes are outside of the 3 in. tolerance, they will be filled with crushed stone, stemmed and re-drilled.

C. Presplitting: Presplit blast holes shall be loaded and fired separately before the main round to create a fracture plane along the perimeter of the excavation. Alternatively, they may be fired as the first delay(s) of a round, a minimum of 25 milliseconds prior to detonation of adjacent production holes. With the exception of the above criteria, requirements given in Section 3.04.B for cushion blasting also apply to presplitting.

3.05 BOREHOLE DEVIATION MEASUREMENTS

A. In order to assure adequate rock fragmentation, minimize the damage to remaining rock beyond the excavation limits, and minimize the possibility of excessive throw of rock onto Interstate 295 (northbound and southbound), the Contractor shall utilize borehole deviation techniques in order to determine the actual burden (distance to free face) for selected production and perimeter holes.

B. Borehole deviation survey shall be completed for every other production hole and every fourth perimeter hole. The borehole deviation survey system shall be capable of measuring deviation along two axes: one parallel to the excavation limits, and one perpendicular to the excavation limits. It should be able to survey a 2 in. to 4 in. diameter hole, up to 100 ft deep, to approximately 30 degrees, at an accuracy of 0.10 degrees. One acceptable system would be the "Boretrack" borehole deviation survey system.

3.06 SCALING

A. The primary purpose of the scaling effort is to remove potentially unstable blocks of rock and rock fragments from the top and face of the slope. Scaling shall be accomplished by the manual method using a suitable standard steel mine scaling rod or other hand-held means to detached partially loosened blocks and loose rock fragments. Subject to the Resident's approval, other methods such as machine scaling, hydraulic splitters, or light blasting may be used in lieu of or to supplement hand scaling.

B. The scaling operations must be conducted by personnel experienced in scaling work, so as to minimize damage to the surrounding sound rock. Scaling shall start at the top of the slope and work down. The scaling operations shall be sufficient to only remove the loose surficial rock surface and loose rock blocks.

C. Scaling should be completed to remove loose or hanging rock during or upon completion of excavation in each lift of rock removed to the Resident's satisfaction. Drilling of the next lift will not be allowed until this work has been completed.

D. The Resident or an approved representative must be present on site during all scaling activities. The Resident's representative will a) approve the method of scaling, b) determine the limits of scaling and c) inspect the new rock face after scaling and determine if additional scaling or other remediation is required.

E. If the exposed rock face is deemed unsuitable by the Resident after scaling, and the Resident and Contractor cannot agree on the cause of instability, a mutually agreed upon independent blasting consultant will be hired with the expense to be split between the Department and the Contractor. The independent blasting consultant shall determine whether the condition resulted from adverse geologic conditions or poor blasting control. If poor blasting control is deemed the cause of the condition, the Blasting Contractor shall remediate the condition by installing rock bolts or other approved techniques at the Contractor's expense to the satisfaction of the Resident, Engineer and/or Geologist. Stabilization necessitated by the rock geology will be paid for at the appropriate unit price

3.07 MEASUREMENT AND PAYMENT

A. Measurement

1. Rock removed in accordance with this Special Provision will be paid using the neat lateral and horizontal limits indicated on the Drawings, and the measured quantity shall be an in place measurement. If the blasting and rock excavation is performed using multiple lifts, any remaining bench shall be less than 1.5-ft wide and any additional excavation required as a result of the benching shall not be measured for payment.

2. There will be no separate measurement for installing, maintaining and monitoring blast instrumentation, borehole deviation surveys, collecting blast debris, disposal of materials, scaling and all other work noted above all cost in connection there with will be considered incidental.

3. Production holes will not be measured for payment.

4. Special perimeter control blasting procedures (3.04) at the perimeter of the rock slopes shall be measured by the linear foot of presplit or cushion blast hole, measured from the collar of the hole to a depth 6 in. below the finished ditch line. Holes which deviate from the correct alignment by more than 6 in. either parallel or normal to the slope shall not be measured for payment. If more than 5 percent of the presplit holes are drilled more than 3 in. from the staked collar location, they shall not be measured for payment.

B. Payment

1. Rock removed in accordance with this Special Provision will be paid for at the contract unit price per cubic meter for Pay Item 203.21 – Rock Excavation. Work associated with conducting pre-blast surveys, blast monitoring, borehole deviation surveys, collecting blast debris, scaling, disposal of materials and all other work noted above will not be paid for separately but are considered incidental to the contract unit price for Pay Item 203.21 – Rock Excavation

2. Payment for special perimeter control blasting (3.05) will be paid for at the contract unit price per linear foot for Pay Item 203.212). Special Perimeter Control Blasting.

END OF SPECIAL PROVISION

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SPECIAL PROVISION
SECTION 203
SHATTER ROCK SUBGRADE

DESCRIPTION

This work shall consist of drilling and blasting rock subgrade in accordance with these specifications and in reasonably close conformity with the lines, grades, and dimensions shown on the plans and Special Details, or as directed by the Resident. Exploratory drilling may be needed to delineate the rock surface before blasting begins, and will be as directed by the Resident.

The area of blasted rock subgrade shall extend sufficiently beyond the beginning and end of cut areas to ensure the shattering of all rock to a depth of 4 feet below subgrade elevation to eliminate water pockets.

After detonation, any rock that protrudes above the subgrade elevation shall be removed. When directed by the Resident, the Contractor shall excavate a trench across the blasted rock to determine if the rock is broken and rearranged to a depth of 4 feet below subgrade. Afterwards, the trench shall be backfilled with the rock removed.

METHOD OF MEASUREMENT

The quantity of Drilling and Blasting of Solid Rock Subgrade to be measured for payment will be the number of square yards of subgrade plan area drilled and detonated in accordance with this Section, measured at subgrade level.

The number of cubic yards of excavation required by the Resident to inspect the depth of shattered and rearranged rock, computed at a maximum width of 30 inches will be measured for payment as Structural Earth Excavation – Drainage and Minor Structures Below Grade.

When Structural Rock Excavation – Drainage and Minor Structures, and Drilling and Blasting of Solid Rock Subgrade occur at the same location, measurement and payment for Structural Rock Excavation - Drainage and Minor Structures will be made for the required trench. This area will not be included in the measurement and payment for Drilling and Blasting of Solid Rock Subgrade.

BASIS OF PAYMENT

The accepted quantities as measured will be paid for at the Contract unit price per square yard for the specified Contract items. Payment will be full compensation for performing the work specified including exploratory drilling and the removal of blasted rock that may swell above subgrade and its disposition on the project as directed by the Resident.

Excavation and backfill required to inspect the depth of broken rock below subgrade will be paid for at the Contract unit price per cubic yard for Structural Rock Excavation – Drainage and Minor Structures.

Pay Item		Pay Unit
203.213	Shatter Solid Rock Subgrade	square yard

SPECIAL PROVISIONS
SECTION 304
AGGREGATE BASE AND SUBBASE COURSE
(Aggregate Subbase)

If the Contractor wishes to route public traffic over the completed Aggregate Subbase Course for a period of time greater than 48 hours, the Aggregate Subbase Course shall be constructed with a minimum 50 mm [2 in] surcharge above the design grade. Whenever the surcharge is used, it shall be constructed with material meeting the requirements of Section 703.06(b), Type D Aggregate. Also, whenever, the surcharge is used, it shall be placed on all the Aggregate Subbase Course subjected to public traffic. When the surcharge is removed, it may be placed in driveways, sidewalks, approach roads, or the outer portions of the shoulders. Removal of the surcharge shall be followed immediately in succession by the fine grading of the aggregate subbase and construction of the next course.

The furnishing, placing, maintaining, and removal of the surcharge will not be paid for directly, but will be considered incidental to the Aggregate Subbase Course pay item.

If salvaged bituminous pavement is placed as the top layer of the aggregate subbase course, a surcharge is not required.

SPECIAL PROVISION
DIVISION 400
PAVEMENTS

SECTION 401 - HOT MIX ASPHALT PAVEMENT

401.01 Description The Contractor shall furnish and place 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 Maine DOT 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
HMA Mixture Composition	703.09

401.021 Recycled Asphalt Materials Recycled Asphalt Pavement (RAP) may be introduced into the mixture at percentages approved by the Department according to the Maine DOT 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.

For specification purposes, RAP will be categorized as follows:

Class III – The Contractor may use a maximum of 10 percent Class III RAP in any base, binder, surface, or shim course. Class III RAP will be allowed in hand-placed mixes for item 403.209 at a rate of up to 20 percent.

Class II – The Contractor may use a maximum of 20 percent Class II RAP in any base, binder, surface, or shim course.

Class I – The Contractor may use a maximum of 30 percent Class I RAP in any base, binder, surface, or shim course provided that PG 58-34 asphalt binder is used in the mixture. A PG 52-34 may be used when approved by the Department.

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.

401.03 Composition of Mixtures The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), and mineral filler if required. HMA shall be designed and tested according to AASHTO R35 and the volumetric criteria in Table 1. The Contractor shall size, uniformly grade, and combine the aggregate fractions in proportions that provide a mixture meeting the grading requirements of the Job Mix Formula (JMF).

The Contractor shall submit for Department approval a JMF to the Central Laboratory in Bangor for each mixture to be supplied. The Department may approve 1 active design per nominal maximum size, per traffic level, per plant, plus a 9.5mm "fine" mix for shimming and where required, a non-RAP design for bridge decks. The Department shall then have 15 calendar days in which to process a new design before approval. The JMF shall establish a single percentage of aggregate passing each sieve size within the limits shown in section 703.09. The mixture shall be designed and produced, including all production tolerances, to comply with the allowable control points for the particular type of mixture as outlined in 703.09. The JMF shall state the original source, gradation, and percentage to be used of each portion of the aggregate including RAP when utilized, and mineral filler if required. It shall also state the proposed PGAB content, the name and location of the refiner, the supplier, the source of PGAB submitted for approval, the type of PGAB modification if applicable, and the location of the terminal if applicable.

In addition, the Contractor shall provide the following information with the proposed JMF:

- Properly completed JMF indicating all mix properties (Gmm, VMA, VFB, etc.)
- Stockpile Gradation Summary
- Design Aggregate Structure Consensus Property Summary
- Design Aggregate Structure Trial Blend Gradation Plots (0.45 power chart)
- Trial Blend Test Results for at least three different asphalt contents
- Design Aggregate Structure for at least three trial blends
- Test results for the selected aggregate blend at a minimum of three binder contents
- Specific Gravity and temperature/viscosity charts for the PGAB to be used
- Recommended mixing and compaction temperatures from the PGAB supplier
- Material Safety Data Sheets (MSDS) For PGAB
- Asphalt Content vs. Air Voids trial blend curve
- Test report for Contractor's Verification sample
- Summary of RAP test results (if used), including count, average and standard deviation of binder content and gradation

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 Mg [150 ton] for stone stockpiles, 75 Mg [75 ton] for sand stockpiles, and 50 Mg [50 ton] of blend sand before the Department will sample. The Department shall obtain samples for laboratory testing. 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. Before the start of paving, the Contractor and the Department shall split a production sample for evaluation. The Contractor shall test its split of the sample and determine if the results meet the requirements of the Department's written policy for mix design verification (See Maine DOT Policies and Procedures for HMA Sampling and Testing available at the Central Laboratory in Bangor). If the results are found to be acceptable, the Contractor will forward their results to the Department's Lab, which will test the Department's split of the sample. The results of the two split samples will be compared and shared between the Department and the Contractor. If the Department finds the mixture acceptable, an approved JMF will be forwarded to the Contractor and paving may commence. 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 within 24 hours of receipt of the first Acceptance test result. Should all of the Acceptance samples of a Lot be obtained prior to the receipt of the first Acceptance result, the Department will not allow the aim changes to be applied to that Lot. Adjustments will be allowed of up to 2% on the percent passing the 2.36 mm sieve through the 0.075 mm and 3% on the percent passing the 4.75 mm or larger sieves. Adjustments will be allowed on the %PGAB of up to 0.2%. Adjustments will be allowed on GMM of up to 0.010.

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.

TABLE 1: VOLUMETRIC DESIGN CRITERIA

Design ESAL's (Millions)	Required Density (Percent of G_{mm})			Voids in the Mineral Aggregate (VMA)(Minimum Percent) Nominal Maximum Aggregate Size (mm)					Voids Filled with Binder (VFB) (Minimum %)	Fines/Eff. Binder Ratio
	$N_{initial}$	N_{design}	N_{max}	25	19	12.5	9.5	4.75		
<0.3	≤91.5	96.0	≤98.0	13.0	14.0	15.0	16.0	16.0	70-80	0.6-1.2**
0.3 to <3	≤90.5								65-80	
3 to <10	≤89.0								65-80*	
10 to <30										
≥ 30										

*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.
**For 4.75 mm nominal maximum aggregate size mixtures, the Fines/Effective Binder Ratio is 0.6-1.4.

401.04 Temperature Requirements After the JMF is established, the temperatures of the mixture shall conform to the following tolerances:

In the truck at the mixing plant – allowable range 135° to 163°C [275 to 325°F]
At the Paver – allowable range 135° to 163°C [275 to 325°F]

The JMF and the mix subsequently produced shall meet the requirements of Tables 1 and Section 703.07.

401.05 Performance Graded Asphalt Binder Unless otherwise noted in Special Provision 403 - Hot Mix Asphalt Pavement, the PGAB shall be 64-28, except that for mixtures containing greater than 20 percent but no more than 25 percent RAP the PGAB shall be PG 58-34 (or PG 52-34 when approved by the Department). The PGAB shall meet the applicable requirements of AASHTO M320 - Standard Specification for PGAB. The Contractor shall provide the Department with an approved copy of the Quality Control Plan for PGAB in accordance with AASHTO R 26 Certifying Suppliers of PGAB.
The Contractor shall request approval from the Department for a change in PGAB supplier or source by submitting documentation stating the new supplier or source a minimum of 24 hours prior to the change. In the event that the PGAB supplier or source is changed, the Contractor shall make efforts to minimize the occurrence of PGAB co-mingling.

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.

The Contractor may place Hot Mix Asphalt Pavement for use other than a traveled way wearing course in either Zone between the dates of April 15th and November 15th, provided that the air temperature as determined by an approved thermometer (placed in the shade at the paving location) is 4°C [40°F] or higher and the area to be paved is not frozen. The Contractor may place Hot Mix Asphalt Pavement as traveled way wearing course in Zone 1 between the dates of May 1st and the Saturday following October 1st and in Zone 2 between the dates of April 15th and the Saturday following October 15th, provided the air temperature determined as above

is 10°C [50°F] or higher. For the purposes of this Section, the traveled way includes truck lanes, ramps, approach roads and auxiliary lanes. The atmospheric temperature for all courses on bridge decks shall be 10°C [50°F] or higher.

Hot Mix Asphalt Pavement used for curb, driveways, sidewalks, islands, or other incidentals is not subject to seasonal limitations, except that conditions shall be satisfactory for proper handling and finishing of the mixture. All mixtures used for curb, driveways, sidewalks, islands, or other incidentals shall conform to section 401.04 - Temperature Requirements. Unless otherwise specified, the Contractor shall not place Hot Mix Asphalt Pavement on a wet or frozen surface and the air temperature shall be 4°C [40°F] or higher.

On all sections of overlay with wearing courses less than 25 mm [1 in] thick, the wearing course for the travelway and adjacent shoulders shall be placed between the dates of May 15th and the Saturday following September 15th.

On all sections of overlay with wearing courses less than 1 inch thick, the wearing course for the travelway and adjacent shoulders shall be placed between the dates of June 1st and the Saturday following September 1st if the work is to be performed, either by contract requirement, or Contractor option, during conditions defined as "night work".

401.07 Hot Mix Asphalt Plant

401.071 General Requirements HMA plants shall conform to AASHTO M156.

a. Truck Scales When the hot mix asphalt is to be weighed on scales meeting the requirements of Section 108 - Payment, the scales shall be inspected and sealed by the State Sealer 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 20 Kg [50 pound] masses for scale testing.

401.072 Automation of Batching Batch plants shall be automated for weighing, recycling, and monitoring the system. In the case of a malfunction of the printing system, the requirements of Section 401.074 c. of this specification will apply.

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.

All plants shall be equipped with an approved digital recording device. The delivery slip load ticket shall contain information required under Section 108.1.3 - Provisions Relating to Certain Measurements, Mass and paragraphs a, b, and c of Section 401.073

401.073 Automatic Ticket Printer System on Automatic HMA Plant An approved automatic ticket printer system shall be used with all approved automatic HMA plants. 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 requirements of Section 108.1.3 f. - Delivery Slips, shall be met by the weigh slip or ticket, 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 MDOT designation for the JMF.

401.074 Weight Checks on Automatic HMA Plant 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%, than 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.

c. In the event of a malfunction of the automatic printer system, production may be continued without the use of platform truck scales for a period not to exceed the next two working days, providing total weights of each batch are recorded on weight tickets and certified by a Licensed Public Weighmaster.

401.08 Hauling Equipment Trucks for hauling Hot Mix Asphalt Pavement shall have tight, clean, and smooth metal dump bodies, which have been thinly coated with a small amount of approved release agent to prevent the mixture from adhering to the bodies. Solvent based agents developed to strip asphalts from aggregates will not be allowed as release agents.

All truck dump bodies shall have a cover of canvas or other water repellent material capable of heat retention, which completely covers the mixture. The cover shall be securely fastened on the truck, unless unloading.

All truck bodies shall have an opening on both sides, which will accommodate a thermometer stem. The opening shall be located near the midpoint of the body, at least 300 mm [12 in] above the bed.

401.09 Pavers Pavers shall be self-contained, self-propelled units with an activated screed (heated if necessary) capable of placing courses of Hot Mix Asphalt Pavement in full lane widths specified in the contract on the main line, shoulder, or similar construction.

On projects with no price adjustment for smoothness, pavers shall be of sufficient class and size to place Hot Mix Asphalt Pavement over the full width of the mainline travel way with a 3 m [10 ft] minimum main screed with activated extensions.

The Contractor shall place Hot Mix Asphalt Pavement on the main line with a paver using an automatic grade and slope controlled screed, unless otherwise authorized by the Department. The controls shall 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 10 m [30 ft], a non-contact grade control with a minimum span of 7.3 m [24 ft], except that a 12 m [40 ft] reference shall be used on Expressway projects.

The Contractor shall operate the paver in such a manner as to produce a visually uniform surface texture and a thickness within the requirements of Section 401.101 - Surface Tolerances. The paver shall have 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. The screed assembly shall produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. 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.

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 nuclear density testing across the mat being placed, prior to being compacted by equipment., at 300 mm [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

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 surface. The use of rollers, which result in crushing of the aggregate or in displacement of the HMA will not be permitted. Any Hot Mix Asphalt Pavement that becomes loose, broken, contaminated, shows an excess or deficiency of Performance Graded Asphalt Binder, or is in any other way defective shall be removed and replaced at no additional cost with fresh Hot Mix Asphalt Pavement, 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 on MaineDOT projects.

The type of rollers to be used and their relative position in the compaction sequence shall generally be the Contractor's option, provided specification densities are attained and with the following requirements:

a. On variable-depth courses, the first lift of pavement over gravel, reclaimed pavement, an irregular or milled surfaces, or on bridges, at least one roller shall be 14.5 Mg [16 ton] pneumatic-tired. Unless otherwise allowed by the Resident, 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 18.1 Mg [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 when checking or cracking of the mat occurs, or on bridge decks.

d. Any method, which results in cracking or checking of the mat, will be discontinued and corrective action taken.

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.

401.101 Surface Tolerances The Department will check surface tolerance utilizing the following methods :

a.) A 5 m [16 ft] straightedge or string line placed directly on the surface, parallel to the centerline of pavement.
b.) A 3 m [10 ft] straightedge or string line placed directly on the surface, transverse to the centerline of pavement.

The Contractor shall correct variations exceeding 6 mm [¼ in] 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 Departments use.

401.11 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.

401.12 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.

401.13 Preparation of Aggregates The Contractor shall dry and heat the aggregates for the HMA to the required temperature. The Contractor shall properly adjust flames to avoid physical damage to the aggregate and to avoid depositing soot on the aggregate.

401.14 Mixing The Contractor shall combine the dried aggregate in the mixer in the amount of each fraction of aggregate required to meet the JMF. The Contractor shall measure the amount of PGAB and introduce it into the mixer in the amount specified by the JMF.

The Contractor shall produce the HMA at the temperature established by the JMF.

The Contractor shall dry the aggregate sufficiently so that the HMA will not flush, foam excessively, or displace excessively under the action of the rollers. The Contractor shall introduce the aggregate into the mixer

at a temperature of not more than 14°C [25°F] above the temperature at which the viscosity of the PGAB being used is 0.150 Pa•s.

The Contractor shall store and introduce into the mixer the Performance Graded Asphalt Binder at a uniformly maintained temperature at which the viscosity of the PGAB is between 0.150 Pa•s and 0.300 Pa•s. The aggregate shall be coated completely and uniformly with a thorough distribution of the PGAB. The Contractor shall determine the wet mixing time for each plant and for each type of aggregate used.

401.15 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. Solvent based agents developed to strip asphalts from aggregates will not be allowed as release agents.

On roadways with adjoining lanes carrying traffic, the Contractor shall place each course over the full width of the traveled way section being paved that day, unless otherwise noted by the Department in Section 403 - Hot Bituminous Pavement.

401.16 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.

401.17 Joints The Contractor shall construct wearing course transverse joints in such a manner that minimum tolerances shown in Section 401.101 - Surface Tolerances are met when measured with a straightedge.

The paver 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 Department may allow feathered or "lap" joints on lower base courses or when matching existing base type pavements.

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 shall apply a coating of emulsified asphalt immediately before paving all joints to the vertical face and 75 mm [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.

401.18 Quality Control Method A, B & C The Contractor shall operate in accordance with the approved Quality Control Plan (QCP) to assure a product meeting the contract requirements. The QCP shall meet the requirements of Section 106.6 - Acceptance and this Section. The Contractor shall not begin paving operations until the Department approves the QCP in writing.

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 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 field and plant supervisors including the responsible onsite paving supervisor shall attend this meeting.

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

a. JMF(s)
b. Hot mix asphalt plant details
c. Stockpile Management (to include provisions for a minimum 2 day stockpile)
d. Make and type of paver(s)
e. Make and type of rollers including weight, weight per inch of steel wheels, and average contact pressure for pneumatic tired rollers
f. Name of QCP Administrator, and certification number
g. Name of Process Control Technician(s) and certification number(s)
h. Name of Quality Control Technicians(s) and certification number(s)
i. Mixing & transportation including process for ensuring that truck bodies are clean and free of debris or contamination that could adversely affect the finished pavement
j. Testing Plan
k. Laydown operations including longitudinal joint construction, procedures for avoiding paving in inclement weather, type of release agent to be used on trucks tools and rollers, compaction of shoulders, tacking of all joints, methods to ensure that segregation is minimized, procedures to determine the maximum rolling and paving speeds based on best engineering practices as well as past experience in achieving the best possible smoothness of the pavement. Solvent based agents developed to strip asphalts from aggregates will not be allowed as release agents.
l. Examples of Quality Control forms including a daily plant report and a daily paving report
m. Silo management and details (can show storage for use on project of up to 36 hours)

n. Provisions for varying mix temperature due to extraordinary conditions.
o. Name and responsibilities of the Responsible onsite Paving Supervisor.
p. Method for calibration/verification of Density Gauge
q. A note that all testing will be done in accordance with AASHTO and the Maine DOT Policies and Procedures for HMA Sampling and Testing.
r. A detailed description of RAP processing, stockpiling and introduction into the plant as well as a note detailing conditions under which the percent of RAP will vary from that specified on the JMF.
s. A detailed procedure outlining when production will be halted due to QC or Acceptance testing results.
t. A plan to address the change in PGAB source or supplier and the potential co-mingling of differing PGAB's.
u. A procedure to take immediate possession of acceptance samples once released by MaineDOT and deliver said samples to the designated acceptance laboratory.
v. Provisions for how the QCP will be communicated to the Contractor's field personnel

The QCP shall include the following technicians together with following minimum requirements:

a. QCP Administrator - A qualified individual shall administer the QCP. 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 its designee in the QCP Administrator's absence) shall be available to communicate with the Department at all times. The QCP Administrator shall be certified as a Quality Assurance Technologist certified by the New England Transportation Technician Certification Program (NETTCP).

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. 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 Contractor shall sample, test, and evaluate Hot Mix Asphalt Pavement in accordance with the following minimum frequencies:

TABLE 2 : 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 (Surface)	1 per 125 Mg [125 ton] (As noted in QC Plan)	ASTM D2950
%TMD (Base)	1 per 250 Mg [250 ton] (As noted in QC Plan)	AASHTO T269
Fines / Effective Binder	1 per 500 Mg [500 ton]	AASHTO T 312*
Gradation	1 per 500 Mg [500 ton]	AASHTO T30
PGAB content	1 per 500 Mg [500 ton]	AASHTO T164 or T308
Voids at N_{design}	1 per 500 Mg [500 ton]	AASHTO T 312*
Voids in Mineral Aggregate at N_{design}	1 per 500 Mg [500 ton]	AASHTO T 312*
Rice Specific Gravity	1 per 500 Mg [500 ton]	AASHTO T209
Coarse Aggregate Angularity	1 per 5000 Mg [5000 ton]	ASTM D5821
Flat and Elongated Particles	1 Per 5000 Mg [5000 ton]	ASTM D4791
Fine Aggregate Angularity	1 Per 5000 Mg [5000 ton]	AASHTO T304

*Method A and B only

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.

The Contractor shall submit all Hot Mix Asphalt Pavement plant test reports, inspection reports and updated pay factors in writing, signed by the appropriate technician and present them to the Department by 1:00 P.M. on the next working day, except when otherwise noted in the QCP due to local restrictions. The Contractor shall also retain splits of the previous 5 QC tests, with QC results enclosed for random selection and testing by The Department during QA inspections of the HMA production facility. Test results of splits that do not meet the Dispute Resolution Variance Limits in Table 10 shall trigger an investigation by the MDOT Independent Assurance Unit, and may result in that lab losing NETTCP certification and the ability to request a dispute [Section 401.223 - Process for Dispute Resolution (Methods A , B and C only)].

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, shall be recorded and signed by the QCT and presented to the Department by 1:00 p.m. the next working day.

The Contractor shall have a testing lab at the plant site, equipped with all testing equipment necessary to complete the tests in Table 2. The Contractor shall locate an approved Gyratory Compactor at the plant testing lab or within 30 minutes of the plant site.

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. On surface courses, cores shall not be cut except for Verification of the Nuclear Density Gauge, at a rate not to exceed 3 per day or 2 per 1000 Mg [1000 ton] placed.
The Contractor shall monitor plant production using running average of three control charts as specified in Section 106 - Quality. Control limits shall be as noted in Table 3 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 3: Control Limits

Property	UCL and LCL
Passing 4.75 mm and larger sieves	Target +/-4.0
Passing 2.36 mm sieve	Target +/-2.5
Passing .075 mm sieve	Target +/-1.2
PGAB Content*	Target +/-0.3
Voids in the Mineral Aggregate	LCL = LSL + 0.2
% Voids at N_{design}	JMF Target +/-1.3

*Based on AASHTO T 308

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

a. Method A: The Pay Factor for VMA, Voids @ N_d, Percent PGAB, composite gradation, VFB, fines to effective binder or density using all Acceptance or all Quality Control tests for the current lot is less than 0.85.
b. Method B: The Pay Factor for VMA, Voids @ N_d, Percent PGAB, composite gradation, VFB, fines to effective binder or density using all Acceptance or all Quality Control tests for the current lot is less than 0.90.
c. Method C: The Pay Factor for VMA, Voids @ $N_{d,}$ Percent PGAB, percent passing the nominal maximum sieve, percent passing 2.36 mm sieve, percent passing 0.300 mm sieve, percent passing 0.075 mm sieve or density using all Acceptance or all available Quality Control tests for the current lot is less than 0.85.
d. The Coarse Aggregate Angularity or Fine Aggregate Angularity value falls below the requirements of Table 3: Aggregate Consensus Properties Criteria in Section 703.07 for the design traffic level.
e. Each of the first 2 control tests for a Method A or B lot fall outside the upper or lower limits for VMA, Voids @ Nd, or Percent PGAB; or under Method C, each of the first 2 control tests for the lot fall outside the upper or lower limits for the nominal maximum, 2.36 mm, 0.300 mm or 0.075 mm sieves, or percent PGAB.
f. The Flat and Elongated Particles value exceeds 10% by ASTM D4791.
g. There is any visible damage to the aggregate due to over-densification other than on variable depth shim courses.
h. 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 proposed corrective action, by the end of the work day. Failure to do so will be treated as a second incident under 106.4.6 QCP Non-compliance. The Department will consider corrective action acceptable if the pay factor for the failing property increases, based on samples already in transit, or a verification sample is tested and the property falls within the specification limits.

In cases where the corrective action can be accomplished immediately, such as batch weight or cold feed changes, the Contractor may elect to resume production once the corrective action is completed. Additional QC testing shall be performed to verify the effectiveness of the corrective action. Subsequent occurrences of shutdown for the same property in a Lot in progress will require paving operations to cease. Paving operations shall not resume until the Contactor and the Department determines that material meeting the Contract requirements will be produced. The Department may allow the Contractor to resume production based upon a passing QC sample, with a split of the sample being sent to the Department for verification testing. If the submitted verification sample test results fall outside the specification limits, the Contractor shall cease production until a verification sample is submitted to the Department has been tested by the Department and found to be within specification limits.

If the Contractor's control chart shows the process 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 3: Control Limits, the Contractor shall notify the Resident in writing of any proposed corrective action by 1:00 PM the next working day.

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.

401.19 Quality Control Method D For Items covered under Method D, 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. All mix designs (JMF) shall be approved and verified by MDOT prior to use. Certified QC personnel shall not be required. The Contractor shall certify the mix and the test results for each item by a Certificate of Compliance.

401.20 Acceptance Method A, B & C These methods utilizes 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 following Acceptance Criteria:

TABLE 4: ACCEPTANCE CRITERIA

PROPERTIES	POINT OF SAMPLING	TEST METHOD
Gradation	Paver Hopper	AASHTO T30
PGAB Content	Paver Hopper	AASHTO T308
%TMD (Surface)	Mat behind all Rollers	AASHTO T269
%TMD (Base or Binder)	Mat behind all Rollers	AASHTO T269
Air Voids at N_d	Paver Hopper	AASHTO T 312
%VMA at N_d	Paver Hopper	AASHTO T 312
Fines to Effective Binder	Paver Hopper	AASHTO T 312
%VFB	Paver Hopper	AASHTO T 312

In the event the Department terminates a Lot prematurely but fails to obtain the required number of acceptance samples to calculate the volumetric property pay factor under the test method specified in the contract, the pay factor shall be calculated using the number of samples actually obtained from the contract. Should the number of acceptance samples taken total less than three, the resulting pay factor shall be 1.0 for volumetric properties. A minimum of three cores will be used for a density pay factor, if applicable, for quantities placed to date.

Should the Contractor request a termination of the Lot in progress prior to three acceptance samples being obtained, and the Department agrees to terminate the Lot, then the pay factor for mixture properties shall be 0.80. A minimum of three cores will be used to determine a density pay factor, if applicable, for quantities placed to date.

Lot Size For purposes of evaluating all acceptance test properties, a lot shall consist of the total quantity represented by each item listed under the lot size heading.

Sublot size - Refer to section 401.201, 401.202, and 401.203 for minimum size and number of sublots. The quantity represented by each sample will constitute a sublot.

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.

Acceptance Testing The Department will obtain samples of Hot Mix Asphalt Pavement in conformance with AASHTO T168 Sampling Bituminous Paving Mixtures, and the Maine DOT Policies and Procedures for HMA Sampling and Testing, which will then be transported by the Contractor to the designated MDOT Laboratory within 48 hours (except when otherwise noted in the project specific QCP due to local restrictions), as directed by MDOT in approved transport containers to be provided by the Department, unless otherwise 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.

The Department will take the sample randomly within each sublot. Target values shall be as specified in the JMF. The Department will use Table 5 for calculating pay factors for gradation, PGAB Content, Air Voids at N_{design}, VMA, Fines to Effective Binder and VFB. 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, where there is a minimum of four sublots, results shall be examined for statistical outliers, as stated in Section 106.7.2 - Statistical Outliers.

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 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, 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 50 m [150 ft].

Pavement Density The Department will measure pavement density using core samples tested according to AASHTO T-166. The Department will randomly determine core locations. The Contractor shall cut 6 inch diameter cores at no additional cost to the Department by the end of the working day following the day the pavement is placed, and immediately give them to the Department. Cores for Acceptance testing shall be cut such that the nearest edge is never within 0.225 m (9 inches) of any joint. The cores will be placed in a transport container provided by the Department and transported by the Contractor to the designated MDOT Lab as directed by the Department. Pre-testing of the cores will not be allowed. At the time of sampling, the Contractor and the Department shall mutually determine if a core is damaged. If it is determined that the core(s) is damaged, the Contractor shall cut new core(s) at the same offset and within 1 m [3 ft] of the initial sample. At the time the core is cut, the Contractor and the Department will mutually determine if saw cutting of the core is needed, and will mark the core at the point where sawing is needed. The core may be saw cut by the Contractor in the Department's presence onsite, or in an MDOT Lab by The Department, without disturbing the layer being tested to remove lower layers of Hot Mix Asphalt Pavement, gravel, or RAP. No recuts are allowed at a test location after the core has been tested. Upon conclusion of each lot, density results shall be examined for statistical outliers as stated in Section 106.7.2.

On all sections of overlay with wearing courses designed to be 19 mm [3/4 in] or less in thickness, there shall be no pay adjustment for density otherwise noted in Section 403 - Hot Bituminous Pavement. For overlays

designed to be 19 mm [3/4 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 adjustments 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 Bituminous 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.

401.201 Method A Lot Size will be the entire production per JMF for the project, or if so agreed at the Pre-paving Conference, equal lots of up to 4500 Mg [4500 tons], with unanticipated over-runs of up to 1500 Mg [1500 ton] rolled into the last lot. Sublot sizes shall be 750 Mg [750 ton] for mixture properties, 500 Mg [500 ton] for base or binder densities and 250 Mg [250 ton] for surface densities. The minimum number of sublots for mixture properties shall be 4, and the minimum number of sublots for density shall be five.

TABLE 5: METHOD A ACCEPTANCE LIMITS

Property	USL and LSL
Passing 4.75 mm and larger sieves	Target +/-7%
Passing 2.36 mm to 1.18 mm sieves	Target +/-4%
Passing 0.60 mm	Target +/-3%
Passing 0.30 mm to 0.075 mm sieve	Target +/-2%
PGAB Content	Target +/-0.4%
Air Voids	4.0% +/-1.5%
Fines to Effective Binder	0.9 +/-0.3
Voids in the Mineral Aggregate	LSL Only from Table 1
Voids Filled with Binder	Table 1 values plus a 4% production tolerance for USL only
% TMD (In place density)	95.0% +/- 2.5%

**For 4.75 mm nominal maximum aggregate size mixtures, the Fines/Effective Binder Ratio is 0.6-1.4.

401.202 Method B Lot Size will be the entire production per JMF for the project and shall be divided into 3 equal sublots for Mixture Properties and 3 equal sublots for density.

TABLE 6: METHOD B ACCEPTANCE LIMITS

Property	USL and LSL
Percent Passing 4.75 mm and larger sieves	Target +/-7
Percent Passing 2.36 mm to 1.18 mm sieves	Target +/-5
Percent Passing 0.60 mm	Target +/-4
Percent Passing 0.30 mm to 0.075 mm sieve	Target +/-3
PGAB Content	Target +/-0.5
Air Voids	4.0% +/-2.0
Fines to Effective Binder	0.9 +/-0.3
Voids in the Mineral Aggregate	LSL from Table 1
Voids Filled with Binder	Table1 plus a 4% production tolerance for USL.
% TMD (In-place Density)	95.0% +/- 2.5%

401.203 Testing Method C Lot Size will be the entire production per JMF for the project, or if so agreed at the Pre-paving Conference, equal lots of up to 4500 Mg [4500 tons], with unanticipated over-runs of up to 1500 Mg [1500 ton] rolled into the last lot. Sublot sizes shall be 750 Mg [750 ton] for mixture properties, 500 Mg

[500 ton] for base or binder densities and 250 Mg [250 ton] for surface densities. The minimum number of sublots for mixture properties shall be 4, and the minimum number of sublots for density shall be five.

TABLE 7: METHOD C ACCEPTANCE LIMITS

Property	USL and LSL
Passing 4.75 mm and larger sieves	Target +/-7%
Passing 2.36 mm to 1.18 mm sieves	Target +/-5%
Passing 0.60 mm	Target +/-4%
Passing 0.30 mm to 0.075 mm sieve	Target +/-2%
PGAB Content	Target +/-0.4%
Air Voids	4.0% +/-1.5%
Fines to Effective Binder	0.9 +/-0.3
Voids in the Mineral Aggregate	LSL Only from Table 1
Voids Filled with Binder	Table 1 values plus a 4% production tolerance for USL only
% TMD (In place density)	95.0% +/- 2.5%

**For 4.75 mm nominal maximum aggregate size mixtures, the Fines/Effective Binder Ratio is 0.6-1.4.

401.204 Testing Method D For hot mix asphalt items designated as Method D in Section 403 - Hot Bituminous Pavement, one sample will be taken from the paver hopper or the truck body per 250 Mg [250 ton] per pay item. The mix will be tested for gradation and PGAB content. Disputes will not be allowed. If the mix is within the tolerances listed in Table 8: Method D Acceptance Limits, the Department will pay the contract unit price. Contractor shall cut two 150 mm [6 in] cores, which shall be tested for percent TMD per AASHTO T-269 unless otherwise noted in Section 403 - Hot Bituminous Pavement. If the average for the two tests falls below 92.5% the disincentive shall apply. If the test results for each 250 Mg [250 ton] increment are outside these limits, the following deductions (Table 8b) shall apply to the HMA quantity represented by the test.

TABLE 8: METHOD D ACCEPTANCE LIMITS

Property	USL and LSL
Percent Passing 4.75 mm and larger sieves	Target +/-7
Percent Passing 2.36 mm to 1.18 mm sieves	Target +/-5
Percent Passing 0.60 mm	Target +/-4
Percent Passing 0.30 mm to 0.075 mm sieve	Target +/-3
PGAB Content	Target +/-0.5
% TMD (In-place Density)	95.0% +/- 2.5%

TABLE 8b Method "D" Price Adjustments

PGAB Content	-5%
2.36 mm sieve	-2%
0.30 mm sieve	-1%
0.075 mm sieve	-2%
Density	-10%

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

401.22 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 401.11, 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 below.

401.221 Pay Adjustment The Department will sample, test, and evaluate Hot Mix Asphalt Pavement in accordance with Section 106 - Quality and Section 401.20 - Acceptance, of this Specification.

401.222 Pay Factor (PF) The Department will use the following criteria for pay adjustment using the pay adjustment factors under Section 106.7 - Quality Level Analysis:

Density If the pay factor for Density falls below 0.80 for Method A or C or 0.86 for Method B, 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 for Method A or C or below 0.86 for Method B, 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.

Gradation For HMA evaluated under Acceptance Method A or B, the Department will determine a composite pay factor (CPF) using applicable price adjustment factors “f“ from Table 9: Table of Gradation Composite “f” Factors, and Acceptance limits from Table 5: Method A Acceptance Limits, for Method A or Table 6: Method B Acceptance Limits, for Method B. The Department will not make price adjustments for gradation on Methods A and B, but will monitor them as shutdown criteria.

TABLE 9: TABLE OF GRADATION COMPOSITE " f " FACTORS (Methods A and B)

Constituent		"f" Factor			
		19 mm	12.5 mm	9.5 mm	4.75 mm
Gradation	25 mm	-	-	-	-
	19 mm	4	-	-	-
	12.5 mm		4	4	-
	9.50 mm				4
	2.36 mm	6	6	6	8
	1.18 mm				
	0.60 mm	2	2	2	2
	0.30 mm	2	2	2	2
	0.075 mm	6	6	6	8

For HMA evaluated under Acceptance Method C, the Department will determine a pay factor using acceptance limits from Table **7**: Method C Acceptance Limits.

VMA, Air Voids, VFB and Fines to Effective Binder The Department will determine a pay factor (PF) using the applicable Acceptance Limits.

The following variables will be used for pay adjustment:

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

Pay Adjustment Method A

The Department will use the following criteria for pay adjustment: density, Performance Graded Asphalt Binder content, voids @N_d, VMA, VFB, F/B_{eff}, and the screen sizes listed in Table 9 for the type of HMA represented in the JMF. If any single pay factor for PGAB Content, VMA, or Air Voids falls below 0.80, then the composite pay factor for PGAB Content, VMA, and Air Voids shall be 0.55.

Density: For mixes having a density requirement, the Department will determine a pay factor using Table 5: Method A Acceptance Limits:

PA = (density PF- 1.0)(Q)(P)x0.50

PGAB Content, VMA and Air Voids: The Department will determine a pay adjustment using Table 5: Method A Acceptance Limits as follows:

PA = (voids @ N_d PF- 1.0)(Q)(P)x0.20 + (VMA @ N_d PF- 1.0)(Q)(P)x0.20 + (PGAB PF- 1.0)(Q)(P)x0.10

VFB and Fines to Effective Binder The Department will determine a pay factor (PF) using Table 5: Method A Acceptance Limits. The Department will not make price adjustments for VFB or Fines to Effective Binder, but will monitor them as shutdown criteria.

Pay Adjustment Method B

The Department will use the following criteria for pay adjustment: density, Performance Graded Asphalt Binder content, voids @N_d, VMA, VFB, F/B_{eff}, and the screen sizes listed in Table 9 for the type of HMA represented in the JMF. If any single pay factor for PGAB Content, VMA, or Air Voids falls below 0.86, then the composite pay factor for PGAB Content, VMA, and Air Voids shall be 0.70.

Density: For mixes having a density requirement, the Department will determine a pay factor using Table 6: Method B Acceptance Limits:

PA = (density PF- 1.0)(Q)(P)x0.50

PGAB Content, VMA and Air Voids: The Department will determine a pay adjustment using Table 6: Method B Acceptance Limits as follows:

PA = (voids @ N_d PF- 1.0)(Q)(P)x0.20 + (VMA @ N_d PF- 1.0)(Q)(P)x0.20 + (PGAB PF- 1.0)(Q)(P)x0.10

VFB and Fines to Effective Binder The Department will determine a pay factor (PF) using Table 6: Method B Acceptance Limits. The Department will not make price adjustments for VFB or Fines to Effective Binder, but will monitor them as shutdown criteria.

Pay Adjustment Method C

The Department will use density, Performance Graded Asphalt Binder content, and the percent passing the nominal maximum, 2.36 mm, 0.300 mm and 0.075 mm sieves for the type of HMA represented in the JMF. If the PGAB content falls below 0.80, then the PGAB pay factor shall be 0.55.

Density: For mixes having a density requirement, the Department will determine a pay factor using Table 7: Method C Acceptance Limits:

PA = (density PF- 1.0)(Q)(P)x0.50

PGAB Content and Gradation The Department will determine a pay factor using Table **7**: Method C Acceptance Limits. The Department will calculate the price adjustment for Mixture Properties as follows:

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 PF-1.0)(Q)(P)X0.25

VMA, Air Voids, VFB and Fines to Effective Binder The Department will determine a pay factor (PF) using Table 7: Method C Acceptance Limits. The Department will not make price adjustments for VMA, Air Voids, VFB or Fines to Effective Binder, but will monitor them as shutdown criteria.

Pay Adjustment Method D

The Department will use density, Performance Graded Asphalt Binder content, and the screen sizes listed in Table 8b for the type of HMA represented in the JMF. If test results do not meet the Table 8 requirements, deducts as shown in Table 8b shall be applied to the quantity of mix represented by the test.

401.223 Process for Dispute Resolution (Methods A B & C only)

a. Dispute Resolution sampling 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 and shall report their results to the Resident, with a copy to the QA Engineer at the Central Laboratory in Bangor 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, or until the sample is tested.

b. Disputing Acceptance results The Contractor may dispute the Department's Acceptance results and request (Methods A, B, & C) that the dispute resolution split sample be tested by notifying the Department's Resident and the QA Engineer at the Central Laboratory in Bangor in writing within two working days after receiving the results of the Acceptance test. 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 MDOT) of their split of the Acceptance sample indicating that the variances in Table10: Dispute Resolution Variance Limits, for the specific test result(s) or property(ies) were exceeded.

c. Disputable items The Contractor may dispute any or all of the following Method A or B test results when the difference between the Department's value and the Contractor's value for that test equals or exceeds the corresponding allowable variation in Table 10: Dispute Resolution Variance Limits, PGAB content, G_{mb}, and G_{mm}. In addition, if the allowable variation for these tests is not met or exceeded, the Contractor may dispute either or both of the following material properties provided the difference between results for them equals or exceeds the corresponding allowable variation in Table 10: Voids at N_{design}, and VMA.
For Method C only: The results for PGAB content and the screen sizes used for pay adjustment may be disputed.

d. Outcome 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.

TABLE 10: DISPUTE RESOLUTION VARIANCE LIMITS

PGAB Content	+/-0.4%
G_{mb}	+/-0.030
G_{mm}	+/-0.020
Voids @ N_d	+/-0.8%
VMA	+/-0.8%
Passing 4.75 mm and larger sieves	+/- 4.0%
Passing 2.36 mm to 0.60 mm sieves	+/- 3.0%
Passing 0.30 mm to 0.15	+/- 2.0 %
0.075 mm sieve	+/- 1.0%

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 - Bituminous Box

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 1000 lane-meters [3000 lane-feet]. A sublot will consist of 20 lane-meters [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 30 m [100 ft] of bridge joints)

Acceleration and deceleration lanes
Shoulders and ramps
Side streets and roads
Within 30 m [100 ft] of transverse joints at the beginning and end of the project
Within 30 m [100 ft] of railroad crossings
Urban areas with speed limits of 50 kph [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.

ACCEPTANCE LIMITS

Level	USL
I	0.95 m/km [60 in/mile]
II	1.10 m/km [70 in/mile]
III	1.25 m/km [80 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 401.101 Surface Tolerances.

Payment will be made under:

Pay Item	Pay Unit
402.10 Incentive/Disincentive - Pavement Smoothness	Lump Sum

SECTION 403 - HOT BITUMINOUS PAVEMENT

403.01 Description This work shall consist of constructing one or more courses of bituminous 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 bituminous pavement shall be composed of a mixture of aggregate, filler if required, and bituminous 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.
In addition, hot bituminous pavement placed on bridges shall also conform to the following requirements.

a. The mixture shall be composed of aggregate, PGAB and mineral filler but no recycled asphalt pavement and placed in courses as specified in the Special Provisions.

b. The bottom course shall be placed with an approved rubber mounted bituminous 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.

e. After the top course has been placed, the shoulder areas shall be sealed 1 meter [3 ft] wide with two applications of an emulsified bituminous sealer meeting the requirements of 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.

f. The furnishing and applying of the required quantity of sealer for the bridge shoulder areas shall be incidental to placing the hot bituminous pavement.

g. The atmospheric temperature for all courses on bridge decks shall be 10°C [50°F] or higher.

h. The use of an oscillating steel roller shall be required to compact all mixtures pavements placed on bridge decks.

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

403.05 Basis of Payment The accepted quantities of hot bituminous pavement will be paid for at the contract unit price per Megagram [ton] for the bituminous mixtures, including bituminous 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 Bituminous Pavement, for Method location).

Payment will be made under:

Pay Item		Pay Unit
403.102	Hot Mix Asphalt Pavement for Special Areas	MG [Ton]
403.206	Hot Mix Asphalt, 25 mm Nominal Maximum Size	MG [Ton]
403.207	Hot Mix Asphalt, 19.0 mm Nominal Maximum Size	MG [Ton]
403.2071	Hot Mix Asphalt , 19.0 mm Nominal Maximum Size	MG [Ton]
403.2072	Asphalt Rich Hot Mix Asphalt,19.0 mm Nominal Maximum Size (Asphalt Rich Base and Intermediate course)	MG [Ton]
403.208	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size	MG [Ton]
403.2081	Hot Mix Asphalt - 12.5 mm Nominal Maximum Size (PG 70-28)	MG [Ton]
403.209	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals)	MG [Ton]
403.210	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size	MG [Ton]
403.2101	Hot Mix Asphalt - 9.5 mm Nominal Maximum Size (PG 70-28)	MG [Ton]
403.2102	Asphalt Rich Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Asphalt Rich Intermediate course)	MG [Ton]
403.211	Hot Mix Asphalt (shimming)	MG [Ton]
403.212	Hot Mix Asphalt, 4.75 mm Nominal Maximum Size	MG [Ton]
403.2131	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size, (PG 70-28) (Base and Intermediate Base course)	MG [Ton]
403.2132	Asphalt Rich Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base course)	MG [Ton]

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SPECIAL PROVISION
SECTION 703
AGGREGATES

The Standard Specifications, Revision of 2002 Section 700 - Materials, Subsection 703.09 HMA Mixture Composition has been revised as follows:

703.09 HMA Mixture Composition The coarse and fine aggregate shall meet the requirements of Section 703.07. The several aggregate fractions for mixtures shall be sized, graded, and combined in such proportions that the resulting composite blends will meet the grading requirements of the following tables or as otherwise specified.

TABLE 1: COMPOSITION OF MIXTURES - CONTROL POINTS

SIEVE SIZE	GRADING			
	TYPE 19 mm	TYPE 12.5 mm	TYPE 9.5 mm	TYPE 4.75 mm
	PERCENT BY WEIGHT PASSING - COMBINED AGGREGATE			
37.5 mm				
25 mm	100			
19 mm	90-100	100		
12.5 mm	-90	90-100	100	100
9.5 mm	-	-90	90-100	95-100
4.75 mm	-	-	-90	80-100
2.36 mm	23-49	28-58	32-67	40 - 80
1.18 mm	-	-	-	-
600 µm	-	-	-	-
300 µm	-	-	-	-
75 µm	**2-7**	**2-7**	**2-7**	**2-7**

SIEVE SIZE	RESTRICTED ZONES			
	TYPE 19 mm [¾ in]	TYPE 12.5 mm [½ in]	*TYPE 9.5 mm [⅜ in]	TYPE 4.75 mm [#40]
	PERCENT BY WEIGHT PASSING - COMBINED AGGREGATE			
37.5 mm [1½ in]	-	-	-	-
25 mm [1 in]	-	-	-	-
19 mm [¾ in]	-	-	-	-
12.5 mm [½ in]	-	-	-	-
9.5 mm [⅜ in]	-	-	-	-
4.75 mm [No. 4]	-	-	-	-
2.36 mm [No. 8]	34.6	39.1	47.2	-
1.18 mm [No. 16]	22.3-28.3	25.6-31.6	31.6-37.6	-
600 µm [No. 30]	16.7-20.7	19.1-23.1	23.5-27.5	-
300 µm [No. 50]	13.7	15.5	18.7	-
75 µm [No. 200]	-	-	-	-

* The restricted zone is presented for information and definition of “Fine” 9.5mm mixes only.

SPECIAL PROVISION
SECTION 403
HOT MIX ASPHALT

Desc. Of Course	Grad Design.	Item Number	Bit Cont. % of Mix	Total Thick	No. Of Layers	Comp. Notes
3" Mill & 3" HMA Overlay Areas						
U.S. Route 1 - Existing Roadway						
Wearing	12.5 mm	403.208	N/A	1 ½"	1	5,7
Base	12.5 mm	403.213	N/A	1 ½"	1	5,7
1 ½" Mill & 1 ½" HMA Overlay Areas						
U.S. Route 1 Existing Bridge						
Wearing	12.5 mm	403.208	N/A	1 ½"	1	2,5,7
8" HMA Overlay Areas						
U.S. Route 1 - Full Construction (Widening) Areas						
Wearing	12.5 mm	403.208	N/A	1 ½"	1	5,7
Base	12.5 mm	403.213	N/A	1 ½"	1	5,7
Base	12.5 mm	403.213	N/A	5"	2	4,7
6" HMA Overlay Areas						
Northbound Off-Ramp / Deceleration Lane						
Southbound On-Ramp / Acceleration Lane						
Wearing	12.5 mm	403.208	N/A	1 ½"	1	5,7
Base	12.5 mm	403.213	N/A	1 ½"	1	5,7
Base	12.5 mm	403.213	N/A	3"	1	4,7
4" HMA Overlay Areas						
Northbound On-Ramp / Acceleration Lane						
Southbound Off-Ramp / Deceleration Lane						
Park & Ride						
Wearing	12.5 mm	403.208	N/A	1 ½"	1	5,7
Base	12.5 mm	403.213	N/A	2 ½"	1	5,7
Guardrail Widening Areas (Beyond Face of Rail)						
Wearing	12.5 mm	403.208	N/A	1 ½"	1	5,7
Base	12.5 mm	403.213	N/A	1 ½"	1	5,7
Spot Shims – As Directed By Resident						
Shim	12.5 mm	403.213	N/A	variable	1/more	4,7,26
Drives						
Wearing	9.5 mm	403.209	N/A	3"	2/more	2,3,10,11,14
Islands, Etc.						
Wearing	9.5 mm	403.209	N/A	2"	1/more	2,3,10,11,14

COMPLEMENTARY NOTES

2. The density requirements are waived. In addition, the use of an oscillating steel roller shall be required to compact all HMA pavements placed on bridge decks.
3. The design traffic level for mix placed shall be <0.3 million ESALS.
4. The design traffic level for mix placed shall be 0.3 to <3 million ESALS. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **50 gyrations**.
5. 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 **75 gyrations**.
7. Section 106.6 Acceptance, (1) Method A.
10. Section 106.6 Acceptance, (2) Method D.
11. The combined aggregate gradation required for this item shall be classified as a 9.5mm "**fine graded ”** mixture, (using the Primary Control Sieve control point) as defined in 703.09.
14. A mixture meeting the requirements of section 703.09 Grading 'D', with a minimum PGAB content of 6%, and the limits of Special Provision 401, Table 9 (Drives and Sidewalks) for PGAB content and gradation may be substituted for this item. A job mix formula shall be submitted to the department for approval.
26. Where HMA shimming is needed in areas of mill and resurfacing, it shall be paid for under item 403.213, Hot Mix Asphalt 12.5mm Base

Tack Coat

A tack coat of emulsified asphalt, RS-1, Item 409.15 shall be applied to any existing pavement at a rate of approximately 0.025 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 the surface course, at a rate not to exceed 0.025 gal/yd². Tack used between layers of pavement will be paid for at the contract unit price for Item 409.15 Bituminous Tack Coat.

SPECIAL PROVISION
SECTION 462
GAP-GRADED HMA
(Ultra Thin Bonded Wearing Course)

DESCRIPTION This work shall be constructed in accordance with the applicable referenced sections of Division 400 – Pavements; Section 401 – Hot Mix Asphalt Pavement, and the requirements of Section 106 – Quality. The Ultra thin Bonded Wearing Course consists of a warm polymer modified asphalt emulsion tack coat followed immediately with an ultra-thin hot mix asphalt wearing course. The tack coat is spray applied immediately prior to the application of the wearing course to produce a durable wearing surface that can be opened to traffic. The finished surface treatment has a minimum thickness of 12.5mm, (1/2"), for Type A and 16mm, (5/8"), for Type B and Type C.

MATERIALS

The contractor shall formulate and submit to the Department, a job mix formula (JMF) that satisfies the design general limits listed in Table 1 – Mixture requirements. The JMF range shall not fall outside the general design limits.

Table 1 – Composite Gradation

AASHTO Standard

Sieve Sizes Total % Passing by Weight

Sieve Size	Type A - ¼"	Type B – 3/8"	Type C - ½"
19 mm (¾")	-	-	100
12.5 mm (½")	-	100	85-100
9.5 mm (3/8")	97-100	85-100	45-85
4.75 mm (#4)	40-60	24-41	24-41
2.36 mm (#8)	21-33	21-33	21-33
1.18 mm (#16)	15-26	15-26	15-26
0.60 mm (#30)	11-20	11-20	11-20
0.30 mm (#50)	8-16	8-16	8-16
0.15 mm (#100)	5-10	5-10	5-10
0.075 mm (#200)	4-7	4-7	4-7
% PGAB	4.9 – 5.4	4.8 – 5.3	4.8 – 5.3

*Note: All aggregate percentages are based on the total weight of the aggregate. The composite gradation for each individual Type of mixture shall meet the gradation requirements of table 1.

COARSE AGGREGATE

The single size coarse aggregate shall be nominal 6.3 mm (1/4") for Type A, 9.5 mm (3/8") for Type B, and 12.5 mm (1/2") for Type C. These are recommended requirements only listed in Table 2 – Coarse Aggregate Gradations.

Table 2 – Coarse Aggregate Gradations

Total % Passing by Weight

Screen Size	A	B	C
12.5 mm, (1/2")		100	85-100
9.5 mm, (3/8")	100	85-100	25-80
6.3 mm, (1/4")	60-100	0-15	0-15
4.75 mm, (#4)	10-45	0-3	0-3
2.36 mm, (#8)	0-3		
1.18 mm, (#16)			

FINE AGGREGATE

The fine aggregate shall be 100% crushed. These are recommended requirements only listed in Table 3 – Fine Aggregate Gradations.

Table 3 – Fine Aggregate Gradation

Screen Size	**% Passing**
4.75 mm, (#4)	**95-100**
2.36 mm, (#8)	**70-90**
1.18 mm, (#16)	**50-70**
0.60 mm, (#30)	**35-55**
0.30 mm, (#50)	**25-40**
0.15 mm, (#100)	**15-28**
0.075 mm, (#200)	**10-17**

Aggregates used shall be from an approved source and shall meet the requirements of section 703.07 for 3.0 to < 10 million ESALs, and as modified by items 1 through 7 listed below.

1. Aggregates shall meet a Micro-Deval (AASHTO T 327) value of 18 or less.
2. Aggregates shall have a maximum LA Abrasion (AASHTO T96) of 30.
3. Absorption by AAHSTO T 84 shall be less than 2.0% for fine aggregate blends.
4. Absorption by AAHSTO T 85 shall be less than 2.0% for coarse aggregate blends.
5. Aggregates shall have a minimum sand equivalent of 45, (AASHTO T 176), and the fine aggregate shall be 100% crushed.
6. 95 % of the aggregate shall have at least a single face crushed and 85% shall have 2 or more crushed.
7. Percent by weight of Flat and Elongated particles shall be (5:1 ratio) with 10% maximum.

The Contractor shall test all materials and provide copies of all test results to the Department for materials utilized in the completion of the work. The Contractors' test results shall be submitted to the Department a minimum of 7 days prior to start of the work.

Mineral Filler - Hydrated lime, fly ash, Hot Mix Asphalt plant baghouse fines, or Portland cement may be acceptable as mineral filler.

Typical acceptable gradation: 100% passing 0.60 mm, (#30)
75-100% passing 0.075 mm, (#200).

Performance Graded Asphalt Binder - Unless otherwise noted in Special Provision 403 - Hot Bituminous Pavement, all asphalt binders shall meet a 64-28, or 58-28 PGAB grade.

Emulsified Tack Coat - Tack Coat shall meet a requirement, modified with latex, natural or synthetic, and shall be certified as meeting the requirements of ASTM D2397 except as modified in Table 5 – Tack Coat Material Properties. It is required that the latex be co-milled at the bulk emulsion facility, to ensure complete and balanced blending. CRS-1P asphalt grade emulsions shall have a minimum asphalt content ratio of 63%.

Table 5 – Tack Coat Material Properties

Property	Method	Minimum	Maximum
Latex Content, % Mass of Total Residue		3.0	
Viscosity at 25 deg C, (Sec.)	ASTM D244	20	100
Setting Time, Minutes	Observation	3	7
Demulsibility, % by wt. Residue	ASTM D244	40	
Penetration , 25 deg C (77 deg F)	T 49	60	150

Weather and Seasonal Limitations – All work shall be in accordance with Division 400 – Pavements; Section 401 – Hot Mix Asphalt Pavement , subsection 401.06- Weather and Seasonal Limitations, with the exception of the following revisions;

The minimum pavement surface temperature for application of the tack coat and placement of the wearing course is 10º C, (50º F.)

Ultra Thin Bonded Wearing Course placements shall be have a seasonal limitation of October 1st. All work and materials required to prepare the project for suspension will be considered incidental to the contract.

EQUIPMENT

Placement - The self-priming paver must be capable of spraying the tack coat, applying the hot asphalt overlay and smoothing the surface of the mat in one pass at the rate of 10-30 meters, (33-98 feet), per minute. The self-priming paver must incorporate a receiving hopper, feed conveyor, insulated storage tank for emulsion, metered tack coat spray bar and a variable width, heated, ironing type screed. The screed must have the ability to be crowned at the center both positively and negatively and have vertically adjustable extensions to accommodate the desired pavement profile.

Compaction - The Contractor shall use a steel wheeled double drum rollers weighing at least 7.25 to 9 metric tons, (8 to 10 ton), that are equipped with functioning water systems and scrapers to prevent the fresh mix from adhering to the roller drums.

CONSTRUCTION DETAILS

Surface Preparation - The Contractor shall remove the striping and sweep the roadway as needed prior to the surface treatment. This item will not be paid for directly, but shall be included in the 462.30 - Ultra Thin Bonded Wearing Course contract price.

The Contractor shall crack seal transverse and longitudinal cracks as appropriate. Materials and methods shall conform to item 424.31 – Low Modulus Crack Seal. This item will not be paid for directly, but shall be included in the 462.30 - Ultra Thin Bonded Wearing Course contract price.

Spot shims or leveling course, if required by the Department, shall be paid for under the appropriate 403.211 - 9.5mm Shim unit price included in the contract.

APPLICATION The minimum pavement surface temperature for application of the tack coat and placement of the wearing course is 10º C, (50º F.). Apply the tack coat at a temperature of 60º - 70º C, (140º - 160º F.). Provide a uniform application across the entire width to be overlaid, at a rate of 0.68 – 1.13 liters per square meter, (.15 - .25 gallons per square yard). The Contractor shall continuously monitor the rate of spray. No equipment shall come in contact with the tack coat before the hot mix asphalt wearing course is applied. Immediately after applying the tack coat, the contractor shall apply the hot mix asphalt overlay across the full width of the tack coat at a temperature of 150º – 165º C., (300º - 335º F.).

Compaction - The Contractor shall begin compaction immediately after the application of wearing course. Use a minimum of two passes. The roller(s) will not be allowed to stop on the freshly placed wearing course. The Contractor shall use an adequate number of rollers to complete compaction before the pavement temperature falls below 85º C., (185º F.). The Contractor shall protect the wearing course from traffic until the rolling operation is complete and the material has cooled sufficiently to resist damage.

Acceptance - Acceptance shall be in accordance with Section 401.203 - Testing Method C Lot Size will be the entire production per JMF for the project, or if so agreed at the Pre-paving Conference, equal lots of up to 120,000 square yards. Remaining square yards may be rolled into the last lot allowed up to a maximum of 160,000 square yards. Sublot sizes shall be 30,000 square yards for mixture properties, with unanticipated over-runs of up to 1650 square yards rolled into the last sublot. The minimum number of sublots per Lot for mixture properties shall be 4.

TABLE 4: ACCEPTANCE CRITERIA

PROPERTIES	POINT OF SAMPLING	TEST METHOD
Gradation	Paver Hopper	AASHTO T30
PGAB Content	Paver Hopper	AASHTO T308

TABLE 7: METHOD C ACCEPTANCE LIMITS

Property	USL and LSL
Passing 4.75 mm and larger sieves	Target +/-7%
Passing 2.36 mm to 1.18 mm sieves	Target +/-4%
Passing 0.60 mm	Target +/-3%
Passing 0.30 mm to 0.075 mm sieve	Target +/-2%
PGAB Content	Target +/-0.4%

Pay Adjustment Method C Testing - The Department will sample, test, and evaluate Hot Mix Asphalt Pavement in accordance with Section 106 - Quality and Section 401.20 - Acceptance, of Division 400 – Pavements.

The Department will use Performance Graded Asphalt Binder content, and the screen sizes listed in this specification for the type of mixture represented in the JMF. If any pay factor for any single property falls below 0.85, the Contractor shall cease production at the HMA plant. If the PGAB content falls below 0.80, then the PGAB pay factor shall be 0.55. If the percent passing the nominal maximum sieve, the 2.36 mm sieve, the 0.300 mm sieve or the 0.075 mm sieve for Method C falls below 0.80, then the composite pay factor for the four sieves shall be 0.55.

PGAB Content and Gradation The Department will determine a pay factor for each square yard using Table **7**: Method C Acceptance Limits. The Department will calculate the price adjustment for Mixture Properties as follows:

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 PF-1.0)(Q)(P)X0.25

Method of Measurement The Ultra Thin Bonded Wearing Course shall be measured by the square meter [square yard].

Basis of Payment - The accepted quantity of Ultra Thin Bonded Wearing Course will be paid for at the contract unit price per square meter [square yard], complete in-place which price will be full compensation for furnishing all equipment, material, labor, striping removal, crack sealing, and all incidentals necessary to complete the work. Pay adjustments may be made as outlined in this specification.

Payments will be made under:

Pay Item	Pay Unit
462.30 - Ultra Thin Bonded Wearing Course	Square Meter [yd^2]

May 13, 2008
Supercedes June 24, 2004

SPECIAL PROVISION
SECTION 526
CONCRETE BARRIER
(Temporary Concrete Barrier)

Materials

Temporary concrete barriers must be connected using a 1-1/8 inch diameter rod, with a washer and cotter pin on the bottom. The contractor has the option to use a nut and washer connection as shown on the Standard Detail 526(02) or the top of the rod may be hooked over the top connector. The connecting pin must be smooth and not deformed. Reinforcing bar will not be permitted.

SPECIAL PROVISION
SECTION 527
ENERGY ABSORBING UNIT
(QuadGuard System)

Description This work consists of furnishing and installing a new QuadGuard System crash cushion with a Tension Strut Backup, Quad end shoe transition panels and deflector assemblies including the concrete base as a permanent energy absorbing system in accordance with these specifications and as directed by the Resident at location shown on the plans or established by the Resident.

Materials The energy absorbing system shall be the QuadGuard System as manufactured by Energy Absorption Systems, Inc. of Chicago, IL as approved and crash tested by the Federal Highway Administration. The QuadGuard System shall be model QS2403Y Test Level 2. The QuadGuard System shall be placed on a concrete pad in accordance with the manufacturer's recommendations. All work involving the concrete pad shall be done in general accordance with section 502 standard specifications. The Portland Cement Concrete for the concrete pad shall conform to Subsection 712.03 except the minimum 28 day compressive strength shall be 4350 psi.

Installation A set of installation drawing will be provided to the Resident for the system installed in accordance with the manufacturer's recommendations and the installation drawings.

The Quad end shoe transition panel (i.e. side panel, end shoe) between the QuadGuard Tension Strut Backup and the concrete transition barrier shall be attached to the concrete transition barrier per the manufacturer's recommendations and as directed by the Resident.

The deflector assembly shall be attached per the manufacturer's recommendations and as directed by the Resident.

Method of Measurement Energy absorbing system will be measured by each unit, complete in place and accepted.

Basis of Payment The accepted quantity of Energy Absorbing System will be paid for at the contract unit price which shall include furnishing and installing a new QuadGuard System Crash Cushion including furnishing and placing a concrete pad excluding all common and granular borrow, all common and structural excavation, all aggregate subbase course gravel, placement of new pavement, which will be paid at the contract unit price for those items.

Payment will be made under:

Pay Item		Pay Unit
527.305	QuadGuard Crash Cushion	Each

SPECIAL PROVISIONS
SECTION 527
ENERGY ABSORBING UNIT
(Work Zone Crash Cushion)

Description A Work Zone Crash Cushion shall be furnished and installed at each exposed end of temporary concrete barrier, where shown on the plans or as directed. A Work Zone Crash Cushion must comply with NCHRP Report 350. Work Zone Crash Cushions Meeting NCHRP 350 include, but are not limited to the following: The N-E-A-T from Energy Absorption Systems out of Chicago Illinois, Adiem-II from Syro Inc. out of Dallas, Texas, Clusters of the Energite III sand barrels from Energy Absorption Systems out of Chicago Illinois or an approved equal..

CONSTRUCTION REQUIREMENTS

Clusters shall be provided as shown in the Standard Detail book. Clusters shall be provided for the posted speed limit.

Work Zone Crash Cushions which are damaged or destroyed shall be repaired or replaced promptly.

Method of Measurement Work Zone Crash Cushions shall be measured by the unit, complete, accepted and installed on the project. A cluster of Energite III sand barrels is considered a unit. Each N-E-A-T or Adiem II is considered a unit.

Basis of Payment The accepted quantity of Work Zone Crash Cushions complete in place will be paid for at the contract unit price for each unit. Such payment will be full compensation for furnishing and placing the Work Zone Crash Cushion including all incidentals and for resetting as many times as required.

Replacements for the Work Zone Crash Cushions damaged by collisions will be paid for as new Work Zone Crash Cushions and the removal of the impacted devices and debris will be considered incidental to the replacement units. Replacement Work Zone Crash Cushions on hand, but unused will not be paid for directly.

Payment will be made under:

Pay Item		Pay Unit
527.34	Work Zone Crash Cushions	Unit

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
603.195	24" RCP Class III	LF
603.155	12" RCP Class III	LF

SPECIAL PROVISION

SECTION 615.25
BIORETENTION CELL

Description

This work shall consist of constructing a Bioretention Cell(s) to provide quality treatment to the stormwater surface runoff. The bioretention cell(s) location, layout, grading, drainage, erosion control measures and planting are indicated on the Contract Drawings. The bioretention cell's vertical profile shall be in accordance with project specific cross sections and the attached Bioretention Cell Typical Section (Figure 1).

The materials, construction, oversight and testing of the bioretention cell is based upon the applicable requirements specified within the Maine Department of Environmental Protection's, Stormwater Management for Maine, Volume III: BMPs Technical Design Manual (draft October 2012), Chapter 7.2, Filtration BMP- Underdrained Bioretention Cell.

MATERIALS

All materials for bioretention cells shall meet the requirements of the following Sections of the Standard Specifications except as provided below. The different layers from the top down are:

Planting	By others
Bark Mulch - Hardwood	717.04 (c)
Loam	615.12
Engineered Soil Filter Media	See Below
Underdrain Backfill Material – Type B	703.22
4" to 6" PVC Perforated Pipe	706.09
Drainage Geotextile - Woven	722.02
Impervious Liner	See Below
Stone Ditch Protection	By others
Outlet Discharge	By others
Beehive Grate	See Below
Catch Basin Type B1	604.09

Loam – The first layer of the basin shall consist of non-clayey, loamy topsoil such as USDA sandy loam topsoil with 5-10% dry weight of organic matter and meeting the following grain size specifications:

Loam*	
Sieve #	% Passing by Weight

4	75-95
10	60-90
40	35-85
200	20-70
200 clay size	<2.0

*The contractor should note that the loam material specification is more stringent than Maine DOT standard specification 615.02.

Loam shall be screened, loose, friable and shall be free of admixture of subsoil, refuse, large stones, clods, roots, rhizomes, "witch grass" or other undesirable grasses. *Screened loam from the construction area may be appropriate but should be tested for organic content.* The media should have sufficient nutrient content to support a good stand of grass/plants. Compost can be added, such as Superhumus™ or equivalent. The loam shall have very little clay content. Greater then 2% clay content may cause failure of the system.

Engineered Soil Filter Media – The Engineered Soil Filter Media shall consist of loamy course sand. Soil filter media shall contain the following by volume 80% sand meeting standard specification 703.01 and 20% Compost, such as Superhumus™ or equivalent.

The engineered soil filter media mixture shall have 8% to 12% by weight passing the #200 sieve, a clay content of less than 2% (determined hydrometer grain size analysis) and 5-10% dry weight of organic matter. *Greater then 2% clay content may cause failure of the system.*

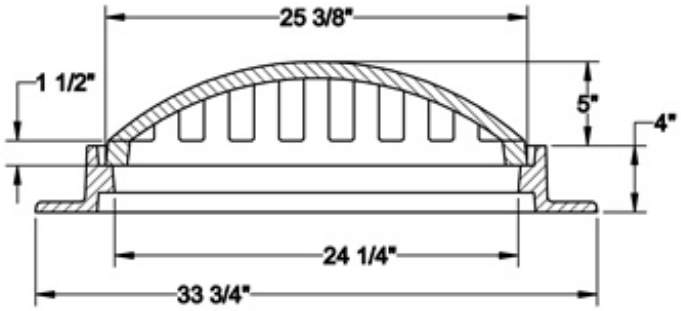
Impervious Liner – The impervious liner shall consist of linear low density polyethylene (LLDP) or PVC, minimum thickness 30 mil.

Stone Ditch Protection – See Design, if applicable. (Stone Ditch Protection 610.18 may be used for the construction of Sediment Forebay. The use of a Sediment Forebay is recommended at locations subject to a concentrated stormwater inflow).

Outlet Discharge – See Design

Planting – See Design

Beehive Catch Basin Grate – Each of the Type B1 Catch Basins used in the bioretention cells shall be furnished with a new installed beehive grate in accordance with these specifications and as directed by the Resident at location shown on the plans or established by the Resident. The grate shall meet the dimensions and requirements of the Deeter Foundry Beehive Grate number 4497 shown below or approved equal.



CONSTRUCTION REQUIREMENTS

Each bioretention cell shall be constructed according to the bioretention cell location(s), layout, grading, drainage, erosion control measures and planting are indicated on the Contract Drawings. The bioretention cell's vertical profile shall be in accordance with project specific cross sections and the attached Bioretention Cell Typical Section (Figure 1). The Contractor shall have a preconstruction site walk with the Resident and a representative from the MaineDOT Environmental Office Surface Water Resources Unit to review the proposed location(s) and to answer questions in regard to layout and construction. Any modifications to the elevation or location shall be at the direction of and approved by the Resident.

The area of the basin may be excavated in preparation of the installation of the underdrain and may be used for a sediment trap from the site during construction. After excavation of the basin, the outlet structure and piping system shall be installed at the appropriate elevation and protected with a sediment barrier. If the basin is to be used as a sediment trap, the sides of the embankments shall be mulched and maintained to prevent erosion. Any accumulated sediment shall be removed and disposed of properly prior to the construction of the underdrains and bedding at no additional cost. During construction of the bioretention cell, no separate payment will be made for dewatering.

The loam, engineered soil filter media and plants shall not be installed until the area that drains to the bioretention cell has been permanently stabilized with pavement or other structure, 90% vegetation cover, or other permanent stabilization. Alternatively, the runoff from the contributing drainage area may be diverted around the bioretention cell until stabilization is completed unless the Resident has determined, on a case-by-case basis that sufficient measures are being taken to prevent erosion of material from the unstable catchment area and deposition on the bioretention cell.

Install a linear low density polyethylene or PVC liner on all sides and bottom. The minimum thickness shall be 30 mil. Install drainage geotextile on both sides of the impervious liner to protect the liner from puncture and in accordance with the manufacturer's recommendations. *If a seasonal high water table is present above the bottom of the bioretention cell then install a Type B Underdrain prior to the installation of the impervious liner.* The underdrain shall outlet into the catch basin or outlet control structure, if grades allow, and downstream of any orifice or

bulkhead. Refer to the attached Bioretention Cell Typical Section (Figure 1) for additional information.

Install a 3 inch lift of underdrain backfill material. Install and backfill the underdrain perforations down. Install the engineered soil filter media in two lifts. Loam, engineered soil filter media and underdrain bedding material must be compacted to between 90 and 92% standard proctor (ASTM D698). The bed shall be installed in 6 inch lifts to prevent pockets of loose media.

Install the loam in two lifts of 2 inches and 4 inches. The first installed 2 inch lift of loam shall be gently mixed with the engineered soil filter media layer possibly using the teeth of the excavator's bucket, or other method approved by the Resident. *The goal is to create a transition zone between the Loam and Engineered Soil Filter Media to facilitate root penetration*. Install the bark mulch at least to the top of the Channel Protection Volume elevation (Refer to Figure 1).

Refer to the Contract Drawings for the bioretention cell location(s), layout, grading, drainage, erosion control measures and planting including but not limited to stabilization of soils above the channel protection volume, installation of overflow weir or catch basin, sediment forebay and outlet pipes.

Upon completion of the installation of the bioretention cell, the contractor shall flood the vegetated basin to the design elevation with clean water and adjust the outflow to obtain a 24 hour to 32 hour release time. If after one calendar year the channel protection volume does not release over a minimum 24 hour to maximum 48 hour time a constrictive orifice or a valve (2" plastic ball valve, type 346, with a ball valve handle extension, type 615, with a three-piece valve box installed over the valve) shall be installed at the end of the underdrain pipe which outlets in the catch basin or outlet control structure.

Plantings as specified in Section 621 – Landscaping shall be installed after the bioretention cell has been brought to the final elevation and checked by the Resident. Plantings shall receive adequate irrigation during the establishment period to ensure survival.

Construction Oversight:

Inspection of the filter basin shall be provided for each phase of construction by the Resident with required reporting to the MaineDOT Environmental Office, Surface Water Resources Unit.

At a minimum, inspections will occur:

- After preliminary construction of the bioretention cell grades;
- During the installation of the impervious liner;
- Once the underdrain pipes are installed but not backfilled;
- After the drainage layer is constructed and prior to the installation of the engineered soil filter media;
- After the engineered soil filter media is constructed and prior to the installation of the loam;
- After the bioretention cell has been installed, planted and mulched, and
- Inspect the health of the vegetation with the development of any project wide punchlist in accordance with the Planting specification Section 621.

Any necessary changes as a result of the inspections by the Resident shall be considered incidental to the pay item.

Submittals:

- The contractor shall identify the location of the source of each component of the bioretention cell and provide documentation to the resident. The contractor shall submit samples of each type of material to be blended for the loam, engineered soil filter media and underdrain bedding material to a material testing firm at least 30 working days prior to delivery to the site. Representative samples must be a composite of three different locations (grabs) from the stockpile or pit face. Sample size required will be determined by the material testing firm. All laboratory test results (see below) shall be submitted to the Resident at least 10 working days prior to the delivery of material to the site. The cost of material testing shall be considered incidental to the pay item.
- Submittals in accordance with individual material requirements set forth within the Standard Specifications.

Testing:

- Laboratory Testing - The contractor's material testing firm shall conduct a sieve analysis conforming to ASTM D422 on the loam, engineered soil filter media and underdrain bedding material. The material testing laboratory shall test the organic content of the loam and engineered soil filter media, the testing shall conform to ASTM D2974. The resulting loam and engineered soil filter media mixture MUST have 8% to 12% by weight passing the #200 sieve, a clay content of less than 2% (determined hydrometer grain size analysis) and have 5-10% dry weight of organic matter.

- Compaction Testing - The loam, engineered soil filter media mixture and underdrain backfill material shall be compacted to 90-92% of maximum dry density based on ASTM D698. The contractor's material testing firm shall conduct at least one compaction test per 1,000 s.f. of loam, engineered soil filter media mixture and underdrain backfill material surface area with results provided to the Resident.

- Permeability testing – The contractor shall successfully perform one of the following permeability test with oversight by the Resident with results provided to the MaineDOT Environmental Office, Surface Water Resources Unit.
    - The contractor's material testing firm shall perform a permeability test by constant-head method on the loam and engineered soil filter media mixture conforming to ASTM D2434. The resulting permeability shall be between 2.4 to 4 in/hr. One test per 1,000 s.f. of loam and engineered soil filter media surface area.
    - Upon completion of the installation of the bioretention cell, the contractor shall flood the bioretention cell to the top of the channel protection volume with clean water. The contractor observe and record whether the channel protection volume releases over a minimum 24 hour to maximum 48 hour time.

Basis of Payment

The bioretention cell(s) will be paid for at the contract unit price as specified complete and in place. Payment for the bioretention cell(s) shall be full compensation for furnishing and placing all geotextile, impervious liners, underdrains, aggregate and organic materials, engineered soil filter media; catch basin, beehive grate, outlet pipes, the 6" PVC perforated pipe connecting Bioretention Cell #1 to Bioretention Cell #3 as shown in the Contract Drawings, fittings and all equipment and labor, and all other incidentals necessary to complete the work.

Excavation and backfill for bioretention cell will be measured and paid for separately as per Pay Item 206.061.

The furnishing and placing of the 18" Culvert Pipe Option III connecting Bioretention Cell #2 to Bioretention Cell #3 as well as the as the 18" Culvert Pipe Option III between Bioretention Cell #3 and the ditch at Sta. 515+00 LT as shown in the Contract Drawings will be measured and paid for separately as per Pay Item 603.179.

Plantings will be measured and paid for separately as provided in Special Provision Section 621 – Landscaping.

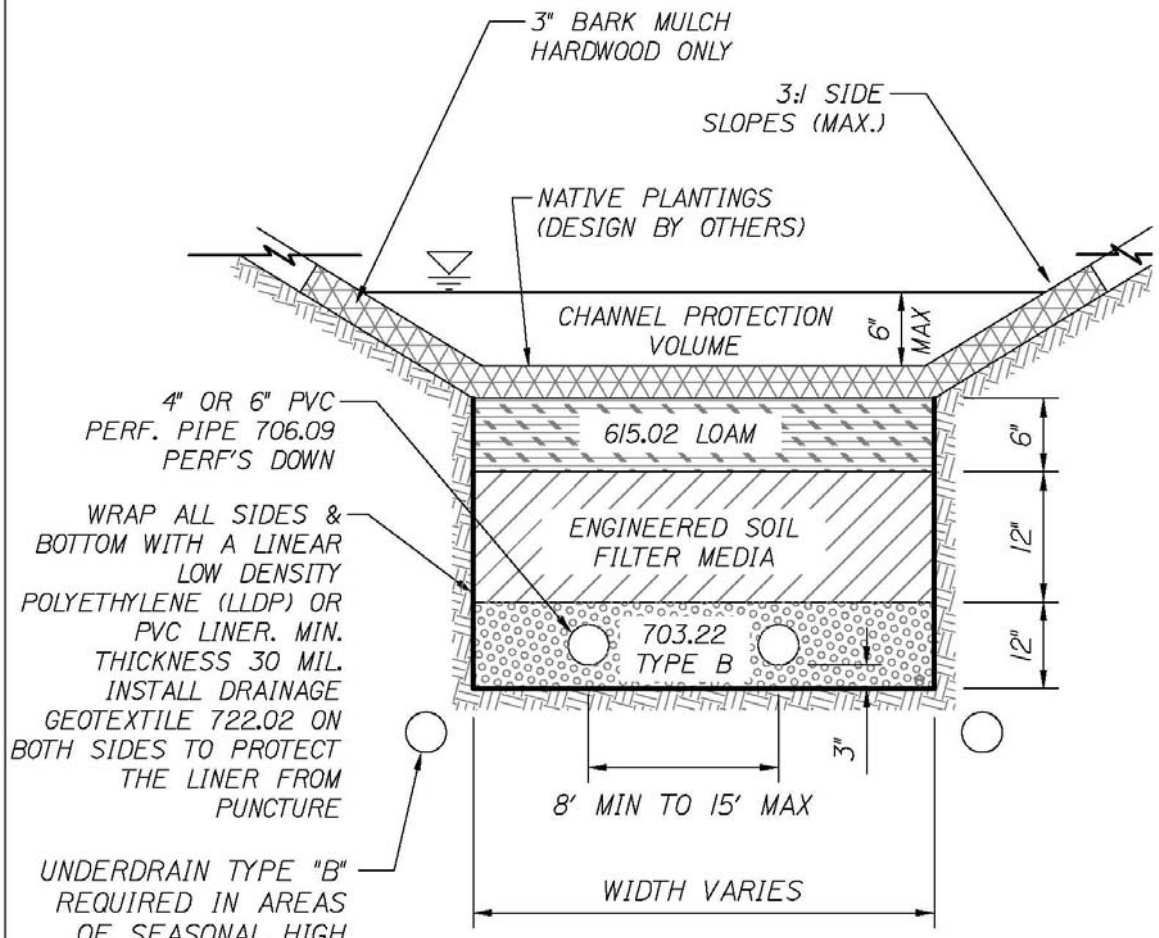
Payment will be made under:

Pay Item		Pay Unit
615.25	Bioretention Cell	Lump Sum

Attached: Figure 1 - Bioretention Cell Typical Section

FIGURE 1

THE BIORETENTION CELL(S) LOCATION, LAYOUT, GRADING, DRAINAGE, EROSION CONTROL MEASURES AND PLANTING ARE INDICATED ON THE CONTRACT DRAWINGS



BIORETENTION CELL
TYPICAL SECTION

Yarmouth
11086.00
December 8, 2012

SPECIAL PROVISIONS
SECTION 621 LANDSCAPE
(Plant Species Specification and Quantities List)

The following list of items provides the estimated quantities for use on this project. The scientific name of the plant material is provided along with the common name in parenthesis.

The contractor shall follow MaineDOT Standard Specifications (Section 621) for landscape materials and installation procedures. The MaineDOT Landscape Architect or their designee will be available to stake plant material locations and inspect plant materials at the time of planting. All plants may not be used on the project.

In accordance with Section 105.4.9 a Two-Year Establishment Period Maintenance Bond shall be required for the full value of the planting items installed on the project.

- Items 621.02, 621.025, 621.121 and 621.245 shall be flagged by the MaineDOT landscape architect in old alignment areas.
- Item 621.546 shall be planted in the bio-retention cell and swale areas.
- Items shall be located near the old circular area parking.
- Items may also be placed as directed by the MaineDOT landscape architect or the Resident.

ITEM NO	Description	Unit	Quantity	Total
619.13	Bark Mulch	Unit	10	10
621.025	Evergreen Trees (900 mm – 1200 mm) 3’ – 4’ Group A, B&B or Cont.			20
	Pinus strobus (White Pine)	Ea	20	
621.031	Evergreen Trees (1200 mm – 1500 mm) 4’ – 5’ Group A, B&B			10
	Pinus strobus (White Pine)	Ea.	10	
621.037	Evergreen Trees (1500 mm – 1800 mm) 5’ – 6’ Group A, B&B			15
	Picea glauca (White Spruce)	Ea.	5	
	Picea abies (Norway Spruce)	Ea.	5	
	Pinus strobus (White Pine)	Ea.	5	
621.044	Evergreen Trees (1800 mm – 2400 mm) 6’ – 8’ Group B, B&B			10
	Picea glauca (White Spruce)	Ea.	5	
	Picea abies (Norway Spruce)	Ea.	5	
621.045	Evergreen Trees (1800 mm – 2400 mm) 6’ – 8’ Group C, B&B			5
	Picea pungens (Colorado Spruce)	Ea.	5	
621.180	Medium Deciduous Trees (1800 mm - 2400 mm)			15

	6-8', clump. group C			
	Amelanchier canadensis (Shadblow)	Ea	10	
	Betula nigra 'Heritage' (Heritage River Birch)	Ea	5	
621.202	Medium Deciduous Trees (50 mm - 65 mm cal) 2-2.5" cal., B&B group B			8
	Crataegus viridis 'Winter King' (Hawthorn)	Ea	5	
	Malus 'Adams' (Adams Crabapple)	Ea	3	

621.245	Lg Deciduous Trees (600 mm - 900 mm) 2 – 3' Group A, Container			20
	Acer rubrum (Red Maple)	Ea	20	
621.255	Lg Deciduous Trees (2400 mm - 3000 mm) 8 – 10' Group A, Cont. or B&B			10
	Acer rubrum (Red Maple)	Ea	8	
	Acer saccharum (Sugar Maple)	Ea	2	
621.273	Lg Deciduous Trees (50 mm - 65 mm cal) 2 – 2 1/2" cal. Group A, B&B			16
	Acer rubrum (Red Maple)	Ea	10	
	Acer saccharum (Sugar Maple)	Ea.	3	
	Quercus palustris (Pin Oak)	Ea.	3	
621.546	Deciduous Shrubs (600 mm–900 mm) 2 – 3' Group A, Container.			100
	Clethra alnifolia 'Hummingbird'	Ea	20	
	Ilex verticillata 'Red Sprite' (no substitution)	Ea	80	
621.552	Deciduous Shrubs (900 mm–1200 mm) 3 – 4' Group A, Container			40
	Ilex verticillata 'Jim Dandy'	Ea	10	
	Aronia arbutifolia 'Brilliantissima'	Ea	10	
	Aronia melanocarpa	Ea.	10	
	Cornus racemosa 'Gray Dogwood'	Ea.	10	
621.711	Herbaceous Perennials Group B (No. 1 Container)			650
	Calamagrostis a.'Karl Foerster'(Feather Reed Grass)	Ea	400	
	Panicum virgatum 'Shenandoah' (Switch Grass)	Ea.	50	
	Rudebeckia fulgida 'Goldsturm' (BlackEyed Susan)	Ea.	200	
621.80	Establishment Period	LS	1	1

SPECIAL PROVISION

SECTION 634

HIGHWAY LIGHTING

ITEM 634.180 **RGS CONDUIT** **LF**

GENERAL

The work under these Items shall conform to the relevant provisions Section 600 and 700 of the Standard Specification and the following:

MATERIALS

RGS Conduit shall meet the requirements specified in section 715.02 of the standard specifications.

INSTALLATION

Conduit shall be installed as specified in section 626.032 of the standard specifications.

MEASUREMENT AND PAYMENT

Payment will be made at the unit price per linear foot, which price shall constitute full compensation for all labor, tools, and equipment, required for furnishing and installing galvanized steel conduit, fittings, expansion fittings used at bridge expansion bearings, bends, clamps, couplings, condulets, supports, inclusive of conduit supports, trench excavation (except rock and sidewalk) and backfilling (except where Engineer requires gravel borrow backfill), joint encasement, de-watering, pull ropes, penetrations into new and existing handholes, connection to existing conduits, warning tape and surface restoration. Surface restoration shall include, but is not limited to, restoration of sidewalk surface and grass areas, and all incidental costs required for the proper completion of the work specified herewith, as shown on the plans, or as required by the Engineer, complete in place.

ITEM 634.313 **#4 AWG COPPER WIRING** **LF**

ITEM 634.316 **#10 AWG COPPER WIRE** **LF**

GENERAL

All work performed under these Items shall be in accordance with the relevant provisions of Section 634

of the Standard Specifications and the following:

GENERAL

The Contractor shall be required to furnish and install all materials, equipment and labor necessary to completely wire and operate the street lighting system. All materials and wiring procedures shall conform to the specifications contained herein and to the requirements and standard practices of the Section 634 and the following:

All wire and connectors shall conform to the standards of the National Electrical Manufacturers Association or the Underwriters' Laboratories, Inc., whichever is applicable. All materials and workmanship shall conform to the requirements of the National Electrical Code, Standards of the American Society for Testing and Materials, and any local ordinances that may apply.

Wherever any reference is made to the standards mentioned above, the reference should be construed to mean the standard that is in effect on the day the Notice to Proceed to the Contractor for the work is dated.

Wire sizes shall be based on American Wire Gage (AWG), as applied to copper conductors.

MATERIALS

The cable shall be UL approved and listed as THW and conform to section 715.07 of the standard specifications.

Wire and cable furnished and used shall be new and shall have the size, grade of insulation, voltage and manufacturer's name permanently marked on the outer covering at regular intervals. Wire and cable shall be delivered to the site in complete coils or reels with identifying size, type and insulation tags. Wire and cable shall be protected from weather and damage during storage and handling.

Splicing Materials

Shall be in accordance with Section 715.07 of the standard specifications.

CONSTRUCTION METHODS

No wire shall be drawn in to any conduit until all work that may cause damage to the wire is complete.

All wire shall be continuous from handhole to handhole without running splices in conduits. All wires shall extend 2 feet above the handhole, connected at ends and rolled back into the handhole.

All wire terminals, taps and splices shall be made secure with connectors, splicing materials and methods as hereinafter specified.

Grounding

Coatings and rust on conduits and grounding rods shall be removed at the location where the ground fittings are to be installed.

The bare copper conductor shall be connected to the continuous insulated bonding lead, which shall be identified with green plastic marking tape as noted in the specifications. Bonding leads for lighting fixtures on poles shall be an insulated #10 AWG, marked green, which shall be extended to the nearest handhole and interconnected to the bare copper ground wire in the handhole of gauge shown on the contract drawings and the pig tail conductor shall be connected to the ground rod.

A conductor with the same insulation of the power leads shall be installed in all conduits as a continuous bond wire. All bonding leads from fixtures, pole, control boxes, fittings and ground rods shall be connected to the continuous insulated bonding lead which shall be identified with green plastic marking tape as noted in the specifications.

All grounding shall conform to the applicable provisions of the National Electrical Code and section 634.081 of the standard specifications.

Field Tests

All conductors shall be tested in accordance with section 634.09 of the standard specifications.

All tests and any necessary repairs or replacements that are indicated by the Engineer to produce a fault-free system will be performed at the Contractor's expense.

NOTE: The Contractor shall be completely responsible for all maintenance, repairs and replacement of damaged equipment during the functional test and throughout the performance warranty period.

If, within 48 hours after notification by the Engineer of a malfunction, and the Contractor fails to make such repairs as necessary, the Engineer will undertake repairs of which all costs are to be borne by the Contractor. The cost of any maintenance necessary, except electrical energy, shall be at the Contractor's expense and will be considered as included in the price paid for the Contract item involved and no additional compensation will be allowed therefore.

MEASUREMENT AND PAYMENT

Payment will be made at the respective unit price and be measured by the foot along the center line of the conduit in which the conductor is placed, complete-in-place, which price shall constitute full compensation for furnishing, installing and connecting the street lighting cables, the grounding of the system, testing the lighting circuit wiring, grounding wire testing, and for furnishing any equipment and/or materials required.

No allowance will be made for the necessary lengths of slacked cable laid around the sides of manholes, handholes, junction boxes, pull boxes, or extending from foundations for making splices, taps in cable,

and connecting the internal components of control cabinets. No allowance will be made for cable in controllers, light poles or other items other than conduit.

The cost of any maintenance necessary to include testing, replacement of lamps, luminaires, wiring splices, grounding, and all appurtenances, except electrical energy, shall be at the Contractor's expense and will be considered as included in the price paid for the contract item.

ITEM 634.2042 LED LUMINAIRE EACH

GENERAL

The work under these items shall consist of furnishing and the installation of luminaires mounted at the locations as shown on the plans or as directed, complete in place.

Submittals for all lighting equipment shall include photometric data, shop drawings, and reports shall employ the terminology, classifications, and methods prescribed by the IES Lighting Handbook, as applicable, for the lighting systems specified.

A. General submittal content shall include
    1. Luminaire cutsheets
    2. Cutsheets for LED driver(s) some products will only have a power supply or power source.
    3. Cutsheets for surge protection device
    4. Instructions for installation and maintenance
B. LM-79 luminaire photometric report(s) shall be produced by the test laboratory and include
    1. Name of test laboratory
        a. The test laboratory must hold National Voluntary Laboratory Accreditation Program (NVLAP) accreditation for the IES LM-79 test procedure or must be qualified, verified, and recognized through the U.S. Department of Energy's CALiPER program. For more information, see http://ts.nist.gov/standards/scopes/eelit.htm or www.ssl.energy.gov/test_labs.html.
    2. Report number
    3. Date
    4. Complete luminaire catalog number
        a. Provide explanation if catalog number in test report(s) does not match catalog number of luminaire submitted
            i. Clarify whether discrepancy does not affect performance, e.g., in the case of differing luminaire housing color.
            ii. If nominal performance of submitted and tested products difference, submit additional LM-79 report(s) and derivation as indicated in Appendix C.
    5. Description of luminaire, LED light source(s), and LED driver(s)

C. Calculations and supporting test data indicating a lumen maintenance life of not less than 100,000 operating hours
D. Computer-generated point-by-point photometric analysis of maintained photopic light levels as per Appendix A
    1. Calculations shall be for maintained values, i.e. Light Loss Factor (LLF) = 0.678, where LLF = LLD x LDD x LATF, and
        a. Lamp Lumen Depreciation (LLD) (choose one of the following)
            i. Shall be 0.87 for all luminaires.
        b. Luminaire Dirt Depreciation (LDD) = 0.82
        c. Luminaire Ambient Temperature Factor (LATF) = 0.95
    2. Use of IES HB-10 mesopic multipliers (choose one of the following)
        a. Shall be disallowed herein, by assuming an S/P ratio of 1.00 for all luminaires.
    3. Calculation/measurement points shall be per IES RP-8.
E. Summary of reliability testing performed for LED driver(s)
F. Written product warranty
G. Buy American documentation
    1. Manufacturers listed on the current NEMA Listing of Companies Offering Outdoor Luminaires Manufactured in U.S.A. for Recovery Act Projects need only provide a copy of the document (http://www.nema.org/gov/economic-stimulus).
    2. Other manufacturers shall submit documentation as per the DOE Guidance on Documenting Compliance with the Recovery Act Buy American Provisions (http://www1.eere.energy.gov/recovery/buy_american_provision.html).

MAINLINE LIGHTING CALCULATIONS:

Calculations for the roadway shall be submitted for each "equal" indicating computerized horizontal illumination levels in foot candles at ground level, taken every 10 feet (maximum). The calculations shall be completed on the roadway background used for the Contract Drawings showing the actual pole locations, and roadway limits. Average maintained illuminance level, average/minimum ratio, and maximum/minimum ratio shall be included and conform to the criteria listed below. Distribution data shall be ANSI/IES classification type as defined in IES Lighting Handbook.

Calculations must meet all applicable illuminance and uniformity standards of IESNA/ANSI RP-8-00 for roadways.

The Contractor shall demonstrate through the calculations specified above that all equal luminaires submitted conform the following criteria with total light loss factor as defined in luminaire submittal requirements (0.67):

Roadway Illumination Requirements:

1. Average Illuminance Level: 9.0 Lux (or 0.9 foot candles) Minimum Maintained.

2. Average to Minimum Ratio: 3.0 to 1 Maximum

Parking Lot Illumination Requirements:

1. Average Illuminance Level: 8.0 Lux (or 0.8 foot candles) Minimum Maintained.
2. Maximum to Minimum Ratio: 15 to 1 Maximum
3. Minimum at any point on the lot 4.0 Lux (or 0.40 foot candles) Minimum Maintained.

MATERIALS

Luminaire must be listed on the Design Lights Consortium Qualified Products List.

The complete luminaire shall conform to and meet all the current requirements of the National Electrical Manufacturers Association; American Standards Association; The Illuminating Engineering Society; and the National Electric Code, wherever such standards shall apply, and in addition the following standard shall apply.

The luminaire shall be UL listed for wet locations, Ingress protection rating of IP66 conforming to ANSI C136.25. The fixture shall consist of an internal LED driver with heatsinks specifically designed for LED applications, a rugged aluminum housing, and a leaf/debris guard.

General Description
Fixture housing is all aluminum construction. Standard fixture utilizes terminal block for power input suitable for #2–#14 AWG wire. Fixture is designed to mount on 1.25" IP (1.675" O.D.) and/or 2" IP (2.375" O.D.) horizontal tenon and is adjustable +/- 5º to allow for fixture leveling (includes leveling bubble to aid in this process).

Electrical
Modular design accommodates varied lighting output from high power, white, 4000K CCT, minimum 70 CRI, long life LED sources. 480V 60 Hz, Class 1 LED driver. LED drivers have power factor >90% and THD <20% at full load. Units shall be provided with integral 10kV surge suppression protection. Quick disconnect harness suitable for mate and break under load provided on power feed to driver for ease of maintenance. Surge protection tested in accordance with IEEE C62.41.2 and ANSI standard 62.41.2.

Finish
Finish features an E-Coat epoxy primer with an ultra-durable silver powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. The finish is covered by a 10 year limited warranty. Fixture and finish is endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117.

Testing & Compliance
UL listed for wet locations. RoHS compliant. Meets CALTrans 611 Vibration Testing and 3G vibration

rating conforming to ANSI C136.31. IESNA rated full cutoff.

Luminaire shall be labeled to ANSI 136.15.

Warrantee
Provide a minimum five-year warranty covering maintained integrity and functionality of Luminaire housing, LED driver(s), wiring, and connections and LED light source(s). Negligible light output from more than 10 percent of the LED packages constitutes luminaire failure.
Warranty period shall begin 90 days after date of invoice, or as negotiated by owner such as in the case of an auditable asset management system.

LED LUMINAIRE 17,000 LUMEN

Luminaire shall be manufactured by American Electric Lighting, catalog number ATB2 80LEDE70 480 (Distribution Type) BF (or equivalent by Cree BetaLED ARE-EDG-Dist-20-D-UH-SV-350-43K, Cooper Ventus VTS-B08-480-T(dist)-AP)

Luminaire shall be labeled to ANSI 136.15.

Average rated Life: >100,000 hours at 20°C, L70
Luminaire Wattage: Minimum 170 to 185-Watt
Initial Lumens: Minimum 16,500-18,000 lumen
Lumens per watt: Minimum 87

LED LUMINAIRE 22,500 LUMEN

Luminaire shall be manufactured by American Electric Lighting, catalog number ATB2 80LEDE10 480 (Distribution Type) BF (or equivalent by Cree BetaLED ARE-EDG-Dist-24-D-UH-SV-350-43K, Cooper Ventus VTS-B08-480-T(dist)-AP)

Average rated Life: >100,000 to 70% of initial output at 20° C
Luminaire Wattage: Minimum 260-Watt to Maximum 285-Watt
Initial Lumens: Minimum 22,500
Lumens per watt: Minimum 78

METHOD OF CONSTRUCTION

The Contractor shall install a post top tenon mounted 2” pipe bracket arm that extends 9” horizontally.

The Contractor shall exercise special care in installing Luminaire to insure that it is securely mounted. The 'street-side' of the luminaire shall be aimed directly toward the street, perpendicular to the curbline.

Any required splicing in the luminaire shall be accomplished with insulated, compression type connectors. Under NO CONDITIONS shall wire nuts or non-compression type connectors be allowed.

Street lighting Luminaires shall be wired with #10 AWG cable as per specification. All cables shall be identified with the appropriate colored marking tape. All leads shall be continuous to the luminaire.

MEASUREMENT AND PAYMENT

Measurement shall be made per each unit complete in place, tested, and accepted by the Engineer.

Payment shall be at the contract unit bid price for each unit, complete in place, which price shall include all labor, tools, equipment, materials, lamp, all wiring and connections, and all incidental costs required to complete the work.

ITEM 634.2082 REMOVE EXISTING LIGHT STANDARD EACH

GENERAL

The work to be done under this item shall consist of removing and discarding the existing highway lighting pole, pole foundation and luminaire, as shown on the Contract Drawings.

The Contractor may encounter luminaires that include ballasts containing Polychlorinated Biphenyls (PCBs) and lamps containing Mercury Vapors. All materials which consist of hazardous substances such as PCBs and Mercury Vapors, etc., shall be disposed of in accordance with state and federal environmental regulations.

MEASUREMENT AND PAYMENT

Measurement shall be made for each lighting pole, pole foundation and luminaire as one unit, removed and discarded.

Payment shall be paid at the contract unit bid price per each, for removal and legal off-site disposal of pole and luminaires and all components contained within, for each highway lighting pole and luminaire indicated to be removed on the Contract Drawings.

ITEM 634.2101 TYPE A LIGHT STANDARD – 40 FEET EACH

ITEM 634.2102 TYPE B LIGHT STANDARD – 30 FEET EACH

GENERAL

All work performed under this item shall be in accordance with the relevant provisions of Section 634 of the Standard Specifications, as detailed on the contract drawings and the following:

GENERAL

Work under this item shall consist of furnishing and the installation of lighting poles at the locations as shown on the plans or as required by the Engineer, complete in place. All materials and construction procedures shall conform to the specifications contained herein, the contract drawings, and to the requirements and standard practices of the Maine Department of Transporation. New light pole foundations will be required as indicated on the Contract Drawings.

Manufacturer's data shall be submitted for the following: Lighting poles, mounting brackets, and anchor bolts.

Shop drawings shall be submitted for the following: Lighting poles, including foundation details, dimensions, wind loading calculations, pole deflection and other applicable information. Wind loading calculations shall be stamped by a Maine Registered Professional Structural Engineer.

Shop drawings for lighting poles shall include a table showing all light poles included in the Contract. The table shall include pole number, bolt circle diameter, pole dimensions, bracket arm dimensions, anchor bolt size, and station number.

All lighting poles shall have an AASHTO frangible anchoring.

MATERIALS

Highway Lighting Poles shall be unpainted galvanized steel.

MaineDOT lighting poles shall be provided and designed for a wind loading and wind gust factor determined in accordance with AASHTO LTS-5, 2009 edition, while supporting the specified luminaires. Lighting poles shall be anchor base type designed for use with underground supply conductors. Pole length shall be as required to obtain the mounting height shown on the Contract Drawings.

Lighting poles shall be a one or two section, single or twin point arm type conforming to AASHTO LTS-5. Each section shall be fabricated from the minimum United States Standard gauge as shown on the Standard Drawings with a minimum yield strength of 55,000 pounds per square inch after fabrication. Each section shall be of one piece construction with a full length longitudinal high frequency resistance weld and circular in cross section with a uniform taper of approximately 0.14” of diameter change per foot of length. Standard shall be hot dipped galvanized per ASTM A123, and finished in accordance with MaineDOT Standard Provisions.

The single bracket arm shall be a separate section which slip fits to the 2.38” dia post top tennon.

Poles shall be provided with shoe bases of the same material as the pole shaft. Shoe base shall be circumferentially welded to the shaft on the inside and outside.

Each pole shaft shall be provided with a vibration damper to offset the effects of wind induced harmonic vibrations. Dampers shall be installed inside pole shaft at 60% of the pole length with stainless steel hardware. Holes through pole shaft shall be provided with grommet.

Standard Nut Covers: Bolt covers for anchor bolts shall be zinc die cast. Each bolt cover shall be fastened to the shaft by a 1/4" Type 304 or 316 stainless steel, self tapping, hex head screw.

A grounding connection for receiving a 1/2" by 13 NC threaded bolt shall be provided on the inside of the shaft approximately 6” from the bottom of the anchor base.

A reinforced handhole 5 inches by 7 inches inside opening shall be circumferentially welded in each pole shaft. Handholes shall be provided with a steel cover and stainless steel attachment screws. A nut holder shall be welded to the handhole and the nut holder shall include a 1/2" 13 NC hex head bolt and nut for grounding. The handhole shall be located where shown on the drawings.

Frangible bases or couplings shall be provided in accordance with MaineDOT and AASHTO LTS-5 standards.

Miscellaneous Hardware: All screws, nuts, bolts, washers and associated small hardware, except high strength bolts, shall be of Type 316 stainless steel.

Street Light Fuse Connector (Fuse Holder and Fuse): The fuse holder and contacts shall be rated in accordance with the maximum load anticipated and shall have a high conductivity. The fuse holders and contacts shall be suitable for safely gripping a cartridge type midget fuse in such a manner that when the connector is opened the fuse will remain on the load side of the connector. The fuse shall be a non-glass type, size as required.

All poles and bracket arm extensions shall be provided by one manufacturer.

Anchor bolts shall be fabricated from a hot rolled carbon steel bar with a minimum guaranteed yield strength of 55,000 pounds per square inch. Bolts shall have an "L" bend on one end. Four bolts, sized as required for the specified wind loading, each furnished with two hex nuts and two flat washers, shall be provided for each light pole. Included with each anchor bolt shall be two leveling shims and associated nuts and washers. The entire anchor bolt shall be galvanized.

Galvanizing shall be performed in accordance with the following specifications:

ASTM A123 - Standard Specification of Zinc (Hot Dipped Galvanized) Coating on Iron and Steel Products

ASTM A143 - Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement

ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

ASTM A376 - Standard Practice for Measuring Coating Thickness by Magnetic-Field or Eddy-current (Electromagnetic) Test Methods

ASTM A384 - Standard Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies

ASTM A780 - Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings

All drilled and tapped holes and nuts welded to tubular assemblies will be tapped with the proper sized tap after galvanizing.

INSTALLATION

The Drawings show in general, the location of the roadway lighting systems. They are diagrammatic only, but shall be followed as closely as actual conditions as the site will permit.

All lighting standards shall be set plumb, with vertical plane of arms perpendicular to the roadway centerline. The factory furnished protective wrapping shall not be removed until the Engineer so directs.

Poles shall be erected and secured to concrete structures and at grade foundations in a manner as described herein.

The following procedure is applicable to light poles on new foundations:

Prior to placing the anchor bolts into the foundation form, a galvanized nut and a galvanized frangible coupling shall be placed on the bolts. The frangible coupling shall be installed as per the manufacture’s recommendations. The bolt shall be rigidly placed into the foundation form using a bolt circle. A galvanized flat washer shall be placed over the stud. The pole shall be erected with the shoe base placed over the flat washers. Galvanized lock washers shall be placed over the shoe base. Top nuts shall be placed over the lock washers and hand tightened. Lateral support shall be provided as required. Provide shims to level pole and tighten nuts until pole is plumb. Top nuts shall be tightened to manufacturer's recommended torque. Anchor bolt covers or base covers and skirt shall be installed on the shoe base with stainless steel screws.

The bracket arm shall be secured to the light standard shaft in accordance with manufacturer's recommendations.

The pole shall be installed so that the bracket arm is perpendicular to the baseline of the roadway. Pole

and bracket cable shall be installed through the pole and arm with adequate slack to connect to the luminaire terminals. Adequate slack pole and bracket cable shall be left at the base of the pole to permit connections to the roadway lighting circuits. Install fuse and fuse holder at base to make ready the pole for erection and connection to the roadway lighting circuits.

After erection, all unpainted parts, accessories, or hardware shall be field painted the same color as the poles. Galvanized and stainless steel parts shall be properly prepared and primed before final painting.

Identifying numbers shall be as indicated on the drawings. Apply pole identification by using adhesive labels with silver white reflective characters on a reflective green background. Furnish identification sheeting conforming to ASTM D 4956, Type I, including supplemental requirement S1. The identification shall be four-inches (4") high, with three-inch (3") dye cut letters. The number shall be assembled as a vertical label and applied to the streetlight poles on the quadrant of the surface on the pole that faces oncoming traffic. The top of the label shall be installed eight (8) feet above the ground line. The installation of the label and application of the sealant shall be conducted when the ambient temperature is above 40 degrees Fahrenheit.

MEASUREMENT AND PAYMENT

Measurement shall be made per each unit complete in place, tested, and accepted by the Engineer.

Payment shall be at the contract unit bid price for each unit, complete in place, which price shall include all labor, tools, equipment, light poles, anchor bolts, frangible anchoring system, bracket arm, materials, including pole wiring, fuses street light fuse connector, vibration dampers, mounting hardware, bolt covers, skirt, frangible couplings, connections, on new foundations and all incidental costs required to complete the work.

ITEM 634.25 SERVICE POLE WITH CABINET AND CONTROLLER EACH

GENERAL

The work to be done under this item shall consist of removing and disposing of an existing lighting control cabinet and the installation of a new cabinet including providing electric service from Central Maine Power (CMP).

Cabinet and Controller shall be installed in accordance with standard detail 634(01) and circuited in accordance with standard detail 634(03).

All work performed under these items shall be in accordance with the relevant provisions of the Standard Specifications, including specification paragraphs 634.08, 634.09 with materials as specified in section 715.10 and 715.11.

Service to the cabinet shall be 240/480 single phase, 3 wire.

Contractor shall install two ground rods as indicated on standard detail 634.01, separated a minimum of 6 feet.

Cabinet shall include a bypass meter with a meter trim disconnect, single photocell, aluminum enclosure, expansion couplings to separate between the bottom of the cabinet and ground.

Door hardware shall consist of three point latching mechanism with nylon rollers at the top and bottom, 3/4-inch stainless steel round bar door handle with provisions for a padlock, latching door restraint bar, and continuous close-celled neoprene gasket. Additional hardware shall include a brass padlock, directory frame and six keys that shall be keyed to match the existing Lighting Cabinets. One set of these keys shall be sent to the CMP representative.

Each cabinet shall be labeled as follows:

LIGHTING CONTROL
MAINE
DEPARTMENT OF TRANSPORTATION

CAUTION
HAZARDOUS
VOLTAGE

The label shall be factory stamped into the door or permanent label adhered to the door. Text height shall be 1-inch tall.

MEASUREMENT AND PAYMENT

SERVICE POLE WITH CABINET AND CONTROLLER will be paid for at the respective Contract unit price per each, complete, operational, tested, and accepted in place, which prices shall include full compensation for all electrical components, mounting brackets, ground rods, ground wire and ground wire connections, enclosure, wiring, conduit, circuit breakers, load center, meter socket, control wiring, receptacle, device boxes, wire troughs, contactors, pull wire, photo cell and control, locks, delivery of keys to MaineDOT and CMP, time clocks, and all labor, materials, equipment, and incidental costs required to complete the work, including all service coordination with the CMP.

June 29, 2007

SPECIAL PROVISION
Section 634 and 643
Highway Lighting and Traffic Signals

Section 634.09 testing of highway lighting, the first sentence shall be amended as follows:

Before acceptance of the work, the contractor shall cause the following tests to be made on all lighting circuits, by a licensed electrician.

The tests do not need to be performed in the presence of the Resident, but the test results shall be recorded on the Highway Lighting Quality Control Check List and submitted to the Resident by the Contractor for acceptance. The form shall be signed by the licensed electrician certifying that the highway lighting meets the requirements of section 634.09.

Subsection 634.14, field testing of Traffic Signals, the first sentence shall be amended as follows:

Before acceptance of the work the contractor shall cause the following tests to be made on all traffic signal equipment and circuits, by a licensed electrician.

The tests do not need to be performed in the presence of the Resident, but the test results shall be recorded on the Traffic Signal Quality Control Check List and submitted to the Resident by the Contractor for acceptance. The form shall be signed by the licensed electrician certifying that the signal equipment and circuits meet the requirements of section 634.14.

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 636
DESIGN OF SOIL NAIL WALL

636.01 DESCRIPTION

This work shall consist of designing, engineering, detailing, furnishing materials, and constructing a permanent soil nail retaining wall at the location shown on the Drawings. The Contractor shall furnish all labor, plans, drawings, design calculations, and all other material and equipment required to design and construct the soil nail wall in accordance with MaineDOT Standard Specifications and these Special Provisions.

The work shall include excavating in staged lifts in accordance with the approved Contractor's plan; detailing the drilling of the soil nail drillholes to the diameter and length required to develop the required capacity; grouting the nails; providing and installing drainage features; providing and installing bearing plates, washers, nuts, and other required miscellaneous material; constructing the required temporary shotcrete face; and constructing the final cast-in-place concrete facing and concrete coping. All of the above work shall be complete and in place and accepted in accordance with the Contract Documents except that the Method of Measurement and the Basis of Payment will be in accordance with these Special Provisions.

636.02 GENERAL REQUIREMENTS

Design the soil nail walls using the Allowable Stress Design (ASD) method, also known as Service Load Method (SLD), as outlined in FHWA Geotechnical Engineering Circular No. 7 "Soil Nail Walls" and if applicable, the AASHTO LRFD Bridge Design Specifications, 5th Edition, 2010 with the latest interim specification including the Guide Specifications for Seismic Design of Highway Bridges.

Soil/rock design shear strength parameters, slope and external surcharge loads, seismic design coefficient, type of wall facing, architectural treatment, corrosion protection requirements, easements, and right-of-ways will be as specified herein and shown on the Drawings.

Detailed Shop Drawings and design calculations, stamped and signed by a Professional Engineer licensed in the State of Maine, shall be submitted to the Department for review and approval.

It is not the intent of these Special Provisions to provide detailed step-by-step instructions for the design and execution of the work or to identify each material or component to be supplied or each item of work or coordination to be performed. However, the Plans, the Special Provisions, and the MaineDOT Standard Specifications do delineate the general design intent with regard to lines and grades, appearance, materials, type of construction, physical requirements, relationships of elements, and the type and quality of construction required. Where specific details, sequences, relationships, requirements and materials are shown or specified, they shall be strictly adhered to and provided. Where such information is not provided, is only partially provided, or is addressed only in a general nature, it shall be the Contractor's responsibility to provide or fully develop such information and submit the same for the Engineer's approval. This shall include comprehensive, coordinated, detailed design and Shop Drawings, drawings of existing and adjacent conditions, design calculations,

product data, test results, installation instructions and sequencing, and all other information required for a complete evaluation by the Engineer of proposed materials, details, systems, quality and thoroughness of work.

It shall be solely the Contractor's responsibility to provide all required design, engineering, detailing, and materials and to perform the work by such means and methods as will render a construction that is complete in all respects, all to the satisfaction of the Department and all authorities having jurisdiction.

It shall be the responsibility of the Contractor and their soil nail wall system designer to review both the soil data in the Geotechnical Design Report (GDR) and the proposed application of soil nail wall system to account for appropriate drainage needs and incorporate into the design. A positive drainage system shall be included in the design and construction, comprising geocomposite drain strips, PVC connection pipes, and wall underdrain.

A qualified representative of the wall designer shall be onsite for a minimum of four (4) hours each day while wall construction is performed to monitor and approve construction methods until such time that the first level of soil nails and shotcrete are placed. Thereafter, said representative(s) shall be onsite at least two days each week (for a minimum of four (4) hours per day) until the work is complete, to ensure that the Contractor's procedures satisfy the intent of the design. No separate or additional payment will be made for complying with these requirements.

636.03 AVAILABLE INFORMATION

Available information developed by the Department or the Department's duly authorized Representative includes the following items:

1.) Drawings prepared by Fay, Spofford & Thorndike, Inc.

2.) Geotechnical Design Report prepared by Haley & Aldrich, Inc. entitled, "Geotechnical Design Report, Interstate 295/U.S. Route 1 Interchange Improvements, MaineDOT PIN 11086.00, Yarmouth, Maine."

636.04 CONTRACTORS'S DESIGN EXPERIENCE REQUIREMENTS

The Contractor shall submit a detailed resume of the soil nail wall designer, listing similar projects and demonstrating the necessary experience to perform the soil nail wall design, including a brief description of each project that is similar in scope. A reference shall be included for each project listed. As a minim, the reference shall include the owner's name, address and current phone number. The wall designer shall have experience in the design of at least three successfully completed permanent soil nail retaining wall projects over the past three years. The soil nail wall designer shall be a licensed Professional Engineer in the State of Maine and shall have worked on the above projects. The soil nail wall design submittal shall be stamped by this individual.

636.05 SOIL NAIL WALL DESIGN SUBMITTALS

The Contractor shall submit complete and accurate shop drawings to the Department for approval. It shall be understood that all submittals shall be acceptable to the Department and shall be resubmitted as many times as necessary for such acceptance, without giving rise to any claims for additional compensation or extension to the time of completion.

The shop drawings shall show the configuration and all details, dimensions, quantities and cross-sections necessary to construct the wall, including but not limited to, the following:

1. A plan view of the wall(s) identifying:

    a. A reference elevation datum.
    b. Beginning and end of wall stations.
    c. Right-of-way and permanent or temporary construction easement limits, location of all known active and abandoned existing utilities, adjacent structures or other potential interferences. The centerline of any drainage structure or drainage pipe behind, passing through, passing under or passing near the wall.
    d. Limit of longest nails.
    e. Subsurface exploration locations shown on a plan view of the proposed wall alignment with appropriate reference base lines to fix the locations of the explorations relative to the wall.

2. An elevation view of the wall identifying:

    a. The elevation at the top of the wall, at all horizontal and vertical break points, and at least every 30 ft along the wall.
    b. Elevations at the wall base.
    c. Beginning and end of wall stations.
    d. The distance along the face of the wall to all steps in the wall base.
    e. Wall elevation view showing nail locations and elevations; vertical and horizontal nail spacing; and the location of wall drainage elements.
    f. Existing and finish grade profiles both behind and in front of the wall.

3. Design parameters and applicable codes.

4. General notes for constructing the wall including construction sequencing and other special construction requirements.

5. A listing of the summary of quantities on the elevation drawing of each wall showing estimated square feet of wall face areas.

6. Nail wall typical sections including staged excavation lift elevations, wall and excavation face batter, nail spacing and inclination, nail bar sizes, and corrosion protection details.

7. A typical detail of production and test nails defining the nail length, minimum drillhole diameter, inclination, and test nail bonded and unbonded test lengths.

8. Details, dimensions, and schedules or all nails, reinforcing steel, wire mesh, bearing plates, headed studs, etc. and/or attachment devices for shotcrete and cast-in-place facings.

9. Dimensions and schedules of all reinforcing steel including reinforcing bar bending details.

10. Details and dimensions for wall appurtenances such as barriers, coping, drainage gutters, fences, etc.

11. Details for constructing walls around drainage facilities.

12. Details of sleeves and pipes and other embedded items to be installed through the wall, if any.

13. Details for terminating walls and adjacent slope construction.

14. Facing finishes for permanent wall facings.

15. Location of utilities, if any.

16. Method of maintaining stability of excavations.

17. Methods of monitoring wall face profile and deviation of wall profile from design.

18. Excavation support system, if any.

19. Any acceptance testing and frequency.

20. Details and location of all necessary construction and expansion joints along the wall.

The Contractor shall also submit design computations, demonstrating compliance with the criteria specified herein and shown on the Drawings. They shall be prepared, signed, and stamped by a registered professional engineer licensed in the State of Maine and specializing in geotechnical engineering.

Design calculations shall include, but not be limited to the followings items:

1. A written summary report which describes overall soil nail wall design.

2. Applicable code requirements and design references.

3. Nail wall critical design cross section(s) geometry including soil strata and location, magnitude and direction of design slope or external surcharge loads, and phreatic surface level(s).

4. Design criteria including soil shear strengths (friction angle and cohesion), unit weights, ground-grout pullout resistances, nail drillhole diameter assumptions for each soil strata.

5. Partial safety factors/strength factors used in the design on the pullout resistance, surcharges, soil unit weights, nail head strengths, and steel, shotcrete, and concrete materials. Minimum required global stability soil factor of safety.

6. Seismic design acceleration coefficient.

7. Recommendations for drainage behind the wall including the type and spacing of prefabricated drainage elements and other information.

8. Calculations of estimated horizontal and vertical wall deflections.

9. Design calculation sheets with the project number, wall location, designation, date of preparation, initials of designer and checker, and page number at the top of each page. Provide an index page with the design calculations.

10. Design notes including an explanation of any symbols and computer programs used in the design.

11. Nail wall final design cross-section(s) geometry including soil strata and location, magnitude and direction of slope or external surcharge loads, and phreatic surface level(s), with critical slip surface shown along with minimum calculated global stability soil factor of safety and required nail lengths and strengths (nail bar sizes and grades) for each nail row.

12. Structural design calculations for wall facing and nail head/facing connections including consideration of facing flexural and punching shear strength, headed studs tensile strength, upper cantilever, minimum reinforcement ratio, cover and splice requirements.

13. Information pertaining to the Cast-in-place wall and Type F Barrier including reinforcing details, connections and other information.

14. Analysis demonstrating the durability and corrosion resistance of retaining wall systems for the proposed location and environment.

15. Other design calculations.

16. Construction considerations such as construction working berms, maintaining the stability of the cut face prior to shotcreting, and other relevant considerations.

The Contractor shall also submit the manufacturer's product data for the soil nail wall system, including material, manufacture and erection specifications, all specialized erection equipment necessary, special details required of reinforcing layout, and design properties.

The Contractor's soil nail wall design submittal(s) shall be sufficiently detailed and complete such that an independent soil nail wall Contractor would have all the necessary information to construct the soil nail wall in accordance with the soil nail wall design.

636.06 SPECIAL DESIGN CONDITIONS SPECIFIC TO THIS PROJECT

Specific comments relative to design of Soil Nail Walls for this project are provided below. Reference should be made to the available information (Special Provision 636 - Soil Nail Wall for additional information.

Man-Placed Fill, Stand-Up time, and the Potential for Nail Hole Caving. The Geotechnical Design Report for the project indicated that test pits TP-1 and TP-2 were excavated on the north and south sides of the existing Route 1 Overpass Bridge and were allowed to stay open for an extended duration (approximately 10 days between 20 and 30 June 2011) to observe the behavior of the vertical excavation slopes.

The test pits were excavated in front of and adjacent to the existing bridge abutment within the portion of the slope that will be removed as part of the soil nail wall construction. This was done so that the test pits would not disturb soils behind the front face of the soil nail wall. Test pits were excavated to depths ranging from approximately 5 to 6 ft BGS.

As indicated on the photographs provided in the Drawings and the Geotechnical Design Report, there was virtually no movement of the near-vertical test pit slopes during the period that they were left open. However, this could have been impacted by the lack of precipitation during the time period that the test pits were allowed to remain open. It should be noted that precipitation can have a detrimental effect on the stability of the vertical cut face.

The Contractor should be aware that loose man-placed fill soil could be present in localized areas and could have a relatively low strength. As a result, special design provisions such as closer nail spacing, longer nails, or other appropriate measures may be necessary. In addition, due to the cohesionless nature of the man-placed fill, it is possible that drill holes will cave. The Contractor shall utilize cased drill holes, for nail installation.

Verification Testing. A minimum of two proof tests will be required during construction (at a time and location subject to the approval of the Resident) on sacrificial nails within the lower portion of the wall to confirm that the soil nail wall design is appropriate.

In the event that changes to the soil nail wall design are required as a result of failed proof tests, or other problems related to unsatisfactory performance of the soil nail wall, the required design changes shall be made at no additional cost to the Department.

Existing Conditions. The Contractor shall take all measures necessary to protect the existing U.S. Route 1 Overpass Bridge from damage throughout the entire construction operation. The

Contractor shall coordinate the spacing of soil nails to avoid interference with the bridge abutment piles. Any and all damage to the existing U.S. Route 1 Overpass Bridge caused by the Contractor's operations shall be repaired at no additional cost to the Department.

636.07 MEASUREMENT AND PAYMENT

The unit of measurement for the design of the permanent soil nail wall design shall be lump sum. The lump sum payment shall be full compensation for all labor, equipment, materials, and incidentals necessary to provide an acceptable permanent soil nail wall design in accordance with all requirements of the Contract. There will be no additional compensation for design modifications as a result of failed verification or proof tests, or otherwise unsatisfactory performance of the soil nail wall.

Payment will be made under:

Pay Item		Pay Unit
636.400	Soil Nail Wall Design	Lump Sum

SPECIAL PROVISION
SECTION 636
SOIL NAIL WALL

636.01 Definitions

"Layout Drawings". For purposes of this Special Provision, the term "Layout Drawings" shall refer to the plans, profile and typical cross-sections shown on the Drawings. "Layout Drawings" are one form of "Plans" as defined in Section 101.2.

"Soil Nail Wall Design". For purposes of this Special Provision, the term "Soil Nail Wall Design" shall refer to design information (including drawings, working drawings, shop drawings, sketches, calculations, tables, catalog cuts, or other relevant information) provided to fulfill the requirements of Special Provision 636 Design of Soil Nail Wall, and approved by the Resident.

636.02 Description

The Work shall consist of constructing a permanent soil nail retaining wall as specified herein and as shown on the Drawings. The Contractor shall furnish all labor materials and equipment required for completing the Work. The Contractor shall select the method of excavation, drilling method and equipment, final drillhole diameter, and grouting procedures to meet the performance requirements specified herein.

The Work shall include excavating in accordance with the staged lifts specified in the soil nail wall design; drilling soil nail holes to minimum length and orientation specified in the soil nail wall design; providing, placing and grouting the encapsulated steel (epoxy coated) bars (nails) in the drillholes; placing drainage elements; placing shotcrete reinforcement; applying shotcrete facing over the reinforcement; attaching bearing plates and nuts; performing nail testing. Shotcrete facing construction and placing drainage elements are covered under this Special Provision. Cast-in-place concrete facing construction is covered by the Standard Specifications.

The term "Soil Nail" as used in these Specifications is intended as a generic term and refers to a reinforcing bar grouted into a drilled hole installed in any type of ground.

A pre-construction meeting shall be held prior to the start of the Work and shall be attended by the Resident or the Department's duly authorized representative, the Soil Nail Wall designer, the Contractor, and the Soil Nail Wall specialty Subcontractor. The pre-construction meeting shall be conducted to clarify the construction requirements for the Work, to coordinate the construction activities, and to identify contractual relationships and responsibilities.

Existing foundations, utilities and other underground structures referenced on the Layout Drawings are for informational purposes only. The Contractor is responsible for field locating and verifying the location of all existing foundations (including steel H-piles supporting the existing Route 1 Overpass Bridge), utilities and other underground structures prior to starting the Work. The Contractor shall maintain uninterrupted service for those structures and utilities designated to remain in service throughout the Work.

636.03 Quality Assurance

The Contractor shall submit a reference list indicating the successful completion of at least five (5) permanent soil nail or ground anchor retaining wall projects completed during the last three years. A brief description of each project with the owner's name and current phone number shall be included.

The Contractor's superintendent shall have a minimum of three (3) years experience supervising soil nailing and/or ground anchor work, and the drill operators and on-site supervisors shall have a minimum of one (1) year experience installing permanent soil nails or ground anchors. Prior to starting the Work, the Contractor shall submit a list identifying the superintendent, drill rig operators, and on-site supervisors assigned to the project. The list shall contain a summary of each individual's experience and shall be sufficiently complete for the Resident to evaluate the individual's qualifications. The Contractor shall not use consultants or manufacturer's representatives to satisfy the requirements of this section. The Resident will approve or reject the Contractor's qualifications within 15 days after receipt of a complete submission. Work shall not be started nor materials ordered until written approval of the Contractor's qualifications is given.

The Resident may suspend the Work if the Contractor substitutes non-approved personnel for approved personnel. The Contractor shall be fully liable for additional costs resulting from the suspension of Work and no adjustments in the contract time resulting from the Work suspension shall be allowed.

636.04 Construction Site Survey

The Contractor shall visit the site prior to any construction activities for the purpose of observing and documenting the pre-construction condition of all structures, infrastructure, sidewalks, roadways, and all other facilities adjacent to the site. The Contractor shall observe the conditions above the Soil Nail Wall on a daily basis for signs of ground or structure movements. The Contractor shall immediately notify the Resident if signs of movements such as new cracks in structures, increased size of old cracks or separation of joints in structures, foundations, streets or paved and unpaved surfaces are observed. The Contractor shall provide the Resident with written documentation of the observed conditions within 24 hours.

636.05 Submittals

The Contractor shall provide the following submittals to the Resident for review and approval. The Contractor will not be allowed to begin soil nail wall construction until all submittal requirements are satisfied and found to be acceptable to the Resident. Changes or deviations from the approved submittals must be re-submitted for approval. No adjustments in contract time will be allowed due to incomplete submittals.

At least 30 days prior to initiating the Work, the Contractor shall submit to the Resident:

1. Details of the equipment and procedures the Contractor proposes to use for grouting permanent soil nails, including regrouting, methods of controlling ground water, and proposed drillhole diameter to achieve the bond strength value specified in the drawings and any variation of these along the alignment.

2. Written documentation of Contractor's qualifications as required under this Section.

3. Applicable literature from the manufacturer describing equipment proposed to pump soil nail grout into drill holes.

4. Applicable literature from the soil nail assembly manufacturer showing the details of construction, recommended installation procedures, yield and ultimate strength of steel and the minimum cross sectional area.

5. Literature and details describing the specified factory applied "corrosion protection" for the permanent soil nail assemblies.

6. Proposed detailed installation procedures for permanent soil nails indicating proposed equipment and methods to be used for drilling, controlling water pressures, installing, grouting, and testing soil nails.

7. Details of each drillhole size, bar size, cement grout mix design combination on which performance tests will be conducted.

8. Applicable manufacturer's literature on the epoxy coating for the nail bar and anchor head assembly.

9. A detailed construction sequence, planned start of work date, and schedule for completing construction.

10. Methods of excavating the staged lifts and proposed type of excavation equipment.

11. Details of the Contractor's proposed nail grout mix design to be used for grouting of permanent soil nails, which shall include:

a. Brand and type of Portland cement.
b. Source, gradation, and quality of all aggregates.
c. Proportions of mix by weight and water-cement ratio.
d. Manufacturer and brand name of all admixtures (where allowed).
e. Compressive strength test results (per ASTM C109) verifying the specified minimum 3 and 28 day grout compressive strengths.
f. Previous test results for the same grout mix completed within one year of the start of work may be submitted for verification of the required compressive strengths.

Alternatively, for bagged products, include:

a. Written certification that the bagged product meets the requirements specified herein.
b. Manufacturer's quality control tests.

12. Soil nail testing methods and equipment including:

a. Details of the jacking frame and appurtenant bracing.

b. Details showing methods of isolating test nails during shotcrete application (i.e., methods to prevent bonding of the soil nail bar and the shotcrete).
c. Details showing methods of grouting the unbonded length of test nails after completion of testing.
d. Equipment list.

13. Identification number and certified calibration records for each load cell and test jack pressure gauge to be used. Calibration records shall include the date tested, device identification number, and the calibration test results and shall be certified for an accuracy of at least 2 percent of the applied certification loads by a qualified independent testing laboratory within 90 days prior to submittal.

14. Certified mill test results for nail bars from each type specifying the ultimate strength, yield strength, elongation, composition, and the minimum cross sectional area.

15. Manufacturer certifications for the soil nail centralizers, epoxy coating or encapsulation.

16. A detailed construction drainage control plan addressing all elements necessary to divert, control and dispose of surface water.

17. A detailed action plan for controlling groundwater seepage from the excavation face, mitigating raveling soils, and preventing damage to the soil nail wall.

18. A detailed description of the Contractor's proposed sequence of operations and any other precautions that will be taken to ensure that the various required minimum anchor lengths and sizes are installed at the locations indicated on the drawings.

19. Proposed method of shotcrete placement.

20. Certified shotcrete mix design including:

a. Brand and type of Portland cement used.
b. Source, gradation and quality of aggregates as specified herein.
c. Proportions of mix by weight.
d. Proposed admixture, manufacturer, dosage, technical literature (when admixture allowed).
e. Compressive strength test results from the manufactures records no older than 6 months verifying the 28-day compressive strength.

21. Certified mill tests for all reinforcing steel specifying the minimum ultimate strength, yield strength, elongation and composition.

22. Complete data for the drainage geotextile and geocomposite drain strip including manufacturer's certificate of compliance, and installation instructions.

23. Certifications of Compliance for bearing plates, nuts, curing compounds (if used), drainage aggregate and PVC drain piping

24. Methods of controlling location of front face and determining shotcrete thickness.

25. Proposed detailed installation procedures for steel reinforcement, including method to be used to support steel reinforcement.

26. Proposed methods to be used for temporary dewatering which shall include arrangements, locations and depths of the proposed systems, a complete description of equipment and materials to be used and the procedures to be followed in the installation, operation and maintenance in relation to the proposed sequence of excavation and the proposed locations of points of discharge of water and their relationships to sedimentation control and groundwater treatment systems.

27. Manufacturer's information for the equipment to be used to conduct verification and proof tests on the soil nails. Submit diagram(s) showing the geometry of verification and proof test equipment relative to permanent steel reinforcement bar, end hardware, load cell, method of locking off and adjusting specified load and calibration data for the system of jack and permanent gauges, including a diagram of the Contractor's proposed test equipment setup(s) for monitoring elongation of the bars during verification and proof tests on permanent soil nails.

28. Details on temporary shotcrete facing including materials, methods and control procedures for this work.

29. Details of methods to be used to install temporary casing to prevent any reaction between the casing and the grouted bond length of the nail and/or stressing length during nail testing.

30. Formwork design calculations and details for casting the cast-in-place facing, prepared by a Licensed Professional Engineer in the State of Maine

636.06 Materials

Materials for construction of the soil nail wall(s) shall be furnished new and without defects. The Contractor at no additional cost shall remove defective material from the job site to the Department. Materials for soil nail structures shall consist of the following:

1. Soil Nail Bar

A. All permanent steel nail bars shall be straight shaft, deformed continuous thread bar, new, straight, undamaged, with full length fusion-bonded epoxy coating and of the size and type indicated in the approved Contractor design.
B. Permanent steel nail bars shall be ASTM A615 steel, deformed continuous thread bar.
C. Permanent steel nail bars shall consist of a single length continuous threaded steel bar, without splices or welds, as indicated on the plans.

2. Anchorage Assembly

A. Anchorages shall be capable of developing a minimum of 100 percent of the guaranteed minimum ultimate tensile strength of the steel thread bar.

B. The bearing plate shall be fabricated from Grade A36 steel and shall be capable of developing a minimum of 100 percent of guaranteed minimum ultimate tensile strength of the nail bar.
C. All bearing plates, nuts, washers, etc. shall be galvanized.
D. Centralizers are required and shall be fabricated from Schedule 40 PVC, or other material not detrimental to the nail steel (wood shall not be used) and shall be capable of being securely attached to the nail bar. The centralizers shall be sized to meet the tolerance requirements for nail locations, grout cover, and for tremie pipe installation as specified herein.

3. Cement Grout

A. Site mixed grout and pre-packaged (or bagged) grout satisfying the requirements herein are acceptable.
B. Nail grout shall be a non-shrink neat cement or sand/cement with a maximum water to cement ratio of 0.45 by weight, a minimum three day compressive strength of 1500 psi and a minimum 28 day compressive strength of 3000 psi per ASTM C109.
C. Redesign of the cement grout mix shall be conducted by the Contractor, if grout does not achieve the minimum compressive strength cited in Section A above within 28 days.
D. Water for mixing grout shall be potable.
E. Grout strength accelerators shall not be used. Expansive admixtures shall only be used for secondary grouting, and fitting trumpets. Mixes using Type K cement or bagged products meeting the requirements of this specification may be used. Admixtures which control bleed and retard set may be used. Admixtures shall be mixed and placed in accordance with manufacturer's recommendations.
F. Appropriate measures shall be taken to preclude freezing of the grout prior to its reaching design strength.
G. Contractor shall take all appropriate measures in cold weather conditions to preclude freezing during grout mixing or tremie delivery.
H. Cement shall conform to ASTM C150, Type I, II, or III Portland cement.

4. Corrosion Protection

A. All bearing plates, nuts, washers, couplings and hardware, etc. shall be galvanized, per AASHTO M111 (plates) and M232 (hardware).
B. Nail bars shall be fusion bonded epoxy coated. Fusion bonded epoxy coating shall conform to ASTM A775. Epoxy coating shall be electro-statically applied to a minimum 15 mils thickness. The entire length of the bar shall have fusion bonded epoxy coating. Bend test requirements shall be waived.

5. Wall Drainage Network

A. The drainage network shall consist of geocomposite drain strips, PVC connection pipes, and drain grates within the limits of the wall as shown on the plans. All elements of the drainage network shall be installed prior to shotcreting each lift.
B. Geocomposite drain strip shall have a core that is fully wrapped with a non-woven geotextile and shall have a cellular plastic backing. The geocomposite drain strip shall conform to the following physical requirements:

TABLE A

Composite Property	Test Method	Minimum Property Requirement*
Water Flow Rate (gpm/ft. width):	ASTM D-4716	
-Hydraulic Gradient of 1.0		15
-Hydraulic Gradient of 0.1		3
Apparent Opening Size (U.S. Standard Sieve Size)	ASTM D4751-87	No. 100 Sieve
Grab Tensile Strength (lb)	ASTM D-4632	100

*All geotextile properties are minimum average roll values (i.e., the test results for any sampled roll in a lot shall meet or exceed the minimum values in the table).

C. PVC connection pipe and weep holes shall conform to the following:
Pipe: ASTM 1785 Schedule 80 PVC, solid and perforated wall, cell classification 12454-B or 12354-C, wall thickness SDR 35, with solvent weld.
Fittings: ASTM D3034, cell classification 12454-B or 12454-C, wall thickness SDR35, with solvent weld.
Solvent Cement: ASTM D2564
Primer: ASTM F656

6. Permanent Structural Shotcrete

A. Shotcrete shall comply with the requirement of ACI 506.2-94 "Specification for Shotcrete," except as otherwise specified. Shotcrete shall consist of an application of one or more layers of mortar or concrete conveyed through a hose and pneumatically projected at high velocity against a prepared surface.

B. Shotcrete may be produced by either a dry-mix or a wet-mix process. For additional descriptive information, the Contractor's attention is directed to the American Concrete Institute Standard "A Guide to Shotcrete (ACI 506R)."

C. Cement shall comply with ASTM C150, Type I, II or III.

D. Fine aggregate shall comply with ASTM C33. Fine aggregate shall be clean, natural sand. Artificial or manufactured sand is acceptable provided it is suitable for pumping in accordance with ACI 304, 4.2.2.

E. Accelerating additives shall be fluid type, applied at the nozzle and shall be compatible with the cement used, be non-corrosive to steel and shall not promote other detrimental effects such as cracking and excessive shrinkage and shall not contain calcium chloride. They are to be used in accordance with manufacturers' recommendations. Silica fume, if used, shall not exceed 10 percent of the cement weight and shall be an admixture with a minimum of 90 percent SiO2 with a proven record of performance for use in shotcrete.

F. Water used in the shotcrete mix shall be potable, clean and free from substances which may be injurious to concrete and steel. The water shall also be free of elements which would cause staining.

G. Admixtures used to entrain air, to reduce water-cement ratio, to retard or accelerate setting time, or to accelerate the development of strength, shall be thoroughly mixed into the shotcrete at the rate specified by the manufacturer unless specified otherwise. Accelerating additives shall be compatible with the cement used, be non-corrosive to steel and shall not promote other detrimental effects such as cracking or excessive shrinkage. The maximum allowable

chloride ion content of all ingredients shall not exceed 0.10% when tested in accordance with ASTM C1218.

H. Shotcrete shall have a minimum compressive strength at 3 and 28 days of 2000 and 4000 psi, respectively, when tested in accordance with ASTM C109. The average compressive strength of each set of three cores extracted shall be equal to, or exceed 85 percent of the specified compressive strength with no individual core less than 75 percent of the specified compressive strength in accordance with ACI 506.2.

I. The Contractor shall establish the air content loss during the shotcrete application and deliver concrete at the hopper discharge with an air content to allow for this loss and maintain the specified minimum in the in-place product

J. Aggregate and cement may be batched by weight or by volume. Provide mixing equipment capable of thoroughly mixing the materials in sufficient quantity to maintain placing continuity. Provide ready mix shotcrete complying with ASTM C94 and C685. Shotcrete shall be batched, delivered and placed within 90 minutes of mixing.

K. Aggregate for shotcrete shall meet the strength and durability requirement of ASTM C33.

L. Coarse aggregate shall conform to AASHTO M-80, Class B for quality.

M. Water reducer and super-plasticizer shall comply with ASTM C494 Type A,D,F,G.

N. Air - entraining agents shall comply with ASTM C260.

O. Plasticizers shall conform to G ASTM C494.

P. Mineral admixtures shall conform to the following:

1. Fly Ash: ASTM C618 Type F or C.
2. Silica Fume: ASTM C1240, 90 percent minimum silicon dioxide solids content, not to exceed 10 percent by weight of cement.

Q. Curing compounds shall comply with ASTM C1315.

R. Steel Reinforcement shall conform to ASTM A615, GR 60.

S. Prepackaged concrete shall comply with ASTM C928.

7. Permanent Cast-In-Place (CIP) Concrete Facing

A. The permanent CIP concrete facing shall be cast and finished to the limits shown on the Drawings in accordance with the Standard Specifications.

636.07 Materials Handling and Storage

Cement shall be adequately stored to prevent moisture degradation and particle hydration. Cement that has become caked or lumpy shall not be used. Aggregates shall be stored so that segregation and the inclusion of foreign materials are prevented. The bottom 6 inches of aggregate piles in contact with the ground shall not be used.

All steel reinforcement shall be carefully handled and shall be stored on supports to keep the steel from contact with the ground. Damage to the nail steel or epoxy coating, as a result of abrasion, cuts, nicks, welds, and wells splatter shall be cause for rejection by the Resident. Grounding of weld leads to the nail steel shall not be allowed. Nail steel shall be protected from and sufficiently free of dirt, rust and other deleterious substances prior to installation. Heavy corrosion or pitting of nails shall be cause or rejection by the Resident. Light rust that has not resulted in pitting is acceptable.

Encapsulated nails shall not be transported until the encapsulation grout has reached sufficient strength to resist damage during handling. Encapsulated nails shall not be handled in a manner that will cause large deflections or distortions during handling. When handling or transporting encapsulated nails, the Contractor shall provide slings or other equipment necessary to prevent damage to the nail tendon. Encapsulated nails shall not be dropped during handling and shall be protected from impact of any kind. Ant encapsulated nails that are damaged or defective shall be repaired in accordance with the manufacturer's recommendations or shall be rejected and removed from the site.

636.08 Drainage Control

1. Localized areas of perched water may be encountered at the interface of geologic units, or in other areas within the required excavation limits, and should be anticipated. The Contractor will be responsible for preventing and/or controlling seepage from the excavated face, to allow proper installation and cure of the shotcrete. This may require pre-drainage using horizontal drains, vertical well points, large diameter wells or other methods to be selected by the Contractor.

2. The Contractor shall be responsible for repair of all damage caused by improper dewatering.

3. The methods of controlling groundwater within the limits of work (both inside and outside the excavation) shall be determined by the Contractor, who shall be solely responsible for the location, arrangement and depth of any system or systems selected to accomplish the work. The construction dewatering system designed and implemented by the Contractor shall be capable of maintaining groundwater levels so as to obtain a satisfactory undisturbed subgrade, and prevent sloughing and raveling of the excavated face. Maintain water levels until, at a minimum, soil nails have been installed and the shotcrete face has obtained the required 28 day strength. If the methods employed have not been adequate and loss of ground beyond proposed shotcrete face occurs, remove disturbed soil as directed by the Engineer. The Contractor shall develop a plan of action for backfilling resulting voids beyond the finish face line and shall submit to the Engineer such method(s) 24 hours prior to excavating. Any overexcavation beyond the final soil/wall face shall be immediately restored by the Contractor using a method reviewed by the Engineer and at no additional cost to the Owner.

4. The Contractor shall provide positive control and discharge of all surface water encountered during construction to the extent necessary to prevent adverse conditions as determined by the Engineer. Damage caused by the failure to control surface water shall be repaired by the Contractor to the Engineer's satisfaction at no additional cost to the Owner.

5. The Contractor shall be responsible for the condition and maintenance of any pipe or conduit used to control surface water during construction. Upon substantial completion of the Work, surface water control pipes or conduits shall be removed from the site. Alternatively, pipes or conduits which are left in place with the approval of the Engineer, shall be fully grouted (abandoned) or left in a manner that protects the structure and all adjacent facilities from migration of fines through the pipe or conduit and potential ground loss.

6. Comply with federal, state and local codes, ordinances and regulations for disposal of discharged water and sediment control. The Contractor shall be responsible for obtaining all required permits.

636.09 Construction Requirements

The construction sequence shall be in accordance with the approved submittal, unless otherwise approved by the Resident. No excavations steeper than those specified therein shall be made above or below the soil nail wall without written approval of the Resident.

636.091 Quality of Workmanship.

1. The Contractor is responsible for implementing a Quality Assurance Program. Workers, including foreman, nozzleman, and delivery equipment operators, shall be qualified to perform the work. All nozzlemen on this Project shall meet the experience requirements specified herein.
2. A clearly defined pattern of continuous horizontal or vertical ridges or depressions at the reinforcing elements after they are covered will be considered an indication of insufficient cover of reinforcement, poor application technique and probable voids. In this case, the application of shotcrete shall be immediately suspended until inspected by the Engineer. The Contractor shall implement and complete corrective measures, including removing and replacing deficient material, prior to resuming the shotcrete operations.

3. Inspection of materials, workmanship, finished products, and installation is required.

4. All grout materials and cores of shotcrete wall shall be tested for conformance with the Specifications by an independent AASHTO accredited testing agency at the Contractor's expense.

5. Damaged areas of fusion bonded epoxy corrosion protection, including exposed cut-off anchor bar ends, shall be cleaned and coated with corrosion protective epoxy in accordance with the bar manufacturer's recommendations.

636.092 Excavation. During excavation, the Contractor shall maintain a bench to serve as a platform for the drilling equipment and a berm against the final wall excavation face. The bench shall be established not more than 3 feet below the row of nails to be installed and shall extend out from the wall face a minimum distance necessary to provide a safe working bench for the drill equipment and workers.

Excavating of the ground behind the shotcrete wall shall not be allowed. Any inadvertent over-excavation shall be restored by the Contractor using a method reviewed by the Resident and at no additional cost to the Department. Methods to be considered to restore over-excavation shall include but not be limited to replacement with shotcrete and replacement with engineered fill, as reviewed and approved by the Resident.

Excavation to the final wall excavation face shall be performed using procedures that : (1) prevent ground loss, swelling, air slaking, or loosening; (2) minimize degradation of soil bearing support below the overlying portions of the soil nail wall and below the soil nails currently being installed; (3) prevent premature loss of soil moisture at the face; (4) prevent ground freezing; (5) reduce the potential for shotcrete overages; (6) prevent raveling and/or sloughing of soils; and (7)

maintain satisfactory control of seepage at the excavated face to allow proper placement of shotcrete.

Subsequent excavation lifts shall not be advanced until nail installation (including bearing plate and nut), reinforced shotcrete placement, and nail testing for the preceding lifts are complete and acceptable to the Resident. Prior to advancing the excavation, nail grout and shotcrete on the preceding lift shall have cured for at least 72 hours or attained their specified 3-day compressive strength. Exposed native ground shall not have an unsupported cut height greater than the vertical nail spacing plus the required reinforcing lap.

Where the Contractor's excavation and installation methods result in a discontinuous wall along any nail row, the ends of the wall shall extend beyond the ends of the next lower lift by at least 10 feet. Slopes at these discontinuities shall be constructed to prevent sloughing or failure of the temporary slopes.

Removal of cobbles, boulders, rubble, or debris which are encountered at the soil face during excavation and which protrude from the soil face shall be the responsibility of the Contractor. The Contractor shall be responsible for constructing the structural shotcrete facing to the specified minimum thickness and to the lines and grades indicated in the plans. The Contractor shall notify the Resident of the proposed method for removal of face protrusions at least 24 hours prior to commencing with excavation for review and approval. Should the removal of face protrusions result in voids beyond the finish shotcrete wall face/soil line, the Contractor shall backfill the voids within the work shift during which the voids were created using methods reviewed and approved by the Resident.

The Contractor shall be responsible for design and installation of temporary lateral support and the slope stability of all temporary cuts. Completed ends of the soil nail wall shall be protected to prevent loss of ground from behind the soil nail wall and/or movement of ground behind the completed soil nail wall.

If the Soil Nail Wall Design requires placement of a stabilizing berm, or if in the opinion of the Contractor or Resident a stabilizing berm is necessary or prudent, then the following three items shall apply:

1. The Contractor shall not excavate any lift to the final wall excavation face prior to installation of nails but shall maintain a stabilizing berm to support the excavation face during nail installation, unless otherwise approved by the Resident. The stabilizing berm is provided to:
    (a) minimize degradation of soil bearing support below the overlying portions of the soil nail wall and below the soil nails currently being installed;
    (b) prevent premature loss of soil moisture at the face; and
    (c) reduce the potential for ground loss and subsequent shotcrete overages.

    Alternative excavation and soil nail installation methods that meet these objectives may be submitted to the Resident for review in accordance with the Submittals section of this Contract.

2. The stabilizing berm shall extend horizontally from the bottom exterior of the overlying shotcrete a minimum distance of 1 foot and shall be cut down from that point at a slope determined to be safe by the Contractor, but not steeper than 1H:1V, unless otherwise approved by the Resident. Following the installation of nails, the stabilized berm shall be excavated to the final wall face and cleaned of all loose

materials, mud, shotcrete rebound, and other foreign matter which could prevent or reduce shotcrete bond.

3. The Contractor shall ensure that installed nails are not damaged during excavation of the stabilizing berm. Nails damaged or disturbed during excavation of berm shall be repaired or replaced by the Contractor to the satisfaction of the Resident at no additional cost to the Department. The stabilizing berm shall not be excavated until the nail grout has aged for at least 24 hours. Hardened nail grout protruding from the wall excavation more than 2 inches shall be removed in a manner that prevents fracturing the grout at the nail head. Sledge hammer removal of the grout shall not be allowed. The use of hand held rock chippers is acceptable provided their used does not damage or disturb the remaining grout at the nail head, the nail bar, or the surrounding exposed ground.

636.093 Nail Installation. Successful verification tests shall be performed prior to starting installation of production nails. The number and location of required verification tests are specified in the Soil Nail Wall Design. Additional verification tests may be required if the Contractor modifies the installation method from those used during the installation if the approved verification test nails and will be conducted at the Contractor's expense.

Nails shall be installed prior to the application of shotcrete at the locations and to the lengths specified in the Soil Nail Wall Design. The Resident may add, eliminate, or relocate nails to accommodate actual field conditions. Cost adjustments associated with these modifications shall be made in accordance with the General Provisions of the contract. Design modifications resulting from actions of the Contractor shall be determined by the Resident. The cost of any redesign, additional material and installation modifications shall be borne by the Contractor.

Reinforced shotcrete may be installed prior to installing the soil nails upon written approval from the Resident. The written request to modify the installation sequence should include a proposed construction sequence and calculations demonstrating that the bearing plates are adequate to span the nail hole or block-out.

Drilling. The Contractor shall select drilling equipment and methods suitable for the ground conditions described in the geotechnical report and shown in the test boring and test pit logs. Drillhole diameter shall be selected to provide the minimum specified grout cover over the soil nail tendon and to develop the specified load carrying capacity. A minimum drillhole diameter is specified in the Soil Nail Wall Design. It is the Contractor's responsibility to determine the final drillhole diameter required to provide the adhesion values shown on the Drawings. Water, drilling mud or other fluids used to assist in cuttings removal shall not be allowed. Uncased drillholes shall be observed for cleanliness prior to insertion of the soil nail tendon. In caving ground, the Contractor shall use cased drilling methods to support the sides of the drillholes.

The Contractor shall immediately suspend drilling operations if ground subsidence is observed, if the Soil Nail Wall is adversely affected, or if adjacent structures are damaged as a result of the drilling operation. The adverse conditions shall be stabilized immediately and the Resident shall be notified of such conditions within 24 hours.

Nail Tendon Installation. Nail tendon shall be provided as indicated on the schedules included in the Soil Nail Wall Design. Each tendon shall be fitted with centralizers as specified. Nail tendons shall be inserted into the drillhole to the length required without

difficulty and in such a manner as to prevent damage to the drillhole or the tendon corrosion protection. Tendons which cannot be fully inserted to the design depth shall be removed from the drillhole and the drillhole shall be cleaned sufficiently to allow unobstructed installation of the tendon.

Where the nail tendon is installed using cased or hollow-stem auger methods, centralizers are not required provided the installation method insures that the tendon will remain in the center portion of the nail grout. In such situations, grout slump shall not exceed 8 inches.

636.094 Grouting Equipment. Grout Equipment shall produce a uniformly mixed grout free of lumpy and undispersed cement. A positive displacement grout pump shall be used. The pump shall be equipped with a pressure gauge which can measure at least twice but no more than three times the intended grout pressure. The grouting equipment shall be sized to enable the entire nail to be grouted in one continuous operation. The mixer shall be capable of continuously agitating the grout during usage.

Grouting Methods. The drillhole shall be grouted after installation of the nail tendon. Grouting prior to insertion of the nail tendon can be allowed provided neat cement grout is used and the nail bar is immediately inserted through the grout to the specified length without difficulty. No portion of the nail hole shall be left open for more than 60 minutes prior to grouting unless otherwise approved by the Resident. The grout shall be injected at the lowest point of each drillhole through a grout tremie pipe, casing, hollow-stem auger, or drill rods with the drillhole filled in one continuous operation. Cold joints in the grout placement are allowed for construction of the proof test nails. The end of the conduit delivering the grout shall be kept below the surface of the grout as the conduit is withdrawn. The grouting conduit shall be withdrawn as the nail hole is filled in a manner which prevents the creation of voids. The quantity of grout and the grouting pressures shall be recorded for each soil nail. Grout pressures shall be controlled to prevent excessive ground heave or fracturing.

During casing removal from drillholes advanced by either cased or auger-cast methods, the grout surface within the casing shall be continually monitored for maintenance of "head" sufficient to offset the external groundwater/soil pressure. Casing seals shall not be broken until the level of grout within the casing provides adequate head to prevent unstable soil or groundwater from contaminating or diluting the grout. Grout pressures shall be maintained to ensure that the drillhole will be completely filled with grout.

If the grouting of any nail is suspended for more that 30 minutes or if the quality of the grout placement results in a nail that does not satisfy the requirements of the Special Provision, then the steel tendon and grout shall be removed from the hole, disposed of, and replace with fresh grout and undamaged steel at no additional cost to the Department.

Grout Testing. Nail grout shall have a minimum compressive strength of 1500 psi in 3 days and 3000 psi in 28 days. Nail grout shall be tested by the Contractor in accordance with AASHTO T 106/ASTM C 109 at a frequency of no less than one (1) test for every 50 cubic yards of grout placed or once (1) per week, which ever comes first, and no less than two (2) tests per wall.

Proof Test Nail Unbonded Length. Temporary unbonded lengths shall be provided for each proof nail test. The test nail bar shall be isolated from the shotcrete facing and the

reaction frame used during testing. Isolation of a test nail through the shotcrete facing shall not effect the location of the reinforcing steel under the bearing plate. Accepted proof test nails may be incorporated in the Work provided the temporary test unbonded length is fully grouted subsequent to testing. Test nail isolation methods, methods for providing an unbonded length and methods for grouting the unbonded length subsequent to testing shall be submitted to the Resident for review and approval in accordance with the requirements of the Submittal section of this Contract.

636.10 Nail Testing

Verification and proof testing shall be performed. Verification tests shall be performed at locations specified in the Soil Nail Wall Design. Proof tests shall be performed at locations selected by the Resident. All required test data shall be recorded by the Resident, unless approved otherwise. Testing of nails shall not be performed until the nail grout and shotcrete facing have attained at least 50 percent of their specified 28-day compressive strength.

Where temporary casing of the unbonded length of test nails is provided, the casing shall be installed in a way to prevent any reaction between the casing and the grouted bond length of the nail and/or the stressing apparatus.

Testing Equipment. Testing equipment shall include two (2) dial gauges, a dial gauge support, jack and pressure gauge, an electric load cell and a reaction frame. The load cell is required for verification tests only.

A minimum of two (2) dial gauges capable of measuring to 0.001 inch shall be available at the site to measure nail movement. The dial gauges shall have a minimum travel sufficient to allow the test to be preformed without re-setting the dial gauge. The dial gauges shall be aligned within 5 degrees of the axis of the nail and shall be supported independent of the jacking set-up and the wall. A hydraulic jack, pressure gauge and pump shall be used to apply and measure the test load. The nail loads during verification tests shall be monitored with both a pressure gauge and electric load cell. The load cell shall be used to maintain constant load hold throughout the creep test during verification testing. The contractor shall provide recent (within 6 months of the start of construction) calibration curves in accordance with the Submittals.

The jack pressure gauge shall be calibrated by an independent testing laboratory as a unit. The pressure gauge shall be graduated in 100 psi increments or less and shall have a range not exceeding twice the anticipated maximum pressure during testing unless approved by the Resident. The ram travel of the jack shall be sufficient to enable the test to be performed without re-setting the jack. The jack shall be capable of applying each test load increment in less than 1 minute.

The jack shall be independently supported and centered over the nail so that the nail does not carry the weight of the jack. The stressing equipment shall be placed over the nail in such a manner that the jack, bearing plates, load cell and stressing anchorage are in alignment. The jack shall be positioned at the beginning of the test such that unloading and repositioning of the jack during the test will not be required.

The reaction frame shall be sufficiently rigid and of adequate dimension such that excessive deformation of the test apparatus requiring repositioning of any components

does not occur during testing. Where the reaction frame bears directly on the shotcrete facing, the reaction frame shall be designed to prevent fracture of the shotcrete and no part of the reaction frame shall bear within 6 inches of the edge of the test nail block-out, unless otherwise approved by the Resident.

Verification Testing of Sacrificial Nails. Verification testing shall be performed prior to installation of production nails to verify the Contractor's installation methods, soil conditions, nail pullout capacity and design assumptions. Verification tests shall be performed within the limits of the Work and at the locations specified in the Soil Nail Wall Design, unless otherwise approved by the Resident. The nails used for the verification tests shall be sacrificial and shall not be incorporated as production nails.

The details of the verification testing arrangement including the method of distributing test load pressures to the excavation surface (reaction frame), test nail bar size, grouted hole diameter and reaction plate dimensioning, shall be developed by the Contractor and submitted to the Resident for approval. Test nails shall be constructed using the same equipment, methods and hole diameter as planned for the production nails. Changes in the drilling or installation method may require additional verification testing as determined by the Resident and shall be provided at no additional cost to the Department.

Test nails shall have both bonded and unbonded lengths. Prior to testing, only the bonded length of the test nail shall be grouted. The unbonded length of the test nail shall be 3 feet unless otherwise approved by the Resident. The bonded length of the test nail shall be as specified in the Soil Nail Wall Design based on the bar grade and size such that the allowable bar structural load is not exceeded, but shall not be less than 10 feet. The allowable bar structural load during testing shall not be greater than 90 percent of the yield strength of the Grade 75 bars.

The verification test bonded length, L_{BV}, shall not exceed the test allowable bar structural load divided by two times the design adhesion value. The following equation shall be used for determining the test nail bond length to avoid structurally overstressing the verification nail bar size:

$$L_{BV} \leq \frac{C f_y A_s}{2 A_D}$$

Where:

L_{BV}	=	Maximum Verification Test Nail Bond Length (ft)
C	=	0.9 for Grade 75 bars
f_y	=	Bar Yield Stress (ksi)
A_s	=	Bar Area (square inches)
A_D	=	Design Adhesion (kips/foot)

The design test load during testing shall be determined by the following equation:

$$DTL = L_B x A_D$$

Where:

DTL	=	Design Test Load
L_B	=	As-built bonded test length (ft)
A_D=		Design Adhesion (specified in the Soil Nail Wall Design as kips /foot)

Verification test nails shall be incrementally loaded to twice the design test load (DTL) followed by unloading in accordance with the following schedule. The soil nail movements at each load and unload increment shall be recorded.

LOADING		**UNLOADING**	
Load	Hold Time	Load	Hold Time
AL (0.05 DTL max.)	1 minute	1.75DTL	Until Stable
0.25DTL	10 minutes	1.50DTL	Until Stable
0.50DTL	10 minutes	1.25DTL	Until Stable
0.75DTL	10 minutes	1.00DTL	Until Stable
1.00DTL	10 minutes	0.75DTL	Until Stable
1.25DTL	10 minutes	0.50DTL	Until Stable
1.50DTL	60 minutes	0.25DTL	Until Stable
1.75DTL	10 minutes	AL	Until Stable
2.00DTL	10 minutes		

AL = Nail Alignment Load
DTL = Design Test Load

The alignment load (AL) should be the minimum load required to align the testing apparatus and should not exceed 5 percent of the design test load (DTL). Dial gauges should be set at "zero" after the alignment load has been applied.

Each load increment shall be held for at least 10 minutes. The verification test nail shall be monitored for creep at the 1.50DTL load in increment. Nail movements during the creep portion of the test shall be measured and recorded at 1 minute, 2, 3, 5, 6, 10, 20, 30, 50 and 60 minutes. The load during the creep test shall be maintained within 2 percent of the intended load by use of the load cell. The nail shall be unloaded in increments of 25 percent of the DTL with movements recorded at each unload increment. Each unload increment shall be held only for a sufficient time to allow stabilization of the movement reading.

Proof testing of Production Nails. Proof testing shall be performed on 5 percent of the production nails or a minimum of 2 nails in each staged excavation lift, whichever is greater. The locations and number of these tests shall be determined by the Resident.

Proof test nails shall have both bonded and unbonded lengths. Prior to testing, only the bonded length of the test nail shall be grouted. The bonded and unbonded lengths of each test nail shall be as specified in the Soil Nail Wall Design, subject to the approval of the Resident. The unbonded length of the test nail shall be at least 3 feet. The bonded length shall be such that the allowable bar structural load is not exceeded but shall not be less than 10 feet. The allowable bar structural load shall not exceed 90 percent of the yield strength for Grade 75 bars.

The proof test bonded length, L_{BP}, shall not exceed the test allowable bar load divided by 1.3 times the design adhesion value. The following equation shall be used for sizing the test nail bond length to avoid overstressing the production bar size:

$$L_{BP} \leq \frac{Cf_y A_s}{1.3A_D}$$

Where:

L_{BP}	=	Maximum Proof Test Nail Bond Length (ft)
C	=	0.9 for Grade 75 bars
f_y	=	Bar Yield Stress (ksi)
A_s	=	Bar Area (square inches)
A_D	=	Design Adhesion (kips/foot)

Proof tests shall be performed by incrementally loading the nail to 130 percent of the design test load (DTL). The design test load shall be determined as for verification nails. The nail movement at each load shall be recorded by the Resident in the same manner as for verification tests. The load shall be monitored by a pressure gauge with a sensitivity and range meeting the requirements of pressure gauges used for verification test nails. At load increments other than maximum test load, the load shall be held long enough to obtain a stable reading. Incremental loading for proof tests shall be in accordance with the following schedule:

LOADING
AL (0.05 DTL max.)
0.25DTL
0.50DTL
0.75DTL
1.00DTL
1.30DTL

AL = Nail Alignment Load
DTL = Design Test Load

The alignment load (AL) should be the minimum load required to align the testing apparatus and should not exceed 5 percent of the design test load (DTL). Dial gauges should be set at "zero" after the alignment load has been applied.

All load increment shall be maintained within 5 percent of the intended load. Depending upon performance, either 10 minute or 60 minute creep tests shall be performed at the

maximum test load (1.30DTL). The creep period shall start as soon as the maximum test load is applied to the nail. Nail movement shall be measured and recorded at 1 minute, 2, 3, 5, 6, and 10 minutes. Where the nail movement between 1 minute and 10 minutes exceeds 0.04 inch, the maximum test load shall be maintained for an additional 50 minutes and movements recorded at 20 minutes, 30, 50 and 60 minutes.

Test Nail Acceptance Criteria. A test nail shall be considered acceptable when:

1. For verification purposes, a creep rate less than 0.08 inch per log cycle of time between the 6 and 60 minute readings is observed during creep testing and the rate is linear or decreasing throughout the creep test load hold time.

2. For Proof tests: (a) a total creep movement of less than 0.04 inch is observed between the 1 and 10 minute readings or a total creep movement of less than 0.08 inch is observed between the 6 and 60 minute readings and; (b) the creep rate is linear or decreasing throughout the creep test load hold time.

3. The total movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the test nail unbonded length.

4. A pullout failure does not occur at the maximum test load. Pullout failure is defined as the load at which attempts to increase the test load simply result in continued pullout movement of the test nail. The pullout failure load shall be recorded as part of the test data.

At the Contractor's option, successful proof test nails meeting the above test acceptance criteria may be incorporated as production nails, provided that (1) the unbonded test length of the nail hole has not collapsed during testing, (2) the minimum required hole diameter has been maintained, (3) the specified corrosion protection is provided, and (4) the test nail length is equal to or greater than the scheduled production nail length. Test nails meeting these requirements shall be completed by satisfactorily grouting the unbonded test length. Maintaining the temporary unbonded test length for subsequent grouting is the Contractor's responsibility. If the unbonded test length of production proof test nails cannot be satisfactorily grouted subsequent to testing, the proof test nail shall become sacrificial and the Contractor shall replace the proof test nail with a production nail installed to the satisfaction of the Resident and at no additional cost.

Test Nail Rejection Criteria.

Verification Test Nails. The Resident shall evaluate the results of each verification test. Installation methods which do not satisfy the nail testing requirements shall be rejected. The Contractor shall propose alternative methods and install replacement verification test nails. Replacement of test nails shall be installed and tested at no additional cost o the Department.

Proof Test Nails. The Resident may require that the Contractor replace some or all of the installed production nails between the failed proof test nail and the adjacent passing proof test mail. Alternatively, the Resident may require proof testing of additionally installed proof test nails be conducted to verify that adjacent previously installed production nails have sufficient load carrying capacity. The Resident may require that modifications be made to the Soil Nail Wall Design by the Soil Nail Wall designer, as appropriate. These

modifications may include the installation of additional test and/or production nails (i.e., decreased nail spacing from that specified in the Soil Nail Wall Design), installing longer production nails, increasing the drillhole diameter, or modifying the installation methods. Costs due to additional proof tests or installation of additional or modified nails as a result of proof test nail failure(s) shall be at no cost to the Department, unless determined by the Resident to be due to causes beyond the Contractor's control.

636.11 Tolerances

Soil Nails. The soil nails shall not extend beyond the right-of-way or easement limits shown on the Drawings. Bars shall be centered within 1 inch of the center of the drillhole. Individual nails shall be positioned plus or minus 12 inches from the design locations shown in the Soil Nail Wall Design. Location tolerances shall be considered applicable to only one nail and not accumulative over large wall areas. The nail inclination shall be plus or minus 3 degrees of that shown in the Soil Nail Wall Design. Nails which encounter obstructions during drilling shall be relocated by the Soil Nail Wall designer. Soil nails which do not satisfy the specified tolerances due to the Contractor's installation methods shall be replaced to the Resident's satisfaction at no additional cost to the Department.

636.12 Nail Installation Records

Accurate daily records documenting the Soil Nail Wall construction shall be maintained by the Contractor and provided to the Resident within 24 hours. Daily records shall, as a minimum, include the items listed below:

1. Contractor's name
2. Drill rig operator's name
3. As-built, surveyed nail location
4. Deviation from specified tolerances
5. Nail diameter
6. As-built, surveyed nail elevation
7. Design nail length
8. Installed nail length
9. Groundwater conditions
10. Caving or sloughing of excavation
11. Casing requirements
12. Drilling difficulties
13. Date and time of start and finish of drilling
14. Length and diameter of reinforcing bars in hole
15. Date, time, and method grout was placed including grout pressure
16. Total daily quantity of grout placed and quantity per hole
17. Design changes

The Contractor shall assist the Resident as necessary to obtain the above information and all other information as required by the Resident.

636.13 Shotcrete Construction and Wall Drainage

Shotcrete and wall drainage Work shall consist of furnishing all materials and labor required for placing and securing Geocomposite drainage material, connection pipes, footing drains,

weepholes and horizontal drains (if requires), plain or fiber reinforced shotcrete for the wall and gutter a the top of the slope. The Work shall include any preparatory trimming and cleaning of soil/rock surfaces and shotcrete cold joints for the soil nail wall(s) specified in the Soil Nail Wall Design.

Shotcrete shall comply with the requirements of ACI 506.2-90, "Specification for Shotcrete", except as otherwise specified. Shotcrete shall consist of an application of one or more layers of mortar or concrete conveyed through a hose and pneumatically projected at a high velocity against a prepared surface.

Shotcrete may be produced by either a dry-mix or a wet-mix process. The wet-mix process consists of thoroughly mixing all the ingredients except accelerating admixtures but including the mixing water, introducing the mixture into the delivery equipment and delivering it, by positive displacement, to the nozzle. The wet-mix shotcrete shall then be air jetted from the nozzle at high velocity onto the surface. Dry-mix process is shotcrete without mixing water which is conveyed through the hose pneumatically and the mixing water is introduced at the nozzle. For additional descriptive information, the Contractor's attention is directed to the American Concrete Institute Standard "Guide to Shotcrete (ACI 506R-90)".

Quality Assurance Program. The Contractor is responsible for implementing a Quality Assurance Program. Workers, including foreman, nozzleman, and delivery equipment operators shall be fully qualified to perform the Work. All nozzlemen on this project shall have at least one year of accumulative experience in the past three years in similar shotcrete application Work and shall demonstrate ability to satisfactorily place material.

Qualifications of the nozzlemen shall be based on a visual inspection of the shotcrete density and void structure and on achieving the specified 3-day and 28-day compressive strength requirements determined from the average test results from three cores extracted from each preconstruction and production test panel. Preconstruction and production test panels, core extractions and compressive strength testing shall be conducted in accordance with ACI 506.2-90 unless otherwise specified herein.

The Contractor shall notify the engineer not less than two (2) days prior to the shooting of a qualification test panel. Shotcrete mix and equipment used to make qualification test panels shall be the same as those to be used for the Soil Nail Wall.

Materials. All materials for shotcrete shall conform to the following requirements:

Cement	AASHTO M 85, ASTM C 150, Type I, II, III, or V.
Fine Aggregate	AASHTO M 6, ASTM C 33, clean, natural.
Coarse Aggregate	AASHTO M 80, Class B for quality.
Water	Potable, clean and free from substances deleterious to concrete and steel or elements that would cause staining.
Chemical Admixtures	ASTM C 1141 and the following:
Accelerator	Fluid type, applied at nozzle, meeting requirements herein.

Water-reducer and Superplasticizer	AASHTO M 194 Type A,D,F,G or ASTM C 494 Type A,D,F,G.
Air-Entraining Agent	AASHTO M 194, ASTM C 260.
Plasticizers	AASHTO M 194, Type A, D, F, or G, ASTM C 494.
Mineral Admixtures:	Fly Ash AASHTO M 295, ASTM C 618 Type F or C.
Silica Fume	ASTM C 1240, 90 percent minimum silicon dioxide solids content, not to exceed 12 percent by weight of cement. In addition, silica fume shall conform to the requirements of Section 502.
Welded Wire Fabric	AASHTO M 55/ASTM A 185 or ASTM A 497.
Reinforcing Bars	AASHTO M 31/ASTM A 615, Grade 75, deformed. Epoxy Coating shall conform to the requirements of Section 503.05.
Bearing Plates	AASHTO M 183/ASTM A 36.
Nuts	AASHTO M 291, Grade B, hexagonal fitted with beveled washer or spherical seat to provide uniform bearing.
Curing Compounds	AASHTO M 148, Type ID or Type 2.
Prepackaged Concrete	ASTM C 928
Drainage Geotextile	Geocomposite drain strip Water Flow Rate (ASTM D-4716) – Hyd. Grad. Of 1.0 – 15 gpm/ft width Water Flow Rate (ASTM D-4716) – Hyd. Grad. Of 0.1 – 3 gpm/ft width Grab strength (ASTM D 4632) - 155 lbs Apparent Opening Size (ASTM D 4751-87) – No. 100 Sieve
Film Protection	AASHTO M 171 or polyethylene film.
Drainage Aggregate	AASHTO M 43/ASTM D 448 No. 67 with no more than two (2) percent passing the 75 μm (US No. 200) sieve.

PVC Connection Pipe, Horizontal Drains and Weep Holes:

Pipe	ASTM D 1785 Schedule 40 PVC, solid and perforated wall, cell classification 12454-B or 12354-C, wall thickness SDR 32, with solvent weld or elastomeric gasket joints.
Fittings	ASTM D 3034, cell classification 12454-B or 12354-C, wall thickness SDR 35, with solvent weld or elastomeric gasket joints.

Solvent Cement	ASTM D 2564
Primer	ASTM F 656

Shotcrete admixtures shall not be used unless approved by the Resident. Admixtures used to entrain air, to reduce water-cement ratio, to retard or accelerate setting time, or to accelerate the development of strength, shall be thoroughly mixed into the shotcrete at the rate specified by the manufacturer unless specified otherwise. Accelerating additives shall be compatible wit the cement used, be non-corrosive to steel and shall not promote other detrimental effects such as cracking or excessive shrinkage. The maximum allowable chloride ion content of all ingredients shall not exceed 0.10 percent when tested to AASHTO T 260.

Premixed and prepackaged concrete products specifically manufactured as a shotcrete product may be provided for on-site mixed shotcrete if approve by the Resident. The packages shall contain materials conforming to the Materials portion of this specification.

Materials shall be delivered, stored and handled to prevent contamination, segregation, corrosion, or damage. Liquid admixtures shall be stored to prevent evaporation and freezing.

Drainage Geotextile and geocomposite drains shall be provided in rolls, wrapped with a protective covering and stored in a manner which protects the fabric from mud, dirt, dust, debris, and shotcrete rebound. Protective wrapping shall not be removed until immediately before the geotextile or drain strip is installed. Extended exposure to ultra-violet light shall be avoided. Each roll of geotextile or drain strip in the shipment shall be labeled to identify the production run.

Submittals. At least 30 days prior to initiating the Work, the Contractor shall submit to the Resident:

1. Written documentation of the nozzleman's qualifications and proposed method of shotcrete placement.

2. Certified shotcrete mix design including:
    1. Brand and type of Portland cement used;
    2. Source, gradation and quality of aggregates as specified herein;
    3. Proportions of mix by weight; and
    4. Proposed admixture, manufacturer, dosage, technical literature (when admixture allowed).

3. Certified mill tests for all reinforcing steel specifying the minimum ultimate strength, yield strength, elongation and composition.

4. Complete engineering data for the drainage geotextile an geocomposite drain strip including manufacturer's certification of compliance and installation instructions.

5. Certifications of Compliance for bearing plates, nuts, curing compounds (if used), drainage aggregate and PVC drain piping.

6. Methods of controlling location of front face and determining shotcrete thickness.

Shotcrete Mix Design.

Aggregate. Aggregate for shotcrete shall meet the strength and durability requirements of AASHTO M 80 and M 43 and shall meet the following gradation requirements:

Sieve Size	Percent Passing by Weight
12 mm (1/2 inch)	100
10 mm (3/8 inch)	90 - 100
5 mm (No. 4)	70 - 85
2.5 mm (No. 8)	50 - 70
1.25 mm (No. 16)	35 - 55
0.630 mm (No. 30)	20 - 35
0.300 mm (No. 50)	8 - 20
0.160 mm (No. 100)	2 - 10

Proportioning. Shotcrete shall be proportioned and delivered with the following minimum contents per cubic yard:

Cement content shall be at least 658 pounds per cubic yard.
Water/Cement ratio shall not be greater than 0.45.

The mix shall be proportioned to be pumpable with the concrete pump furnished for the Work.

Strength Requirements. Shotcrete shall be proportioned to produce a mix capable of attaining 2000 psi compressive strength in 3 days and 4000 psi in 28 days when tested in accordance with ASTM C109. The average compressive strength of each set of three cores extracted must equal to or exceed 85 percent of the specified compressive strength in accordance with ACI 506.2.

Mixing and Batching. Mixing equipment shall be capable of thoroughly mixing the materials in sufficient quantity to maintain the placing continuity. Shotcrete shall be batched, delivered and placed within 90 minutes of mixing unless otherwise approved by the Resident.

Field Quality Control. Both preconstruction and production shotcrete test panels shall be required. Test panels shall not be disturbed within the first 24 hours after shooting. Test panels shall be field cured under condition similar to those anticipated for the Work.

Shotcreting and coring of test panels shall be performed by qualified personnel in the presence of the Resident. The Contractor shall provide equipment, materials and personnel as necessary to obtain shotcrete cores for testing including construction of test panel boxes, field curing requirements and coring. Compressive strength testing will be

performed by the Contractor. The frequency specified for test panels is approximate. A greater or lesser number of panels may be made as required by the Resident.

Unsatisfactory compressive strength tests shall result in suspension of the crew responsible for the unsatisfactory Work, or until additional specimens have been submitted, tested and proven satisfactory. Costs associated with testing and lost production due to failing to meet the Specifications shall be borne by the Contractor.

Production Test Panels. Each application crew shall furnish at least two (2) preconstruction test panels for each proposed mixture being considered and for each shooting position to be encountered on the job. Preconstruction test panels shall be made by each application crew using the equipment, materials, mixture proportions and procedures proposed for the job prior to the commencement of Work.

Preconstruction test panels shall be 30 x 30 inch in accordance with ACI 506.2-90, with following exceptions:

1. One preconstruction test panel shall be of the maximum shotcrete thickness indicated in the Soil Nail Wall Design and shall include the maximum anticipated reinforcing congestion. Cores extracted from the test panel shall demonstrate encapsulation of the reinforcement in accordance with ACI 506.2 equal to core grade 2 or better.

2. One preconstruction test panel shall be at least 4 inches thick and constructed without reinforcement for compressive strength testing.

3. The corners of the preconstruction and production test panels shall be chamfered 45 degrees over the full panel thickness.

Production Test Panels. The Contractor shall furnish at least one production test panel or, in lieu of production test panels, six (6) 3-inch diameter cores from the shotcrete face for every 50 cubic yards of shotcrete placed. The production test panels shall be constructed simultaneously with the shotcrete pacing installation at times designated by the Resident. The production test panel shall have minimum dimension of 18 x 18 x 4 inches.

Core Testing. At least six (6) core samples will be cut from each pre-construction test panel and production test panel. Cores shall be soaked in water for at least 40 hours in accordance with AASHTO T 24. Cores shall be at least 3 inches in diameter and shall have a minimum length the diameter ration of one (1). When the length of a core is less than twice the diameter, apply the correction factors given in ASTM C 42 to obtain the compressive strength of individual cores. Three (3) cores shall be tested a 3-days and three (3) cores shall be tested at 28-days.

Core holes in the wall shall be filled solid with patching mortar or shotcrete after cleaning and thoroughly dampening.

Visual Observation. A clearly defined pattern of continuous horizontal or vertical ridges or depressions at the reinforcing elements after they are covered will be considered an indication of insufficient cover of reinforcement or poor application and probable void. In this case, the application of shotcrete shall be immediately suspended and the Work

carefully inspected by the Resident. The Contractor shall implement and complete corrective measures prior to resuming the shotcrete operations.

The shotcreting procedure may be corrected by adjusting the nozzle distance and orientation perpendicular to the surface, adjusting the water content of the shotcrete mix or other means acceptable to the Resident. Excessive re-tempering of the mix shall be avoided. The shotcreted surface shall be broomed and roughened if needed to ensure proper bond of subsequent layers.

636.14 Construction Requirements.

Shotcrete Alignment Control. The Contractor shall ensure that the thickness of shotcrete satisfies the minimum requirements of the Soil Nail Wall Design using alignment wires, thickness control pins, or other means acceptable to the Resident. The Contractor shall ensure that the front face of the shotcrete dose not extend beyond the tolerance limits shown on the Plans.

Surface Preparation. Prior to shotcreting the ungrounted zone above the nail grout at the excavation cut face (birds beak), the Contractor shall remove all loose materials from the surface of the grout and prepare the joint in accordance with all requirements for joint preparation specified herein.

The Contractor shall remove all loose materials and loose dried shotcrete from previous placement operations from all receiving surfaces to receive shotcrete by methods acceptable to the Resident. The removal shall be accomplished in such a manner as not to loosen, crack, or shatter the surfaces to receive the shotcrete. Any surface material which, in the opinion of the Resident, is so loosened or damaged shall be removed to a sufficient depth to provide a base that is suitable to receive the shotcrete. Material that loosens as the shotcrete is applied shall be removed. No shotcrete shall be placed on frozen surfaces.

Delivery and Application. A clean, dry, oil-free supply of compressed air sufficient for maintaining adequate nozzle velocity for all parts of the Work shall be maintained at all times. The equipment shall be capable of delivering the premixed material accurately, uniformly and continuously through the delivery.

The shotcrete shall be applied from the lower part of the Work area upwards to prevent accumulation of rebound on uncovered surfaces. Where shotcrete is used to complete the ungrounted zone of the nail drill hole the face, the nozzle shall be positioned into the mouth of the drillhole to completely fill the void. Rebound shall not be worked back into the placement nor shall the rebound be salvaged. Rebound which does not fall clear of the working area shall be removed. The nozzle shall be held at a distance and at an angle approximately perpendicular to the working face so that rebound will be minimal and compaction will be maximized. Thickness, methods of support, air pressure, and rate of placement of shotcrete shall be controlled to prevent sagging or sloughing of freshly-applied shotcrete.

Defective Shotcrete. Surface defects shall be repaired as soon as possible after initial placement of shotcrete. All shotcrete which lacks uniformity, which exhibits segregation, sagging, honeycombing, or lamination, or which contains any voids or sand pockets shall

be removed and replaced with fresh shotcrete by the Contractor to the satisfaction of the Resident.

Construction Joints. Construction joints shall be uniformly tapered toward the excavation face over a minimum distance equal to the thickness of the shotcrete layer. To the maximum extent practical, the surface of the nail grout at the excavation cut face shall be cleaned and prepared to receive shotcrete in a manner equal to all other construction joints.

Finish. Shotcrete finish shall be either an undisturbed gun finish as applied from the nozzle or a screened finish. Shotcrete extending into the finish face section beyond the tolerances shown on the Soil Nail Wall Design shall be removed.

Attachment of the Bearing Plate and Nut. The bearing plate and nut shall be attached as shown in the Soil Nail Wall Design. The plate shall be seated by hand wrench tightening the nut such that uniform contact with the shotcrete is achieved while the shotcrete is still plastic and prior to its initial set. Where uniform contact between the plate and the shotcrete cannot be provided, the plate shall be seated on a mortar pad to provide uniform support. Once the mortar pad has attained strength (minimum 1 day), the nut shall be hand wrench tightened. Where studded bearing plates are used to connect the soil nail to the cast-in-place finish facing, the Contractor shall ensure that the bearing plate is in full contact with the construction facing and that the studs are located within the tolerances shown on the Soil Nail Wall Design.

Weather Limitations. Shotcrete shall not be placed in cold weather unless adequately protected when the ambient temperature is below 40ºF and falling and/or when the shotcrete is likely to be subjected to freezing temperatures before a minimum strength of 700 psi. Cold weather protection shall be maintained until the strength of the in-place shotcrete is greater than 750 psi. Cold weather protection shall include heating under tents, blankets or other means acceptable to the Resident. The temperature of the shotcrete, when deposited, shall not be less than 50ºF or more than 90ºF.

Shotcrete application shall also be suspended during high winds and heavy rains when in the opinion of the Resident the quality of the application is not acceptable. Newly placed shotcrete exposed to rain that washes out cement or otherwise makes the shotcrete unacceptable to the Resident shall be removed and replaced. The Contractor shall provide adequately secured polyethylene sheeting or equivalent when adverse exposure to weather is anticipated.

Tolerances. Tolerances for construction facing and temporary shotcrete shall be as shown on the Plans and as required by the Soil Nail Wall Design.

Safety Requirements. Special attention shall be given to eye and dust protection hazards when shotcrete is applied. Cement and other admixtures are caustic and may cause skin and respiratory irritation unless safety measures are takes in addition to required ventilation. Nozzlemen and helpers shall be equipped with gloves, eye protection, and adequate clothing during the application of shotcrete. The Contractor is responsible for meeting all Federal, State and Local Safety Code requirements.

636.15 Wall Drainage Network

General. The Contractor shall install and secure al elements of the wall drainage network scheduled to be incorporated into a lift as specified by the Soil Nail Wall Design, as specified herein, or as required by the Resident to suit the site conditions. Unanticipated subsurface drainage features exposed in the excavation cut face shall be captured independently of the drainage network and shall be mitigated prior to shotcrete application.

The drainage network shall consist of installing geocomposite drain strips, PVC connection pipes and wall footing drains as shown on the Plans or as directed by the Resident. Exclusive of the wall footing drains, all elements of the drainage network shall be installed prior to shotcreting.

Geocomposite Drain Strips. Geocomposite drain strips shall be installed as specified in the Soil Nail Wall Design. Drain strips at construction joints shall be placed such that the joint is aligned as close as practical along the middle of the longitudinal axis of the drain strip.

The geocomposite drain strips shall be at least 18 inches wide and shall be secured to the excavation face with the geotextile side against the ground after shotcreting. "U" shaped securing pins shall be at least 8 inches long with a 2.5 foot width and shall be installed 24 inches longitudinally along the length of the drain. Drain strips shall be made continuous by using the "shingle" method of splicing with a 16 inch minimum overlap such that the flow of water is not impeded.

The center-to-center spacing of the drain strips shall not exceed 5 ft.

Footing Drains. Footing drains shall consist of drainage aggregate and perforated PVC pipe and shall be constructed at the bottom of each wall as shown on the Layout Drawings.

Connection Pipes and Weepholes. Connection pipes and weepholes shall be installed as shown on the Layout Drawings, and as specified in the Soil Nail Wall Design. Connection pipes shall be lengths of solid PVC pipe installed to direct water from the geocomposite drain strips into the footing drain. Connection pipes and weep holes shall be connected to the drain strips by installing prefabricated drain grates as detailed on the Layout Drawings and specified in the Soil Nail Wall Design, and in accordance with the drain strip manufacturer's recommendations. The joint between the drain grate and the drain strip and the discharge end of the connector pipe shall be sealed to prevent shotcrete intrusion. Damage of the geocomposite drain strip which, in the opinion of the Resident, may cause interruption in flow shall require installation of additional connection pipes or weepholes above the damaged section. Connection pipes shall be extended to the edge of the footing drain but not through the drainage geotextile. The integrity of the drainage geotextile shall not be interrupted.

636.16 Measurement and Payment

Measurement. The Unit of measurement for installation of the Soil Nail Wall will be per square foot and includes soil nail installation, placement of shotcrete, drainage elements, and the Cast-in-place facing.

No specific payment will be made for verification or proof nail testing, which shall be considered incidental to production nail installation. There will be a minimum of two (2) successful verification tests, and a minimum of 5 percent of the production nail successfully proof tested. Failed verification test nails or verification test nails installed to verify alternative nail installation methods proposed by the Contractor shall be considered incidental to production nail installation.

The final pay quantity shall be the design quantity increased by any authorized changes, as determined by the Resident.

Basis of Payment. The accepted quantities of Soil Nail Wall will be paid for at eh contract unit prices. The payment shall be full compensation for all labor, equipment, earthwork, materials, material tests, field tests. Field tests and incidentals necessary to acceptability fabricate and construct the Soil Nail Wall, including installation of the soil nails, placement of shotcrete, drainage elements, and the Cast-in-place facing, in accordance with all requirements of the Contract.

Payment will be made under:

Pay Item		Measurement Unit
636.411	Soil Nail Wall	Square Foot

SPECIAL PROVISION
SECTION 645
HIGHWAY SIGNING
(Radar Activated Flashing LED Right Sign)

Description This work consists of furnishing and installing new solar powered 18" x 24" Radar Activated Flashing LED Right Chevron Warning Signs at the locations shown on the plans or established by the Resident.

Materials The Radar Activated Flashing LED Right Chevron Warning Signs shall be Tapco BlinkerSigns™ or approved equal and include the following components:

- 2180-00226 (right) 18" x 24" Chevrons Blinker Signs
- 2180-00429 Blinker Beam (set for synchronization)
- 108767 Speed Radar to activate signs

The system shall have the following specifications:

Sign Substrate	.080 Highway Grade Aluminum
Reflective Sheeting	3M™ DG3™- with anti-graffiti overlay
MUTCD Compliance	MUTCD Section 2A.08 Compliant
Battery Lifespan	Up to 5 years
Autonomy- Functionality without Charge	Up to 30 days in 24/7 operation
Flash Pattern	MUTCD Compliant
LED Type	High Power Luxeon- 1 watt
LED Life Expectancy Warranty	Over 100,000 hours
Term	1 Full Year Warranty
Smart Activation	Options 24/7 continuous
Time clock activation	(Windows based software programmable)
Wireless control activation	
Vehicle detection activation	

Installation The sign shall be complete, with all the hardware and tools, and ready to be installed on a U-channel or square yielding sign post. The system shall be mounted using the TAPCO Heavy Duty V-loc Base System or approved equal.

Method of Measurement Radar Activated Flashing LED Right Chevron Warning Signs will be measured by each unit, complete in place and accepted.

Basis of Payment The accepted quantity of Radar Activated Flashing LED Right Chevron Warning Signs will be paid for at the contract unit price which shall include furnishing sign posts, anchor base system and installation.

Payment will be made under:

Pay Item	Pay Unit
645.511 18" x 24" Radar Activated Flashing LED Right Chevron Warning Signs	Each

SPECIAL PROVISION
SECTION 645
HIGHWAY SIGNING
(Radar Activated Flashing LED Wrong Way Warning Sign)

Description This work consists of furnishing and installing new solar powered 36" x 24" Radar Activated Flashing LED Wrong Way Warning Signs at the locations shown on the plans or established by the Resident. The sign shall be self- powered by solar panels and long-life nickel metalhydride batteries with no external electrical power installation.

Materials The Radar Activated Flashing LED Wrong Way Warning Signs shall be Tapco BlinkerSigns™ or approved equal and include the following components:

- 2180-225 36" x 24" Wrong Way Blinker Signs
- 2180-00429 Blinker Beam (set for synchronization)
- 108767 Speed Radar to activate signs)

The system shall have the following specifications:

Sign Substrate	.080 Highway Grade Aluminum
Reflective Sheeting	3M™ DG3™- with anti-graffiti overlay
MUTCD Compliance	MUTCD Section 2A.08 Compliant
Battery Lifespan	Up to 5 years
Autonomy- Functionality without Charge	Up to 30 days in 24/7 operation
Flash Pattern	MUTCD Compliant
LED Type	High Power Luxeon- 1 watt
LED Life Expectancy Warranty	Over 100,000 hours
Term	1 Full Year Warranty
Smart Activation	Options 24/7 continuous
Time clock activation	(Windows based software programmable)
Wireless control activation	
Vehicle detection activation	

Installation The sign shall be complete, with all the hardware and tools, and ready to be installed on a U-channel or square yielding sign post. The system shall be mounted using the TAPCO Heavy Duty V-loc Base System or approved equal.

Method of Measurement Radar Activated Flashing LED Wrong Way Warning Signs will be measured by each unit, complete in place and accepted.

Basis of Payment The accepted quantity of Radar Activated Flashing LED Wrong Way Warning Signs will be paid for at the contract unit price which shall include furnishing sign posts, anchor base system and installation.

Payment will be made under:

Pay Item	Pay Unit
645.511 36” x 24” Radar Activated Flashing LED Wrong Way Warning Signs	Each

SPECIAL PROVISION
SECTION 645
HIGHWAY SIGNING

Under 645.023 Support Structures, add the following to the first paragraph just prior to the last sentence:

Minimum fatigue design default values for cantilever & butterfly sign support structures shall be classified as Fatigue Category I with Fatigue Importance Factors (I_f) of 1.0 for Galloping, 1.0 for Natural Wind Gusts and 1.0 for Truck-Induced Gusts. Bridge type sign support structures supporting variable message signs (VMS) shall also use this fatigue criteria in their design.

Minimum fatigue design default values for bridge type structures, without VMS, shall be classified as Fatigue Category II with Importance Factors (I_f) of 0.65 for Galloping, 0.75 for Natural Wind Gusts and 0.89 for Truck-Induced Gusts.

Under 645 Support Structures, b. Bridge, Cantilever, and Butterfly Type Sign Supports, modify the 1st sentence in paragraph 2 to read:

"Signs shall be placed on the support structure such that the bottom edges are aligned (unless written consent from the Fabrication Engineer is obtained), while accommodating the minimum height requirement - see Section 645.06.

Modify the 4th sentence of paragraph 2 to read:

"This additional theoretical sign load shall be computed by: For single signs increasing the sign widths an additional 25% without changing the horizontal midpoint of the sign; For multiple signs the sign widths shall be increased 25% toward the outside sign edges. The height shall be increased 25% without changing the bottom edge elevation of the signs."

Under 645.06 Installation of Type I Signs, b. Sign Panels, modify the 4th sentence of the 1st paragraph to read:

"Sign panels on overhead structures shall provide a minimum vertical clearance of 5.5 meters [18 ft] to the highest point of the roadway surface under the sign(s).

February 4, 2011
Supersedes February 27, 2003

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC

Approaches Approach signing shall include the following signs as 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
End Road Work

Work Area 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.

The Contractor shall conduct their operations in such a manner that the roadway will not be restricted to one lane for more than 800 m [2,500 ft] at each work area. To encourage quality paving in warm-weather conditions, the length can be extended to 4,000 ft depending on the traffic impacts. Where more than one work area restricts traffic to one lane operation, these work areas shall be separated by at least 1.6 km [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 mobile operations and "Road Work xx ft" to be used in stationary operations as directed by the Resident.

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC
(Traffic Officers)

Description. This work shall consist of furnishing uniformed police officer(s) in the following situations:

1.) As directed by the Resident

General

The Contractor shall make requests for uniformed police officers a minimum of 48 hours in advance.

Method of Measurement. Traffic officers will be measured for payment by the number of man-hours measured to the nearest ¼ hour.

Basis of Payment. The accepted quantity of traffic officers will be paid for at the contract unit price per man-hour with no additional payment for overtime. The contract unit price will be full compensation for transporting, equipping, supervising and the payment of traffic officers and police cruisers, and for all incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
652.381	Traffic Officers	Hour

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC
(Traffic Control)

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

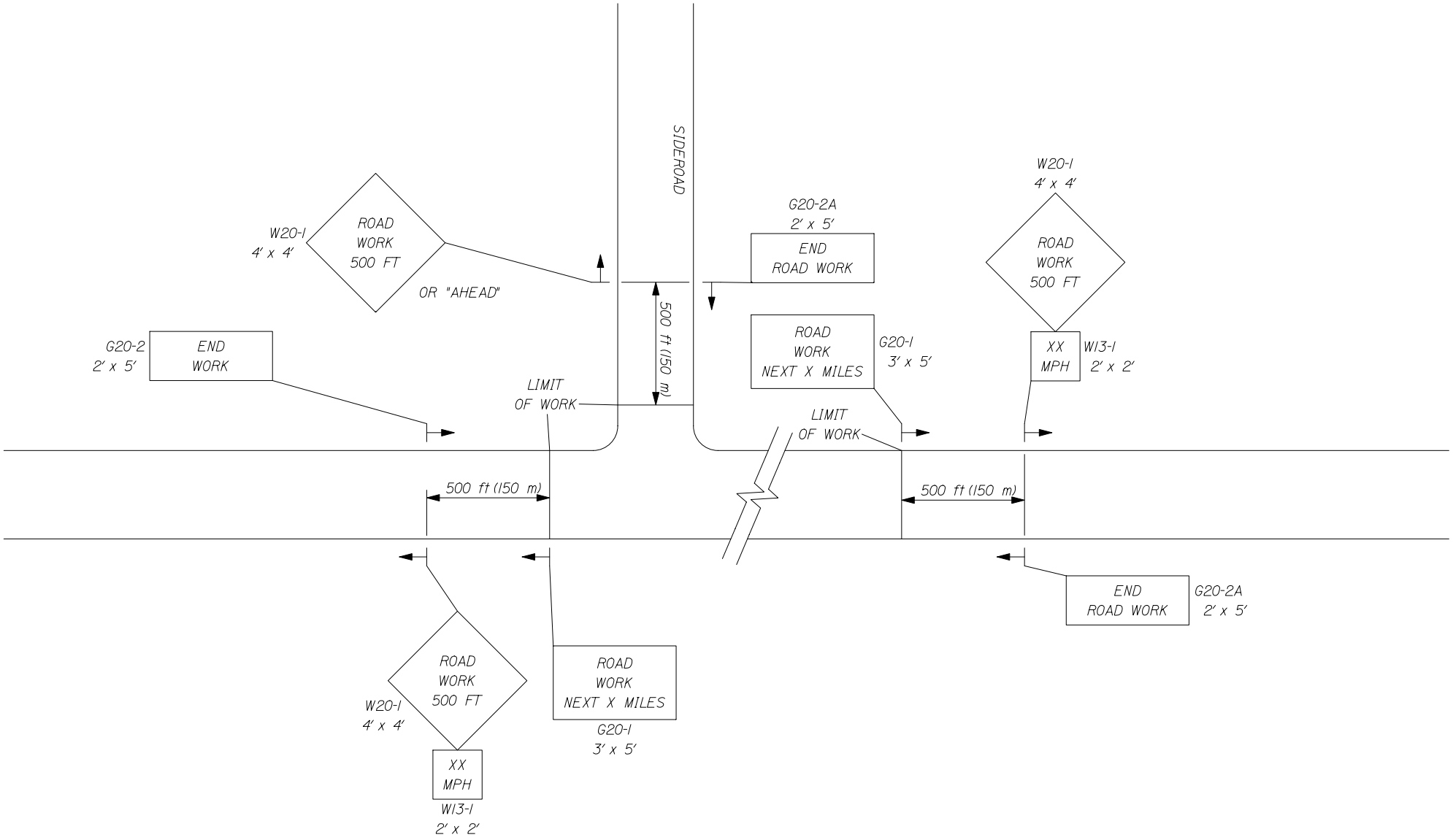
ORIGINAL CONTRACT AMOUNT

from	Up to and	Amount of Penalty
More Than	**Including**	**Damages per Violation**
$0	$100,000	$250
$100,000	$300,000	$500
$300,000	$500,000	$750
$500,000	$1,000,000	$1,500
$1,000,000	$2,000,000	$2,500
$2,000,000	$4,000,000	$5,000
$4,000,000	and more	$10,000

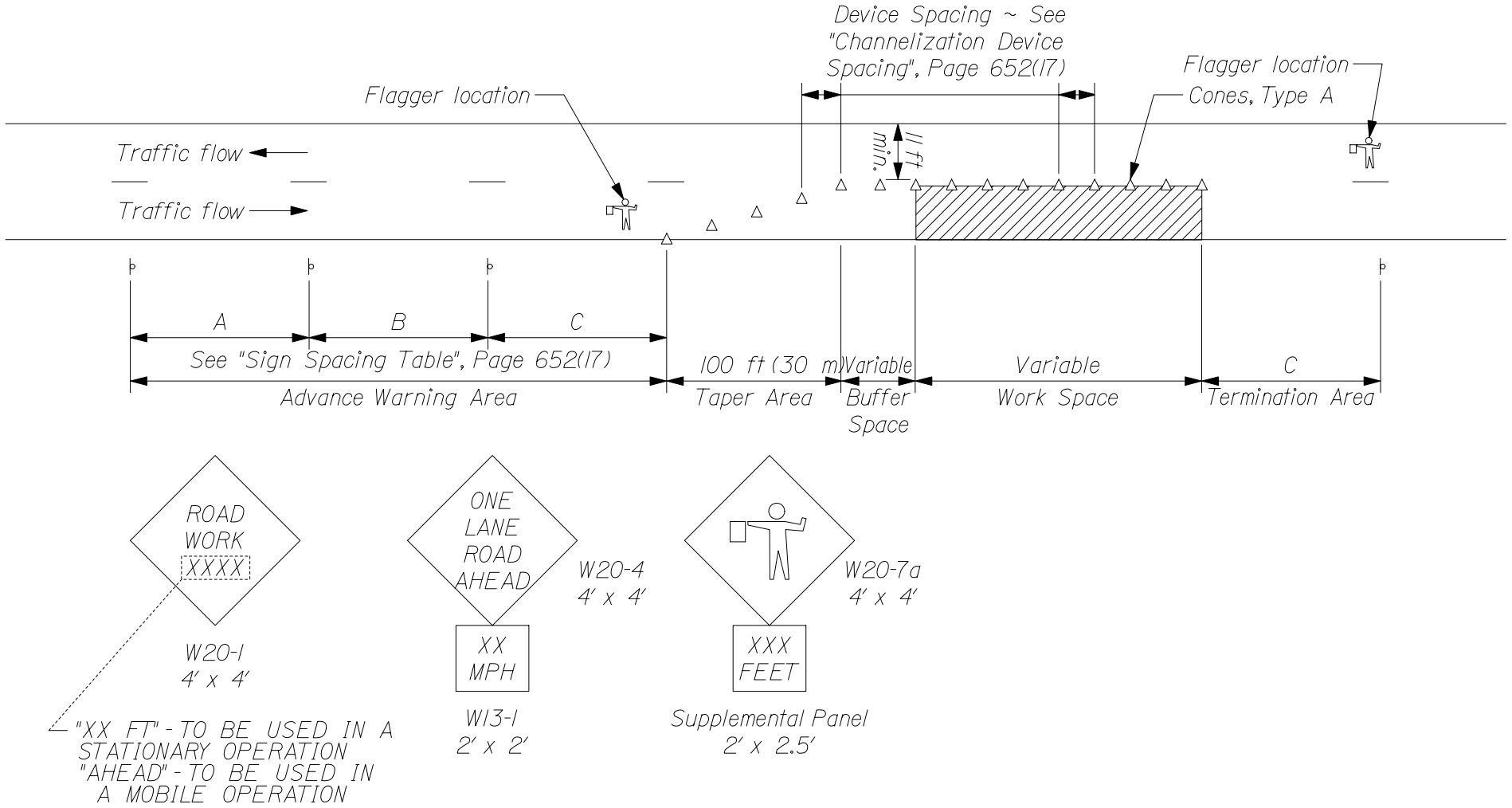
April 17, 2007
Supersedes May 10, 2006

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC
Construction Sign Sheeting Material

Super high intensity fluorescent retroreflective sheeting, ASTM D 4956 - Type VII, Type VIII, or Type IX (prismatic), is required for all construction signs.



-- PROJECT APPROACH SIGNING --
TWO WAY TRAFFIC



TYPICAL APPLICATION: TWO - WAY, TWO LANE ROADWAY, CLOSING ONE LANE USING FLAGGERS

TYPE OF TAPER	TAPER LENGTH (L)*
Merging Taper	at least L
Shifting Taper	at least 0.5L
Shoulder Taper	at least 0.33L
One-Lane, Two-Way Traffic Taper	100 ft (30 m) maximum
Downstream Taper	100 ft (30 m) per lane

* Formulas for L are as follows:

For speed limits of 40 mph (60 km/h) or less:

$L = \frac{WS^2}{60}$ $\quad (L = \frac{WS^2}{155})$

For speed limits of 45 mph (70 km/h) or greater:

$L = WS$ $\quad (L = \frac{WS}{1.6})$

* Formulas for L are as follows:

A minimum of 5 channelization devices shall be used in the taper.

CHANNELIZATION DEVICE SPACING

The spacing of channelization devices shall not exceed a distance equal to 1.0 times the speed limit in mph when used for taper channelization, and a distance in feet of 2.0 times the speed limit in mph when used for tangent channelization.

SIGN SPACING TABLE			
Road Type	Distance Between Signs**		
	A	B	C
Urban 30 mph (50 km/h) or less	100 (30)	100 (30)	100 (30)
Urban 35 mph (55 km/h) and greater	350 (100)	350 (100)	350 (100)
Rural	500 (150)	500 (150)	500 (150)
Expressway / Urban Parkway	2,640 (800)	1,500 (450)	1000 (300)

**Distances are shown in feet (meters).

GENERAL NOTES;

1. Final placement of signs and devices may be changed to fit field conditions as approved by the Resident.

SUGGESTED BUFFER ZONE LENGTHS

Speed (mph)	Length (feet)	Speed (mph)	Length (feet)
20	115	40	325
25	155	45	360
30	200	50	425
35	250	55	495

October 11, 2012
Supersedes September 19, 2012

STANDARD DETAIL UPDATES

Standard Details and Standard Detail updates are available at:
http://www.maine.gov/mdot/contractor-consultant-information/ss_standard_details_updates.php

Detail #	Description	Revision Date
203(03)	Backslope Rounding	1/29/08
502(03)	Concrete Curb - Bituminous Wearing Surface	8/08/11
502(03)A	Concrete Curb - Concrete Wearing Surface	2/2/09
502(07)	Precast Concrete Deck Panels - Layout Plan	2/2/09
502(07)A	Precast Concrete Deck Panels - Layout Plan	2/2/09
502(08)	Precast Concrete Deck Panels - Panel Plan	2/2/09
502(09)	Precast Concrete Deck Panels - Blocking Detail	2/2/09
502(10)	Precast Concrete Deck Panels	2/2/09
502(11)	Precast Concrete Deck Panels	2/2/09
502(12)	Precast Concrete Deck Panels - Notes	10/28/09
502(12)A	Precast Concrete Deck Panels - Notes	2/2/09
504(15)	Diaphragms	5/19/11
504(21)	Tension Flange Connection for Diaphragm and Cross Frames	10-11-12
504(22)	Diaphragm & Crossframe Notes	10/11/12
504(23)	Hand-Hold Details	12/08/05
502(24)	Hand-Hold Details	10/11/12
507(04)	Steel Bridge Railing	2/05/03
507(09)	Steel Bridge Railing	5/19/11

507(09)A	Steel Bridge Railing	5/19/11
526(06)	Permanent Concrete Barrier	2/2/09
526(08)	Permanent Concrete Barrier – Type IIIA	10/07/10
526(08)A	Permanent Concrete Barrier – Type IIIA	12/07/10
526(13)	Permanent Concrete Barrier – Type IIIB	2/2/09
526(14)	Permanent Concrete Barrier – Type IIIB	2/2/09
526(21)	Concrete Transition Barrier	2/2/09
526(33)	Concrete Transition Barrier	8/18/03
526(39)	Texas Classic Rail – Between Window	2/2/09
526(40)	Texas Classic Rail – Through Window	2/2/09
526(41)	Texas Classic Rail – Through Post	2/2/09
526(42)	Texas Classic Rail – Through Nose	2/2/09
535(01)	Precast Superstructure - Shear Key	10/12/06
535(02)	Precast Superstructure - Curb Key & Drip Notch	5/20/08
535(03)	Precast Superstructure - Shear Key	12/5/07
535(04)	Precast Superstructure - Shear Key	12/05/07
535(05)	Precast Superstructure - Post Tensioning	5/20/08
535(06)	Precast Superstructure - Sections	10/12/06
535(07)	Precast Superstructure - Precast Slab & Box	10/12/06
535(08)	Precast Superstructure - Sections	10/12/06
535(09)	Precast Superstructure - Sections	10/12/06
535(10)	Precast Superstructure - Sections	10/12/06
535(11)	Precast Superstructure - Sections	10/12/06

535(12)	Precast Superstructure - Sections	10/12/06
535(13)	Precast Superstructure - Sections	10/12/06
535(14)	Precast Superstructure - Stirrups	10/12/06
535(15)	Precast Superstructure - Plan	10/12/06
535(16)	Precast Superstructure - Reinforcing	10/12/06
535(17)	Precast Superstructure - Notes	12/05/07
604(01)	Catch Basins	11/16/05
604(05)	Type “A” & “B” Catch Basin Tops	11/16/05
604(06)	Type “C” Catch Basin Tops	11/16/05
604(07)	Manhole Top “D”	11/16/05
604(09)	Catch Basin Type “E”	11/16/05
606(02)	Multiple Mailbox Support	11/16/05
606(03)	Guardrail Standard Detail	9/19/12
606(07)	Reflectorized Beam Guardrail Delineator Details	11/16/05
606(20)	Guardrail - Type 3 - Single Rail - Bridge Mounted	2/2/09
606(21)	Guardrail - Type 3 - Single Rail - Bridge Mounted	2/2/09
606(22)	Guardrail - Type 3 - Single Rail - Bridge Mounted	2/2/09
606(23)	Guardrail - Type 3 - Single Rail - Bridge Mounted	2/2/09
609(03)	Curb Type 3	6/27/06
609(06)	Vertical Bridge Curb	2/12/09
609(07)	Curb Type 1	6/27/06

609(08)	Precast Concrete Transition Curb	2/2/09
610(02)	Stone Scour Protection	8/9/11
610(03)	Stone Scour Protection	5/19/11
610(04)	Stone Scour Protection	5/19/11
620(05)	Geotextile Placement for Protection of Slopes Adjactent to Stream & Tidal Areas	5/19/11
626(09)	Electrical Junction Box for Traffic Signals and Lighting	8/27/10
645(06)	H-Beam Posts – Highway Signing	7/21/04
645(09)	Installation of Type II Signs	7/21/04
801(01)	Drives on Sidewalk Sections	12/13/07
801(02)	Drives on Non-Sidewalk Sections	12/13/07

SUPPLEMENTAL SPECIFICATION

(Corrections, Additions, & Revisions to Standard Specifications - Revision of December 2002)

SECTION 101
CONTRACT INTERPRETATION

101.2 Definitions

Closeout Documentation Replace the sentence "A letter stating the amount….. DBE goals." with "DBE Goal Attainment Verification Form"

Add "Environmental Information Hazardous waste assessments, dredge material test results, boring logs, geophysical studies, and other records and reports of the environmental conditions. For a related provision, see Section 104.3.14 - Interpretation and Interpolation."

Add "Fabrication Engineer The Department's representative responsible for Quality Assurance of pre-fabricated products that are produced off-site."

Geotechnical Information Replace with the following: "Boring logs, soil reports, geotechnical design reports, ground penetrating radar evaluations, seismic refraction studies, and other records of subsurface conditions. For a related provision, see Section 104.3.14 - Interpretation and Interpolation."

SECTION 102
DELIVERY OF BIDS

102.7.1 Location and Time Add the following sentence "As a minimum, the Bidder will submit a Bid Package consisting of the Notice to Contractors, the completed Acknowledgement of Bid Amendments form, the completed Schedule of Items, 2 copies of the completed Agreement, Offer, & Award form, a Bid Bond or Bid Guarantee, and any other Certifications or Bid Requirements listed in the Bid Book."

102.11.1 Non-curable Bid Defects Replace E. with "E. The unit price and bid amount is not provided or a lump sum price is not provided or is illegible as determined by the Department."

SECTION 103
AWARD AND CONTRACTING

103.3.1 Notice and Information Gathering Change the first paragraph to read as follows: "After Bid Opening and as a condition for Award of a Contract, the Department may require an Apparent Successful Bidder to demonstrate to the Department's satisfaction that the Bidder is responsible and qualified to perform the Work."

SECTION 104
GENERAL RIGHTS AND RESPONSIBILITIES

104.3.14 Interpretation and Interpolation In the first sentence, change "…and Geotechnical Information." to "…Environmental Information, and Geotechnical Information."

SECTION 105
GENERAL SCOPE OF WORK

Delete the entire Section 105.6 and replace with the following:

105.6.1 Department Provided Services The Department will provide the Contractor with the description and coordinates of vertical and horizontal control points, set by the Department, within the Project Limits, for full construction Projects and other Projects where survey control is necessary. For Projects of 1,500 feet in length, or less: The Department will provide three points. For Projects between 1,500 and 5,000 feet in length: The Department will provide one set of two points at each end of the Project. For Projects in excess of 5,000 feet in length, the Department will provide one set of two points at each end of the Project, plus one additional set of two points for each mile of Project length. For non-full construction Projects and other Projects where survey control is not necessary, the Department will not set any control points and, therefore, will not provide description and coordinates of any control points. Upon request of the Contractor, the Department will provide the Department's survey data management software and Survey Manual to the Contractor, or its survey Subcontractor, for the exclusive use on the Department's Projects.

105.6.2 Contractor Provided Services Utilizing the survey information and points provided by the Department, described in Subsection 105.6.1, Department Provided Services, the Contractor shall provide all additional survey layout necessary to complete the Work. This may include, but not be limited to, reestablishing all points provided by the Department, establishing additional control points, running axis lines, providing layout and maintenance of all other lines, grades, or points, and survey quality control to ensure conformance with the Contract. The Contractor is also responsible for providing construction centerline, or close reference points, for all Utility Facilities relocations and adjustments as necessary to complete the Work. When the Work is to connect with existing Structures, the Contractor shall verify all dimensions before proceeding with the Work. The Contractor shall employ or retain competent engineering and/or surveying personnel to fulfill these responsibilities.

The Contractor must notify the Department of any errors or inconsistencies regarding the data and layout provided by the Department as provided by Section 104.3.3 - Duty to Notify Department If Ambiguities Discovered.

105.6.2.1 Survey Quality Control The Contractor is responsible for all construction survey quality control. Construction survey quality control is generally defined as, first, performing initial field survey layout of the Work and, second, performing an independent check of the initial layout using independent survey data to assure the accuracy of the initial layout; additional iterations of checks may be required if significant discrepancies are discovered in this process. Construction survey layout quality control also requires written documentation of the layout process such that the process can be followed and repeated, if necessary, by an independent survey crew.

105.6.3 Survey Quality Assurance It is the Department's prerogative to perform construction survey quality assurance. Construction survey quality assurance may, or may not, be performed by the Department. Construction survey quality assurance is generally defined as an independent check of the construction survey quality control. The construction survey

quality assurance process may involve physically checking the Contractor's construction survey layout using independent survey data, or may simply involve reviewing the construction survey quality control written documentation. If the Department elects to physically check the Contractor's survey layout, the Contractor's designated surveyor may be required to be present. The Department will provide a minimum notice of 48 hours to the Contractor, whenever possible, if the Contractor's designated surveyor's presence is required. Any errors discovered through the quality assurance process shall be corrected by the Contractor, at no additional cost to the Department.

105.6.4 Boundary Markers The Contractor shall preserve and protect from damage all monuments or other points that mark the boundaries of the Right-of-Way or abutting parcels that are outside the area that must be disturbed to perform the Work. The Contractor indemnifies and holds harmless the Department from all claims to reestablish the former location of all such monuments or points including claims arising from 14 MRSA § 7554-A. For a related provision, see Section 104.3.11 - Responsibility for Property of Others.

SECTION 106
QUALITY

106.4.3 Testing Change the first sentence in paragraph three from "…maintain records of all inspections and tests." to "…maintain original documentation of all inspections, tests, and calculations used to generate reports."

106.6 Acceptance Add the following to paragraph 1 of A: "This includes Sections 401 - Hot Mix Asphalt, 402 - Pavement Smoothness, and 502 - Structural Concrete - Method A - Air Content."

Add the following to the beginning of paragraph 3 of A: "For pay factors based on Quality Level Analysis, and"

106.7.1 Standard Deviation Method Add the following to F: "Note: In cases where the mean of the values is equal to either the USL or the LSL, then the PWL will be 50 regardless of the computed value of s."

Add the following to H: "Method C Hot Mix Asphalt: PF = [55 + (Quality Level *0.5)] * 0.01"

SECTION 107
TIME

107.3.1 General Add the following: "If a Holiday occurs on a Sunday, the following Monday shall be considered a Holiday. Sunday or Holiday work must be approved by the Department, except that the Contractor may work on Martin Luther King Day, President's Day, Patriot's Day, the Friday after Thanksgiving, and Columbus Day without the Department's approval."

107.7.2 Schedule of Liquidated Damages Replace the table of Liquidated Damages as follows:

From	Up to and	Amount of Liquidated

More Than	Including	Damages per Calendar Day
$0	$100,000	$225
$100,000	$250,000	$350
$250,000	$500,000	$475
$500,000	$1,000,000	$675
$1,000,000	$2,000,000	$900
$2,000,000	$4,000,000	$1,000
$4,000,000	and more	$2,100

SECTION 108
PAYMENT

Remove Section 108.4 and replace with the following:

"108.4 Payment for Materials Obtained and Stored Acting upon a request from the Contractor and accompanied by bills or receipted bills, the Department will pay for all or part of the value of acceptable, non-perishable Materials that are to be incorporated in the Work, including Materials that are to be incorporated into the Work, not delivered on the Work site, and stored at places acceptable to the Department. Examples of such Materials include steel piles, stone masonry, curbing, timber and lumber, metal Culverts, stone and sand, gravel, and other Materials. The Department will not make payment on living or perishable Materials until acceptably planted in their final locations.

If payment for Materials is made to the Contractor based on bills, only, then the Contractor must provide receipted bills to the Department for these Materials within 14 days of the date the Contractor receives payment for the Materials. Failure of the Contractor to provide receipted bills for these Materials within 14 days of the dated the Contractor receives payment will result in the paid amount being withheld from the subsequent progress payment, or payments, until such time the receipted bills are received by the Department.

Materials paid for by the Department are the property of the Department, but the risk of loss shall remain with the Contractor. Payment for Materials does not constitute Acceptance of the Material. If Materials for which the Department has paid are later found to be unacceptable, then the Department may withhold amounts reflecting such unacceptable Materials from payments otherwise due the Contractor.

In the event of Default, the Department may use or cause to be used all paid-for Materials in any manner that is in the best interest of the Department."

SECTION 109
CHANGES

109.1.1 Changes Permitted Add the following to the end of the paragraph: "There will be no adjustment to Contract Time due to an increase or decrease in quantities, compared to those estimated, except as addressed through Contract Modification(s)."

109.1.2 Substantial Changes to Major Items Add the following to the end of the paragraph: "Contract Time adjustments may be made for substantial changes to Major Items when the change affects the Critical Path, as determined by the Department"

109.4.4 Investigation / Adjustment Third sentence, delete the words "subsections (A) - (E)"

109.5.1 Definitions - Types of Delays

B. Compensable Delay Replace (1) with the following; "a weather related Uncontrollable Event of such an unusually severe nature that a Federal Emergency Disaster is declared. The Contractor will only be entitled to an Equitable Adjustment if the Project falls within the geographic boundaries prescribed under the disaster declaration."

109.7.2 Basis of Payment Replace with the following: "Adjustments will be established by mutual Agreement based upon Unit or Lump Sum Prices. These agreed Unit or Lump Sum prices will be full compensation and no additions or mark-ups are allowed. If Agreement cannot be reached, the Contractor shall accept payment on a Force Account basis as provided in Section 109.7.5 - Force Account Work, as full and complete compensation for all Work relating to the Equitable Adjustment."

109.7.3 Compensable Items Delete this Section entirely.

109.7.4 Non-Compensable Items Replace with the following: "The Contractor is not entitled to compensation or reimbursement for any of the following items:

A. Total profit or home office overhead in excess of 15%,
B. ……."

109.7.5 Force Account Work

C. Equipment
Paragraph 2, delete sentence 1 which starts; "Equipment leased…."

Paragraph 6, change sentence 2 from "The Contractor may furnish…" to read "If requested by the Department, the Contractor will produce cost data to assist the Department in the establishment of such rental rate, including all records that are relevant to the Actual Costs including rental Receipts, acquisition costs, financing documents, lease Agreements, and maintenance and operational cost records."
Add the following paragraph; "Equipment leased by the Contractor for Force Account Work and actually used on the Project will be paid for at the actual invoice amount plus 10% markup for administrative costs."

Add the following section;

"F. Subcontractor Work When accomplishing Force Account Work that utilizes Subcontractors, the Contractor will be allowed a maximum markup of 5% for profit and overhead on the Subcontractor's portion of the Force Account Work. If the Department does not accept the Subcontractor quote, then the Subcontractor work will be subject to the Force Account provisions with a 5% markup for profit & overhead.."

SECTION 110
INDEMNIFICATION, BONDING, AND INSURANCE

Delete the entire Section 110.2.3 and replace with the following:
110.2.3 Bonding for Landscape Establishment Period The Contractor shall provide a signed, valid, and enforceable Performance, Warranty, or Maintenance Bond complying with the Contract, to the Department at Final Acceptance.

The bond shall be in the full amount for all Pay Items for work pursuant to Sec 621, Landscape, payable to the "Treasurer - State of Maine," and on the Department's forms, on exact copies thereof, or on forms that do not contain any significant variations from the Department's forms as solely determined by the Department.

The Contractor shall pay all premiums and take all other actions necessary to keep said bond in effect for the duration of the Landscape Establishment Period described in Special Provision 621.0036 - Establishment Period. If the Surety becomes financially insolvent, ceases to be licensed or approved to do business in the State of Maine, or stops operating in the United States, the Contractor shall file new bonds complying with this Section within 10 Days of the date the Contractor is notified or becomes aware of such change.

All Bonds shall be procured from a company organized and operating in the United States, licensed or approved to do business in the State of Maine by the State of Maine Department of Business Regulation, Bureau of Insurance, and listed on the latest Federal Department of the Treasury listing for "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies."

By issuing a bond, the Surety agrees to be bound by all terms of the Contract, including those related to payment, time for performance, quality, warranties, and the Department's self-help remedy provided in Section 112.1 - Default to the same extent as if all terms of the Contract are contained in the bond(s).

Regarding claims related to any obligations covered by the bond, the Surety shall provide, within 60 Days of Receipt of written notice thereof, full payment of the entire claim or written notice of all bases upon which it is denying or contesting payment. Failure of the Surety to provide such notice within the 60-day period constitutes the Surety's waiver of any right to deny or contest payment and the Surety's acknowledgment that the claim is valid and undisputed.

SECTION 202
REMOVING STRUCTURES AND OBSTRUCTIONS

202.02 Removing Buildings Make the following change to the last sentence in the final paragraph, change "…Code of Maine Regulations 401." to "…Department of Environmental Protection Maine Solid Waste Management Rules, 06-096 CMR Ch. 401, Landfill Siting, Design and Operation."

SECTION 203
EXCAVATION AND EMBANKMENT

203.01 Description Under b. Rock Excavation; add the following sentence: "The use of perchlorate is not allowed in blasting operations."

Delete the entire Section 203.041 and replace with the following:
"203.041 Salvage of Existing Hot Mix Asphalt Pavement All existing hot mix asphalt pavement designated to be removed under this contract must be salvaged for utilization. Existing hot mix asphalt pavement material shall not be deposited in any waste area or be placed below subgrade in any embankment.

Methods of utilization may be any of the following:

1. Used as a replacement for untreated aggregate surface course on entrances provided the material contains no particles greater than 50 mm [2 in] in any dimension. Payment will be made under Pay Item 411.09, Untreated Aggregate Surface Course or 411.10, Untreated Aggregate Surface Course, Truck Measure. Material shall be placed, shaped, compacted and stabilized as directed by the Resident.

2. Used as the top 3" of gravel. Recycled Asphalt Pavement (RAP) shall be process to 1½" minus and blending will not be allowed. When this method is utilized, a surcharge will not be required

3. Stockpiled at commercial or approved sites for commercial or MaineDOT use.

4. Other approved methods proposed by the Contractor, and approved by the Resident which will assure proper use of the existing hot mix asphalt pavement.

The cost of salvaging hot mix asphalt material will be included for payment under the applicable pay item, with no additional allowances made, which will be full compensation for removing, temporarily stockpiling, and rehandling, if necessary, and utilizing the material in entrances or other approved uses, or stockpiling at an approved site as described above. The material will also be measured and paid for under the applicable Pay Item if it is reused for aggregate in entrances, or other approved uses."

SECTION 502
STRUCTURAL CONCRETE

502.05 Composition and Proportioning; TABLE #1; NOTE #2; third sentence; Change "…alcohol based saline sealer…" to "alcohol based silane sealer…". Add NOTE #6 to Class S Concrete.

502.0502 Quality Assurance Method A - Rejection by Resident Change the first sentence to read: "For an individual sublot with test results failing to meet the criteria in Table #1, or if the calculated pay factor for Air Content is less than 0.80……"

502.0503 Quality Assurance Method B - Rejection by Resident Change the first sentence to read: "For material represented by a verification test with test results failing to meet the criteria in Table #1, the Department will……"

502.0505 Resolution of Disputed Acceptance Test Results Combine the second and third sentence to read: "Circumstances may arise, however, where the Department may ……"
502.10 Forms and False work

D. Removal of Forms and False work 1., First paragraph; first, second, and third sentence; replace "forms" with "forms and false work"

502.11 Placing Concrete

G. Concrete Wearing Surface and Structural Slabs on Precast Superstructures Last paragraph; third sentence; replace "The temperature of the concrete shall not exceed 24° C [75° F} at the time of placement." with "The temperature of the concrete shall not exceed 24° C [75° F} at the time the concrete is placed in its final position."

502.15 Curing Concrete First paragraph; replace the first sentence with the following; "All concrete surfaces shall be kept wet with clean, fresh water for a curing period of at least 7 days after concrete placing, with the exception of vertical surfaces as provided for in Section 502.10 (D) - Removal of Forms and False work."

Second paragraph; delete the first two sentences.
Third paragraph; delete the entire paragraph which starts "When the ambient temperature…."
Fourth paragraph; delete "approved" to now read "…continuously wet for the entire curing period…"

Fifth paragraph; second sentence; change "…as soon as it is possible to do so without damaging the concrete surface." to "…as soon as possible."

Seventh paragraph; first sentence; change "…until the end of the curing period." to "…until the end of the curing period, except as provided for in Section 502.10(D) - Removal of Forms and False work."

502.19 Basis of Payment First paragraph, second sentence; add "pier nose armor" to the list of items included in the contract price for concrete.

SECTION 503
REINFORCING STEEL

503.06 Placing and Fastening Change the second paragraph, first sentence from: "All tack welding shall be done in accordance with Section 504, Structural Steel." to "All tack welding shall be done in accordance with AWS D1.4 Structural Welding Code - Reinforcing Steel."

SECTION 504
STRUCTURAL STEEL

504.09 Facilities for Inspection Add the follow as the last paragraph: "Failure to comply with the above requirements will be consider to be a denial to allow access to work by the Contractor. The Department will reject any work done when access for inspection is denied."

504.18 Plates for Fabricated Members Change the second paragraph, first sentence from: "…ASTM A 898/A 898 M…" to "…ASTM A 898/A 898 M or ASTM A 435/A 435 M as applicable and…"

504.31 Shop Assembly Add the following as the last sentence: "The minimum assembly length shall include bearing centerlines of at least two substructure units."

504.64 Non Destructive Testing-Ancillary Bridge Products and Support Structures Change the third paragraph, first sentence from "One hundred percent…" to "Twenty five percent…"

SECTION 535
PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE

535.02 Materials Change "Steel Strand for Concrete Reinforcement" to "Steel Strand." Add the following to the beginning of the third paragraph; "Concrete shall be Class P conforming to the requirements in this section. 28 day compressive strength shall be as stated on the plans. Coarse aggregate…."

535.05 Inspection Facilities Add the follow as the last paragraph: "If the above requirements are not met, the Contractor shall be considered to be in violation of Standard Specification 104.2.5 – Right to Inspect Work. All work occurring during a violation of this specification will be rejected."

535.26 Lateral Post-Tensioning Replace the first paragraph; "A final tension…" with "Overstressing strands for setting losses cannot be accomplished for chuck to chuck lengths of 7.6 m [25 ft] and less. In such instances, refer to the Plans for all materials and methods. Otherwise, post-tensioning shall be in accordance with PCI standards and shall provide the anchorage force noted in the Plans. The applied jacking force shall be no less than 100% of the design jacking force."

SECTION 603
PIPE CULVERTS AND STORM DRAINS

603.0311 Corrugated Polyethylene Pipe for Option III Replace the Minimum Mandrel Diameter Table with the following:

Nominal Size US Customary (in)	Minimum Mandrel Diameter (in)	Nominal Size Metric (mm)	Minimum Mandrel Diameter (mm)
12	11.23	300	280.73
15	14.04	375	350.91
18	16.84	450	421.09
24	22.46	600	561.45
30	28.07	750	701.81
36	33.69	900	842.18
42	39.30	1050	982.54
48	44.92	1200	1122.90

SECTION 604

MANHOLES, INLETS, AND CATCH BASINS

604.02 Materials Add the following:

"Tops and Traps	712.07
Corrugated Metal Units	712.08
Catch Basin and Manhole Steps	712.09"

SECTION 605
UNDERDRAINS

605.05 Underdrain Outlets Make the following change:

In the first paragraph, second sentence, delete the words "metal pipe".

SECTION 606
GUARDRAIL

606.02 Materials Delete the entire paragraph which reads "The sole patented supplier of multiple mailbox…." and replace with "Acceptable multiple mailbox assemblies shall be listed on the Department's Approved Products List and shall be NCHRP 350 tested and approved."
Delete the entire paragraph which reads "Retroreflective beam guardrail delineators…." and replace with "Reflectorized sheeting for Guardrail Delineators shall meet the requirements of Section 719.01 - Reflective Sheeting. Delineators shall be fabricated from high-impact, ultraviolet and weather resistant thermoplastic.

606.09 Basis of Payment First paragraph; delete the second and third sentence in their entirety and replace with "Butterfly-type guardrail reflectorized delineators shall be mounted on all W-beam guardrail at an interval of every 10 posts [62.5 ft] on tangents sections and every 5 posts [31.25 ft] on curved sections as directed by the Resident. On divided highways, the delineators shall be yellow on the left hand side and silver/white on the right hand side. On two-way roadways, the delineators shall be silver/white on the right hand side. All delineators shall have retroreflective sheeting applied to only the traffic facing side. Reflectorized guardrail delineators will not be paid for directly, but will be considered incidental to the guardrail items."

SECTION 609
CURB

609.04 Bituminous Curb f., Delete the requirement "Color Natural (White)"

SECTION 610
STONE FILL, RIPRAP, STONE BLANKET, AND STONE DITCH PROTECTION

Add the following paragraph to Section 610.02:
"Materials shall meet the requirements of the following Sections of Special Provision 703:

Stone Fill	703.25
Plain and Hand Laid Riprap	703.26
Stone Blanket	703.27
Heavy Riprap	703.28
Definitions	703.32"

Add the following paragraph to Section 610.032.a.
"Stone fill and stone blanket shall be placed on the slope in a well-knit, compact and uniform layer. The surface stones shall be chinked with smaller stone from the same source."

Add the following paragraph to Section 610.032.b:
"Riprap shall be placed on the slope in a well-knit, compact and uniform layer. The surface stones shall be chinked with smaller stone from the same source."

Add the following to Section 610.032: "Section 610.032.d. The grading of riprap, stone fill, stone blanket and stone ditch protection shall be determined by the Resident by visual inspection of the load before it is dumped into place, or, if ordered by the Resident, by dumping individual loads on a flat surface and sorting and measuring the individual rocks contained in the load. A separate, reference pile of stone with the required gradation will be placed by the Contractor at a convenient location where the Resident can see and judge by eye the suitability of the rock being placed during the duration of the project. The Resident reserves the right to reject stone at the job site or stockpile, and in place. Stone rejected at the job site or in place shall be removed from the site at no additional cost to the Department."

SECTION 615
LOAM

615.02 Materials Make the following change:

Organic Content	Percent by Volume
Humus	"5% - 10%", as determined by Ignition Test

SECTION 618
SEEDING

618.01 Description Change the first sentence to read as follows: "This work shall consist of furnishing and applying seed ….." Also remove ",and cellulose fiber mulch" from 618.01(a).
618.03 Rates of Application In 618.03(a), remove the last sentence and replace with the following: "These rates shall apply to Seeding Method 2, 3, and Crown Vetch."

In 618.03(c) "1.8 kg [4 lb]/unit." to "1.95 kg [4 lb]/unit."

618.09 Construction Method In 618.09(a) 1, sentence two, replace "100 mm [4 in]" with "25 mm [1 in] (Method 1 areas) and 50 mm [2 in] (Method 2 areas)"

618.15 Temporary Seeding Change the Pay Unit from Unit to Kg [lb].

SECTION 620
GEOTEXTILES

620.03 Placement Section (c)

Title: Replace "Non-woven" in title with "Erosion Control".
First Paragraph: Replace first word "Non-woven" with "Woven monofilament".
Second Paragraph: Replace second word "Non-woven" with "Erosion Control".

620.07 Shipment, Storage, Protection and Repair of Fabric Section (a)

Replace the second sentence with the following: "Damaged geotextiles, as identified by the Resident, shall be repaired immediately."

620.09 Basis of Payment

Pay Item 620.58: Replace "Non-woven" with "Erosion Control"
Pay Item 620.59: Replace "Non-woven" with "Erosion Control"

SECTION 621
LANDSCAPING

621.0036 Establishment Period In paragraph 4 and 5, change "time of Final Acceptance" to "end of the period of establishment". In Paragraph 7, change "Final Acceptance date" to ""end of the period of establishment" and change "date of Final Acceptance" to "end of the period of establishment".

SECTION 626
HIGHWAY SIGNING

626.034 Concrete Foundations Add to the following to the end of the second paragraph: "Pre-cast and cast-in-place foundations shall be warranteed against leaning and corrosion for two years after the project is completed. If the lean is greater than 2 degrees from normal or the foundation is spalling within the first two years, the Contractor shall replace the foundation at no extra cost."

SECTION 627
PAVEMENT MARKINGS

627.10 Basis of Payment Add to the following to the end of the third paragraph: "If allowed by Special Provision, the Contractor may utilize Temporary Bi-Directional Yellow and White(As required) Delineators as temporary pavement marking lines and paid for at the contract lump sum price. Such payment will include as many applications as required and removal."

SECTION 637
DUST CONTROL

637.06 Basis of Payment Add the following after the second sentence of the third paragraph: "Failure by the Contractor to follow Standard Specification or Special Provision - Section 637

and/or the Contractor's own Soil Erosion and Pollution Control Plan concerning Dust Control and/or the Contractor's own Traffic Control Plan concerning Dust Control and/or visible evidence of excessive dust problems, as determined by the Resident, will result in a reduction in payment, computed by reducing the Lump Sum Total by 5% per occurrence per day. The Department's Resident or any other representative of the Department reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Department shall not be held responsible for any delay in the work due to any suspension under this item. Additional penalties may also be assessed in accordance with Special Provision 652 - Work Zone Traffic Control and Standard Specification 656 - Temporary Soil Erosion and Water Pollution Control."

SECTION 639
ENGINEERING FACILITIES

639.04 Field Offices Change the forth to last paragraph from: "The Contractor shall provide a fully functional desktop copier…" to "….desktop copier/scanner…"

Description Change "Floor Area" to "Floor Area (Outside Dimension)". Change Type B floor area from "15 (160)" to "20 (217)".

639.09 Telephone Paragraph 1 is amended as follows:
"The contractor shall provide **two** telephone lines and two telephones,…."

Add- "In addition the contractor will supply one computer broadband connection, modem lease and router. The router shall have wireless access and be 802.11n or 802.11g capable and wireless. The type of connection supplied will be contingent upon the availability of services (i.e. DSL or Cable Broadband). It shall be the contractor's option to provide dynamic or static IP addresses through the service. **The selected service will have a minimum downstream connection of 1.5 Mbps and 384 Kbps upstream.** The contractor shall be responsible for the installation charges and all reinstallation charges following suspended periods. Monthly service and maintenance charges shall be billed by the Internet Service Provider (ISP) directly to the contractor."

SECTION 652
MAINTENANCE OF TRAFFIC

652.2.3 Flashing Arrow Board Delete the existing 5 paragraphs and replace with the following: Flashing Arrow Panels (FAP) must be of a type that has been submitted to AASHTO's National Transportation Product Evaluation Program (NTPEP) for evaluation and placed on the Maine Department of Transportations' Approved Products List of Portable Changeable Message Signs & Flashing Arrow Panels.

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

degrees. The color presented by the elements shall be yellow.

FAP elements shall be capable of at least a 50 percent dimming from full brilliance. Full brilliance should be used for daytime operation and the dimmed mode shall be used for nighttime operation. FAP shall be at least 2.4 M x 1.2 M [96" x 48"] and finished in non-reflective black. The FAP shall be interpretable for a distance not less than 1.6 km [1 mile].

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

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

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

Controller and battery compartments shall be enclosed in lockable, weather-tight boxes.
The FAP shall be mounted on a pneumatic-tired trailer or other suitable support for hauling to various locations, as directed. The minimum mounting height of an arrow panel should be 2.1 M [7 feet] from the roadway to the bottom of the panel.

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

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

652.2.4 Other Devices Delete the last paragraph and add the following:
"652.2.5 Portable Changeable Message Sign Trailer mounted Portable Changeable Message Signs (PCMS) must be of a type that has been submitted to AASHTO's National Transportation Product Evaluation Program (NTPEP) for evaluation and placed on the Maine Department of Transportations' Approved Products List of Portable Changeable Message Signs & Flashing Arrow Panels. The PCMS unit shall meet or exceed the current specifications of the Manual on Uniform Traffic Control Devices (MUTCD), 6F.55.

The front face of the sign should be covered with a low-glare protective material. The color of the LED elements shall be amber on a black background. The PCMS should be visible from a distance of 0.8 km [0.5 mile] day and night and have a minimum 15º viewing angle. Characters must be legible from a distance of at least 200 M [650 feet].

The message panel should have adjustable display rates (minimum of 3 seconds per phase), so that the entire message can be read at least twice at the posted speed, the off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed. Each message shall consist of either one or two phases. A phase shall consist of up to eight characters per line. The unit must be capable of displaying at least three lines of text with eight characters per line.

Each character shall be 457 mm [18"] high. Each character module shall use at least a five wide and seven high pixel matrix. The text of the messages shall not scroll or travel horizontally or vertically across the face of the sign.

Units shall automatically adjust their brightness under varying light conditions to maintain legibility.

The control system shall include a display screen upon which messages can be reviewed before being displayed on the message sign. The control system shall be capable of maintaining memory when power is unavailable. Message must be changeable with either a notebook computer or an on-board keypad. The controller shall have the capability to store a minimum of 200 user-defined and 200 pre-programmed messages. Controller and battery compartments shall be enclosed in lockable, weather-tight boxes.

PCMS units shall have the capability of being made programmable by means of wireless communications. PCMS units shall also be fully capable of having an on-board radar system installed if required for a particular application.

PCMS' primary power source shall be solar with a battery back-up to provide continuous operation when failure of the primary power source occurs. Batteries must be capable of being charged from a 110 volt AC power source. The unit must also be capable of being operated solely from a 110 volt AC power source and be equipped with a cable for this purpose.

The PCMS shall be mounted on a trailer in such a way that the bottom of the message sign panel shall be a minimum of 2.1 M [7 ft] above the roadway in urban areas and 1.5 M [5 ft] above the roadway in rural areas when it is in the operating mode. PCMS trailers should be of a heavy duty type with a 51 mm [2"] ball hitch and a minimum of four leveling jacks (at each corner). The sign shall be capable of being rotated 360° relative to the trailer. The face of the trailer shall be delineated on a permanent basis by affixing retro-reflective material, known as conspicuity material, in a continuous line as seen by oncoming drivers."

652.3.3 Submittal of Traffic Control Plan In item e. change "A list of all certified flaggers…" to "A list of all the Contractor's certified flaggers…"

Change a. in the list of requirements to: "a. The name, telephone number, and other contact numbers (cellular phone, pager, if any) of the Contractor's Traffic Control Supervisor (the person with overall responsibility for following the TCP), who has received Work Zone Traffic Control Training commensurate with the level of responsibility shown in the requirements of the Contract, and who is empowered to immediately resolve any work zone traffic control deficiencies or issues. Provide documentation that the Traffic Control Supervisor has completed a Work Zone Traffic Control Training Course (AGC, ATSSA, or other industry-recognized training), and a Supervisory refresher training every 5 years thereafter. Submit the course name, training entity, and date of training.

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

1. Parts of Temporary Traffic Control Zone
2. Appropriate use and spacing of signs
3. Use and spacing of channelizing devices

4. Flagging basics
5. Typical examples and applications

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

Add the follow to the list of requirements: "k. The plan for unexpected nighttime work along with a list of emergency nighttime equipment available on-site."

In the last paragraph add the following as the second sentence: "The Department will review and provide comments to the Contractor within 14 days of receipt of the TCP." Add the following as the last sentence: "The creation and modification of the TCP will be considered incidental to the related 652 items."

652.3.5 Installation of Traffic Control Devices In the first paragraph, first sentence; change "Signs shall be erected…" to "Portable signs shall be erected.." In the third sentence; change "Signs must be erected so that the sign face…" to "Post-mounted signs must also be erected so that the sign face…"

652.4 Flaggers Replace the first paragraph with the following; "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. Flaggers shall wear safety apparel meeting ANSI 107-2004 Class 2 risk exposure that clearly identifies the wearer as a person, and is visible at a minimum distance of 300 m [1000 ft], and shall wear a hardhat with 360° retro-reflectivity. For nighttime conditions, Class 3 apparel, meeting ANSI 107-2004, shall be worn along with a hardhat with 360° retro-reflectivity. Retro-reflective or flashing SLOW/STOP paddles shall be used, and the flagger station shall be illuminated to assure visibility in accordance with 652.6.2."

Second paragraph, first sentence; change "…have sufficient distance to stop before entering the workspace." to "…have sufficient distance to stop at the intended stopping point." Third sentence; change "At a spot obstruction…" to "At a spot obstruction with adequate sight distance,…"

Fourth paragraph, delete and replace with "Flaggers shall be provided as a minimum, a 10 minute break, every 2 hours and a 30 minute or longer lunch period away from the work station. Flaggers may only receive 1 unpaid break per day; all other breaks must be paid. Sufficient certified flaggers shall be available onsite to provide for continuous flagging operations during break periods. If the flaggers are receiving the appropriate breaks, breaker flagger(s) shall be paid starting 2 hours after the work begins and ending 2 hours before the work ends. A maximum of 1 breaker per 6 flaggers will be paid. (1 breaker flagger for 2 to 6 flaggers, 2 breaker flaggers for 7 to 12 flaggers, etc)"

Add the following:

"652.5.1 Rumble Strip Crossing When lane shifts or lane closures require traffic to cross a permanent longitudinal rumble strip for 7 calendar days or less, the Contractor shall install

warning signs that read “RUMBLE STRIP CROSSING” with a supplemental Motorcycle Plaque, (W8-15P).

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

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

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

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

The Contractor shall have available portable floodlights for special areas.

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

The Contractor shall submit, as a subset of the Traffic Control Plan, a lighting plan at the Preconstruction Conference, showing the type and location of lights to be used for night work. The Resident may require modifications be made to the lighting set up in actual field conditions.

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

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

Night Work lighting requirements:

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

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

Hybrid Operations: For hybrid-type operations (guardrail, sweeping, Inslope excavation, etc.), either direct or indirect lighting may be utilized. The chosen lights must be capable of producing at least 10 foot-candles of light around the work area of the equipment
Inspection Operations: Areas required to be inspected by the Department will require a minimum of 5 foot-candles of lighting. This may be accomplished through direct or indirect means.

All workers shall wear safety apparel labeled as meeting the ANSI 107-2004 standard performance for Class 3 risk exposure.

The Contractor shall apply 2- inch wide retro-reflective tape, with alternating red and white segments, to outline the front back and sides of construction vehicles and equipment, to define their shape and size to the extent practicable. Pickup trucks and personal vehicles are exempt from this requirement. The Contractor shall furnish approved signs reading "Construction Vehicle - Keep Back" to be used on trucks hauling to the project when such signs are deemed necessary by the Resident. The signs shall be a minimum of 30 inches by 60 inches, Black and Orange, ASTM D 4956 - Type VII, Type VIII, or Type IX (prismatic).

All vehicles used on the project, including pickup trucks and personal vehicles, shall be equipped with amber flashing lights, visible from both front and rear, or by means of single, approved type, revolving, flashing or strobe lights mounted so as to be visible 360º. The vehicle flashing system shall be in continuous operation while the vehicle is on any part of the project.

The Resident or any other representative of the Department reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Department shall not be held responsible for any delay in the work due to any suspension under this item. Failure to follow the approved Lighting Plan will result in a Traffic Control violation.

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

652.8.2 Other Items Replace the first paragraph with the following: "The accepted quantities of flagger hours will be paid for at the contract unit price per hour for each flagging station occupied excluding lunch breaks, and for each approved breaker flagger. Overtime hours, as reported on the certified payrolls, will be paid an additional 30% of the bid price for 652.38. The computation and additional payment for overtime hours will occur during the project close-out process and will be paid as additional hours of 652.38 to the nearest ¼ hour. The

contract unit price shall be full compensation for hiring, transporting, equipping, supervising, and the payment of flaggers and all overhead and incidentals necessary to complete the work." Replace the last paragraph with the following: "There will be no payment made under any 652 pay items after the expiration of the adjusted total contract time."

SECTION 653
POLYSTYRENE PLASTIC INSULATION

653.05 Placing Backfill In the second sentence; change "…shall be not less than 150 mm [6 in] loose measure." to "…shall be not less than 250 mm [10 in] loose measure." In the third sentence; change "…crawler type bulldozer of not more than 390 kg/m^2 [80 lb/ft^2] ground contact pressure…" to "…crawler type bulldozer of not more than 4875 kg/m^2 [2000 lb/ft^2] ground contact pressure…"

653.06 Compaction In the last sentence; change "…not more than 390 kg/m^2 [80 lb/ft^2] ground contact…" to "…not more than 4875 kg/m^2 [2000 lb/ft^2] ground contact…"

SECTION 656
TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL

656.5.1 If Pay Item 656.75 Provided Replace the second paragraph with the following: "Failure by the Contractor to follow Standard Specification or Special Provision - Section 656 and/or the Contractor's own Soil Erosion and Pollution Control Plan will result in a reduction in payment, computed by reducing the Lump Sum Total by 5% per occurrence per day. The Department's Resident or any other representative of the Department reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Department shall not be held responsible for any delay in the work due to any suspension under this item."

SECTION 701
STRUCTURAL CONCRETE RELATED MATERIALS

701.10 Fly Ash - Chemical Requirements Change all references from "ASTM C311" to "ASTM C114".

SECTION 703
AGGREGATES

703.05 Aggregate for Sand Leveling Change the percent passing the 9.5 mm [3/8 in] sieve from "85 – 10" to "85 – 100"

703.06 Aggregate for Base and Subbase Delete the first paragraph: "The material shall have…" and replace with "The material shall have a minimum degradation value of 15 as determined by Washington State DOT Test Method T113, Method of Test for Determination of Degradation Value (January 2009 version), except that the reported degradation value will be the result of testing a single specimen from that portion of a sample that passes the 12.5 mm [½ in] sieve and is retained on the 2.00 mm [No. 10] sieve, minus any reclaimed asphalt pavement used."

703.07 Aggregates for HMA Pavements Delete the forth paragraph: "The composite blend shall have…" and replace with "The composite blend, minus any reclaimed asphalt pavement used, shall have a Micro-Deval value of 18.0 or less as determined by AASHTO T 327. In the event the material exceeds the Micro Deval limit, a Washington Degradation test shall be performed. The material shall be acceptable if it has a value of 30 or more as determined by Washington State DOT Test Method T 113, Method of Test for Determination of Degradation Value (January 2009 version) except that the reported degradation value will be the result of testing a single composite specimen from that portion of the sample that passes the 12.5mm [1/2 inch] sieve and is retained on the 2.00mm [No 10] sieve, minus any reclaimed asphalt pavement used."

703.09 HMA Mixture Composition The coarse and fine aggregate shall meet the requirements of Section 703.07. The several aggregate fractions for mixtures shall be sized, graded, and combined in such proportions that the resulting composite blends will meet the grading requirements of the following table.

AGGREGATE GRADATION CONTROL POINTS

SIEVE SIZE	Nominal Maximum Aggregate Size---Control Points (Percent Passing)				
	TYPE 25 mm	TYPE 19 mm	TYPE 12.5 mm	TYPE 9.5 mm	TYPE 4.75 mm
	PERCENT BY WEIGHT PASSING - COMBINED AGGREGATE				
37.5 mm	100				
25 mm	90-100	100			
19 mm	-90	90-100	100		
12.5 mm		-90	90-100	100	100
9.5 mm		-	-90	90-100	95-100
4.75 mm		-	-	-90	80-100
2.36 mm	19-45	23-49	28-58	32-67	40 - 80
1.18 mm		-	-	-	-
600 µm		-	-	-	-
300 µm		-	-	-	-
75 µm	1-7	2-8	2-10	2-10	2-10

Gradation Classification---- The combined aggregate gradation shall be classified as coarse-graded when it passes below the Primary Control Sieve (PCS) control point as defined in the following table. All other gradations shall be classified as fine-graded.

GRADATION CLASSIFICATION

PCS Control Point for Mixture Nominal Maximum Aggregate Size (% passing)				
Nominal Maximum Aggregate Size	TYPE 25 mm	TYPE 19 mm	TYPE 12.5 mm	TYPE 9.5 mm
Primary Control Sieve	4.75 mm	4.75 mm	2.36 mm	2.36 mm
PCS Control Point (% passing)	40	47	39	47

If a Grading "D" mixture is allowed per Special Provision Section 403, it shall meet the following gradation and the aggregate requirements of Section 703.07.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
½ inch	100
⅜ inch	93-100
No. 4	60-80
No. 8	46-65
No. 16	25-55
No. 30	16-40
No. 50	10-30
No. 100	6-22
No. 200	3.0-8.0

703.18 Common Borrow Replace the first paragraph with the following: "Common borrow shall consist of earth, suitable for embankment construction. It shall be free from frozen material, perishable rubbish, peat, and other unsuitable material including material currently or previously contaminated by chemical, radiological, or biological agents unless the material is from a DOT project and authorized by DEP for use."

703.22 Underdrain Backfill Material Change the first paragraph from "…for Underdrain Type B…" to "…for Underdrain Type B and C…"

Replace subsections 703.25 through 703.28 with the following:
"703.25 Stone Fill Stones for stone fill shall consist of hard, sound, durable rock that will not disintegrate by exposure to water or weather. Stone for stone fill shall be angular and rough. Rounded, subrounded, or long thin stones will not be allowed. Stone for stone fill may be obtained from quarries or by screening oversized rock from earth borrow pits. The maximum allowable length to thickness ratio will be 3:1. The minimum stone size (10 lbs) shall have an average dimension of 5 inches. The maximum stone size (500 lbs) shall have a maximum dimension of approximately 36 inches. Larger stones may be used if approved by the Resident. Fifty percent of the stones by volume shall have an average dimension of 12 inches (200 lbs).

703.26 Plain and Hand Laid Riprap Stone for riprap shall consist of hard, sound durable rock that will not disintegrate by exposure to water or weather. Stone for riprap shall be angular and rough. Rounded, subrounded or long thin stones will not be allowed. The maximum allowable length to width ratio will be 3:1. Stone for riprap may be obtained from quarries or by screening oversized rock from earth borrow pits. The minimum stone size (10 lbs) shall have an average dimension of 5 inches. The maximum stone size (200 lbs) shall have an average dimension of approximately 12 inches. Larger stones may be used if approved by the Resident. Fifty percent of the stones by volume shall have an average dimension greater than 9 inches (50 lbs).

703.27 Stone Blanket Stones for stone blanket shall consist of sound durable rock that will not disintegrate by exposure to water or weather. Stone for stone blanket shall be angular and rough. Rounded or subrounded stones will not be allowed. Stones may be obtained from

quarries or by screening oversized rock from earth borrow pits. The minimum stone size (300 lbs) shall have minimum dimension of 14 inches, and the maximum stone size (3000 lbs) shall have a maximum dimension of approximately 66 inches. Fifty percent of the stones by volume shall have average dimension greater than 24 inches (1000 lbs).

703.28 Heavy Riprap Stone for heavy riprap shall consist of hard, sound, durable rock that will not disintegrate by exposure to water or weather. Stone for heavy riprap shall be angular and rough. Rounded, subrounded, or thin, flat stones will not be allowed. The maximum allowable length to width ratio will be 3:1. Stone for heavy riprap may be obtained from quarries or by screening oversized rock from earth borrow pits. The minimum stone size (500 lbs) shall have minimum dimension of 15 inches, and at least fifty percent of the stones by volume shall have an average dimension greater than 24 inches (1000 lbs)."

Add the following paragraph:
"703.32 Definitions (ASTM D 2488, Table 1).
Angular: Particles have sharp edges and relatively plane sides with unpolished surfaces
Subrounded: Particles have nearly plane sides but have well-rounded corners and edges
Rounded: Particles have smoothly curved sides and no edges"

SECTION 706
NON-METALLIC PIPE

706.06 Corrugated Polyethylene Pipe for Underdrain, Option I and Option III Culvert Pipe Change the first sentence from "…300 mm diameters to 900 mm" to "…300 mm diameters to 1200 mm" Delete, in its' entirety, the last sentence which begins "This pipe and resins…" and replace with the following; "Manufacturers of corrugated polyethylene pipe must participate in, and maintain compliance with, AASHTO's National Transportation Product Evaluation Program (www.ntpep.org) which audits producers of plastic pipe. A certificate of compliance must be provided with each shipment."

SECTION 708
PAINTS AND PERSERVATIVES

708.03 Pavement Marking Paint Change the first sentence from "…AASHTO M248" to "…the Maine DOT Maintenance Fast-Dry Water-Based Traffic Paint on file at the Traffic Section in Augusta". Delete, in its' entirety, the last sentence.

SECTION 709
REINFORCING STEEL AND WELDED STEEL WIRE FABIC

709.03 Steel Strand Change the second paragraph from "…shall be 12mm [½ inch] AASHTO M203M/M203 (ASTM A416/A416M)…" to "…shall be 15.24 mm [0.600 inch] diameter AASHTO M203 (ASTM A416)…"

SECTION 710
FENCE AND GUARDRAIL

710.03 Chain Link Fabric Add the following sentence: "Chain Link fabric for PVC coated shall conform to the requirements of AASHTO M181, Type IV-Class B."

710.04 Metal Beam Rail Replace with the following: "Galvanized steel rail elements shall conform to the requirements of AASHTO M 180, Class A, Type II.

When corrosion resistant steel is specified, rail shall conform to AASHTO M 180, Class A, Type IV. Beams of corrosion resistant steel shall not be painted or galvanized. They shall be so handled and stored that the traffic face of these beams, used in a continuous run of guardrail, shall not show a distinctive color differential.

When metal beam rail is to be installed on a curve having a radius of curvature of 150 ft. or less, the beam sections shall be fabricated on an arc to the required radius and permanently stamped or embossed with the designated radius.

The engineer may take one piece of guardrail, a backup plate, and end or buffer section from each 200 pieces in a lot, or from each lot if less than 200 pieces are included therein for determination of compliance with specification requirements. If one piece fails to conform to the requirements of this specification, two other pieces shall be tested. If either of these pieces fails to conform to the requirements of this specification, the lot of material represented by these samples shall be rejected. A lot shall be considered that quantity of material offered for inspection at one time that bears the same heat and coating identification."

710.07 Guardrail Posts Section b. change "…AASHTO M183/M183M…" to "…AASHTO M 270M/M 270 Grade 250 (36)…"

SECTION 712
MISCELLANEOUS HIGHWAY MATERIALS

712.04 Stone Curbing and Edging Delete the existing and replace with the following: "Stone for curbing and edging shall be approved granite from acceptable sources. The stone shall be hard and durable, predominantly gray in color, free from seams that would be likely to impair its structural integrity, and of a smooth splitting character. Natural grain size and color variations characteristic of the source deposit will be permitted. Such natural variations may include bands or clusters of mineral crystallization provided they do not impair the structural integrity of the curb stone. The Contractor shall submit for approval the name of the quarry that is the proposed source of the granite for curb materials along with full scale color photos of the granite. Such submission shall be made sufficiently in advance of ordering so that the Resident may have an opportunity to judge the stone, both as to quality and appearance. Samples of curbing shall be submitted for approval only when requested by the Resident. The dimensions, shape, and other details shall be as shown on the plans."

712.06 Precast Concrete Units In the first paragraph, change "…ASTM C478M…" to "…AASHTO M199…" Delete the second paragraph and replace with the following; "Approved structural fibers may be used as a replacement of 6 x 6 #10 gauge welded wire fabric when used at an approved dosage rate for the construction of manhole and catch basin units. The material used shall be one of the products listed on the Maine Department of Transportation's Approved Product List of Structural Fiber Reinforcement." Delete the fifth paragraph and replace with the following; "The concrete mix design shall be approved by the Department. Concrete shall contain 6% air content, plus or minus 1½% tolerance when tested according to AASHTO T152. All concrete shall develop a minimum compressive strength of

28 MPa [4000 psi] in 28 days when tested according to AASHTO T22. The absorption of a specimen, when tested according to AASHTO T280, Test Method "A", shall not exceed nine percent of the dry mass."

Add the following:
"712.07 Tops, and Traps These metal units shall conform to the plan dimensions and to the following specification requirements for the designated materials.

Gray iron or ductile iron castings shall conform to the requirements of AASHTO M306 unless otherwise designated."

712.08 Corrugated Metal Units The units shall conform to plan dimensions and the metal to AASHTO M36/M36M. Bituminous coating, when specified, shall conform to AASHTO M190 Type A.

712.09 Catch Basin and Manhole Steps Steps for catch basins and for manholes shall conform to ASTM C478M [ASTM C478], Section 13 for either of the following material:

(a) Aluminum steps-ASTM B221M, [ASTM B211] Alloy 6061-T6 or 6005-T5.

(b) Reinforced plastic steps Steel reinforcing bar with injection molded plastic coating copolymer polypropylene. Polypropylene shall conform to ASTM D 4101.

712.23 Flashing Lights Flashing Lights shall be power operated or battery operated as specified.

(a) Power operated flashing lights shall consist of housing, adapters, lamps, sockets, reflectors, lens, hoods and other necessary equipment designed to give clearly visible signal indications within an angle of at least 45 degrees and from 3 to 90 m [10 to 300 ft] under all light and atmospheric conditions.

Two circuit flasher controllers with a two-circuit filter capable of providing alternate flashing operations at the rate of not less than 50 nor more than 60 flashes per minute shall be provided.

The lamps shall be 650 lumens, 120 volt traffic signal lamps with sockets constructed to properly focus and hold the lamp firmly in position.
The housing shall have a rotatable sun visor not less than 175 mm [7 in] in length designed to shield the lens.

Reflectors shall be of such design that light from a properly focused lamp will reflect the light rays parallel. Reflectors shall have a maximum diameter at the point of contact with the lens of approximately 200 mm [8 in].

The lens shall consist of a round one-piece convex amber material which, when mounted, shall have a visible diameter of approximately 200 mm [8 in]. They shall distribute light and not diffuse it. The distribution of the light shall be asymmetrical in a downward direction. The light distribution of the lens shall not be uniform, but shall consist of a small high intensity portion with narrow distribution for long distance throw and a larger

low intensity portion with wide distribution for short distance throw. Lenses shall be marked to indicate the top and bottom of the lens.

(b) Battery operated flashing lights shall be self- illuminated by an electric lamp behind the lens. These lights shall also be externally illuminated by reflex-reflective elements built into the lens to enable it to be seen by reflex-reflection of the light from the headlights of oncoming traffic. The batteries must be entirely enclosed in a case. A locking device must secure the case. The light shall have a flash rate of not less than 50 nor more than 60 flashes per minute from minus 30 °C [minus 20 °F] to plus 65 °C [plus 150 °F]. The light shall have an on time of not less than 10 percent of the flash cycle. The light beam projected upon a surface perpendicular to the axis of the light beam shall produce a lighted rectangular projection whose minimum horizontal dimension shall be 5 degrees each side of the horizontal axis. The effective intensity shall not have an initial value greater than 15.0 candelas or drop below 4.0 candelas during the first 336 hours of continuous flashing. The illuminated lens shall appear to be uniformly bright over its entire illuminated surface when viewed from any point within an angle of 9 degrees each side of the vertical axis and 5 degrees each side of the horizontal axis. The lens shall not be less than 175 mm [7 in] in diameter including a reflex-reflector ring of 13 mm [½ in] minimum width around the periphery. The lens shall be yellow in color and have a minimum relative luminous transmittance of 0.440 with a luminance of 2854° Kelvin. The lens shall be one-piece construction. The lens material shall be plastic and meet the luminous transmission requirements of this specification. The case containing the batteries and circuitry shall be constructed of a material capable of withstanding abuse equal to or greater than 1.21 mm thick steel [No. 18 U.S. Standard Gage Steel]. The housing and the lens frame, if of metal shall be properly cleaned, degreased and pretreated to promote adhesion. It shall be given one or more coats of enamel which, when dry shall completely obscure the metal. The enamel coating shall be of such quality that when the coated case is struck a light blow with a sharp tool, the paint will not chip or crack and if scratched with a knife will not powder. The case shall be so constructed and closed as to exclude moisture that would affect the proper operation of light. The case shall have a weep hole to allow the escape of moisture from condensation. Photoelectric controls, if provided, shall keep the light operating whenever the ambient light falls below 215 lx [20 foot candles]. Each light shall be plainly marked as to the manufacturer's name and model number.

If required by the Resident, certification as to conformance to these specifications shall be furnished based on results of tests made by an independent testing laboratory. All lights are subject to random inspection and testing. All necessary random samples shall be provided to the Resident upon request without cost to the Department. All such samples shall be returned to the Contractor upon completion of the tests.

712.32 Copper Tubing Copper tubing and fittings shall conform to the requirements of ASTM B88M Type A [ASTM B88, Type K] or better.

712.33 Non-metallic Pipe, Flexible Non-metallic pipe and pipe fittings shall be acceptable flexible pipe manufactured from virgin polyethylene polymer suitable for transmitting liquids intended for human or animal consumption.

712.34 Non-metallic Pipe, Rigid Non-metallic pipe shall be Schedule 40 polyvinylchloride (PVC) that meets the requirement of ASTM D1785. Fittings shall be of the same material.

712.341 Metallic Pipe Metallic pipe shall be ANSI, Standard B36.10, Schedule 40 steel pipe conforming to the requirements of ASTM A53 Types E or S, Grade B. End plates shall be steel conforming to ASTM A36/A36M.

Both the sleeve and end plates shall be hot dip galvanized. Pipe sleeve splices shall be welded splices with full penetration weld before galvanizing.

712.35 Epoxy Resin Epoxy resin for grouting or sealing shall consist of a mineral filled thixotropic, flexible epoxy resin having a pot life of approximately one hour at 10°C [50°F]. The grout shall be an approved product suitable for cementing steel dowels into the preformed holes of curb inlets and adjacent curbing. The sealant shall be an approved product, light gray in color and suitable for coating the surface.

712.36 Bituminous Curb The asphalt cement for bituminous curb shall be of the grade required for the wearing course, or shall be Viscosity Grade AC-20 meeting the current requirements of Subsection 702.01 Asphalt Cement. The aggregate shall conform to the requirements of Subsection 703.07. The coarse aggregate portion retained on the 2.36 mm [No. 8] sieve may be either crushed rock or crushed gravel.

The mineral constituents of the bituminous mixture shall be sized and graded and combined in a composite blend that will produce a stable durable curbing with an acceptable texture.

Bituminous material for curb shall meet the requirements of Section 403 - Hot Bituminous Pavement.

712.37 Precast Concrete Slab Portland cement concrete for precast slabs shall meet the requirements of Section 502 - Structural Concrete, Class A.

The slabs shall be precast to the dimension shown on the plans and cross section and in accordance with the Standard Detail plans for Concrete Sidewalk Slab. The surface shall be finished with a float finish in accordance with Subsection 502.14(c). Lift devices of sufficient strength to hold the slab while suspended from cables shall be cast into the top or back of the slab.

712.38 Stone Slab Stone slabs shall be of granite from an acceptable source, hard, durable, predominantly gray in color, free from seams which impair the structural integrity and be of smooth splitting character. Natural color variations characteristic of the deposit will be permitted. Exposed surfaces shall be free from drill holes or indications of drill holes. The granite slabs in any one section of backslope must be all the same finish.

The granite slabs shall be scabble dressed or sawed to an approximately true plane having no projections or depressions over 13 mm [½ in] under a 600 mm [2 ft] straightedge or over 25 mm [1 in] under a 1200 mm [4 ft] straightedge. The arris at the intersection of the top surface and exposed front face shall be pitched so that the arris line is uniform throughout the length of the installed slabs. The sides shall be square to the exposed face unless the slabs are to be set

on a radius or other special condition which requires that the joints be cut to fit, but in any case shall be so finished that when the stones are placed side by side no space more than 20 mm [3/4 in] shall show in the joint for the full exposed height.

Liftpin holes in all sides will be allowed except on the exposed face.

SECTION 717
ROADSIDE IMPROVEMENT MATERIAL

717.03 C. Method #3 - Roadside Mixture #3 Change the seed proportions to the following:

Crown Vetch	25%
Perennial Lupine	25%
Red Clover	12.5%
Annual Rye	37.5%

717.05 Mulch Binder Change the third sentence to read as follows:

"Paper fiber mulch may be used as a binder at the rate of 2.3 kg/unit [5 lb/unit]."

SECTION 720
STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS

720.08 U-Channel Posts Change the first sentence from "…, U-Channel posts…" to "…, Rib Back U-Channel posts…"

SECTION 722
GEOTEXTILES

722.01 Stabilization/Reinforcement Geotextile Add the following to note #3; "The strengths specified in the columns labeled"<50%" and "≥ 50%" refer to the elongation at which the geotextile material was tested. For example; if a fabric is tested at 15% elongation then it must meet or exceed the minimum strength shown in the "<50%" column. Submittals must include the percent elongation at which the material was tested."

722.02 Drainage Geotextile Add the following to note #3; "The strengths specified in the columns labeled"<50%" and "≥ 50%" refer to the elongation at which the geotextile material was tested. For example; if a fabric is tested at 15% elongation then it must meet or exceed the minimum strength shown in the "<50%" column. Submittals must include the percent elongation at which the material was tested."

722.01 Erosion Control Geotextile Add the following note to Elongation in the Mechanical Property Table; "The strengths specified in the columns labeled"<50%" and "≥ 50%" refer to the elongation at which the geotextile material was tested. For example; if a fabric is tested at 15% elongation then it must meet or exceed the minimum strength shown in the "<50%" column. Submittals must include the percent elongation at which the material was tested."

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. Disadvantaged Business Enterprise (DBE) Requirements The Department has established an annual Disadvantaged Business Enterprise goal to be achieved through race neutral means. This goal will be adjusted periodically and will be provided by Supplemental Provision. The Contractor shall comply with all provisions of this section regarding DBE participation and the Department's latest version of the Disadvantaged Business Enterprise Program Manual, said Manual being incorporated herein by reference. In the case of conflict between this Contract and said Manual, this Contract shall control. The Department reserves the right to adjust DBE goals on a project-by-project basis by addendum.

Policy. It is the Department's policy that DBEs as defined in 23 CFR Part 26 and referenced in the Transportation Equity Act for 21st Century of 1998, as amended from the Surface Transportation Uniform Relocation Assistance Act of 1987, and the Intermodal Surface Transportation Efficiency Act of 1991. The intent hereto remains to provide the maximum opportunity for DBEs to participate in the performance of contracts financed in whole or in part with federal funds.

The Department and its Contractors shall not discriminate on the basis of race, color, national origin, ancestry, sex, age, or disability in the award and performance of DOT assisted contracts.

Disadvantaged Business Enterprises are those so certified by the Maine Department of Transportation Civil Rights Office prior to bid opening date.

The Department has determined that elements of a good faith effort to meet the contract goal include but are not limited to the following:

1. Whether the Contractor advertised in general circulation, trade association, and minority/women's-focus media concerning the subcontracting opportunities;

2. Whether the Contractor provided written notice to a reasonable number of specific DBEs that their interest in the contract is being solicited;

3. Whether the Contractor followed up on initial solicitations of interest by contacting DBEs to determine with certainty whether the DBEs were interested;

4. Whether the Contractor selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the DBE goals;

5. Whether the Contractor provided interested DBEs with adequate information about the plans, specification and requirements of the contract;

6. Whether the Contractor negotiated in good faith with interested DBEs, not rejecting the DBE as unqualified without sound reasons based on a thorough investigation of their capabilities;

7. Whether the Contractor made efforts to assist interested DBEs with other appropriate technical/financial assistance required by the Department or Contractor;

8. Whether the Contractor effectively used the services of available minority/women's community organizations, minority/women's business assistance offices; and other organizations that provide assistance in the recruitment and placement of DBEs.

Substitutions of DBEs. The following may be acceptable reasons for Civil Rights Office approval of such a change order:

- The DBE defaults, voluntarily removes itself or is over-extended;
- The Department deletes portions of the work to by performed by the DBE.

It is not intended that the ability to negotiate a more advantageous contract with another certified DBE be considered a valid basis for such a change in DBE utilization once the DBE Bid Submission review has been passed. Any requests to alter the DBE commitment must be in writing and included with the change order.

Failure to carry out terms of this Standard Specification shall be treated as a violation of this contract and will result in contract sanctions which may include withholding of partial payments totaling the creditable dollars amount which would have been paid for said DBE participation, termination of this contract or other measures which may affect the ability of the Contractor to obtain Department contracts.

Copies of the Maine Department of Transportation's DBE Program may be obtained from:
Maine Department of Transportation
Civil Rights Office
#16 State House Station
Augusta, Maine 04333-0016
tel. (207) 624-3519

Quarterly Reporting Requirement. The Contractor must submit Semi-annual reports of actual dollars paid to Disadvantaged Business Enterprises (DBE's) on this Project to the MaineDOT Civil Rights Office by the end of the third week of April and October for the period covering the preceding six months considered Federal Fiscal Year periods. The reports will be submitted directly to the Civil Rights Office on the form provided in the latest version of the DBE Program Manual. Failure to submit the report by the deadline may result in a withholding of approval of partial payment estimates by the Department.

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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Start of FHWA 1273 REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS (As revised through May 1, 2012)

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (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).

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.

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). 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 bid proposal or request for proposal 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).

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.

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. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 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 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, 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 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, 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 230, 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 (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 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 35 and 29 CFR 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.

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, 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 who 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.

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, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure 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. 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, 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, 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 there under. 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, 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 and 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. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor 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 contracting agency deems appropriate.

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 $10,000 or more.

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, 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). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

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

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, Employment Standards Administration, 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 Wage and Hour Administrator for determination. The Wage and Hour 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

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

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 at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor 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 §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, 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 Regulations, 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 section 1001 of title 18 and section 231 of title 31 of the United States Code.

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

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. 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.

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.

9. Disputes concerning labor standards. 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.

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

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.

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 of $10 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.

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.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (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.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

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” 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:

(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.

2. 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. 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.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

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 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.

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 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).

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 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 1, 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

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

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.

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.

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.

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.

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 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee 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 grantee or subgrantee 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.

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.

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. 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 Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

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. 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) 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;

(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; 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.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **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)

a. By signing and submitting this proposal, the prospective lower tier 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.

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 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 grantee or subgrantee 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 grantee or subgrantee 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.

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.

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 Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

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.

* * * * *

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 is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall 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 20).

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.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

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