Updated 04/30/13

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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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.

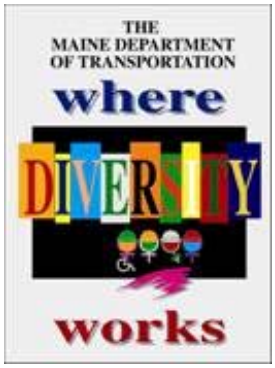
Equal Opportunity Use:

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

FHWA ☐ FTA ☐ FAA ☐

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

Rev. 05/13



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

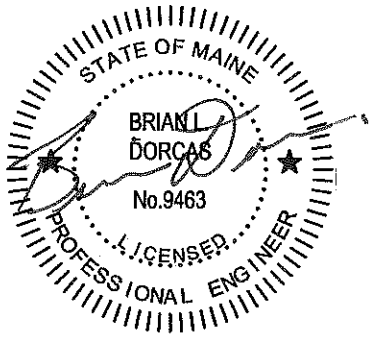
FORT KENT
AROOSTOOK COUNTY

PROJECT NO. BR-1004(210)X
PIN 10042.10

FORT KENT INTERNATIONAL
BRIDGE APPROACH AND CUSTOMS FACILITY

June 6, 2012

CIVIL ENGINEER



ELECTRICAL ENGINEER

Fort Kent International Bridge Approach and Customs Facility Project

PIN 10042.10

TABLE OF CONTENTS

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 **International Bridge Approach** in the town of **Fort Kent**" 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 August 21, 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 and Building 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. BR-1004(210)X, WIN. 10042.10

Location: In Aroostook County, project is located on Route 1 at the International Bridge in Fort Kent.

Outline of Work: Highway Improvements and Customs Facility Upgrades and other incidental work.

The basis of award will be Section 0001 only.

A Mandatory Pre-Bid meeting is scheduled for July 31st 2013 at the Fort Kent town office. Only attendees will be allowed to bid this project.

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** Joel Kittredge 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 Presque Isle. 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 $81.00 ($87.00 by mail). Half size plans $41.00 ($45.00 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 $100,000.00 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
July 24, 2013

JOYCE NOEL TAYLOR P.E
CHIEF ENGINEER

NOTICE

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

SPECIAL PROVISION 102.7.3
ACKNOWLEDGMENT OF BID AMENDMENTS

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

Amendment Number	Date

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

CONTRACTOR

_____ _____
Date Signature of authorized representative

_____
(Name and Title Printed)

CONTRACT ID: 010042.10 PROJECT(S): BR-1004(210)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	201.23 REMOVING SINGLE TREE TOP ONLY	6.000 EA				
0020	201.24 REMOVING STUMP	6.000 EA				
0030	202.15 REMOVING MANHOLE OR CATCH BASIN	5.000 EA				
0040	202.202 REMOVING PAVEMENT SURFACE	3600.000 SY				
0050	202.203 PAVEMENT BUTT JOINTS	64.000 SY				
0060	203.20 COMMON EXCAVATION	100.000 CY				
0070	203.25 GRANULAR BORROW	1100.000 CY				
0080	203.26 GRAVEL BORROW	200.000 CY				
0090	206.082 STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	930.000 CY				
0100	304.09 AGGREGATE BASE COURSE - CRUSHED	10.000 CY				

CONTRACT ID: 010042.10 PROJECT(S): BR-1004(210)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0110	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	100.000	CY				
0120	304.11 AGGREGATE SUBBASE COURSE - GRANULAR	2500.000	CY				
0130	403.207 HOT MIX ASPHALT 19.0 MM HMA	915.000	T				
0140	403.2081 12.5 MM POLYMER MODIFIED HOT MIX ASPHALT	305.000	T				
0150	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	130.000	T				
0160	409.15 BITUMINOUS TACK COAT - APPLIED	140.000	G				
0170	419.30 SAW CUTTING BITUMINOUS PAVEMENT	274.000	LF				
0180	461.131 TEMPORARY PAVEMENT	290.000	T				
0190	502.345 STRUCTURAL CONCRETE - COLORED PAVEMENT	170.000	CY				
0200	502.45 STRUCTURAL CONCRETE APPROACH SLABS	170.000	CY				
0210	502.49 STRUCTURAL CONCRETE CURBS AND SIDEWALKS	LUMP	LUMP				

CONTRACT ID: 010042.10 PROJECT(S): BR-1004(210)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0220	502.57 ANNULAR SPACE GROUTING	73.000	CY				
0230	603.042 PIPE BEDDING	300.000	CY				
0240	603.169 15 INCH CULVERT PIPE OPTION III	40.000	LF				
0250	603.179 18 INCH CULVERT PIPE OPTION III	393.000	LF				
0260	603.189 21 INCH CULVERT PIPE OPTION III	48.000	LF				
0270	603.199 24 INCH CULVERT PIPE OPTION III	188.000	LF				
0280	604.072 CATCH BASIN TYPE A1-C	8.000	EA				
0290	604.11 CATCH BASIN TYPE C1	3.000	EA				
0300	604.12 CATCH BASIN TYPE C2	2.000	EA				
0310	604.164 REBUILDING CATCH BASIN	1.000	EA				
0320	604.18 ADJUSTING MANHOLE OR CATCH BASIN TO GRADE	9.000	EA				

CONTRACT ID: 010042.10 PROJECT(S): BR-1004(210)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0330	604.247 CATCH BASIN TYPE F5-C	3.000 EA				
0340	606.23 GUARDRAIL TYPE 3C - SINGLE RAIL	106.000 LF				
0350	606.265 TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	3.000 EA				
0360	606.35 GUARDRAIL DELINEATOR POST	2.000 EA				
0370	606.353 REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	10.000 EA				
0380	607.19 CHAIN LINK FENCE - 8 FOOT C/W BARBED WIRE TOP - METAL POSTS	175.000 LF				
0390	607.23 CHAIN LINK FENCE GATE 6' C/W BARBED WIRE TOP	4.000 EA				
0400	607.24 REMOVE AND RESET FENCE - WOOD	50.000 LF				
0410	607.243 REMOVE CHAIN LINK FENCE	675.000 LF				
0420	607.25 REMOVE AND RESET CHAIN LINK FENCE	300.000 LF				
0430	607.42 ORNAMENTAL PICKET FENCE	242.000 LF				

CONTRACT ID: 010042.10 PROJECT(S): BR-1004(210)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0440	608.26 CURB RAMP DETECTABLE WARNING FIELD	40.000 SF				
0450	609.11 VERTICAL CURB TYPE 1	1080.000 LF				
0460	609.34 CURB TYPE 5	108.000 LF				
0470	609.441 CURBING REMOVED AND STACKED	1520.000 LF				
0480	615.0701 LOAM - PLAN QUANTITY	60.000 CY				
0490	618.1301 SEEDING METHOD NUMBER 1 - PLAN QUANTITY	4600.000 UN				
0500	627.733 4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	550.000 LF				
0510	627.75 WHITE OR YELLOW PAVEMENT & CURB MARKING	20.000 SF				
0520	627.76 TEMPORARY PAVEMENT MARKING LINE, WHITE OR YELLOW	LUMP	LUMP			
0530	627.9011 PAVEMENT MARKING SYMBOL	3.000 EA				
0540	631.10 AIR COMPRESSOR (INCLUDING OPERATOR)	40.000 HR				

CONTRACT ID: 010042.10 PROJECT(S): BR-1004(210)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0550	631.11 AIR TOOL (INCLUDING OPERATOR)	40.000	HR				
0560	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	40.000	HR				
0570	631.132 SMALL BULLDOZER (INCLUDING OPERATOR)	20.000	HR				
0580	631.14 GRADER (INCLUDING OPERATOR)	20.000	HR				
0590	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	20.000	HR				
0600	631.18 CHAIN SAW RENTAL (INCLUDING OPERATOR)	10.000	HR				
0610	631.20 STUMP CHIPPER (INCLUDING OPERATOR)	1.000	HR				
0620	634.2041 LUMINAIRES	8.000	EA				
0630	634.2082 REMOVE EXISTING LIGHT STANDARD AND RESET	9.000	EA				
0640	635.32 WET CAST SMALL LANDSCAPE BLOCK WALL	606.000	SF				
0650	639.18 FIELD OFFICE TYPE A	1.000	EA				

CONTRACT ID: 010042.10 PROJECT(S): BR-1004(210)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0660	642.15 PRECAST CONCRETE STEPS	1.000 EA				
0670	652.312 TYPE III BARRICADE	8.000 EA				
0680	652.33 DRUM	15.000 EA				
0690	652.34 CONE	30.000 EA				
0700	652.35 CONSTRUCTION SIGNS	416.000 SF				
0710	652.361 MAINTENANCE OF TRAFFIC CONTROL DEVICES	LUMP	LUMP			
0720	652.38 FLAGGER	800.000 HR				
0730	652.41 PORTABLE CHANGEABLE MESSAGE SIGN	4.000 EA				
0740	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP	LUMP			
0750	659.10 MOBILIZATION	LUMP	LUMP			
0760	815.00 BUILDING CANOPY AND FOUNDATIONS	LUMP	LUMP			

CONTRACT ID: 010042.10 PROJECT(S): BR-1004(210)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0770 LS	815.00 BUILDING GATE AND TRAFFIC LIGHTS	LUMP	LUMP			
0780 LS	815.00 BUILDING HI LOW BOOTH	LUMP	LUMP			
0790 LS	815.00 BUILDING LICENSE PLATE READERS	LUMP	LUMP			
0800 LS	815.00 BUILDING RADIATION PORTAL MONITORS	LUMP	LUMP			
0810 LS	815.00 BUILDING REGULAR BOOTH	LUMP	LUMP			
0820	832.41 TYPE A STEEL SITE BOLLARD	16.000 EA				
0830	832.42 TYPE B STEEL SITE BOLLARD	6.000 EA				
0840	832.43 TYPE C STEEL SITE BOLLARD	8.000 EA				
0850	832.44 TYPE D STEEL SITE BOLLARD	12.000 EA				
0860	832.51 REMOVAL AND DISPOSAL OF EXISTING STEEL SITE BOLLARD	18.000 EA				
0870 LS	507.0841 STEEL PIPE HAND RAILING	LUMP	LUMP			
	SECTION 0001 TOTAL					.

CONTRACT ID: 010042.10 PROJECT(S): BR-1004(210)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0002 UTILITIES ITEMS					
0880	812.164 REBUILDING SEWER MANHOLE	1.000 EA				
0890	822.322 6 INCH DUCTILE IRON PIPE	10.000 LF				
0900	822.3252 6 " TAPPING SLEEVE AND VALVE	1.000 EA				
0910	824.303 FIRE HYDRANT WITH VALVE BOX, COMPLETE	1.000 EA				
0920	824.31 REMOVE FIRE HYDRANT	1.000 EA				
0930	825.311 3/4 INCH CORPORATION	7.000 EA				
0940	825.312 3/4 INCH CURB STOP	7.000 EA				
0950	825.32 2 INCH CORPORATION	1.000 EA				
0960	825.322 2" CURB STOP	1.000 EA				
0970	825.41 3/4 COPPER SERVICE	68.000 LF				

CONTRACT ID: 010042.10 PROJECT(S): BR-1004(210)X

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0980	825.42 2" COPPER SERVICE	45.000 LF				
0990	827.331 TRENCH INSULATION	10.000 SY				
	SECTION 0002 TOTAL					
	TOTAL BID					

CONTRACT AGREEMENT, OFFER & AWARD

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

_____

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

_____

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

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, PIN. **10042.10**, for the **International Bridge Approach** in the town of **Fort Kent**, County of **Aroostook**, 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 **June 30, 2015.** 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

Section 0001 $_____

Section 0002 $_____

Performance Bond and Payment Bond each being 100% of the amount awarded under this Contract (see award amount in Section G below).

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 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 as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of: **PIN. 10042.10 - International Bridge Approach in the town of Fort Kent**, 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 for (see checked boxes):

Section 0001 ❑
Section 0002 ❑

Contract Amount: _____

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, PIN. **10042.10**, for the **International Bridge Approach** in the town of **Fort Kent**, County of **Aroostook**, 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 **June 30, 2015.** 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

Section 0001 $_____

Section 0002 $_____

Performance Bond and Payment Bond each being 100% of the amount awarded under this Contract (see award amount in Section G below).

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 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 as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of: **PIN. 10042.10 - International Bridge Approach in the town of Fort Kent**, 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 for (see checked boxes):

Section 0001 ❑
Section 0002 ❑

Contract Amount: _____

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	…….....….....

General Decision Number: ME130038 01/04/2013 ME38

Superseded General Decision Number: ME20120038

State: Maine

Construction Type: Highway

County: Aroostook 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	01/04/2013

ENGI0004-011 04/01/2012

	Rates	Fringes
POWER EQUIPMENT OPERATOR: Asphalt Roller, Mechanic, Paver	$ 20.00	9.94

SUME2011-033 09/14/2011

	Rates	Fringes
CARPENTER, Includes Form Work	$ 18.34	2.84
INSTALLER - GUARDRAIL	$ 11.53	1.55
IRONWORKER, REINFORCING	$ 18.71	0.00
LABORER: Asphalt Raker	$ 13.10	2.65
LABORER: Flagger	$ 9.00	0.00
LABORER: Landscape	$ 14.44	0.16
LABORER: Pipelayer	$ 13.21	1.58
LABORER: Wheelman	$ 13.81	1.47
LABORER: Common or General, Including Highway/Parking Lot Striping	$ 11.20	1.89
OPERATOR: Backhoe	$ 16.18	4.98
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 16.73	5.57
OPERATOR: Bulldozer	$ 14.72	3.11
OPERATOR: Cold Planer	$ 17.63	0.00

OPERATOR: Crane.....$ 21.21 6.19

OPERATOR: Excavator.....$ 15.22 2.73

OPERATOR: Grader/Blade.....$ 19.46 6.30

OPERATOR: Loader.....$ 13.99 1.45

OPERATOR: Milling Machine
Reclaimer Combo.....$ 16.81 0.80

OPERATOR: Screed.....$ 15.34 3.67

OPERATOR: Roller (Earth).....$ 11.55 1.72

TRUCK DRIVER, Includes All
Dump Trucks.....$ 11.92 2.41

TRUCK DRIVER: Semi-Trailer
Truck.....$ 16.36 9.09

TRUCK DRIVER: 1, 2, 3 Axle
Truck.....$ 11.29 1.78

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* TEAM0340-001 08/01/2012

	Rates	Fringes
TRUCK DRIVER		
Low Boy	$ 14.75	17.0725

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 rates.

0000/9999: weighted union wage rates will be published annually each January.

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 majority 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

General Decision Number: ME130022 05/03/2013 ME22

Superseded General Decision Number: ME20120022

State: Maine

Construction Type: Building

County: Aroostook County in Maine.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Modification Number	Publication Date
0	01/04/2013
1	02/01/2013
2	03/22/2013
3	05/03/2013

CARP0118-014 10/01/2010

	Rates	Fringes
MILLWRIGHT (Industrial Work Only)	$ 23.32	16.80

CARP1996-005 10/01/2010

	Rates	Fringes
CARPENTER (Industrial Work Only)	$ 21.26	16.04

ELEC0567-011 03/01/2013

	Rates	Fringes
ELECTRICIAN		
Electrician (Industrial Work Only)	$ 28.83	14.91

ELEV0004-004 01/01/2012

	Rates	Fringes
ELEVATOR MECHANIC	$ 50.83	23.535+a+b

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day and the Friday after Thanksgiving.

b. VACATION: Employer contributes 8% of basic hourly rate for 5 years or more of service; 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

ENGI0004-022 12/01/2012

	Rates	Fringes

POWER EQUIPMENT OPERATOR:
(Industrial Work Only)
Forklift and Crane.....$ 30.27 23.64

IRON0007-021 04/02/2012

	Rates	Fringes
IRONWORKER		
Reinforcing (Industrial Work Only).....	$ 21.62	19.72
Structural.....	$ 21.62	19.72

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* LABO0327-006 12/01/2012

	Rates	Fringes
LABORER: Common or General (Industrial Work Only).....	$ 17.05	14.97

PAIN0035-005 07/01/2010

	Rates	Fringes
PAINTER (Brush and Roller).....	$ 33.01	21.90

PLUM0716-003 08/01/2012

	Rates	Fringes
PIPEFITTER (Including Industrial Work and Excluding HVAC Pipe Installation).....	$ 25.00	14.46

SHEE0017-012 07/01/2012

	Rates	Fringes
SHEET METAL WORKER (Excluding HVAC Duct Work and Metal Siding/Wall Panels for Metal Buildings).....	$ 23.51	19.57

SUME2011-017 03/23/2011

	Rates	Fringes
BRICKLAYER.....	$ 23.50	3.71
CARPENTER, Includes Batt Insulation, Drywall Finishing/Taping, Drywall Hanging, and Form Work (Excludes Industrial Work).....	$ 15.77	2.64
CEMENT MASON/CONCRETE FINISHER...	$ 18.50	1.91
ELECTRICIAN, Includes Low Voltage Wiring and Installation of Alarms,		

Computer Systems, HVAC/Temperature Controls and Phone Systems	$ 20.00	2.26
IRONWORKER, REINFORCING, Excludes Work on Industrial Sites	$ 37.70	6.34
LABORER: Fence Erection	$ 12.00	0.92
LABORER: Landscape	$ 17.00	0.65
LABORER: Mason Tender - Brick	$ 15.57	2.06
LABORER: Mason Tender - Cement/Concrete	$ 12.64	1.27
LABORER: Mortar Mixer	$ 16.93	4.61
LABORER: Common or General, Including Form Stripping and Excludes Industrial Work	$ 10.88	1.83
MILLWRIGHT, Excludes Industrial Work	$ 25.62	9.11
OPERATOR: Backhoe	$ 14.62	3.23
OPERATOR: Bulldozer	$ 27.95	18.56
OPERATOR: Excavator	$ 16.77	2.65
OPERATOR: Loader	$ 27.95	18.56
OPERATOR: Roller	$ 12.65	0.00
OPERATOR: Crane, Excluding Industrial Work	$ 22.22	9.36
PIPEFITTER (HVAC Pipe Installation Only)	$ 20.72	4.44
PLUMBER, Includes HVAC Unit Installation	$ 19.09	1.88
ROOFER, Includes Installation of Metal Roofs	$ 16.96	4.01
SHEET METAL WORKER (HVAC Duct Installation Only)	$ 17.80	5.08
SHEET METAL WORKER (Metal Buildings -Installation of Siding/Wall Panels)	$ 12.95	2.02
TRUCK DRIVER: Dump Truck	$ 10.75	2.36

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 rates.

0000/9999: weighted union wage rates will be published annually each January.

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 majority 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

Fort Kent International Bridge Approach and Customs Facility Project

Aroostook County

PIN 10042.10

SECTION 2

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.

SPECIAL PROVISIONS
SECTION 102
BIDDING

Notice to Contractor of Arrangement of Schedule of Bid Prices for Proposed Office Building and Site Electrical Proposed Canopy Extension, Installation of Inspection Booths and Associated Equipment

The Contractor shall note that there is a substantial quantity of items proposed within this project for which there is no equivalent MaineDOT Pay item counterpart. Also, and of particular noteworthiness, is the special arrangement of the schedule of bid prices for the proposed office building and site electrical. Pay Items for the Proposed Canopy Extension, Installation of Inspection Booths and Associated Equipment have been consolidated from their individual work elements into general categories for ease of reference.

The following CSI specifications listed in the tables below are for use by the Contractor to ensure that the proposed Schedule of Bid Prices for the Proposed Canopy Extension, Installation of Inspection Booths and Associated Equipment items are included in the final proposed price accordingly. Note that not all of the Pay Items within a specification section may be included in the proposed office building tabulation.

Pay Item 815.00: Canopy and Foundations

02 41 99	Demolition for Minor Works	20 00 00	Mechanical
03 30 00	Cast in Place Concrete		
05 12 23	Structural Steel for Buildings	26 05 01	Electrical General Requirements
05 50 00	Metal Fabrications	26 05 19	Low Voltage Power Conductor
06 10 11	Rough Carpentry	26 05 28	Grounding - Secondary
07 24 13	Metal Building Panels	26 05 29	Supporting Devices
07 44 53	Glass-Fiber Reinforced Cementitious Panels	26 05 33	Raceway and Boxes for Electrical Systems
07 52 00	Modified Bituminous Membrane Roofing	26 29 01	Contactors
07 62 00	Sheet Metal and Trim	26 50 00	Lighting
07 95 13	Expansion Joint Cover Assemblies	27 00 00	General Communications Requirements
09 22 15	Non-Structural Metal Framing	27 10 00	Structured Cabling System
09 54 23	Linear Metal Ceilings		
09 91 13	Exterior Painting		

Pay Item 815.00: Hi Low Booth

03 30 00	Concrete	26 05 28	Grounding - Secondary
05 51 29	Steel Stairs and Ladders	26 05 29	Supporting Devices
09 91 13	Exterior Painting	26 05 33	Raceway and Boxes for Electrical Systems
13 34 23	Fabricated Structures	26 24 17	Panelboards Breaker Type
		26 29 01	Contactors
20 00 00	Mechanical	26 50 00	Lighting
		27 00 00	General Communications Requirements
26 05 01	Electrical General Requirements	27 10 00	Structured Cabling System
26 05 19	Low Voltage Power Conductor		

Pay Item 815.00: Regular Booth

03 30 00	Concrete	26 05 29	Supporting Devices
13 34 23	Fabricated Structures	26 05 33	Raceway and Boxes for Electrical Systems
20 00 00	Mechanical	26 24 17	Panelboards Breaker Type
		26 29 01	Contactors
26 05 01	Electrical General Requirements	26 50 00	Lighting
26 05 19	Low Voltage Power Conductor	27 00 00	General Communications Requirements
26 05 28	Grounding - Secondary	27 10 00	Structured Cabling System

Pay Item 815.00: Radiation Portal Monitors

03 30 00	Concrete	26 05 29	Supporting Devices
26 05 01	Electrical General Requirements	26 05 33	Raceway and Boxes for Electrical Systems
26 05 19	Low Voltage Power Conductor		
26 05 28	Grounding - Secondary	Appendix	Radiation Portal Monitor
			Installation Statement of Work

Pay Item 815.00: License Plate Readers

26 05 01	Electrical General Requirements	26 05 33	Raceway and Boxes for Electrical Systems
26 05 29	Supporting Devices		

Pay Item 815.00: Gate and Traffic Lights

26 05 01	Electrical General Requirements	26 05 29	Supporting Devices

SPECIAL PROVISION
SECTION 104
(WAGE RATES)

When two or more wage rate schedules appear in the bid Book, the highest rate shall prevail for each classification.

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **August 25, 2011**

SPECIAL PROVISIONS
SECTION 104
UTILITIES

GENERAL INFORMATION

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

These Special Provisions outline the arrangements 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	Aerial	Underground	Railroad
Time Warner Cable	X		
Maine Public Service Co.	X	X	
Fairpoint Communications	X	X	
Fort Kent Water and Wastewater District		X	

Unless otherwise specified, any underground utility facilities shown on the project plans or project documents 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.

All adjustments are to be made by the respective utility unless otherwise specified herein.

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

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.

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

** **Special Note to Contractor**
The utilities process will require coordination for traffic control to allow access for utility equipment. Some of this operation may require working from the existing bridge. Any work stated below can be coordinated with Bridge Contract advertised in 2011.

AERIAL

Maine Public Service Co will need five(5) days notice prior to placing temporary or permanent poles. Estimated times for setting and transferring is two(2) days. There is an Underground Service to Restaurant at Sta. 202+30 Lt. The contact person for **Maine Public Service Co** is **Chris Nicholas** at **(207)760-2526**

Fairpoint will need five(5) days notice prior to transferring to their facilities to temporary or permanent poles. Estimated time for transfer is one(1) day. after Time Warner Cable has completed their work. If temporary transfer is anticipated, Fairpoint will require two(2) days to splice existing Copper wire and coordinate with representative of **BellAliant** in New Brunswick, Canada There is an Underground Service to Restaurant at Sta. 202+30 Lt. The contact person for **Fairpoint** is **Dwayne Hartin at (207)463-9950.** The contact person for **BellAliant** is **Don Martin at 1(506)737-4299**

Time Warner Cable will need five(5) days notice prior to transferring to their facilities to temporary or permanent poles, after Maine Public Service has completed their work. Estimated time for transfer is two(2) days. The contact person for **Time Warner Cable** is **Alan Alexander** at **(207) 458-8031**

EXISTING POLES

Existing Pole #	Existing Sta.	Offset in Feet	Proposed Sta.	Offset in Feet	Comments
42642 / 23.1	21+33+-	2.0 Ft. Rt	**20+60+-**	**25+- Ft. Lt.**	New Pole can be Field Fit after New Abutment Completed
			21+60+-	**45+-Ft. Lt.**	New Pole Location as Mid Span Pole
71995/218-22	201+60 Main St.	21 Ft. Lt.			O.K. Guys need to be Reset outside of sidewalk
42641/23	202+88 Main St.	22 Ft. Lt.			O.K. or may be replaced in kind
42640/24	204+48 Main St.				O.K.

*** ***NOTE:*** Existing Pole (42642 / 23.1) located from New Bridge Approach centerline. New Pole location based on New Bridge Approach centerline and placed behind Guard Rail to accommodate conduit for Telephone Wire and Control Box for New Bridge Luminaires.

If existing or new locations do not interfere with Bridge Abutment construction, new pole locations can be completed with Bridge Approach and Main St. construction.

Stationing and Offsets scaled from New Bridge Approach Construction Centerline

UNDERGROUND

Fort Kent Water and Wastewater District has entered into an agreement with the Maine Department of Transportation for adjustment and/or replacement of Sewer Manholes, Fire Hydrant, Water Gate Valve and Curb Stops and other appurtenances within the limits of the proposed project as part of the MeDOT highway contract, see attached, **"ATTACHMENT 1" Water and Sewer Work.** All material specified in Bid Documents to be provided by Contractor. The **Fort Kent Water and Wastewater District** has reserved the option to accept or reject the bid price for their work. If the Fort Kent Water and Wastewater District accepts the bid prices, the Contractor shall install Utility Items. Following the bid opening, the Department will provide the District with the applicable bid prices for the sewer and water items from the apparent low bidder. The Agreement between the Fort Kent Water and Wastewater District and the Maine Department of Transportation has an option out clause for the utility. Should the bid prices be more than **20%** over the estimated price the District shall accept or reject the Utility work from the Department's contract within **five(5) working days** of receiving the bid prices from the Department.

UNDERGROUND Con't

If the District elects to complete the Utility Work independently, the Department will remove the Utility Work items from the project contract. The District then agrees to accomplish Utility work independently and in such a manner as to not adversely affect the Project contractor's schedule. Times for the Sewer and Water Work by the District are listed below and will need to be respected in the Contractor's construction schedule. **Summary**. If the Contractor's bid for sewer and water work is not included in the MDOT contract, the Fort Kent Water and Wastewater District. will be responsible for all necessary traffic control, soil erosion and water pollution plan and maintenance of associated temporary pavement as required under Section 105.4.1 of the Standard Specifications. Estimated working days for District are noted below. The contact for the Fort Kent Water and Wastewater District is **Mark Soucy** at **(207)834-3463**

ESTIMATED WORKING DAYS FOR PROPOSED WORK BY DISTRICT

Fort Kent Water and Wastewater District	**Estimated Working Days**
Rebuild Man Hole	**2**
Water Work	**15**

NewUtility (Water) Locations Station from Main St. Plans:

Station 203+72, Rt Rebuild Sewer Manhole
Station 201+48, Lt Hydrant to be Removed and Capped
Station 202+20, Lt Approx. New Hydrant Location Behind Sidewalk and 6" Ductile Iron Pipe and Tapping Sleeve and Valve
Stations 200+50, Lt; 202+25, Lt; 203+90, Lt; 204+35, Lt ¾" Curb Stop, Corporation and Copper Service
Station 204+55, Rt; 2" Curb Stop, Corporation and Copper Service

New Locations to be determined behind Sidewalk by Fort Kent Water and Wastewater District Superintendant

The Contractor shall place 2 in.of insulation over new and/or exposed water services, or as Specified by MeDOT Resident or Utility Superintendant.

BLASTING

In addition to any other notice which may be required, the Contractor shall notify an authorized representative of each utility that has a plant close to the site not later than 3:00 p.m. on the working day (Monday through Friday) before the Contractor intends to blast. Notice shall state the approximate time of the blast.

UTILITY SPECIFIC ISSUES

Any tree removal or tree trimming required within ten feet of 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.

SAFE PRACTICES AROUND UTILITY FACILITIES

The Contractor shall be responsible for complying with M.R.S.A. Title 35-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.

THE CONTRACTOR SHALL PLAN AND CONDUCT HIS WORK ACCORDINGLY.

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 2 %

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
(Project Survey Control & Construction Layout)

Description The Contractor may elect to utilize electronic methods of project location layout and control (such as, but not limited to, Global Position System (GPS) and/or Robotic Total Station (RTS) equipment) provided the following requirements are met.

Project Control Work Plan The Contractor shall provide a Project Control Work Plan to the Department at least 14 days prior to the preconstruction meeting. The Project Control Work Plan shall include:

- Design software and version used to develop Digital Terrain Model (DTM)
- Make and model of equipment and software used for project layout/staking
- Make and model of equipment and software used for machine guidance/control and the make and model of machine to be used
- Manufacturer stated vertical and horizontal accuracy attainable by equipment
- Site Calibration and control verification procedures including timetable and tolerances
- Calibration procedure and records for equipment used for machine guidance/control
- Description of procedure used to integrate vertical refinement equipment (i.e. laser), including process of determining and verifying transmitter set-up location and communicating any necessary adjustments to the machine control equipment
- Narrative description of methods used to establish any additional project control points (horizontal or vertical)
- Type(s) and locations of base stations to be used, including methods for determining on-site bases and localization procedure for off-site bases
- Name, title and role of all contractor personnel involved with equipment utilized on the project (including development of DTM)
- Designated on-site contractor person to be primary contact for issues arising from Contractor's use of GPS or RTS equipment

The Department will review and provide comments to the Contractor within 14 days of receipt of the Project Control Work Plan.

Digital Terrain Model (DTM) Any electronic project design data provided to the Contractor will not be deemed a part of the contract. Any electronic data provided to the Contractor is done as a courtesy by the Department. The Contractor shall not take advantage of any Ambiguity, error, omission, conflict, or discrepancy contained in the electronic data. If the Contractor discovers any such ambiguity, etc., the Contractor shall notify the Department before performing any Work related to the ambiguity, etc.

The Contractor shall convert any electronic data provided by the Department into the format required by the Contractor's system and equipment at the Contractor's expense.

The completed Digital Terrain Model (DTM) to be used for construction shall be submitted to the Department in InRoads DTM, LandXML, or other format acceptable to the Department for review with the Project Control Work Plan. No changes shall be made to the electronic model after submittal without prior written consent by the Project Resident.

Department Verification The Contractor shall furnish a GPS Rover or RTS equipment with the same capabilities as units used by the Contractor and compatible with the system(s) used by the Contractor to the Project Resident prior to commencing work utilizing electronic layout methods. The unit(s) shall stay in the possession of the Department for the duration of the project and shall be returned, in good condition, to the Contractor upon final acceptance of the field work.

Any augmented features (such as laser refinement) used by the contractor shall be included in the features available on the equipment provided to the Department.

With the equipment, the Contractor shall provide eight hours of manufacturer certified training on the use of the GPS or RTS and the Contractor's systems to Department project personnel prior to beginning any work. This training is for the purpose of providing Department project personnel with an understanding of the equipment, software, and electronic data being used by the Contractor.

Equipment Use All work accomplished through electronic layout methods and/or machine control must meet the same accuracy requirements as conventional grading construction as detailed in the Standard Specifications. The contractor shall not utilize GPS or RTS equipment for a construction activity that requires a greater precision than the machine's capability as per the manufacturer's recommendation.

Basis of Payment No payment shall be made for the elected use of electronic methods of project location layout and control. Any delays arising from the operation of GPS or RTS layout or machine control systems will not result in adjustment to the bid price or quantity of any construction items or be justification for granting any type of contract extension. Any costs incurred through incorrect use of GPS or RTS layout or machine control systems or re-construction necessary through their use are the sole responsibility of the Contractor. Training of Department project personnel in the use of GPS or RTS will be paid on a reimbursable basis based on submitted invoices, without Contractor markup.

SPECIAL PROVISION
SECTION 106
QUALITY
(Quality Level Analysis- Structural Concrete)

106.7.1 Standard Deviation Method Under H. Replace the Method A payfactor with the following;

"Method A: PF = [32.5 + (Quality Level * 0.75)] * 0.01"

SPECIAL PROVISIONS
SECTION 107
SCHEDULING OF WORK

COORDINATION AND RESTRICTIONS RELATED TO PORT AND CONTRACTOR OPERATIONS

The Fort Kent Land Port of Entry (LPOE) is an active Customs and Border Facility that will remain open during this project. Successful completion of the proposed project will require coordination between the Contractor and the Port Director on a weekly basis via project meetings to be held on-site. At these meetings, the Contractor will be required to provide an update on the progress of the project and will notify the Port Director of upcoming activities that could impact the normal day to day operations of the LPOE.

The Contractor shall comply with all Customs and Border Protection (CBP) security requirements and maintain the integrity of site security items. All personnel who will be on site are required to submit personal information (Name, Date of Birth, Place of Birth) for CBP vetting. This process requires varying amounts of time to complete. Once personnel are cleared, spot checks will be conducted to ensure that only authorized personnel are on site. Clearance is required only for those who will have a sustained presence on site. For example, a truck driver delivering a piece of equipment (and then departing) does not require vetting.

The Contractor is expected to become familiar with LPOE operations through the weekly meetings with the Port Director. This includes but is not limited to the operational tasks associated with the various types of motorized traffic (passenger, truck, and commercial) and pedestrian traffic.

The Contractor will be required to submit a detailed written Critical Path Method (CPM) Construction schedule. This schedule will be monitored closely and shall be updated weekly during construction meetings. When the Contractor is prepared to commence work on site, in addition to the construction schedule, the Contractor shall provide on a weekly basis a written day to day summary of construction activities that will occur for the upcoming three (3) week period. This summary will also highlight activities that will have an impact on the operation of the Land Port of Entry facility.

All existing drainage systems must remain functional and the project shall be maintained in a useable condition, including during winter suspension, as approved by the Engineer and Land Port of Entry Director. Any surface left in place for the winter must receive temporary pavement, and shall allow the border plowing contractor use of their specialized snow removal equipment in and around the Radiation Portal Monitors.

The contractor shall submit a winter shutdown plan for approval at least 3 weeks in advance of the planned shutdown and coordinate work as necessary and as approved by the Resident and David Albert, Port Director, (207) 834-5255 Office.

The contract for the construction of the new Clair Fort Kent International Bridge will be on-going during the life of this Contract. **It is anticipated that the new bridge will be available for two-way traffic on August 1st, 2014.**

A future contract for the demolition of the Existing Clair Fort Kent International Bridge, construction of the South Abutment Retaining Walls, bridge lighting, and other related work is scheduled to be advertised in January 2013. The existing bridge demolition/removal contract, will be developed jointly between MaineDOT and NBDOT. Demolition work, shown in Phase 5 in Contract plans directly impacts completion of Phase 6 which is scheduled for completion on June 30, 2015. **The Contractor will be required to coordinate and complete all Contract work for WIN 10042.10 in accordance with the scope, limits, and restrictions of the future demolition contract.**

SPECIAL PROVISION
SECTION 107
SCHEDULING OF WORK
(Time)

1) At a minimum, the drainage work in Phase 1 will be installed to be functional to the existing ground elevations prior to November 2, 2013, unless otherwise approved by the Department. All existing drainage systems must remain functional and the project shall be maintained in a useable condition, including during winter suspension, as approved by the Engineer and Land Port of Entry Director.

2) Drainage structures and pipe installation in front of the Port facility between Station 203+20 RT and 203+90 RT shall be coordinated with the Port Director and shall be installed between the hours of 10 PM and 4 AM.

3) For Phase 2, the Contractor shall be allowed 28 consecutive Calendar Days to restrict vehicles greater than 9 feet wide x 12 feet high x 22 feet long. The 28 Calendar Day window shall commence on the first day of traffic restrictions through the Port facility unless otherwise approved by the Resident.

4) For Phase 3, the Contractor shall be allowed 14 consecutive Calendar Days to restrict vehicles greater than 49 feet in length. The 14 Calendar Day window shall commence on the day following the completion of the Phase 2, 28 Calendar Day conditions and restrictions outlined in #3 above, and in Special Provision 107, Supplemental Liquidated Damages, unless otherwise approved by the Resident.

5) Sunday work shall be allowed during Phases 2 & 3. The Contractor shall staff the project with personnel and equipment to work 7 days per week during Phases 2 & 3, unless otherwise approved by the Resident.

6) The New Brunswick Approach contract, a New Brunswick DTI contract, is tentatively scheduled to be advertised in January 2014.

7) No work will be allowed on the Approach contract from August 8, 2014 through August 24, 2014, the dates of the World Acadian Congress. In order to address traffic concerns through the Port facility during the World Acadian Congress (August 8, 2014 through August 24, 2014.), the Contractor shall provide for:

   - Unrestricted inbound traffic through lane 5
   - Restricted inbound vehicles (with dimensions greater than 9 feet wide x 12 feet high x 22 feet long, prohibited) through lane 4
   - Unrestricted outbound traffic.
   - Maintain pedestrian movement

8) To facilitate traffic movement during the Acadian World Congress, temporary HMA pavement shall be placed prior to August 8th, 2013: from the south bridge abutment through inbound lanes 4 and 5 to Route 1, and the outbound lane from Route 1 to the south bridge abutment as directed by the Resident. Route 1 shall be temporarily paved to a width of 28 feet within the limits of the project. Cold patch shall not be used. Payment for all material, labor, and equipment required to perform this work shall be paid under related temporary pavement items.

9) The Contractor shall be responsible to maintain user access to the recreational-use trail trail for the duration of the project. Events that will occur during the life of this Contract include the CAN-AM Crown International Sled Dog Race (March 1st, 2014, and March 7, 2015) and the World Acadian Congress (August 8th through August 24th, 2014). Responsibilities include, but are not limited to, providing signed detour route as needed, maintaining a designated access route to all trail users at all times. Proposed detours shall ensure safety for all users and shall be approved by the Resident. Detours shall not be allowed through the Port area or onto Route 1 travel lanes. The Contractor shall coordinate with local snowmobile and ATV clubs to ensure access.

10) The existing bridge demolition/removal contract is tentatively scheduled for advertise in March 2014. The demolition/removal contract will be advertised by New Brunswick (NB). The demolition of the existing bridge, a joint US / NB contract led by NB (identified as Phase 5 in contract plans), directly impacts completion of Phase 6 (presently slated for completion on June 30, 2015). The New Brunswick Approach contract will be advertised in January 2014.

11) The completion date for the Approach contract, WIN 10042.10 is June 30th, 2015

12) The Contractor shall coordinate his work, as necessary, with Caldwell & Ross, Ltd, the contractor constructing the new International Bridge. Contact Paul DeMerchant, phone (506) 453-1333, and with all other appropriate contractors as needed.

SPECIAL PROVISION
SECTION 107
Supplemental Liquidated Damages

- **Supplemental Liquidated Damages for Phase 2** The Contractor shall be allowed 28 consecutive Calendar Days for restricting vehicles greater than 9 feet wide x 12 feet high x 22 feet long.
  - An incentive of $5,000 per day shall be paid for each Calendar Day that the vehicle restriction is removed prior to the 28 day limit.
  - A disincentive of $5,000 per day shall assessed for each Calendar Day that the vehicle restriction remains beyond the 28 day limit.

- **Supplemental Liquidated Damages for Phase 3** The Contractor shall be allowed 14 consecutive Calendar Days for restricting vehicles greater than 49 feet in length outbound, and 9 feet wide x 12 feet high x 22 feet long inbound.
  - An incentive of $5,000 per day shall be paid for each Calendar Day that the vehicle restriction is removed prior to the 14 day limit.
  - A disincentive of $5,000 per day shall assessed for each Calendar Day that the vehicle restriction remains beyond the 14 day limit.

- **Supplemental Liquidated Damages for not allowing two-way traffic on the new bridge and through the Port facility.** Two-way traffic on the new bridge, and 1 lane through the Port facility as shown on the plans and described in the Contract, shall be in full effect by July 31st, 2014.
  - A disincentive of $10,000 shall be assessed for each Calendar Day that two-way traffic on the new bridge, and through the Port facility, as shown on the plans and described in the Contract, is not in full effect. Supplemental Liquidated damages for not allowing two-way traffic on the new bridge and through the Port facility by this date shall be in addition to those outlined above for Phases 2 & 3.

- **These Supplemental Liquidated damages shall apply to all work required to facilitate the conditions stated above *including, but not limited to time required for removal, installation, and commissioning of Radiation Portal Monitors and License Plate Readers* as detailed in the plans and specifications.**

- **Any executed contract modification involving additional time will not include the period of time from August 8, 2014 through August 24, 2014, due to the Acadian World Congress event.**

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SPECIAL PROVISIONS
SECTION 107.9
TIME
(Project Closeout)

The following is in addition to the requirements of Section 107.9.

The Contractor shall maintain, at the site, a set of Drawings, on which shall be recorded accurately as the work progresses, the actual dimensions and grades of all his work, indicating thereon all variations from the Contract Drawings. The record shall include the work of all Subcontractors. Record drawings shall be received by the resident, and the Contractor shall make all necessary changes according to the Resident's review.

Prior to final acceptance of the Work, all recorded data shall be transferred by the Contractor, to a complete set of reproducible record drawings, in ink or photolitho reproductions of the original of the Contract Drawings showing "As-Built" conditions. As-built drawings shall be submitted in an electronic format approved by the Resident.

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 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 403.301 Hot Mix Asphalt (Asphalt Rubber Gap-Graded)
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 403.301–6.2%			
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.

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SPECIAL PROVISIONS
SECTION 201
CLEARING RIGHT-OF-WAY

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 201 – CLEARING RIGHT-OF-WAY, with the following modifications:

MODIFICATIONS:

Section 201.01 Description

The following paragraph is added:

Tree removal occurs near the intersection of the bridge crossing and West Main Street.

Section 201.03 General

The following paragraph is added:

Trees to be removed are indicated on the drawings. Coordinate selection and removal of trees and stumps with the Resident.

Section 201.10 Basis of Payment

Replace the list of Pay Items with the following:

Payment will be made under:

Pay Item		Pay Unit
201.23	Removing Single Tree Top Only	Each
201.24	Removing Stump	Each

END OF SECTION

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SPECIAL PROVISIONS
SECTION 206
STRUCTURAL EXCAVATION

Excavation required for the foundations of the Canopy, Hi Low Booth, Regular Booth, Radiation Portal Monitors shall be completed in accordance with the requirements of this Section.

Measurement for payment will be as defined for Major Structures.

Modifications:

206.01 Compaction and Proof Rolling After excavation to the lines and grades indicated on the contract drawings, the contractor shall thoroughly compact and proof roll the bearing surface to demonstrate that the subgrade soils are suitable for footing construction.

Proof rolling shall be carried out with equipment capable of demonstrating the competency of foundation soils for footing construction, as approved by the Resident. Such equipment may include high energy compaction equipment such as a vibratory roller compactor (5 ton min.) or excavator equipped with a plate compactor (Hoe Pack). Small hand operated plate compactors or walk behind roller compactors shall not be used for proof rolling. The minimum required compaction shall be 98% of Standard Proctor (ASTM D698). Proof rolling operations shall be conducted in the presence and as approved by the Resident.

206.2 Removal of Unsuitable Materials Any local areas which exhibit excessive displacement during proof rolling shall be over-excavated to expose undisturbed competent material. The over-excavation shall be backfilled in compacted lifts, as described below, with approved Granular Borrow or Gravel Borrow to the satisfaction of the Resident.

206.3 Backfilling and Compaction The Contractor shall place and compact Granular Borrow backfill material as shown on the contract drawings and in accordance with the Contract Documents. The Contractor shall uniformly distribute backfill material in layers of not more than 200 mm [8 in] depth, loose measure, and thoroughly compact each layer using approved compactors before successive layers are placed. The Contractor shall compact the Granular Borrow backfill in accordance with Section 203.12 - Construction of Earth Embankment with Moisture and Density Control, except that the minimum required compaction shall be 95 percent of maximum density as determined by AASHTO T180, Method C or D. The Contractor shall place and compact backfill without disturbance or displacement of the footings, keeping the fill at approximately the same elevation on both sides of the structures.

The contractor is required to submit a grain size distribution curve (ASTM D 422) and a moisture-density relationship curve (AASHTO T-180) for acceptance of the proposed backfill material.

The moisture content of the backfill material prior to and during compaction shall be uniform throughout each layer. Backfill material shall have a placement moisture content less than or equal to the optimum moisture content. Backfill material with placement moisture content in excess of the optimum moisture content shall be removed and reworked until the moisture content is uniform and acceptable throughout the entire lift.

Whenever a compaction test fails, the Contractor shall not place additional backfill over the area until the lift is re-compacted and a passing test achieved. At the end of the day's operations, the Contractor shall shape the last level of backfill so as to direct runoff of surface water away from the excavation, structure or towards groundwater control features such as sumps or interceptor trenches.

There will be no allowance for excavating and backfilling for footings beyond the limits shown on the Contract Drawings, except for excavation required to remove unsuitable subsoil in preparation for the foundation. Payment for excavating unsuitable subsoil shall be full compensation for all costs of pumping, drainage, sheeting, bracing and incidentals for proper execution of the work, and will be paid as structural excavation in accordance with this Section.

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SPECIAL PROVISIONS
SECTION 304
AGGREGATE BASE AND SUBBASE COURSES

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 304 – AGGREGATE BASE AND SUBBASE COURSES, with the following modifications:

MODIFICATIONS:

304.02 Aggregate

This Subsection is amended by the addition of the following:

Aggregate base course crushed, regardless of depth, shall be made up of aggregate, Type A, as described in Subsection 703.06 of the MaineDOT Standard Specifications.

Aggregate subbase course gravel, regardless of depth, shall be made up of aggregate, Type D, as described in Subsection 703.06 of the MaineDOT Standard Specifications.

304.04 Shaping, Compacting, and Stabilizing

The second sentence of the first paragraph of this Subsection is deleted and is replaced with the following sentence:

The maximum density shall be determined in accordance with ASTM D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort, with self-propelled vibratory compaction equipment.

Section 304.07 Basis of Payment

Replace the list of Pay Items with the following:

Pay Item		Pay Unit
304.09	Aggregate Base Course - Crushed	Cubic Yard
304.10	Aggregate Subbase Course - Gravel	Cubic Yard
304.11	Aggregate Subbase Course - Crushed	Cubic Yard

END OF SECTION

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.

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 Contractor may utilize either a 64-28 or 58-28 PGAB. The Contractor must stipulate which PGAB grading will be used to construct the entire HMA pavement structure prior to starting work. For mixtures containing greater than 20 percent but no more than 30 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.
The Contractor may place Hot Mix Asphalt Pavement produced with an accepted WMA technology for any base, intermediate base, or shim 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 2°C [35°F] or higher, and the area to be paved is not frozen. The Hot Mix Asphalt Pavement produced with an approved WMA technology shall meet the requirements of section 401.04 - Temperature Requirements, unless otherwise approved by the Department.

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, on 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%

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%

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]

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	**2.0-7.0**	**2.0-7.0**	**2.0-7.0**	**2.0-7.0**

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.

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 6, 2012**

SPECIAL PROVISION
SECTION 400
HOT MIX ASPHALT PAVEMENTS
(Polymer Modified PGAB for HMA)

401.05 Performance Graded Asphalt Binder This section and Special Provision 403 has been amended as follows:

The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), and mineral filler if required. Performance Graded Asphalt Binder shall be polymer modified as detailed below and shall conform to the requirements of AASHTO M 320. The required PGAB shall be a storage-stable, pre-blended, homogeneous, polymer modified asphalt binder that meets a **PG 70-28** to **PG 76-28** grading.

The RTFOT (AASHTO T 240) residue of the polymer modified PGAB shall be tested by the Contractor according to ASTM D 6084 and have a minimum elastic recovery value of 60% at a test temperature of 25 °C. The Contractor shall provide the Department with documentation and test results from the asphalt binder provider showing that the PGAB meets the requirements of this special provision. The Department may take an informational sample of the polymer modified PGAB at any time to evaluate its elastic recovery value.

Payments will be made under the appropriate mixture type used:

Pay Item		Pay Unit
403.2071	19.0 mm Polymer Mod. Hot Mix Asphalt Base	Ton
403.2081	12.5 mm Polymer Mod. Hot Mix Asphalt Surface	Ton
403.2101	9.5 mm Polymer Mod. Hot Mix Asphalt	Ton
403.2111	9.5 mm Polymer Mod. Hot Mix Asphalt Shim	Ton
403.2121	4.75 mm Polymer Mod. Hot Mix Asphalt Shim	Ton
403.2131	12.5 mm Polymer Mod. Hot Mix Asphalt Base	Ton

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
8" HMA Overlay Areas						
Route 1 (Pleasant Street) Mainline and Shoulders, Approach Overlay Areas						
Wearing	12.5 mm	403.2081	N/A	2.0"	1	1,5,8
Base	19.0 mm	403.207	N/A	3.0"	1	4,8
Base	19.0 mm	403.207	N/A	3.0"	1	4,8
Temporary Pavement						
Wearing	12.5 mm	461.131	N/A	variable	1/more	17,28
Drives, Sidewalks, Islands, Misc.						
Wearing	9.5 mm	403.209	N/A	2.0"	1	2,3,10,11,14

COMPLEMENTARY NOTES

1. The required PGAB for this mixture will meet a **PG 70-28** to **PG 76-28** grading. The use of Recycled Asphalt Pavement (RAP) will not be permitted in mixtures utilizing modified PGAB's. Refer to Special Provision 400 - Polymer Modified PGAB for HMA, for additional testing and documentation requirements.
2. The incentive/disincentive provisions for density shall not apply. Rollers shall meet the requirements of this special provision. The use of an oscillating steel roller shall be required to compact all mixtures pavements placed on bridge decks.
3. The design traffic level for mix placed shall be <0.3 million ESALS. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **50 gyrations**.
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 **75 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**.
8. Section 106.6 Acceptance, (2) Method B.
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.

17. Compaction of the new Hot Mix Asphalt Pavement will be obtained using a minimal roller train consisting of a **10 ton** vibratory, **12 ton** pneumatic, and a **10 ton** finish roller for roadway work. A daily paving report, summarizing the mixture type, mixture temperature, equipment used, environmental conditions, and number of roller passes, shall be recorded and signed by the QCT and presented to the Department's representative by the end of the working day. An approved release agent is required to ensure the mixture dose not adhere to hand tools, rollers, pavers, and truck bodies. The use of petroleum based fuel oils, or asphalt stripping solvents will not be permitted.
28. Temporary pavement (item #461.131) shall meet the gradation and asphalt requirements of a current MDOT approved 12.5 mm JMF. The mixture will not be evaluated for PGAB content, gradation, or volumetrics. The Department will accept the mixture based upon visual acceptance. All mixtures placed as temporary pavement will be removed in its entirety and replaced as required with mixtures that meet contract requirements. Any temporary pavement placed within the roadway limits shall have a minimum depth of 3". Temporary pavement placed outside the roadway limits will be at depths directed by the Resident.

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 / intermediate course 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.

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 6, 2012**

SPECIAL PROVISIONS
SECTION 409
BITUMINOUS TACK COAT

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 409 – BITUMINOUS TACK COAT, with the following modifications:

MODIFICATIONS:

409.02 Bituminous Material

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

Tack Coat shall conform to the Specifications for Emulsified Asphalt RS-1, of the AASHTO Designation M-140.

409.05 Equipment

Add the following text:

Add "or as determined by the Resident", after the words "gal/yd^2]" in the fourth line of the second paragraph of this Subsection.

409.06 Preparation of Surface

Add the following paragraph:

All existing pavement and shoulder areas on which bituminous pavement mixtures are to be placed shall receive a tack coat. The surface area where the tack coat is to be applied shall be dry and cleaned of all dirt, sand, and loose material. Cleaning shall be accomplished by use of revolving brooms or mechanical sweepers. Undesirable material not removed by the above means shall be cleaned by hand-brooming or scraping, or a combination of both. Small areas otherwise inaccessible may be broomed with hand brooms. The tack coat shall be applied only when the existing surface is dry.

409.08 Method of Measurement

Add the following paragraphs:

Measurement will be based on delivery slips made out in duplicate by the Contractor and signed by the Resident, or his representative, at the point of delivery. One of these slips shall be retained by the Resident and one by the Contractor. Delivery slips shall be furnished by the Contractor and shall provide space for identifying the vehicle and driver, for stating the volume of material, the source of the material, the date, and the Resident or his representative's signature.

Material included in the delivery slips and not used or rejected shall be deducted from the amount being measured for payment. Each day's delivery slips shall be reconciled by the Contractor and the Resident within 24-hours.

Cleaning of the surface area where tack coat is to be applied shall be incidental to Item 409.15, Bituminous Tack Coat, Applied.

END OF SECTION

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 29, 2012**

SPECIAL PROVISIONS
SECTION 419
SAWING AND SEALING JOINTS IN BITUMINOUS PAVEMENT

419.01 Description

This work consists of sawing bituminous concrete pavement as shown on the Plans, as specified herein or as approved by the Resident.

419.02 General

The bituminous concrete pavement to be sawed shall be accurately marked before cutting. The marking shall be in accordance with the locations as shown on the Plans or as approved by the Resident. Cutting shall be with an approved power driven saw with an abrasive blade.

Unless otherwise noted or directed, the sawcut shall be vertical, a minimum of 3/8 inch wide, and extend to the depth as shown on the Plans.

Residue or debris from the sawing operation shall be removed immediately and legally disposed of by the Contractor.

419.03 Method of Measurement

Sawing Bituminous Pavement will be measured by the linear foot of pavement actually cut and accepted. No additional payment will be made for variations in the pavement thickness or differing from what is indicated on the drawing.

419.04 Basis of Payment

Sawing Bituminous Pavement will be paid for at the Contract unit price per linear foot which shall be full compensation for all materials, tools, equipment labor, and all incidentals necessary for the completion of the work to the satisfaction of the Resident. The disposal of sawcut residue shall be incidental to this item.

Payment will be made under:

Pay Item		Pay Unit
419.30	Saw Cutting Bituminous Pavement	Linear Foot

END OF SECTION

SPECIAL PROVISION
SECTION 461.131
TEMPORARY PAVEMENT

Description:

This work shall consist of furnishing all labor, materials and equipment, for the manufacturing, installation and removal of all Temporary Pavement in accordance with these specifications, Special Provision 403 Hot Mix Asphalt, and the Plans. Temporary pavement shall meet all mix design requirements of a 12.5 mm surface mix.

Method of Measurement:

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

Basis of Payment:

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

Payment will be made under:

Pay Item		Pay Unit
461.131	Temporary Pavement	Ton

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Colored Concrete)

The Standard Specification is amended by the following:

502.01 Description. This work shall consist of furnishing Colored Concrete for the structural concrete roadway apron slab, as shown on the plans and described in the Specifications and Contract documents. Except as otherwise specified in this Special Provision, all work shall be in conformity with the applicable provisions of Section 502, Structural Concrete. Colored Concrete shall consist of a permanent, fade-resistant, uniform, and streak-free integral color-conditioning for Portland cement concrete. The Structural Concrete Apron Slab Item 502.45 shall receive curing and sealing methods and compounds approved by the Colored Concrete manufacturer, and shall be applied in accordance with the manufacturer's instructions. All curing and sealing materials and methods and materials shall be approved by the Resident..

502.02 Classification Portland cement concrete used in the Colored Concrete shall be class A

502.02 Materials Portland cement concrete used in the Colored Concrete shall be colored throughout the mix. The mix design must be approved by the Engineer prior to any concrete construction taking place. No calcium chloride shall be added. The same brand of cement, source of sand, and water/cement ratio shall be maintained for each load of Colored Concrete of the same color.

502.05 Composition and Proportioning The color conditioning admixture for the Colored Concrete shall consist of Portland cement concrete replicating color Black, as manufactured by L. M. Scofield, Company, or approved equal, as directed by the Engineer. The color-conditioning admixture shall be a single-component, colored, water-reducing, set-controlling admixture, factory formulated and packaged in cubic yard dosage increments, not multiple additives and pigments added separately into the mix. It shall comply with ASTM C 494, ASTM C979, and AASHTO M194. The Colored Concrete mix shall be controlled to provide good batch-to-batch uniformity. If required by the Engineer, the Contractor shall wet-check the approximate color of each load before placing in accordance with the color admixture manufacturer's recommendations. Coloring admixture, correctly packaged for the mix design, shall be added for each cubic yard of concrete. Coloring admixture shall not be added to an empty drum or at the tail end of a load.

502.0506 Test Slabs Test slabs of Colored Concrete shall be cast replicating jobsite conditions, using the contemplated materials and construction techniques, and shall be submitted for approval. Each test slab of Colored Concrete shall be a minimum of 8 inches thick and 2-feet by 2-feet square. One separate test slab replicating the color shall be cast as directed by the Engineer. If the initial test panel cast is unacceptable to the Engineer, subsequent slabs shall be cast as directed until the test slab is approved by the Engineer.

502.14 Finishing Concrete Surfaces The surface of the Colored Concrete shall receive a float finish in accordance with Subsection 502.14(A) of the Standard Specifications. Immediately following the float finish, the surface shall be textured in the direction transverse to traffic flow using an approved open pile, stiff bristle broom or mat. Other than those shown on the plans, no construction or control joints will be allowed. Control joints shall receive an approved sealer approved by the Colored Concrete manufacturer and shall be applied in accordance with the manufacturer's instructions. All saw cut joints in the Colored Concrete shall receive the sealer, including all transverse saw cut grooves in the structural concrete apron slab. This work shall be coordinated with the requirements outlined in Special Provisions Section 502---Structural Concrete Concrete Roadway Apron Saw Cutting, and Structural Concrete Roadway Apron Slab.

502.15 Curing Concrete Approved curing compounds shall be used per the manufacturer's recommendations to cure the Colored Concrete. The curing period for the Colored Concrete shall be 7 days or until 80% of design strength is achieved.

502.18 Method of Measurement Colored Concrete satisfactorily mixed, placed, finished, cured, and accepted, will be measured for payment by the number of cubic yards of Colored Concrete for the Structural Concrete Apron Slab, delivered and accepted in place, in accordance with the dimensions shown on the plans or authorized by the Engineer.

502.19 Basis of Payment. The accepted quantity of Colored Concrete Item 502.345, used in the Structural Concrete Roadway Apron Slab Item 502.45, will be paid for at the contract unit price per cubic yard, which payment will be full compensation for all labor, materials, tools, equipment, and incidentals necessary to complete the work, including, but not limited to, test slabs, placement, finishing, curing, admixtures, sealing, and protective coatings.

Payment will be made under:

Pay Item	Pay Unit
502.345 Colored Concrete	Cubic Yard

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **December 12, 2012**

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
ANNULAR SPACE GROUTING

The provisions of Section 502 of the Standard Specifications shall apply with the following additions and modifications:

Description:

This work shall consist of placing Annular Space Grouting (flowable fill) in all abandoned sanitary and/or storm sewer lines as noted or shown on the drawings or as directed by the Resident. Annular Spacing Grouting shall also include plugging pipe ends, excavation to access pipe, restoring disturbed areas to their existing condition and pumping of flowable fill.

Materials:

Material shall be able to completely fill voids consolidate under its own weight, and resist floating in high ground water tables. The supplier shall submit a mix design and placement procedures that will ensure complete filling of the abandoned lines. The flowable fill shall have a minimum compressive strength of 500 psi in 28 days when tested in accordance with ASTM C495 or C109.

Placing Annular Space Grouting:

The material shall be placed in such a method that ensures complete filling of the abandoned lines.

Method of Measurement:

Annular Space Grouting shall be measured by the number of cubic yards placed. Plugging of pipe ends, excavation to access pipe and restoring disturbed areas to their existing conditions, shall be considered incidental to this item.

Basis of Payment:

Payment of Annular Space Grouting including pumping, plugging of pipe ends, excavation to access pipe and restoring disturbed areas to their existing conditions, will be paid at the contract unit price per cubic yard for Annular Space Grouting.

Payment will be made under:

Pay Item		**Pay Unit**
502.57	Annular Space Grouting	Cubic Yard

END OF SECTION

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

CLASS OF CONCRETE	ITEM NUMBER	DESCRIPTION	P	METHOD
A	502.45	Structural Concrete Roadway Apron Slab	$450	A
LP	502.49	Structural Concrete Islands, Sidewalks, & Curbs	-	C

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

May 5, 2010
Supersedes September 29, 2004

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Quality Level Analysis)

502.01 Description In second sentence, replace "…METHOD B Small Quantity Product Verification…" with "…METHOD B Statistical Acceptance…"

502.05 Composition and Proportioning Delete Table 1 and replace with the following;

TABLE 1- Methods A, B, and C

Concrete CLASS	Compressive Strength (PSI)		Permeability (COULOMBS)		Entrained Air (%)		Notes
	LSL	USL	LSL	USL	LSL	USL	
S	2,900	N/A	N/A	N/A	6.0	8.5	1, 5
A	4,350	-----	-----	2,400	6.0	8.5	1,2,5,6
P	-----	-----	-----	-----	5 ½	7 ½	1,2,3,4,5
LP	5,075	-----	-----	2,000	6.0	8.5	1,2,5,6
Fill	2,900	N/A	N/A	N/A	N/A	N/A	6

502.503 Delete and replace with the following;

"502.0503 Quality Assurance METHOD B The Department will determine the acceptability of the concrete through a quality assurance program.

The Department will take Quality Assurance samples a minimum of once per sublot on a statistically random basis. Quality Assurance tests will include compressive strength, air content and permeability.

Concrete sampling for quality assurance tests will be taken at the discharge point, with pumped concrete sampling taken at the discharge end of the pump line.

Lot Size A lot size shall consist of the total quantity represented by each class of concrete in the Contract, except in the case when the same class of concrete is paid for under both lump sum items and unit price items in the Contract; in this case, the lump sum item quantities shall comprise 1 lot and the unit price item quantities shall comprise a separate lot. A lot shall consist of a minimum of 3 and a maximum of 10 sublots. If a lot is comprised of more than 10 sublots, sized in accordance with Table #3, then this quantity shall be divided equally into 2, or more, lots such that there is a minimum of 3 and a maximum of 10 sublots per lot. If there is insufficient quantity in a lot to meet the recommended minimum sublot size, then the lot shall be divided into 3 equal sublots.

Sublot Size, General The size of each sublot shall be determined in accordance with Table #3. The Resident may vary sublot sizes based on placement sizes and sequence.

Sublot Size, Unit Price Items Sublot sizes will initially be determined from estimated quantities. When the actual final quantity of concrete is determined: If there is less than one-half the estimated sublot quantity in the remaining quantity, then this quantity shall be combined with the previous sublot, and no further Acceptance testing will be performed; if there is more than one-half the estimated sublot quantity in the remaining quantity, then this quantity shall constitute the last sublot and shall be represented by Acceptance test results. If it becomes apparent part way through a lot that, due to an underrun in quantity, there will be an insufficient quantity of concrete to comprise three sublots, then the Resident may adjust the sizes of the remaining sublots and select new sample locations based on the revised estimated quantity of concrete remaining in the lot.

Sublot Size, Lump Sum Items Each lot shall be divided into sublots of equal size, based on the estimated quantity of concrete.

TABLE 3

Quantity m^3 [cy]	Recommended Sublot Size m^3 [cy]
0-400 [0-500]	40 [50]
401-800 [501-1000]	60 [75]
801-1600 [1001-2000]	80 [100]
1601 [2001]or greater	200 [250]

Determination of the concrete cover over reinforcing steel for structural concrete shall be made prior to concrete being placed in the forms. Bar supports, chairs, slab bolsters, and side form spacers shall meet the requirements of Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice, Chapter 3 Section 2.5 Class 1, Section 2.6 Class 1A, or Section 4. All supports shall meet the requirements for type and spacing as stated in the CRSI Manual of Standard Practice, Chapter 3. Concrete will not be placed until the placing of the reinforcing steel and supports have been approved by the Resident. If the Contractor fails to secure Department approval prior to placement, the Contractor's failure shall be cause for removal and replacement at the Contractor's expense. The Contractor shall notify the Resident, at least 48 hours prior to the placement, when the reinforcing steel will be ready for checking. Sufficient time must be allowed for the checking process and any needed repairs.

Evaluation of materials will be made using the specification limits in Table 1.

Compressive strength tests will be completed by the Department in accordance with AASHTO-T22 at ≥ 28 days, except that no slump will be taken. The average of two concrete cylinders per sublot will constitute a test result and this average will be used to determine the compressive strength for pay adjustment computations.

Testing for Entrained Air in concrete, at the rate of one test per sublot, shall be in accordance with AASHTO T152.

Rapid Chloride Permeability test specimens will be completed by the Resident in accordance with AASHTO T-277 at an age ≥ 56 days. Two 100 mm x 200 mm [4 in x 8 in] cylinders will be taken per sublot placed.

Surface Tolerance, Alignment and Trueness, Plumb and Batter, and Finish will be measured as described in Section 502.0502.

Rejection by Resident For an individual sublot with a calculated pay factor of less than 0.80, the Department will, at its sole discretion:

A. Require the Contractor to remove and replace the entire affected placement with concrete meeting the Contract requirements at no additional expense to the Department, or

B. Accept the material, at a reduced payment as determined by the Department. (See also Section 502.191)

For a lot in progress, the Contractor shall discontinue operations whenever one or more of the following occurs:

A. The pay factor for any property drops below 1.00 and the Contractor is taking no corrective action

B. The pay factor for any property is less than 0.90

C. The Contractor fails to follow the QC Plan"

502.18 Method of Measurement Under Section E. make the following change from "….Method A, and under Section 502.19…" to "…Method A, Section 502.0503- Quality Assurance Method B, and under Section 502.19…"

502.19 Basis of Payment Modify the first sentence of the seventh paragraph from "…accepted under Method A." to "…accepted under Method A and Method B."

502.191 Pay Adjustment for Compressive Strength Add the following as the second sentence to the first paragraph; "Pay factors (PF) for pay adjustments for compressive strength will be determined using the Quality Level Analysis as specified in Section 106."

502.192 Pay Adjustment for Chloride Permeability Delete and replace with the following;

"Pay factors (PF) for pay adjustments for Chloride Permeability will be determined using the Quality Level Analysis as specified in Section 106.

Values greater than 4000 coulombs shall be subject to rejection and replacement at no additional cost to the Department."

502.193 Pay Adjustment for Air Content Delete and replace with the following;

"Pay factors (PF) for pay adjustments for air content will be determined using the Quality Level Analysis as specified in Section 106."

Add the following Section;

"502.195 Pay Adjustments for Compressive Strength, Chloride Permeability and Air Content The Composite Pay Factor (CPF) for each lot of concrete shall be computed as follows:

CPF = [(Compressive Strength PF-1)(0.20)] + [(Air Content PF-1)(0.40)]
+ [(Chloride Permeability PF-1)(0.40)]

The pay adjustment for each lot of concrete shall be computed as follows:

Lot Pay Adjustment = P x CPF x Lot Size

There will be no positive pay adjustments for Method B Concrete."

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Concrete Roadway Apron Slab Saw Cutting)

502.14 Finishing Concrete Surfaces

Concrete Roadway Apron Slab

General
The concrete roadway apron shall have a transverse groove finish.

Terminate grooves within 6" to 12" of the vertical face of curb or parapet.

During the grooving operations, the Resident Engineer will verify, at random, that the minimum grooved depth is being achieved. Should the Resident Engineer determine the minimum groove depth is not being achieved; the Contractor shall stop grooving operations and make all adjustments necessary.

Reinforcing Steel shall meet the requirements of Section 503 – Reinforcing Steel.

1. Transverse Saw Cut Grooving of Concrete Roadway Apron Slab

Description A transverse saw cut finish applied to the concrete roadway apron after the specified curing period has elapsed.

Materials A multi-bladed wet saw using circular saw blades shall be used. The Resident Engineer may allow the use of a single blade, circular saw equipment, where it is determined such equipment is necessary to complete the work as required. The equipment the Contractor proposes to use will be subject to the approval of the Resident Engineer, prior to use.

Construction Requirements Saw cutting may begin only after the specified curing period has elapsed. Transverse grooves shall be cut perpendicular to the centerline of the roadway using a single pass. Cut all grooves in a rectangular shape conforming to the following dimensions:

Spacing: Center-to-Center 1" to 1 ¼"
Width: 3/16" +/- 1/16"

Depth: 1/4" +/- 1/16"

The Contractor will supply the Resident Engineer with two (2) accurate, easily readable gauges with which to verify groove depth. Gauges and manufacturer's instructions for use shall be delivered to the Resident for approval at least one week prior to the anticipated start of saw cutting operat6ions.

The contractor shall continuously collect and properly dispose of all slurry or debris created by this activity.

502.18 Method of Measurement The quantity will not be measured directly for payment.

502.19 Basis of Payment Payment for finishing a concrete roadway apron with transverse grooves through any method will include, but not limited to, all materials, equipment and labor to perform the work and shall be considered incidental to item 502.45 Structural Concrete Roadway Apron Slab.

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
Structural Concrete Roadway Apron Slab

The Standard Specification is amended by the following:

502.01 Description. This work shall consist of furnishing concrete for the Structural Concrete Roadway Apron Slab, as shown on the plans and described in the Specifications and Contract documents. Except as otherwise specified in this Special Provision, all work shall be in conformity with the applicable provisions of Section 502, Structural Concrete.

502.02 Classification Portland cement concrete shall be class A.

502.02 Materials Portland cement concrete used in the Structural Concrete Roadway Apron Slab shall be colored as described in Special Provision Colored Concrete. Reinforcing steel shall meet the requirements of Section 503 – Reinforcing Steel.

502.15 Curing Concrete Structural Concrete Roadway Apron Slab shall be cured in accordance with Special Provision 502 Colored Concrete, Section 502 Structural Concrete, and as approved by the Engineer.

502.19 Basis of Payment. The accepted quantity of Structural Concrete Roadway Apron Slab will be paid for at the contract unit price per cubic meter, which payment will be full compensation for all labor, materials, tools, equipment, and incidentals necessary to complete the work, including, but not limited to, fabrication, delivery, placement, finishing, and admixtures. All rebar delivery and installation is considered incidental and included in this item.

Payment will be made under:

Pay Item	Pay Unit
502.45 Structural Concrete Roadway Apron Slab	Cubic Yard

SPECIAL PROVISIONS
SECTION 603
PIPE CULVERTS AND STORM DRAINS

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 603 – PIPE CULVERTS AND STORM DRAINS, with the following modifications:

MODIFICATIONS:

Section 603.01 Description

This Subsection is deleted and replaced with the following:

Provide all labor, materials, equipment, and services necessary for proper and complete installation of the storm drainage system as indicated on the Plans and as herein specified including the following items:

1. Storm drainage piping.
2. Drainage swales.
3. Bedding and cover materials.
4. Related appurtenances.

Section 603.025 Submittals

This Subsection is added and shall include the following:

Contractor shall submit for approval the following items in accordance with Section 105.7, Working Drawings, of the State of Maine Department of Transportation Standard Specifications, Revision December 2002:

1. Product Data: Submit data indicating pipe, pipe accessories, and appurtenances.
2. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
3. Project Record Documents: Provide an accurate record of actual location of pipe runs, connections, cleanouts, and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

Section 603.031 General

Replace first paragraph with the following:

All culvert pipe to be furnished under Option III.

Section 603.032 Excavation

The Subsection is amended to include the following:

PREPARATION

Notify "Dig-Safe" (1-888-334-7233) at least 3 days prior to beginning any excavation work, in accordance with Maine State Law.

Contact local utility companies, before beginning work, at least five days in advance.

Check for conflict with underground utilities or structures. Notify the Architect/Engineer immediately or all discrepancies before proceeding with the work.

Fully coordinate with utility companies to insure timely work by others to avoid construction delays.

Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

Section 603.04 Bedding

The Subsection is amended to include the following:

BEDDING

Hand trim excavation for accurate placement of pipe to elevations indicated.

Place bedding material at trench bottom, level materials in continuous layer not exceeding 6 inches compacted depth.

Maintain optimum moisture content of bedding material to attain required compaction density.

Section 603.05 Laying Culvert

The Subsection is deleted and replaced with the following:

INSTALLATION - PIPE

Excavate in locations and to depths indicated on the drawings to install drain lines.

Install pipe, fittings, and accessories in accordance with ASTM D2321. Seal joints watertight.

Place pipe on minimum 6 inch deep bed of bedding material as specified.

Lay pipe to inverts noted on drawings in straight lines and constant slopes.

Install bedding material at sides and over top of pipe. Install top cover to minimum compacted thickness of 12 inches, compact to 95 percent.

The remainder of the trench shall be backfilled according to Section 203 – Excavation and Embankment.

Refer to Section 203 for backfilling and compacting requirements. Do not displace or damage pipe when compacting.

Ensure all existing piping being abandoned is properly capped/plugged as to make it water tight.

Any piping installed within frost depth is to be insulated in accordance with MDOT specifications.

After all site work is completed, including spreading of topsoil and seeding, clean silt, stones and debris from all structures and lines.

Section 603.12 Basis of Payment

The Subsection is amended to include the following:

The accepted quantities of pipe for culverts and storm drain pipes will be paid for at the Contract unit price per linear foot, for the types and sizes specified, complete in place. Price is to include all labor and materials associated trench excavation and backfilling. Any pipe insulation required due to shallow depth of installation is considered incidental to the work. The Contractor shall pay all fees associated with connection to the existing utilities and inspections by the Resident. Any fees associated with the work shall be incidental to the pay item.

Payment will be made under the following Pay Item:

Pay Item		Pay Unit
603.042	Pipe Bedding	YD3
603.169	Culvert Pipe, 15 Inch, Option III	Linear Foot
603.179	Culvert Pipe, 18 Inch, Option III	Linear Foot
603.189	Culvert Pipe, 21 Inch, Option III	Linear Foot
603.199	Culvert Pipe, 24 Inch, Option III	Linear Foot

END OF SECTION

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 6, 2012**

SPECIAL PROVISIONS
SECTION 604
MANHOLES, INLETS

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 604 – MANHOLES, INLETS,

MODIFICATIONS:

Section 604.01 Description

This section is deleted and replaced with the following:

Provide all labor, materials, equipment, and services necessary for proper and complete installation or retrofit of the storm drainage manholes, inlets, and catch basins as indicated on the Plans and as herein specified including the digging of test pits as shown on the Plans. The work also includes all fees associated with connection to the existing utilities, tests, and inspections.

Section 604.025 Submittals

This Subsection is added and shall include the following:

Contractor shall submit for approval the following items in accordance with Section 105.7, Working Drawings, of the State of Maine Department of Transportation Standard Specifications, Revision December 2002:

1. Shop Drawings: Submit product specification literature and/or shop drawings for:
   a. Precast concrete structures (manholes, catch basins, and area drains).
   b. Cast iron frames, grates, and covers for structures.
2. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
3. Project Record Documents: Provide an accurate record of actual location of catch basins. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

Section 604.03 Construction Requirements

This Subsection is amended by inclusion of the following:

CATCH BASINS AND DRAINAGE MANHOLES

Precast Concrete Structures: ASTM C478, MDOT Section 712.06. Structures and top pieces shall provide H-20 load bearing capacity. Butyl rubber gaskets shall be installed at all joints between manhole sections. The top cone section shall be of an offset shape.

Brick: ASTM C32-69, Grade MS, except Grade SS for drainage manhole inverts; MDOT Section 704.01.

Concrete Block: ASTM C-139; MDOT Section 704.03.

Structure walls: 5 in. thick for precast up to 10 ft. depth; 8 in. thick for precast below that depth.

Grout: Specified in Section 03 30 00.

Cast Iron Frames, Grates, and Covers: ASTMA48, Class 35, MDOT Section 712.07.

1. Grates in paved areas shall be "bicycle safe".
2. Covers shall have the word "Storm" cast thereon.
3. All components shall be H-20 rated.
4. All frames, grates and covers shall have two coats of coal tar pitch varnish applied after sandblasting to provide a smooth, tough, non-brittle, non-scaling finish. Repair damage to coatings to the satisfaction of the Engineer.

5. Drain Manholes: Standard Solid Cover – 24 in. round opening; E245S, manufactured by Etheridge Foundry Co., except M248S (heavy-duty) in paved areas or approved equivalent.
6. Catch Basin: Standard 24 in. round opening; SA 248 M or SA 246 M where cover requirements dictate use of shorter frame.

Section 604.035 Construction Requirements

This Subsection is added and includes the following:

PREPARATION

Notify "Dig-Safe" (1-888-334-7233) at least 3 days prior to beginning any excavation work, in accordance with Maine State Law.

Contact local utility companies, before beginning work, at least five days in advance.

Check for conflict with underground utilities or structures.

Fully coordinate with utility companies to insure timely work by others to avoid construction delays.

Hand trim excavations to required elevations. Correct over excavation with Structural Fill as specified in Section 203. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

INSTALLATION - CATCH BASINS AND DRAINAGE MANHOLES

Establish elevations and pipe inverts for inlets and outlets as indicated on Drawings.

Construct all catch basins, manholes, field inlets and other structures to lines, grades and dimensions shown on Drawings.

Inverts for drainage manholes shall be built to the crown of the pipe for sizes up to eighteen (18) inches, and to the spring line for larger pipes.

Cut inlet or outlet pipes flush with inside wall unless otherwise indicated. Set metal or polypropylene fittings, including rings and frames, in full mortar beds.

604.06 Basis of Payment

Add the following paragraphs:

Payment will be made under the following Pay Items:

Pay Item		Pay Unit
604.072	Catch Basin, Type A1-C	Each
604.11	Catch Basin, Type C1	Each
604.12	Catch Basin, Type C2-C	Each
604.164	Rebuilding Catch Basin	Each
604.18	Adjusting Manhole or Catch Basin to Grade	Each
604.247	Catch Basin Type F5-C	Each

END OF SECTION

SPECIAL PROVISION
SECTION 606
GUARDRAIL

606.01 Description This work shall consist of furnishing and installing guardrail components in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans or as established. The types of guardrail are designated as follows:

Type 3-Galvanized steel "w" beam, wood posts or galvanized steel posts.
Type 3a-Galvanized steel "w" beam, wood posts, wood or composite offset blocks.
Type 3aa-Corrosion resistant steel "w" beam, wood posts, wood or composite offset blocks.
Type 3b-Galvanized steel "w" beam, galvanized steel posts, galvanized steel offset blocks.
Type 3c-Galvanized steel "w" beam, wood posts or galvanized steel posts, wood or composite offset blocks.
Type 3d-Galvanized steel "w" beam, galvanized steel posts, wood or composite offset blocks.
Thrie Beam-Galvanized steel thrie beam, wood posts or galvanized steel posts, wood or composite offset blocks.

Median barriers shall consist of two beams of the above types, mounted on single posts. Except for thrie beam, median barriers may include rub rails when called for.

Bridge mounted guardrail shall consist of furnishing all labor, materials, and equipment necessary to install guardrail as shown on the plans. This work shall also include drilling for and installation of offset blocks if specified, and incidental hardware necessary for satisfactory completion of the work.

Remove and Reset and Remove, Modify, and Reset guardrail shall consist of removing the existing designated guardrail and resetting in a new location as shown on the plans or directed by the Resident. Remove, Modify, and Reset guardrail and Modify guardrail include the following guardrail modifications: Removing plate washers at all posts, except at anchorage assemblies as noted on the Standard Details, Adding offset blocks, and other modifications as listed in the Construction Notes or General Notes. Modifications shall conform to the guardrail Standard Details.

Bridge Connection shall consist of the installation and attachment of beam guardrail to the existing bridge. This work shall consist of constructing a concrete end post or modifying an existing endpost as required, furnishing, and installing a terminal connector, necessary hardware, and incidentals required to complete the work as shown on the plans. Bridge Transition shall consist of a bridge connection and furnishing and installing guardrail components as shown in the Standard Details.

606.02 Materials Materials shall meet the requirements specified in the following Sections of Division 700 - Materials:

Timber Preservative	708.05
Metal Beam Rail	710.04
Guardrail Posts	710.07
Guardrail Hardware	710.08

Guardrail components shall meet the applicable standards of "A Guide to Standardized Highway Barrier Hardware" prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Task Force 13 Report.

Posts for underdrain delineators shall be “U” channel steel, 2.44m [8 ft] long, 3.72 kg/m [2 ½ lb/ft] minimum and have 9.5 mm [3/8 in] round holes, 25 mm [1 in] center to center for a minimum distance of 610 mm [2 ft] from the top of the post.

Reflectorized Flexible Guardrail Markers shall be mounted on all guardrails. A marker shall be mounted onto guardrail posts at the flared end treatment’s terminal and its tangent point, both at the leading and trailing ends of each run of guardrail. The marker’s flexible posts shall be grey with either silver-white or yellow reflectors (to match the edge line striping) at the tangents, red at leading ends, and green at trailing ends. Whenever the end treatment is not flared, markers will only be required at the end treatment’s terminal. These shall be red or green as appropriate. Markers shall be installed on the protected side of guardrail posts unless otherwise approved by the Resident. Reflectorized flexible guardrail markers shall be from the Maine DOT’s Approved Product List of Guardrail Material. The marker shall be grey, flexible, durable, and of a non-discoloring material to which 75 mm [3 in] by 225 mm [9 in] reflectors shall be applied, and capable of recovering from repeated impacts. Reflective material shall meet the requirements of Section 719.01 for ASTM D 4956 Type III reflective sheeting. The marker shall be secured to the guardrail post with two fasteners, as shown in the Standard Details.

Reflectorized beam guardrail (“butterfly”-type) delineators shall be mounted on all “w”-beam guardrail. The delineators shall be mounted within the guardrail beam at guardrail posts. Delineators shall be fabricated from high-impact, ultraviolet & weather resistant thermoplastic. Reflectorized beam guardrail delineators shall be placed at approximately 20 m [62.5 ft] intervals or every tenth post on tangents and at approximately 10 m [31.25 ft] intervals or every fifth post on curves. Exact locations of the delineators shall be as directed by the Resident. On divided highways, the left hand delineators shall be yellow and the right hand delineators shall be silver/white. On two directional highways, the right hand side shall be silver/white and no reflectorized delineator used on the left. All reflectors shall have reflective sheeting applied to only one side of the delineator facing the direction of traffic as shown in the Standard Detail 606(07). Reflectorized sheeting for guardrail delineators shall meet the requirements of Section 719.01.

Single wood post shall be of cedar, white oak, or tamarack, well seasoned, straight, and sound and have been cut from live trees. The outer and inner bark shall be removed and all knots trimmed flush with the surface of the post. Posts shall be uniform taper and free of kinks and bends.

Single steel post shall conform to the requirements of Section 710.07 b.

Single steel pipe post shall be galvanized, seamless steel pipe conforming to the requirements of ASTM A120, Schedule No. 40, Standard Weight.

Acceptable multiple mailbox assemblies shall be listed on the Department’s Approved Products List and shall be NCHRP 350 tested and approved.

The Guardrail 350 Flared Terminal shall be a terminal with a 1.2 m [4 ft] offset as shown in the Manufacturer's installation instructions.

Existing materials damaged or lost during adjusting, removing and resetting, or removing, modifying, and resetting, shall be replaced by the Contractor without additional compensation. Existing guardrail posts and guardrail beams found to be unfit for reuse shall be replaced when directed by the Resident.

606.03 Posts Posts for guardrail shall be set plumb in holes or they may be driven if suitable driving equipment is used to prevent battering and distorting the post. When posts are driven through pavement, the damaged area around the post shall be repaired with approved bituminous patching. Damage to lighting and signal conduit and conductors shall be repaired by the Contractor.

When set in holes, posts shall be on a stable foundation and the space around the posts, backfilled in layers with suitable material, thoroughly tamped.

The reflectorized flexible guardrail markers shall be set plumb with the reflective surface facing the oncoming traffic. Markers shall be installed on the protected side of guardrail posts. Markers, which become bent or otherwise damaged, shall be removed and replaced with new markers.

Single wood posts shall be set plumb in holes and backfilled in layers with suitable material, thoroughly tamped. The Resident will designate the elevation and shape of the top. The posts, that are not pressure treated, shall be painted two coats of good quality oil base exterior house paint.

Single steel posts shall be set plumb in holes as specified for single wood posts or they may be driven if suitable driving equipment is used to prevent battering and distorting the post.

Additional bolt holes required in existing posts shall be drilled or punched, but the size of the holes shall not exceed the dimensions given in the Standard Details. Metal around the holes shall be thoroughly cleaned and painted with two coats of approved aluminum rust resistant paint. Holes shall not be burned.

606.04 Rails Brackets and fittings shall be placed and fastened as shown on the plans. Rail beams shall be erected and aligned to provide a smooth, continuous barrier. Beams shall be lapped with the exposed end away from approaching traffic.

End assemblies shall be installed as shown on the plans and shall be securely attached to the rail section and end post.

All bolts shall be of sufficient length to extend beyond the nuts but not more than 13 mm [½ in]. Nuts shall be drawn tight.

Additional bolt holes required in existing beams shall be drilled or punched, but the size of the holes shall not exceed the dimensions given in the Standard Details. Metal around the holes shall be thoroughly cleaned and painted with two coats of approved aluminum rust resistant paint. Holes shall not be burned.

606.045 Offset Blocks The same offset block material is to be provided for the entire project unless otherwise specified.

606.05 Shoulder Widening At designated locations the existing shoulder of the roadway shall be widened as shown on the plans. All grading, paving, seeding, and other necessary work shall be in accordance with the Specifications for the type work being done.

606.06 Mail Box Post Single wood post shall be installed at the designated location for the support of the mailbox. The multiple mailbox assemblies shall be installed at the designated location in accordance with the Standard Details and as recommended by the Manufacturer. Attachment of the mailbox to the post will be the responsibility of the home or business owner.

606.07 Abraded Surfaces All galvanized surfaces of new guardrail and posts, which have been abraded so that the base metal is exposed, and the threaded portions of all fittings and fasteners and cut ends of bolts shall be cleaned and painted with two coats of approved rust resistant paint.

606.08 Method of Measurement Guardrail will be measured by the meter [linear foot] from center to center of end posts along the gradient of the rail except where end connections are made to masonry or steel structures, in which case measurement will be as shown on the plans.

Terminal section, low volume end, NCHRP 350 end treatments, reflectorized flexible guardrail marker, terminal end, bridge transition, bridge connection, multiple mailbox post, and single post will be measured by each unit of the kind specified and installed.

Widened shoulder will be measured as a unit of grading within the limits shown on the plans.

Excavation in solid rock for placement of posts will be measured by the cubic meter [cubic yard] determined from the actual depth of the hole and a hypothetical circle diameter of 600 mm [2 ft].

606.09 Basis of Payment The accepted quantities of guardrail will be paid for at the contract unit price per meter [linear foot] for the type specified, complete in place. Reflectorized beam guardrail (“butterfly”-type) delineators will not be paid for directly, but will be considered incidental to guardrail items. Terminal section, buffer end, NCHRP 350 end treatment, bridge connection, single post and reflectorized flexible guardrail markers will be paid for at the contract unit price each for the kind specified complete in place.

NCHRP 350 end treatments and low volume guardrail ends will be paid for at the contract price each, complete in place which price shall be full payment for furnishing and installing all components including the terminal section, posts, offset blocks, "w" beam, cable foundation posts, plates and for all incidentals necessary to complete the installation within the limits as shown on the Standard Details or the Manufacturer’s installation instructions. Each end treatment will be clearly marked with the manufacturers name and model number to facilitate any future needed repair. Such payment shall also be full compensation for furnishing all material, excavating, backfilling holes, assembling, and all incidentals necessary to complete the work, except that for excavation for posts or anchorages in solid ledge rock, payment will be made under Pay Item 206.07. Type III Retroreflective Adhesive Sheeting

shall be applied to the approach buffer end sections and sized to substantially cover the end section. On all roadways, the ends shall be marked with alternating black and retroreflective yellow stripes. The stripes shall be 75 mm [3 in] wide and sloped down at an angle of 45 degrees toward the side on which traffic is to pass the end section. Guardrail 350 flared terminal shall also include a set of installation drawings supplied to the Resident.

Anchorages to bridge end posts will be part of the bridge work. Connections thereto will be considered included in the unit bid price for guardrail.

Guardrail to be placed on a radius of curvature of 45 m [150 ft] or less will be paid for under the designated radius pay item for the type guardrail being placed.

Widened shoulder will be paid for at the contract unit price each complete in place and will be full compensation for furnishing and placing, grading and compaction of aggregate subbase and any required fill material.

Adjust guardrail will be paid for at the contract unit price per meter and will be full compensation for adjusting to grade. Payment shall also include adjusting terminal end treatments where required.

Modify guardrail will be paid for at the contract unit price per meter and will be full compensation for furnishing and installing offset blocks, additional posts, and other specified modifications; removing, modifying, installing, and adjusting to grade existing posts and beams; removing plate washers and backup plates, and all incidentals necessary to complete the work. Payment shall also include removing and resetting terminal ends where required.

Remove and Reset guardrail will be paid for at the contract unit price per meter and will be full compensation for removing, transporting, storing, reassembling all parts, necessary cutting, furnishing new parts when necessary, reinstalling at the new location, and all other incidentals necessary to complete the work. Payment shall also include removing and resetting terminal ends when required. No payment will be made for guardrail removed, but not reset and all costs for such removal shall be considered incidental to the various contract pay items.

Remove, Modify, and Reset guardrail will be paid for at the contract unit price per meter and will be full compensation for the requirements listed in Modify guardrail and Remove and Reset guardrail.

Bridge Connections will be paid for at the contract unit price each. Payment shall include, attaching the connection to the endpost including furnishing and placing concrete and reinforcing steel necessary to construct new endposts if required, furnishing and installing the terminal connector, and all miscellaneous hardware, labor, equipment, and incidentals necessary to complete the work.

Bridge Transitions will be paid for at the contract unit price each. Payment shall include furnishing and installing the thrie beam or “w”-beam terminal connector, doubled beam section, and transition section, where called for, posts, hardware, precast concrete transition curb, and any other necessary materials and labor, including the bridge connection as stated in the previous paragraph.

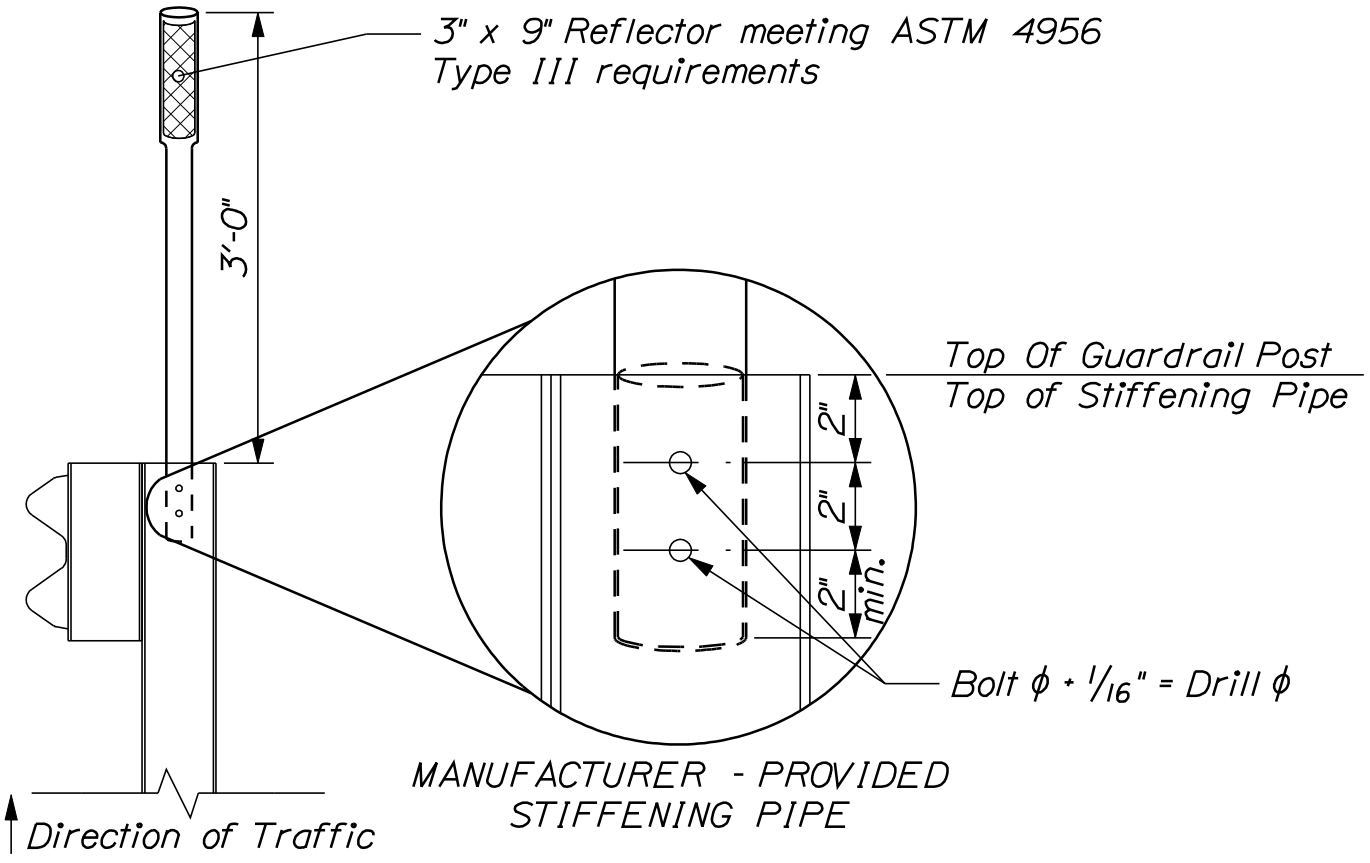
Payment will be made under:

	Pay Item	Pay Unit
606.15	Guardrail Type 3a-Single Rail	meter [Linear Foot]
606.151	Guardrail Type 3aa-Single Rail	meter [Linear Foot]
606.17	Guardrail Type 3b-Single Rail	meter [Linear Foot]
606.1721	Bridge Transition - Type I	Each
606.1722	Bridge Transition - Type II	Each
606.1731	Bridge Connection - Type I	Each
606.1732	Bridge Connection - Type II	Each
606.178	Guardrail Beam	meter [Linear foot]
606.18	Guardrail Type 3b - Double Rail	meter [Linear foot]
606.19	Guardrail Type 3a - 4.5 m [15 ft] radius and less	meter [Linear Foot]
606.191	Guardrail Type 3aa - 4.5 m [15 ft] radius and less	meter [Linear Foot]
606.20	Guardrail Type 3a - over 4.5 m [15 ft] radius	meter [Linear Foot]
606.201	Guardrail Type 3aa - over 4.5 m [15 ft] radius	meter [Linear Foot]
606.21	Guardrail Type 3b - 4.5 m [15 ft] radius and less	meter [Linear Foot]
606.22	Guardrail Type 3b - over 4.5 m [15 ft] radius	meter [Linear Foot]
606.23	Guardrail Type 3c - Single Rail	meter [Linear Foot]
606.2301	Guardrail Type 3c - Double Rail	meter [Linear Foot]
606.231	Guardrail Type 3c - 4.5 m [15 ft] radius and less	meter [Linear Foot]
606.232	Guardrail Type 3c - over 4.5 m [15 ft] radius	meter [Linear Foot]
606.24	Guardrail Type 3d - Single Rail	meter [Linear Foot]
606.2401	Guardrail Type 3d - Double Rail	meter [Linear Foot]
606.241	Guardrail Type 3d - 4.5 m [15 ft] radius and less	meter [Linear Foot]
606.242	Guardrail Type 3d - over 4.5 m [15 feet] radius	meter [Linear Foot]
606.25	Terminal Connector	Each
606.257	Terminal Connector - Thrie Beam	Each
606.265	Terminal End-Single Rail - Galvanized Steel	Each
606.266	Terminal End-Single Rail - Corrosion Resistant Steel	Each
606.275	Terminal End-Double Rail - Galvanized Steel	Each
606.276	Terminal End-Double Rail - Corrosion Resistant Steel	Each
606.353	Reflectorized Flexible Guardrail Marker	Each
606.354	Remove and Reset Reflectorized Flexible Guardrail Marker	Each
606.356	Underdrain Delineator Post	Each
606.358	Guardrail, Modify, Type 3b to 3c	meter [Linear Foot]
606.3581	Guardrail, Modify Existing to Type 3d	meter [Linear Foot]
606.362	Guardrail, Adjust	meter [Linear Foot]
606.365	Guardrail, Remove, Modify, and Reset, Type 3b to 3c	meter [Linear Foot]
606.3651	Guardrail, Remove, Modify, and Reset Existing to Type 3d	meter [Linear Foot]
606.366	Guardrail, Removed and Reset, Type 3c	meter [Linear Foot]
606.367	Replace Unusable Existing Guardrail Posts	Each
606.47	Single Wood Post	Each
606.48	Single Galvanized Steel Post	Each
606.50	Single Steel Pipe Post	Each

606.51	Multiple Mailbox Support	Each
606.55	Guardrail Type 3 - Single Rail	meter [Linear Foot]
606.551	Guardrail Type 3 - Single Rail with Rub Rail	meter [Linear Foot]
606.56	Guardrail Type 3 - Double Rail	meter [Linear Foot]
606.561	Guardrail Type 3 - Double Rail with Rub Rail	meter [Linear Foot]
606.568	Guardrail, Modify Type 3c -Double Rail	meter [Linear Foot]
606.59	Guardrail Type 3 - 4.5 m [15 ft] radius and less	meter [Linear Foot]
606.60	Guardrail Type 3 - over 4.5 m [15 ft] radius	meter [Linear Foot]
606.63	Thrie Beam Rail Beam	meter [Linear Foot]
606.64	Guardrail Thrie Beam - Double Rail	meter [Linear Foot]
606.65	Guardrail Thrie Beam - Single Rail	meter [Linear Foot]
606.66	Terminal End Thrie Beam	Each
606.70	Transition Section - Thrie Beam	Each
606.71	Guardrail Thrie Beam - 4.5 m [15 ft] radius and less	meter [Linear Foot]
606.72	Guardrail Thrie Beam - over 4.5 m [15 ft] radius	meter [Linear Foot]
606.73	Guardrail Thrie Beam - Single Rail Bridge Mounted	meter [Linear Foot]
606.74	Guardrail Type 3 - Single Rail Bridge Mounted	meter [Linear Foot]
606.753	Widen Shoulder for Low Volume Guardrail End - Type 3	Each
606.754	Widen Shoulder for Guardrail 350 Flared Terminal	Each
606.78	Low Volume Guardrail End - Type 3	Each
606.79	Guardrail 350 Flared Terminal	Each

1. Reflectorized Flexible Guardrail Markers shall be from Maine DOT's Approved Product List of Guardrail Material.

2. Installation:
   a. Each bolt-hole diameter shall be the bolt diameter + 1/16".
   b. Wood post attachment - attach marker with 2, 5/16" diameter zinc-coated lag bolts, having 2" of embedment into wood post.
   c. Steel post attachment - attach marker with 2, 1/4" diameter zinc-coated bolt, washer and nut assemblies, having 1/2" of bolt extension behind steel post.
   d. When provided by the marker manufacturer, a stiffening pipe shall be inserted into the base of the marker prior to drilling bolt holes and shall remain in-place.



REFLECTORIZED FLEXIBLE GUARDRAIL MARKER DETAILS

606(34)

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 29, 2012**

SPECIAL PROVISIONS
SECTION 607
FENCES

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 607 – FENCES, with the following modifications:

MODIFICATIONS:

607.01 Description

Add the following paragraph:

Chain link fence shall be 6ft tall with a 2 foot tall barbed wire top slanted outward and continuously secured at grade. Fencing is required to meet the CBP security guidelines.

The work shall also include the removal and reinstallation of wooden fence as shown on the Plans.

Permanent ornamental fence shall also be supplied and installed along the top of all new retaining walls.

Temporary chain link fencing installed under the Clair Fort Kent International Bridge Contract in the area of the Work shall be removed and or relocated as required for this Contract and as required by the LPOE and directed by the Resident.

607.02 Materials

Add the following paragraph:

The wooden fence shall be equal or better than the existing wooden fence being replaced.

The ornamental fence is to be: Jerith, 200 Series, Heavy Duty, Style #202, or approved equal.

607.06 Method of Measurement

Add the following paragraphs:

Measurement for the chain link fence with barbed wire top shall include all labor, equipment, and materials necessary to completely fabricate and install the fence in accordance with the Plans and Specifications. The work shall include all excavation, concrete, fence, and gate materials.

Measurement for the wooden fence shall include all labor, equipment, and materials necessary to completely fabricate and install the fence in accordance with the Plans and Specifications. The work shall include all excavation, concrete, wood, assembling brackets, posts, supports, and related appurtenances.

Measurement for the ornamental fence shall include all labor, equipment, and materials necessary to completely fabricate and install the fence in accordance with the Plans and Specifications. The work shall include all excavation, concrete, and fence materials.

Measurement for the removal and resetting of the temporary chain link fence shall include all labor, equipment, and materials necessary to completely remove and reinstall the fence in accordance with the Plans and Specifications. The work shall include all excavation and fence materials.

607.07 Basis of Payment

Add the following two paragraphs:

Chain link fence shall be paid by the linear foot complete in place. Payment will be full compensation for the supply and installation of all materials necessary to complete the work.

Removal and resetting of the existing wooden fence shall be paid by the linear foot complete in place. Payment will be full compensation for the disassembling and reassembling of all materials necessary to complete the work.

Ornamental Fence shall be paid by the linear foot complete in place. Payment will be full compensation for the disassembling and reassembling of all materials necessary to complete the work.

Removal and resetting of the temporary chain link fencing shall be paid by the linear foot complete in place. Payment will be full compensation for the disassembling and reassembling of all materials necessary to complete the work.

Payment will be made under the following Pay Items:

Pay Item		Pay Unit
607.19	Chain link fence (8ft) c/w barbed wire top – Metal Posts	Linear Foot
607.23	Chain Link Fence Gate (6ft) c/w barbed wire top	Each
607.24	Remove and Reset Wooden Fence	Linear Foot
607.25	Remove and Reset Chain Link Fence	Linear Foot
607.243	Remove Chain Link Fence	Linear Foot
607.42	Ornamental Fence	Linear Foot

END OF SECTION

SPECIAL PROVISION
SECTION 608
DETECTABLE WARNINGS
(Cast Iron)

Description This work shall consist of furnishing and installing curb ramp detectable warning plates with truncated domes at the locations shown on the plans or as established by the Resident.

MATERIALS

Detectable Warnings The Contractor shall provide new cast iron detectable warning plates as manufactured by one of the manufacturers listed on Maine DOT's Qualified Products list of Cast Iron Detectable Warning Plates. This list can be found at:

http://www.maine.gov/mdot/tr/qpl/

Each field shall match the width of the ramp and shall have a natural finish.

Prior to starting this work, the Contractor shall submit for approval the name of the selected supplier, manufacturer's literature describing the product, installation procedures, and routine maintenance required.

Concrete Portland cement concrete shall meet the requirements of Section 502, Structural Concrete, Class A

CONSTRUCTION REQUIREMENTS

Existing Concrete Curb Ramps Existing Concrete shall be saw-cut to a dimension 100mm [4 in] larger than the detectable warning plates. New concrete shall be placed in the resulting opening and finished, and the new plates set into the wet concrete, according to manufacturer recommendations. New plates shall be set square with the curb edge and the base of the truncated domes shall be flush with adjacent surfaces to allow proper drainage.

New Concrete Curb Ramps New concrete shall be placed and finished for the ramp, and the new plates set into the wet concrete, according to manufacturer recommendations. New plates shall be set square with the curb edge and the base of the truncated domes shall be flush with adjacent surfaces to allow proper drainage

New Asphalt Ramps Asphalt shall be saw cut and removed to provide an opening that will allow for the dimensions of the cast iron plate surrounded by an additional 100mm [4 in] border on all sides of the plate. New concrete shall be placed in the resulting opening and finished, and the new plates set into the wet concrete, according to manufacturer

recommendations. New plates shall be set square with the curb edge and the base of the truncated domes shall be flush with adjacent surfaces to allow proper drainage.

Method of Measurement Detectable warning fields properly placed and accepted shall be measured for payment by the square meter [ft^2]. Measurement shall include actual plate area, not surrounding concrete.

Basis of Payment Payment will be full compensation at the contract unit price for all labor, materials, and equipment required to install the detectable warning fields. This shall include surface preparation and removal of concrete or asphalt, and necessary replacement concrete. On new concrete ramps, concrete shall be paid for under separate items

Pay Item		Pay Unit
608.26	Curb Ramp Detectable Warning Field	Square Meter [Square Foot]

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

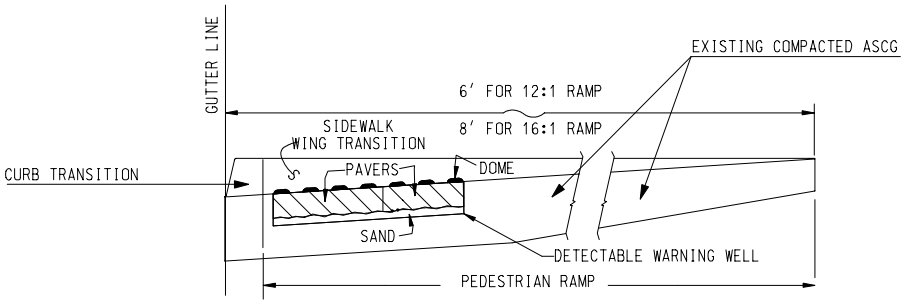
CURB RAMP

DETAILS

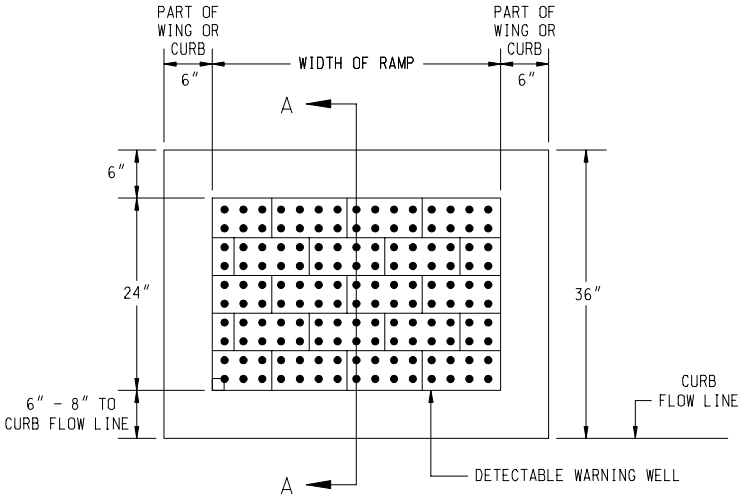
VIEWS AND DETAILS OF THE DETECTABLE WARNING

SHEET NUMBER 1 148

VIEWS AND DETAILS OF THE DETECTABLE WARNING

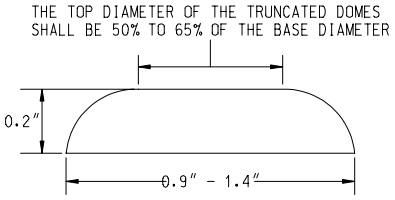


SIDE SECTION VIEW OF
DETECTABLE WARNING, WELL, CURB, AND GUTTER

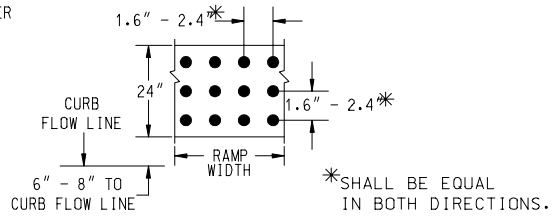


PLAN VIEW OF
DETECTABLE WARNING AND WELL

(PAVERS NOT DRAWN TO SCALE)

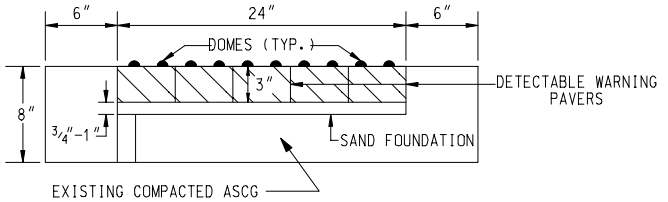


ELEVATION VIEW



PLAN VIEW

DOME AND DETECTABLE WARNING DETAILS



SECTION A-A

NOTE:
ALL DETECTABLE WARNING AREAS SHALL START 6 INCHES FROM THE FLOW LINE OF THE CURB, AND BE 24 INCHES IN DEPTH, AND COVER THE COMPLETE WIDTH OF THE RAMP AREA ONLY.

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 6, 2012**

SPECIAL PROVISIONS
SECTION 609
CURB

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 609 – CURB, with the following modifications:

MODIFICATIONS:

609.01 Description

This Subsection is deleted and replaced with the following:

Provide labor, materials, equipment, and services necessary for proper and complete installation of all granite curb and related items as indicated on the Plans and as specified herein. The types of granite curb to be used shall be:

1. MaineDOT Vertical Curb Type 1 – Stone curbing of quarried granite stone
2. MaineDOT Vertical Curb Type 5 – Stone edging of quarried granite stone

Provide labour, equipment, and services necessary to carefully excavate, remove, salvage and deliver existing curbing sections to the MeDOT Maintenance Compound.

609.10 Basis of Payment

Payment will be made under the following Pay Items:

Pay Item		Pay Unit
609.11	Vertical Curb Type 1	Linear Foot
609.34	Curb Type 5	Linear Foot
609.441	Existing Curbing Removed and Stacked	Linear Foot

END OF SECTION

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 6, 2012**

SPECIAL PROVISIONS
SECTION 615
LOAM

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 615 – LOAM, with the following modifications:

MODIFICATIONS:

Section 615.01 Description

The following paragraph is added:

Loam is required as part of the landscaping at all locations called for on the drawings and in all areas to be reinstated which have been disturbed by construction activities.

END OF SECTION

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 6, 2012**

SPECIAL PROVISIONS
SECTION 618
SEEDING

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 618 – SEEDING, with the following modifications:

MODIFICATIONS:

Section 618.01 Description

The following paragraph is added:

Seeding is required as part of the landscaping at all locations indicated on the drawings and at all locations disturbed by construction activities.

Section 618.12 Basis of Payment

The following paragraph is added:

All areas requiring reinstatement due to construction activities outside the construction area(s) and/or area(s) not indicated on the drawings to be seeded will not be measured for payment and is considered incidental to the work.

END OF SECTION

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 29, 2012**

SPECIAL PROVISIONS
SECTION 627
PAVEMENT MARKINGS

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 627 – PAVING MARKINGS, with the following modifications:

MODIFICATIONS:

Section 627.01 Description

The following paragraph is added:

This work shall specifically include pavement markings at all locations indicated on the drawings or as directed by the Resident in the field.

Section 627.02 Materials

This Subsection is deleted and replaced with the following:

Pavement marking paint shall be 100% acrylic, low VOC, fast drying, white, yellow, and blue waterborne traffic paint. The paint shall be formulated and processed specifically for service as a binder for beads, in such a manner as to produce maximum adhesion, refraction, and reflection. Any capillary action of the paint shall not be such as to cause complete coverage of the beads. The binder shall be 100% acrylic, as determined by infrared analysis according to ASTM D2621. VOC levels shall comply with ASTM D3960. Lead percentage shall comply with ASTM D3335. The paint shall be rated as non-combustible.

Section 627.09 Method of Measurement

The following paragraphs are added:

The Pavement Markings shall be measured as indicated in the unit pay items, and shall include all line striping, symbols, etc., as shown on the drawings.

Section 627.10 Basis of Payment

The following paragraphs are added:

The accepted quantity of Pavement Markings will be paid for at the Contract lump sum price, and shall include all line striping, symbols, etc., as shown on the drawings.

Payment will be made under the following Pay Item:

Pay Item		Pay Unit
627.733	4 inch White or yellow paint pavement marking line	Linear Foot
627.75	White or Yellow pavement and Curb Marking	Square Foot
627.76	Temporary pavement marking line, white or yellow	Lump Sum
627.9011	Pavement marking symbol	Each

END OF SECTION

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 6, 2012**

SPECIAL PROVISIONS
SECTION 634
HIGHWAY LIGHTING

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 634 – HIGHWAY LIGHTING, with the following modifications:

MODIFICATIONS:

634.01 Description

The following paragraphs are added:

Remove and/or remove and relocate existing street lamps as indicated on the drawings. Remove and install associated new conduit and wiring in trenching as indicated on the drawings.

Install new LED street lamps including fixtures, poles, conduit and wiring as indicated on the drawings.

634.10 Basis of Payment

Payment will be made under the following Pay Items:

Pay Item		Pay Unit
634.2082	Reset Light Standards	Each
634.2041	LED Luminaires	Each

END OF SECTION

SPECIAL PROVISION
SECTION 635
WET CAST SMALL LANDSCAPE BLOCK WALL

The following replaces Section 635 in the Standard Specifications in its entirety:

635.01 Description The work under this item shall consist of the design, fabrication, furnishing and construction of a Wet Cast Small Landscape Block Wall in accordance with these specifications and in conformance with the lines and grades shown on the Plans, or established by the Resident. The Wet Cast Small Landscape Block Wall shall consist of blocks made of Structural Precast concrete made from Portland cement, water, chemical admixtures, and aggregates, supported on concrete leveling pads, and if required, geosynthetic reinforced backfill. The concrete blocks used in this system should have dimensions 18 inches or less wide and 6.5 inches high at the face, with a pattern to simulate small stones or cobbles.

Included in the scope of the wall construction are: geotechnical design of any wall with an exposed height greater than 2.5 ft or as specified on the Plans, all grading necessary for wall construction, compaction of the wall foundation soil, backfill, piped drainage, construction of leveling pads, and concrete wall unit installation. The top of the upper row of concrete wall units shall be at or above the top of the face elevation shown on the Plans.

635.02 Quality Assurance The wall system shall be one of the approved combinations of facing block and soil reinforcement systems noted in the Plans or on the Department's Qualified Products List (QPL). Alternate wall systems will not be considered for this item.

All design calculations and Shop Drawings shall be signed and sealed by a Professional Engineer licensed in the State of Maine.

The Contractor shall require the wall design-supplier to provide an on-site, qualified experienced technical representative to advise the Contractor concerning proper installation procedures. The technical representative shall be on-site during initial stages of installation and thereafter shall remain available for consultation as necessary for the Contractor or as required by the Resident.

635.03 Materials Materials for walls shall meet the requirements of the following sections of Division 700:

Gravel Borrow	703.20
Underdrain Backfill Type C	703.22
Underdrain Pipe	706.06 or 706.09
Reinforcing Steel	709.01
Structural Precast Concrete Units	712.061
Reinforcement Geotextile	722.01
Drainage Geosynthetic	722.02

The Contractor is cautioned that all of the materials listed are not required for every Wet Cast Small Landscape Block Wall. The Contractor shall furnish the Resident a Materials Certification Letter certifying that the applicable materials comply with this section of the specifications. Materials shall meet the following additional requirements:

635.031 Concrete Units The Materials Certification Letter described above shall contain the date of concrete casting, a lot identification number, compressive strength results, and entrained air results. All prefabricated concrete units shall conform to the requirements of 712.061 with the following exceptions:

A. Materials. Materials are modified as follows: the maximum water cement ratio shall be 0.42, use of calcium nitrite is not required, and the minimum 28 day compressive strength shall be 4600 psi.

B. Quality Control and Quality Assurance. Quality Control and Quality Assurance is modified as follows: delete the second and third paragraphs.

C. Construction. Construction requirements are modified as follows:

Delete the second paragraph and replace it with the following:
All units for a designated wall system, including end blocks, steps, caps and other wall units shall be manufactured from the same material sources of aggregates, brand and type of cement and color pigment.

Replace the first sentence in the paragraph which begins "The forms shall remain ..." with the following:
The forms shall remain in place until the concrete has gained sufficient strength such that removal of the forms and subsequent handling will not damage the units.

Replace the paragraph which begins "A minimum of 8 ...." With the following:
The Contractor shall make and test at least one set of cylinders for every 50 yd^3 of production concrete used to cast the concrete units.

Replace the paragraph which begins "At least once ..." with the following:
The Contractor shall make four cylinders for use by the Department for every 200 yd^3.

Add the following paragraph at the end of the Construction section:
Face texture of the units shall be a formed finish on all exposed surfaces. Pigment shall be added during the casting process of the concrete unit to achieve a consistent shade of gray or other color as determined by the Resident.

D. Tolerances. Maximum dimensional deviation of formed unit dimensions shall not vary more than 1/8-inch or the manufacturer's published tolerances, whichever is less. All units not meeting the specified tolerances will be rejected.

635.032 Geosynthetic Reinforcement Geosynthetic Reinforcement shall be as required by the proprietary wall system manufacturer or wall designer. Geosynthetic reinforcement shall consist of a geotextile or geogrid approved by the Geotechnical Engineer. Substitution of a geosynthetic other than that required by the proprietary wall system manufacturer shall not be allowed unless approved by the Geotechnical Engineer after submittal of shop drawings and pullout and interface friction test data.

A. Geotextiles and Thread for Sewing. Woven or nonwoven geotextiles shall consist of long chain polymeric filaments or yarns formed into a stable network such that the filaments or yarns retain their position relative to each other during handling, placement, and design life. At least 95 percent by weight of the long chain polymer shall be polyolefin or polyester. The material shall be free of defects and tears. Geotextiles used for reinforcement shall conform as a minimum to the properties indicated for 722.01, Stabilization/Reinforcement Geotextile and shall meet the requirements of part D and E below. Geotextiles shall have a minimum permeability greater or equal to that shown on the Shop Drawings and the reinforced soil permeability.

B. Geogrids. The geogrid shall be a regular network of integrally formed polymeric tensile elements with aperture geometry sufficient to permit significant mechanical interlock with the surrounding soil or rock. The geogrid structure shall be dimensionally stable and able to retain its geometry under manufacture, transport and installation. Geogrids shall conform as a minimum to the criteria specified in part D and E below.

C. Required Properties. The specific geosynthetic materials shall be preapproved and shall the have the ultimate tensile strength (T_{ult}) shown on the approved Shop Drawings for the geosynthetic specified and for the fill type shown. T_{ult} shall be determined from wide width tests specified in ASTM D 4595 for geotextiles and ASTM D 6637 or GRI:GG1 for geogrids. The ultimate tensile strength value is based on the minimum average roll values (MARV) for the product.

D. The geosynthetic shall conform to the following criteria:
   1. PP and HDPE: Min. retained strength of 70 percent after 150 hours, per ASTM D-4355.
   2. HDPE: Grade = E-4, E-5, E-8, E-9, E-10, E-11, J-3, J-4, or J-5, per ASTM D-1248.
   3. PET: Molecular weight (Mn) > 25,000, per GRI:GG8 and ASTM D-4603.
   4. PET: Carboxyl end group (CEG) ≥ 15 mmol/kg, GRI:GG7.
   5. All polymers: Minimum Weight per Unit Area of 8 oz/yd^2, per ASTM D-5261.
   6. All Polymers: Maximum 0 percent post consumer recycled material by weight.
   7. A default total reduction factor for creep, durability, and installation damage of RF = 7 may be used in design, provided the criteria of 2 through 6 are satisfied and 1 is adjusted to 70 percent after 500 hours is satisfied.

E. Manufacturer Quality Control. The geosynthetic reinforcements shall be manufactured with a high degree of quality control. The Manufacturer is responsible for establishing and maintaining a quality control program to ensure compliance with the requirements of the specification. The purpose of the QC testing program is to verify that the reinforcement geosynthetic being supplied to the project is representative of the material used for performance testing and approval. Conformance testing shall be performed as part of the manufacturing process and may vary for each type of product. As a minimum the following index tests shall be considered as applicable for an acceptable QA/QC program:

	Property	Test Procedure
1.	Specific Gravity (HDPE only)	ASTM D-1505
2.	Ultimate Tensile Strength	ASTM D-4595 GRI:GG1
3.	Melt Flow (HDPE and PP only)	ASTM D-1238
4.	Intrinsic Viscosity (PET only)	ASTM D-4603
5.	Carboxyl End Group (PET only)	ASTM D-2455

F. Sampling Testing and Acceptance. Sampling and conformance testing shall be in accordance with ASTM D-4354. Conformance testing procedures are established above. Geosynthetic product acceptance shall be based on ASTM D-4759. The quality control certificate shall include:

   1. Roll numbers and identification
   2. Sampling procedures
   3. Results of quality control tests, including a description of test methods used.

G. Certification. The Contractor shall submit a manufacturer's certification that the geosynthetics supplied meet the respective index criteria set when the geosynthetic was approved, measured in full accordance with all test methods and standards specified, or referenced, in this specification.

   The manufacturer's certificate shall state that the furnished geosynthetic meets the requirements of these specifications as evaluated by the manufacturer's quality control program. The values submitted shall be certified by a person having legal authority to bond the manufacturer. In case of dispute over validity of values, the Resident can require the Contractor to supply test data from an agency approved laboratory to support the values submitted, at the Contractor's cost.

635.033 Concrete Leveling Pad Concrete for leveling pads shall be Fill Concrete conforming to the requirements of Section 502 Structural Concrete. Unless otherwise specified, concrete for leveling pads shall be accepted under Method "C" requirements.

635.034 Drainage Stone Fill Concrete wall unit voids shall be filled with material that conforms to the requirements of Standard Specification 703.22, Underdrain Backfill Material, Type C. Compaction of the stone fill will be required before the block surfaces are cleaned to ensure good interface connection strength between geogrids and blocks.

635.035 Backfill Material Backfill material placed behind the concrete wall units shall meet the requirements of Section 703.20 Gravel Borrow, except that the backfill material shall only contain particles that will pass the 3-inch square mesh sieve. The contractor is required to submit a grain size distribution curve (ASTM D 422) and a moisture-density relationship curve (AASHTO T-180) for acceptance of the proposed backfill material and determination of the appropriate installation damage reduction factor (RF_{ID}).

Walls with reinforced backfill also require that the backfill material be subjected to pH testing to determine the appropriate durability reduction factor (RF_D).

635.036 Materials Certificate Letter The Contractor, or the supplier as their agent, shall furnish the Resident a Materials Certificate Letter for the above materials, including the backfill material, in accordance with Section 700 of the Standard Specifications. A copy of all test results performed by the Contractor or their supplier necessary to assure contract compliance shall also be furnished to the Resident. The Resident will base acceptance upon the materials Certificate Letter, accompanying test reports, and visual inspection.

635.04 Design Requirements The wall shall be designed with a service life of not less than 75 years. The Wet Cast Small Landscape Block Wall shall be designed and sealed by a Professional Engineer licensed in the State of Maine. The wall shall be designed in accordance with the following:

1. AASHTO LRFD Bridge Design Specifications, current edition, herein referred to as LRFD
2. FHWA-NHI-10-024 and FHWA-NHI-10-025 Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, Volumes 1 and 2, 2010
3. FHWA-NHI-09-087 Corrosion/Degradation of Soil Reinforcements for Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, 2009
4. The Contract Plans
5. The requirements specified herein
6. The manufacturer's requirements

Where conflicting requirements occur, the more stringent requirements shall govern.

Forty-five days prior to beginning construction of the wall, the design computations shall be submitted to the Resident for review by the Geotechnical Engineer. Any additional design or costs arising as a result of rejection of a wall design by the Geotechnical Engineer shall be borne by the Contractor.

Design calculations that consist of computer program generated output shall be supplemented with at least one hand calculation and graphic demonstrating the design methodology used. Design calculations shall provide thorough documentation of the sources of equations used and material properties. The design by the wall system supplier shall consider the stability of the wall as outlined below and in the Contract Documents:

A. Failure Plane The theoretical failure plane within the reinforced soil mass shall be determined in accordance with LRFD Article 11 and be analyzed so that the soil stabilizing

components extend sufficiently beyond the failure plane within the reinforced soil mass to stabilize the material.

B. External Loads External loads which affect the internal and external stability such as those applied through traffic loadings, impact on traffic barrier posts, slope surcharge, hydrostatic, and seismic loads shall be accounted for in the design. Traffic surcharge and traffic impact loads shall be calculated and applied in compliance with LRFD Section 11.

C. External Stability Loads and load combinations selected for design shall be consistent with LRFD. Application of load factors shall be taken as specified in LRFD Section 11. Sliding resistance factors and bearing resistance factors shall be consistent with LRFD. Overturning and sliding provisions of LRFD shall apply.

D. Internal Stability Evaluation of reinforcement pullout, reinforcement rupture and reinforcement/block connection pullout or rupture shall be consistent with LRFD Section 11, and checked at each level. Loads, load combinations and load factors shall be as specified in LRFD Section 11. Resistance factors for internal design are specified in LRFD Section 11. Maximum reinforcement loads shall be calculated using the Simplified Method approach. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life.

a. Geosynthetic Reinforcement Design Tensile Resistance The nominal long term reinforcement design strength (T_{al}) shall be determined by reducing T_{ult} by reduction factors (RF) in accordance with the documents referenced above. The designer shall procure and use the manufacturers tested and certified geosynthetic reinforcement reduction factors for creep (RF_{CR}), durability (RF_D), and installation damage (RF_{ID}) to determine T_{al}. In absence of manufacturers tested and certified reduction factors, a combined default reduction factor RF = 7 shall be used in accordance with the referenced documents. For RF_{ID}, the installation damage reduction factor shall be checked in accordance with LRFD and FHWA-NHI-00-044.

b. Reinforcement/Facing Connection Design Strength The nominal long-term connection strength between the geosynthetic reinforcement and the concrete blocks shall be checked in accordance with LRFD and FHWA-NHI-10-024 and FHWA-NHI-10-025, Volumes 1 and 2.

c. Reinforcement Pullout The pullout resistance factor, (F*), and scale effect correction factor (α) used in pullout design, shall be determined from project specific pullout tests using the proposed geosynthetic in the specified project backfill material or equivalent soil. The pullout resistance factors shall be determined in accordance with LRFD and FHWA-NHI-10-024 and FHWA-NHI-10-025, Volumes 1 and 2. In the absence of test data, empirical relationships may be used to determine the pullout resistance factors, any empirical relationships used in design shall be referenced in the design calculations.

E. Backfill and Foundation Soils Parameters The friction angle of the backfill used in the reinforced fill zone for internal stability design shall be assumed have a friction angle of 34 degrees unless specific project select backfill is tested for frictional strength. The friction angle of the foundation soils and random backfill shall be assumed to be 30 degrees unless otherwise shown on the plans.

F. Reinforcement Length The soil reinforcement shall be the same length from the bottom to the top of each wall section. The reinforcement length defining the width of the entire reinforced soil mass may vary with wall height. The minimum length of the soil

reinforcement shall be 5 ft, but shall not be less than 70 percent of the wall height, H, for walls with level surcharges, or 70 percent of H1 for walls with a sloped surcharge. Reinforcement length will be determined by the geotechnical wall designer. The mechanical wall height, H or H1, shall be the vertical difference between the top of the leveling footing and the elevation at which the failure surface, as described above, intercepts the ground surface supported by the wall.

G. Bearing Resistance The factored bearing pressures under the Wet Cast Small Landscape Block Wall shall be clearly indicated on the Shop Drawings. Walls shall be dimensioned so that the factored bearing resistance of the foundation soils, as noted on the Plans, is not exceeded.

H. Facing Stability Stability calculations for the concrete facing blocks shall be in accordance with LRFD, and shall include an evaluation of the maximum vertical spacing between reinforcement layers.

I. Stability During Construction Walls shall be designed to resist failure by instability of temporary construction slope. Passive pressure in front of the wall mass shall be assumed to be zero for design purposes.

J. Design Life The wall design life shall be a minimum of 75 years.

K. Depth of Embedment The depth of embedment for frost protection and stability shall be at or below the elevation shown on the Plans and the approved Shop Drawings.

L. Drainage System Piped drainage shall be designed to collect and dispose of water from the base of the reinforced soil zone and backfill soil. This shall outlet into surrounding drainage systems or ditches.

635.05 Submittals. The Contractor shall supply wall design computations, wall details, dimensions, quantities, and cross sections necessary to construct the wall. A sample hand calculation including all equations, parameter values used, units, theory, free-body diagram, comparison to design requirements, etc. shall be provided. Spreadsheet calculations alone are not acceptable.

Forty-five (45) days prior to beginning construction of the wall, four (4) sets of the wall design computations and Shop Drawings shall be submitted to the Resident for review by the Geotechnical Engineer. Mix design information shall be submitted at the same time, including aggregate source, current gradation, aggregate quality information and concrete unit weight.

The contractor shall also submit backfill material test results as part of the wall submittal package. Backfill material test results shall include grain size distribution curve, moisture-density relationship curve, and pH test results required for reinforced backfill only.

If geotechnical design is required, the fully detailed plans shall be prepared in conformance with Section 105 and shall include, but not be limited to the following items:

A. A plan and elevation sheet or sheets for each wall, containing the following: elevations at the top of leveling pads, the distance along the face of the wall to all steps in the leveling pads, the location of the original and final ground line.

B. All details for foundations and leveling pads, including details for steps in the leveling pads, as well as allowable and actual maximum bearing pressures shall be provided.

C. Details for the barriers, posts, curbs, steps and facing as required by the project conditions.

D. Design computations prepared and sealed by a licensed Professional Engineer.

E. Prior to the beginning of construction, the contractor shall supply the Resident with two copies of the design-supplier's Installation Manual. In addition, the Contractor shall have two copies of the Installation Manual on the project site.

635.06 Construction Requirements The Wet Cast Small Landscape Block Wall shall have the following construction requirements:

A. Excavation. The excavation and use as fill of all excavated material shall meet the requirements of Section 203 -- Excavation and Embankment, except as modified herein.

B. Foundation. The area upon which the Wet Cast Small Landscape Block Wall structure is to rest, and within the limits shown on the submitted plans, shall be graded for a width equal to, or exceeding, the length of the blocks. Prior to wall and leveling pad construction, this foundation material shall be compacted to at least 95 percent of maximum laboratory dry density (AASHTO T-180 Method C or D). Frozen and unsuitable soil shall be removed and replaced with gravel borrow compacted to 95 percent of AASHTO T-180, or as shown on the plans.

   A concrete leveling pad shall be constructed a minimum width of 6 inches beyond the front and back of the concrete wall units, or as indicated on the plans. Dimensions may be modified per the wall supplier's recommendations, with written approval of the Geotechnical Engineer. The leveling pad shall be cast to the design elevations as shown on the plans, or as required by the wall supplier upon written approval of the Geotechnical Engineer.

   The allowable elevation tolerances from the design elevations are +0.01 ft and -0.02 ft. Leveling pads which do not meet this requirement shall be repaired or replaced as directed by the Resident at no additional cost to the Department. Placement of wall units may begin after the strength of the concrete leveling pad reaches 1000 psi or is adequate to support the proposed loads. Contractor may begin placement of concrete block units after 12 hours at their own risk.

C. Method and Equipment. Prior to erection of the wall, the Contractor shall furnish the Resident with detailed information concerning the proposed construction method and equipment to be used. The erection procedure shall be in accordance with the manufacturer's instructions. Any units that are damaged due to handling will be replaced at the Contractor's expense.

D. Installation of Concrete Wall Units. A field representative from the wall system being used shall be available, as needed, during the erection of the wall. The services of the representative shall be at no additional cost to the project.

   The contractor shall place the first course of wall units directly on the leveling pad and check for level and alignment. Adjacent units should be in contact. The prefabricated concrete wall units shall be installed to a tolerance of plus or minus 3/4 inch in 10 ft in vertical and horizontal alignment.

   Fill all voids between and within the wall units with drainage stone as described in this specification. Stone infill shall be compacted by hand tamping with a rod. The drainage stone fill shall extend a minimum of 6 in behind the tails of the wall units unless a geotextile filter is placed over the inside joint at the back of adjacent wall units. If used, the drainage geotextile shall conform to the requirements of Section 722.02.

The top course of blocks and all coping units shall be installed using adhesive or other method of permanent attachment as recommended by the manufacturer.

E. Backfill Placement. Backfill placement shall closely follow the erection of each row of prefabricated wall units. The maximum lift thickness shall be 8 inches loose. The Contractor shall decrease the lift thickness if necessary to obtain the specified density. The backfill shall be compacted in accordance with Section 203.12 except that the minimum required compaction shall be at least 92 percent of maximum density as determined by AASHTO T-180 Method C or D. Backfill compaction shall be accomplished without disturbance or displacement of the concrete wall units. Sheepsfoot rollers will not be allowed. Whenever a compaction test fails, no additional backfill shall be placed over the area until the lift is recompacted and a passing test achieved.

The moisture content of the backfill material prior to and during compaction shall be uniform throughout each layer. Backfill material shall have a placement moisture content less than or equal to the optimum moisture content. Backfill material with placement moisture content in excess of the optimum moisture content shall be removed and reworked until the moisture content is uniform and acceptable throughout the entire lift. The optimum moisture content shall be determined in accordance with AASHTO T-180, Method C or D. At the end of the day's operations, the Contractor shall shape the last level of backfill so as to direct runoff of rainwater away from the wall face.

F. Construction Certification Letter. The Contractor shall furnish the Resident a Construction Certification Letter describing how adequate compaction of the block infill material was accomplished and what QA/QC procedures were followed to ensure that this effort was continued throughout construction of the wall.

635.07 Method of Measurement Wet Cast Small Landscape Block Wall will be measured by the square foot of front surface not to exceed the dimensions shown on the Contract Plans unless authorized by the Resident. Vertical and horizontal dimensions will be from the edges of the blocks. No field measurements for computations will be made unless the Resident specifies, in writing, a change in the limits indicated on the Plans.

635.08 Basis of Payment The accepted quantity of Wet Cast Small Landscape Block Wall will be paid for at the contract unit price per square foot complete in place. Payment shall be full compensation for furnishing geotechnical design as required, all labor, equipment and materials including all precast concrete units, aggregate fill, hardware, joint fillers, geosynthetic, drainage pipe, and technical field representative.

Cost of cast-in-place concrete for leveling pad will not be paid for separately, but will be considered incidental to the Wet Cast Small Landscape Block Wall. Excavation, foundation material and backfill material will all be incidental to the Wet Cast Small Landscape Block Wall.

There will be no allowance for excavating and backfilling for the Wet Cast Small Landscape Block Wall beyond the limits shown on the approved submitted plans, except for excavation required to remove unsuitable subsoil in preparation for the foundation. Payment for excavating unsuitable subsoil shall be full compensation for all costs of pumping, drainage, sheeting, bracing and incidentals for proper execution of the work, and will be paid as common excavation in accordance with Section 203.

Payment will be made under:

Pay Item	Pay Unit
635.32 Wet Cast Small Landscape Block Wall	Square Foot

SPECIAL PROVISIONS
SECTION 652
MAINTENANCE OF TRAFFIC

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 652 – MAINTENANCE OF TRAFFIC, with the following modifications:

MODIFICATIONS:

Section 652.2.2 Signs

Amend the following:

Approaches. Approach signing shall include the following:

Road Work 500 Feet
Road Work next x Miles
End Road Work
4 Variable Message Boards
Bridge Closed to Vehicles with dimensions greater than 9 feet wide x 12 feet high x 22 feet long

Work Areas. At the work sites, signs and channeling devices shall be used as directed by the Resident. Signs include:

Single Lane Ahead
Right or Left Lane Closed x Feet
Right Shoulder Closed x Feet
Lane Shift Arrow (W1-4)
Do Not Pass[1]
Detour Ahead
Detour Plaque with Route Markers and Directional Arrows
Road Closed
Right/Left merge Symbol (W4-2)
Work Zone
Road Work xxxx[2]
Shoulder Work
End Work Zone
Sidewalk Closed
Merging Traffic Symbol (At on-ramp in Route 1 lane closure, W4-1)
Left Turning Trucks with 500 Feet Advisory Plate
Flagger Sign

Other typical signs include:

Be Prepared to Stop
Low Shoulder
Bump
Pavement Ends

[1] White with black legend and border.
[2] "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.

The preceding lists of Approach signs and Work Area signs are representative of the contract requirements. Signage, not listed, may be required.

Section 652.3.4 General

Amend the following:

- Route 1 and approach:
  - The Contractor shall provide a minimum traveled way width of 14 feet through Route 1/West Main Street and the bridge approach.
  - Temporary closures will not be allowed unless work is being performed. Lane closures shall not be set up until work in the area is to be performed and must be removed when no work is being performed.
  - All construction work shall be confined to the lane closed to traffic. Slow moving construction equipment may travel the closed lane for short distances. All trucking shall be done in the lane open to traffic.
  - No equipment or vehicles of the Contractor, subcontractors or employees engaged in work on this contract shall be parked or stopped on lanes carrying traffic, or on lanes or shoulders adjacent to lanes carrying traffic, at any time.
  - Access to existing businesses, residences, and the Port of Entry facility must be maintained at all times during construction.
  - Route 1/West Main Street shall remain open to a minimum of one lane of traffic at all times.
  - Traffic on the bridge approach and through the Land Port of Entry (LPOE) inspection area shall be maintained as shown on the Plans. The Contractor shall notify the MaineDOT, the LPOE Port Director, and the Town of Fort Kent Town manager, of traffic pattern changes throughout the life of the Contract. See Special Provisions 107.
  - Roadways must be open to two-way traffic at all times after construction hours.
- To facilitate traffic movement during the Acadian World Congress, temporary HMA pavement shall be placed prior to August 8th, 2013: from the south bridge abutment through inbound lanes 4 and 5 to Route 1, and the outbound lane from Route 1 to the south bridge abutment. Route 1 shall be paved to a width of 28 feet within the limits of the project. Cold patch shall not be used.

Other Traffic Restrictions

- In addition to maintaining traffic and traffic control devices during construction activities and the life of the contract, the Contractor shall also be responsible to anticipate, fabricate, install, and maintain appropriate construction signing related to vehicle restrictions during construction phases 2 & 3. Anticipated locations of signs shall be furnished by the Resident. The Contractor shall work with the Resident to ensure proper messaging for all signage related to that required traffic restrictions during project phasing. Signage and messaging will be limited to that which is needed on U.S. soil.

- The Contractor shall not be allowed to restrict traffic vehicle size during Phases 1, 4, 5, and 6 other than shown on the plans and described in the Special Provisions, unless otherwise approved by the Resident.
- Traffic control will require, but not be limited to, planning and coordination with MaineDOT, port authorities, contractors, emergency services, and municipal representatives. The Contractor shall submit a separate traffic control plan for approval for each phase of work at least 3 weeks prior to commencement of that phase of work. Traffic control plans shall include provisions for related activities and no additional payment beyond related items will be made to comply with these traffic control requirements.

END OF SECTION

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 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. Any reduction in payment under this Special Provision will be in addition to forfeiting payment of maintenance of traffic control devices for that day.

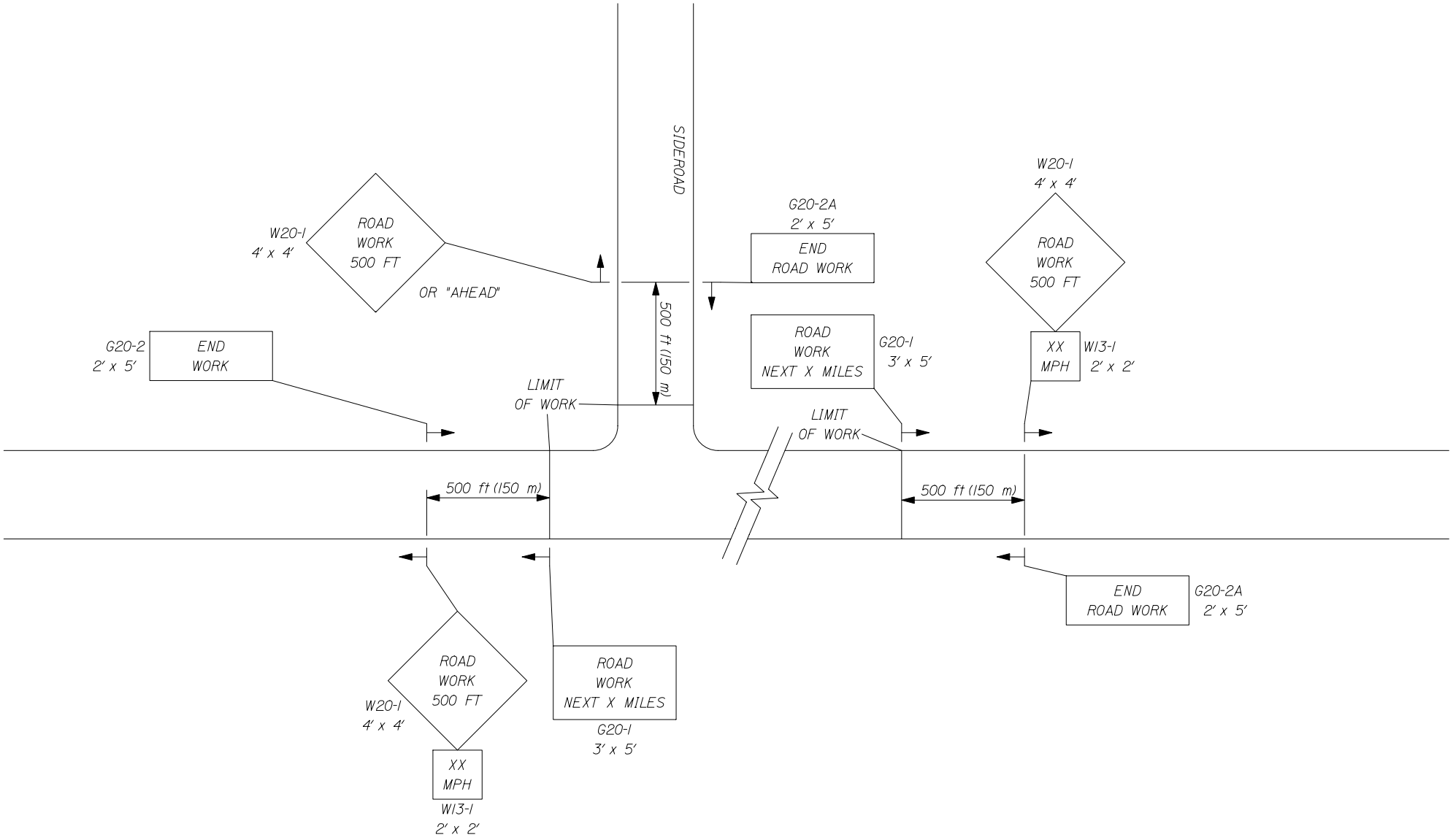
ORIGINAL CONTRACT AMOUNT

From More Than	Up to and Including	Amount of Penalty Damages per Violation 1st	2nd	3rd & Subsequent
$0	$1,000,000	$250	$500	$1,250
$1,000,000	$2,000,000	$500	$1,000	$2,500
$2,000,000	$4,000,000	$1,000	$2,000	$5,000
$4,000,000	and more	$2,000	$4,000	$10,000

April 17, 2007
Supersedes May 10, 2006

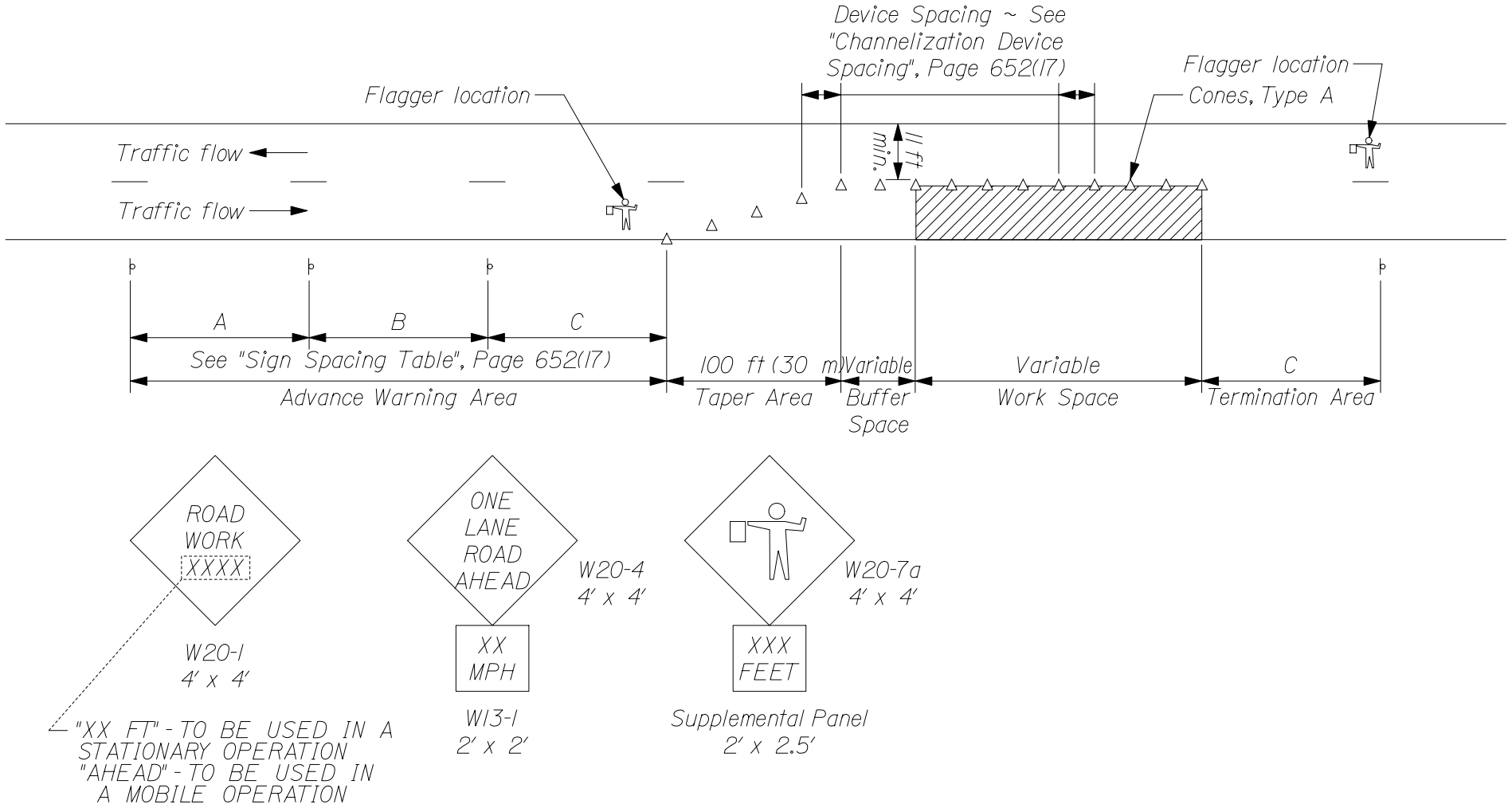
SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC
Construction Sign Sheeting Material

Super high intensity fluorescent retroreflective sheeting, ASTM D 4956 - Type VII, Type VIII, or Type IX (prismatic), is required for all construction signs.



1 of 3

-- 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:

$L = \frac{WS^2}{60}$ $\left(L = \frac{WS^2}{155}\right)$

For speed limits of 45 mph (70 km/h) or greater:

$L = WS$ $\left(L = \frac{WS}{1.6}\right)$

* 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

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 6, 2012**

SPECIAL PROVISIONS
SECTION 656
TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, SECTION 656 – TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL:

MODIFICATIONS:

656.3 Description
Add the following paragraph:

Contractor is to provide Erosion Control Plan with details and on-site locations as per National Storm Water Pollution Discharge System.

PAYMENT:

656.5.1 Basis of Payment

Payment will be made under the following Pay Items:

Pay Item		Pay Unit
656.75	Temporary Soil Erosion and Water Pollution Control	Lump Sum

END OF SECTION

SPECIAL PROVISION
SECTION 656
Temporary Soil Erosion and Water Pollution Control

The following is added to Section 656 regarding Project Specific Information and Requirements. All references to the Maine Department of Transportation Best Management Practices for Erosion and Sedimentation Control (a.k.a. Best Management Practices manual or BMP Manual) are a reference to the latest revision of said manual. The latest version is dated "February 2008" and is available at:

http://www.maine.gov/mdot/environmental-office-homepage/surface-water-resources.php

Procedures specified shall be according to the BMP Manual unless stated otherwise.

Project Specific Information and Requirements

The following information and requirements apply specifically to this Project. The temporary soil erosion and water pollution control measures associated with this work shall be addressed in the Soil Erosion and Water Pollution Control Plan (SEWPCP.)

1) This project is in the St. Johns River watershed, which is listed as Class A, and is considered **SENSITIVE** in accordance with the BMP Manual. The Contractor's SEWPCP shall comply with Section II, Standards and Commitments in the BMP Manual.

2) Newly disturbed earth shall be mulched by the end of each workday. Mulch shall be maintained on a daily basis.

3) The SEWPCP shall describe the location and method of temporary erosion and sediment control for existing and proposed catch basins, outlet areas and culvert inlets and outlets.

4) The Contractors SEWPCP shall identify how water will be managed during the course of construction activities. Specific water management activities to be addressed shall include type and location of cofferdams, means of maintaining stream flow, and the type, location and size of sedimentation basins.

5) Dust control items other than those under *Standard Specification, Section 637 – Dust Control* , if applicable, shall be included in the plan.

6) Permanent slope stabilization measures shall be applied within one week of the last soil disturbance.

7) Permanent seeding shall be done in accordance with *Standard Specification, Section 618 - Seeding* unless the Contract states otherwise.

8) After November 1 the Contractor shall use winter stabilization methods, such as Erosion Control Mix as specified in *Standard Specification, Section 619 - Mulch*. If required, spring procedures for permanent stabilization shall also be described in the plan. Use of this product for over-winter temporary erosion control will be incidental to the contract and be paid for as part of Pay Item 656.75.

SPECIAL PROVISION
SECTION 656
Temporary Soil Erosion and Water Pollution Control

9) All disturbed ditches shall be stabilized by the end of each workday. Stabilization shall be maintained on a daily basis.

10) Erosion control blanket shall be installed in the bottoms of all ditches except where a stone lining is planned. Seed shall be applied prior to the placement of the blanket.

11) Demolition debris (including debris from wearing surface removal, saw cut slurry, dust, etc.) shall be contained and shall not be allowed to discharge to any resource. All demolition debris shall be disposed of in accordance with *Standard Specifications, Section 202.03 Removing Existing Superstructure, Structural Concrete, Railings, Curbs, Sidewalks and Bridges*. Containment and disposal of demolition debris shall be addressed in the Contractor's SEWPCP.

12) **CLEARING LIMIT LINES SHALL BE MINIMIZED.** Clearing shall be minimized as shown on the design plans.

13) Stream flow shall be maintained at all times.

14) The SEWPCP shall describe the containment method for removal of the existing abutments, including installation of cofferdams and dewatering procedures.

15) If a cofferdam sedimentation basin is used, it shall be located in an upland area where the water can settle and sink into the ground or be released slowly to the resource in a manner that will not cause erosion. The location of such a cofferdam sedimentation basin shall be addressed in the SEWPCP.

16) Prior to release to a natural resource, any impounded water that has been in contact with concrete placed during construction must have a pH between 6.0 and 8.5, must be within one pH unit of the background pH level of the resource and shall have a turbidity no greater than the receiving resource. This requirement is applicable to concrete that is placed or spilled (including leakage from forms) as well as indirect contact via tools or equipment. Water not meeting release criteria shall be addressed in the SEWPCP. Discharging impounded water to the stream must take place in a manner that does not cause erosion or disturb the stream bottom. **The rate of discharge must be less than 20% of the flow rate of the stream.**

17) The Contractor shall be responsible for monitoring pH with a calibrated meter accurate to 0.1 units. A record of pH measurements shall be kept in the Environmental Coordinator's log (*Standard Specification, Section 656.4.4 Inspection and Record Keeping.*)

FORT KENT
INTERNATIONAL BRIDGE
BRIDGE REPLACEMENT
PIN 10042.00 & 10042.10

GENERAL NOTE

A Maine Department of Environmental Protection (MDEP) data base review suggested some petroleum contamination issues adjacent to the project. In particular at the current Gene's Electric (Box 376) and the current Irving Station on West Main Street. However, the scope of work for this project suggests petroleum or hazardous waste should not be encountered. However, in light of the urban nature of the area and reported spills, the contractor shall employ appropriate health and safety measures to protect its workers against hazards associated with working near petroleum-impacted soils. Furthermore, the Contractor shall remain alert for any evidence of contamination. If the Contractor encounters evidence of soil or groundwater contamination, the Contractor shall secure the excavation, stop work in the contaminated area, and immediately notify the Resident. The Resident shall contact the Hydrogeologist in MDOT's Environmental Office at 207-624-3100 and the Maine Department of Environmental Protection at 800-482-0777. Work may only continue with authorization from the Resident.

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 29, 2012**

SPECIAL PROVISIONS
SECTION 703
AGGREGATES

Subgrade fill in the vicinity of the existing flood protection levee shall be Gravel Borrow, and shall be constructed to the lines and grades indicated on the contract drawings. Gravel Borrow shall be compacted to 98% of the maximum dry density determined in a Standard Proctor test (ASTM D698) and shall be graded in accordance with the following limits:

Gravel Borrow Gradation Limits

US Standard	ASTM Sieve Size	Percent Passing
3"	75	100
0.265"	6.7	60 – 85
#4	4.75	55 – 80
#30	0.6	35 – 55
#200	0.075	15 – 30

SPECIAL PROVISION
SECTION 812
SEWER MANHOLE

Description This work shall consist of the installation and adjustment of manholes as indicated in the Bid Book, Plans, or as directed by the Resident.

Sewer Manhole shall consist of removing an existing manhole and replacing with a new manhole in accordance with Section 604 - Manholes, Inlets, and Catch Basins.

Adjust Sewer Manhole to Grade shall consist of adjusting a manhole to the required final grade, including any lowering and any other adjustments that may be necessary prior to setting the final grade and in accordance with this Section and Section 604 - Manholes, Inlets, and Catch Basins.

Rebuild Sewer Manhole shall consist of rebuilding and adjusting a sewer manhole in accordance with this Section and Section 604 - Manholes, Inlets, and Catch Basins

Pay Item		Pay Unit
812.06	Sewer Manhole	Each
812.162	Adjust Sewer Manhole to Grade	Each
812.164	Rebuild Sewer Manhole	Each

Town: **Fort Kent, International Bridge Approach and Main St.**
Project: **BR-1004(210)X., 010042.10**
Date: **June 6, 2012**

SPECIAL PROVISIONS
SECTION 832
SITE BOLLARDS

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

ADDITIONS:

Section 832.330 Description

The following paragraph is added:

The work shall consist of supplying and installing steel site bollards filled with concrete as shown in the Plans. The new site bollards are located at the new concrete island locations.

The existing site bollards are to be removed and disposed of off site.

Section 832.332 Method of Measurement

The following paragraph is added:

Supply and installation of Steel (SCH 40, ¼" WT) Site Bollards shall be measured per bollard type installed, and shall include all supply, excavation, setting, and backfilling of the site bollards in the locations and as per the details shown on the Plans and/or described here within.

Section 832.333 Basis of Payment

The following paragraph is added:

Steel Bollards shall be paid for per bollard installed at the Contract price. Payment shall include all hauling, excavation, setting, and backfilling of the site bollards.

Removal of the existing bollards shall be measured by the number of bollards removed and disposed of off site.

Payment will be made under the following Pay Items:

Pay Item		Pay Unit
832.41	Type "A" Steel Site Bollard	Each
832.42	Type "B" Steel Site Bollard	Each
832.43	Type "C" Steel Site Bollard	Each
832.44	Type "D" Steel Site Bollard	Each
832.51	Removal and Disposal of Existing Steel Site Bollard	Each

END OF SECTION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
AUGUSTA, MAINE

TECHNICAL SPECIFICATIONS

FOR:

CANOPY EXTENSION AND INSTALLATION OF INSPECTION BOOTHS AND ASSOCIATED EQUIPMENT FORT KENT, MAINE

PROJECT PIN: 10042.10

June 6 , 2012

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DIVISION 26 ELECTRICAL

DIVISION 27 COMMUNICATIONS

SECTION 01 10 10 - SUMMARY OF SPECIFICATIONS

All work and materials shall conform to the Contract Drawings and the State of Maine Department of Transportation Standard Specifications, Revision December 2002 (herein referred to as the Standard Specifications). Due to the inclusion of architectural components in this project, namely a proposed canopy extension, and installation of inspection booths and associated equipment, the outline of these specifications follows the CSI format with references to the Standard Specifications where applicable. Where architectural, mechanical, or electrical specifications do not exist in the Standard Specifications, a specification has been created to address the construction element, which is then given a unique Pay Item number from the 800 series of the Standard Specifications.

Pay Items for the proposed canopy extension, and installation of inspection booths and associated equipment shall be condensed into the four items shown below for simplicity in bidding. The Contractor shall note Special Provision 102 which identifies the various components to be included in each of the items.

- 815 Canopy and Booth Foundations
- 815 Hi Low Booth
- 815 Regular Booth
- 815 License Plate Readers
- 815 Gate and Traffic Lights
- 815 Radiation Portal Monitors

Where conflicts exist between the specifications herein and the Standard Specifications, the Standard Specifications shall govern.

END OF SECTION

SECTION 02 41 99 - DEMOLITION FOR MINOR WORKS

PART 1 - GENERAL

1.1 RELATED SECTIONS

A. 20 00 00 - Mechanical: mechanical demolition work.

B. 26 05 01 - Electrical General Requirements: electrical demolition.

1.2 JOB CONDITIONS

A. Examine the site and building and be fully informed as to requirements of the Contract Documents and applicable codes.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Refer to drawings for materials used to do patching, repair and blocking-in. Where no material is shown on drawings, use new material to match existing. Refer to applicable trade sections for quality of materials.

PART 3 - EXECUTION

3.1 PREPARATION

A. Inspect building and site with the Department and verify extent and location of items designated for removal, disposal, salvage and items to remain.

B. Locate and protect utilities. Preserve active utilities traversing site in operating condition.

C. Notify and obtain approval of utility companies before starting demolition.

3.2 PROTECTION

A. Prevent movement, settlement, or damage to adjacent structures, utilities, and landscaping features, and parts of building to remain in place. Provide bracing and shoring required.

B. Keep noise, dust, and inconvenience to public and occupants to minimum.

C. Protect building systems, services and equipment that are to remain.

D. Provide temporary covers, guards, supports and other protection as required.

E. Carefully remove materials identified to be retained or reused.

3.3 DEMOLITION

A. Remove items to permit new construction.

B. At end of each day's work, leave work in safe condition so that no part is in danger of toppling or falling.

C. The Department will remove materials they wish to retain prior to demolition work or will identify to Contractor, items that are to be preserved during demolition.

3.4 DISPOSAL

A. All materials resulting from demolition work, except items to be reused or items identified to be retained by the Department, shall become the property of the Contractor. Dispose of material off site in accordance with authority having jurisdiction.

B. No burning or selling at site will be permitted.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of demolition for minor works will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

4.2 BASIS OF PAYMENT

A. Payment for demolition for minor works will not be paid for separately, but shall be incidental to the Canopy and Foundations pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. All work and materials shall conform to the Contract Drawings, the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, and as herein specified.

1.2 RELATED DOCUMENTS

A. The drawings and general conditions of the contract including General and Supplementary Conditions and other Division 1 Specification sections apply to work of this section.

B. Examine all other sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.3 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of the latest edition of the following except where more stringent requirements are shown or specified:
   1. American Association of State and Highway Transportation Officials (AASHTO)
      a. AASHTO M182, Standard Specification for Burlap Cloth Made from Jute or Kenaf and Cotton Mats.
   2. American Concrete Institute (ACI)
      a. MCP - ACI Manual of Concrete Practice.
      b. ACI 117, Standard Specifications for Tolerances for Concrete Construction and Materials.
      c. ACI 211.1, Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.
      d. ACI 212.3R, Report on Chemical Admixtures for Concrete.
      e. ACI 301, Specifications for Structural Concrete.
      f. ACI 302.1R, Guide for Concrete Floor and Slab Construction.
      g. ACI 304R, Guide for Measuring, Mixing, Transporting and Placing Concrete.
      h. ACI 304.2R, Placing Concrete by Pumping Methods.
      i. ACI 306R, Cold Weather Concreting.
      j. ACI 308, Guide to Curing Concrete.
      k. ACI 309R, Guide for Consolidation of Concrete.
      l. ACI 318, Building Code Requirements for Structural Concrete.
      m. ACI 347R, Guide to Formwork for Concrete.
      n. SP-66, ACI Detailing Manual.
   3. American Institute of Steel Construction (AISC)
      a. AISC 303, Code of Standard Practice for Steel Buildings and Bridges.
   4. American Society for Testing and Materials (ASTM)
      a. ASTM A185/A185M-07, Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.

b. ASTM A615/A615M, Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
c. ASTM C31/C31M, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
d. ASTM C33/C33M, Standard Specification for Concrete Aggregate.
e. ASTM C39/C39M, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
f. ASTM C42/C42M, Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
g. ASTM C94/C94M, Standard Specification for Ready-Mixed Concrete.
h. ASTM C109/C109M, Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in or 50-mm Cube Specimens).
i. ASTM C143/C143M, Standard Test Method for Slump of Hydraulic-Cement Concrete.
j. ASTM C150/C150M, Standard Specification for Portland Cement.
k. ASTM C171, Standard Specification for Sheet Materials for Curing Concrete.
l. ASTM C172/C172M, Standard Practice for Sampling Freshly Mixed Concrete.
m. ASTM C191, Standard Practice for Sampling Freshly Mixed Concrete.
n. ASTM C231/C231M, Standard Practice for Sampling Freshly Mixed Concrete.
o. ASTM C260, Standard Specification for Air-Entraining Admixtures for Concrete.
p. ASTM C309, Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
q. ASTM C494/C494M, Standard Specification for Chemical Admixtures for Concrete.
r. ASTM C618, Standard Practice for Sampling Freshly Mixed Concrete.
s. ASTM C827/C827M, Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures.
t. ASTM C989, Standard Specification for Slag Cement for Use in Concrete and Mortars.
u. ASTM C1064/C1064M, Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
v. ASTM D1751, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

5. Concrete Reinforcing Steel Institute (CRSI)
   a. Placing Reinforcing Bars.
6. "Code of Federal Regulations, Part 1926" per the Occupational Safety and Health Administration (OSHA), Department of Labor (Latest Revision).

B. Materials and installed work may require testing and retesting, as directed by the Department, at any time during progress of work. Allow free access to material stockpiles and facilities. Tests not specifically indicated to be done at Owner's expense, including retesting of rejected materials and installed work, shall be done at Contractor's expense.

1.4 SUBMITTALS

A. Unless otherwise specified, submittals required in this section shall be submitted for review. Submittals shall be prepared and submitted in accordance with Maine DOT Standard Specifications SECTION 105.7, Working Drawings.

B. General Contractor shall submit a Submittal Schedule to the Department within 30 days after they have received the Owner's Notice to Proceed.

C. All submittals shall be reviewed and returned to the Department within 21 working days.

D. Incomplete submittals will not be reviewed.

E. Submittals not reviewed by the General Contractor prior to submission to the Department will not be reviewed. Include on the submittal statement or stamp of approval by Contractor, representing that the Contractor has seen and examined the submittal and that all requirements listed in the Section and Division 1 have been complied with.

F. The Department will review submittals a maximum of two review cycles as part of their normal services. If submittals are incomplete or otherwise unacceptable and re-submitted, General Contractor shall compensate the Department for additional review cycles.

G. Hardcopy Submittals: Submit three prints. Prints will be reviewed by the Department. One marked print will be returned to Contractor for printing and distribution. Multiple copies will not be marked by the Department.

H. Electronic Submittals:
   1. Contractor shall include in the submittal schedule an indication of submittals that are intended to be submitted electronically. Upon receipt of the submittal schedule, the Department reserves the right to indicate submittals that will not be accepted electronically. Paper copies of such submittals shall be furnished as referenced in this specification.
   2. The Department reserves the right to require paper copies of submittals that are received electronically. Provide the Department one (1) paper copy in addition to the electronic submittal. Paper copy will be retained and electronic copy will be returned. Review cycle for such submittals shall not commence until such time that the paper copy is received.

3. Electronic Submittals shall be submitted in Protected Document Format (PDF) compatible with Adobe Acrobat Professional Version 7.0 or later. Electronic files shall not be broken into smaller individual files. File sizes too large to process email or within a file transfer protocol (FTP) site shall be provided on a CD.
4. The submission of submittals electronically does not relieve the contractor of their responsibility to review the submittal prior to transmission to the Department. Electronic Submittals shall include contractor comments, and a statement and/or stamp of approval by Contractor, representing that the Contractor has seen and examined the submittal and that all requirements listed in this Section and Division 1 have been complied with. Electronic submittals without the Contractor's approval will be rejected and returned.
5. The Department assumes no responsibility for the printed reproduction of submittals reviewed electronically, transmission errors or returned electronic submittals that become corrupted or are otherwise not accessible by the Contractor's or Subcontractor's computer hardware and/or software.

I. Product Date: Submit producer's or manufacturer's specifications and installation instructions for the following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).
1. Reinforcement certified mill reports covering chemical and physical properties and yield strength.
2. Patching products.
3. Non-shrink grout.
4. Curing compounds, where applicable.
5. Admixtures.
6. Expansion/Adhesive Anchors.
7. Aggregate.

J. Shop Drawings:
1. Shop Drawing Preparation: Electronic files of structural drawings will not be provided to the contractor for preparation of shop drawings. Reproduction of any portion of the Construction Documents will be returned without review. Submit shop drawings for fabrication, bending and placement of concrete reinforcement. Comply with ACI 315, showing bar schedules, stirrup and tie spacing, diagrams of bent bards, and arrangement of concrete reinforcement. Include special reinforcement required at openings through concrete elements. Include supplemental reinforcing and bar supports necessary to support reinforcing steel at proper location within forms or slabs.
   a. Review of the shop drawings will be made for the size and arrangement of reinforcement. Conformance of the Shop Drawings to the Contract Drawings remains the responsibility of the General Contractor. the Department's review in no way relieves the General Contractor of this responsibility.
   b. Shop drawings will not be reviewed as partial submittals. A complete submittal shall be provided all items listed prior. Incomplete submittals will not be reviewed.

K. Mix designs: Submit all laboratory test reports and materials for each mix design listed within. Prepare mixes by the field experience method and/or trail mixtures per the requirements of Chapter 5 of ACI 318. Include the calculation of average strength and standard deviation. Proportioning by water cement ratio method will not be permitted.

L. Samples: Submit samples of materials as specified and as otherwise requested by the Department, including names, sources and descriptions.

M. Curing Methods: Submit documentation of curing methods to be used for review. Account for anticipated project temperature ranges and conditions in curing methods.

N. Contraction/Construction Joints: Submit plan indicating proposed location of contraction an construction joints in walls and slabs.

O. Test Reports: Test reports shall be submitted to the Owner and Department within 48 hours after completion of each test. Test Reports shall include at a minimum ASR (Alkali-Silica Reaction) test results.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal framed plywood faced or other acceptable panel type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly placed concrete without bow or deflecting.

1. Use plywood complying with U.S. Product Standard PS 1 "B B (Concrete Form) Plywood", 'Class I, Exterior Grade or better, mill oiled and edge sealed, with piece bearing legible inspection trademark.

B. Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

C. Form Coatings: Provide commercial formulation form coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.

B. Welded Wire Fabric: ASTM A185/A185M, welded steel wire fabric. Provide welded wire fabric in flat sheet.

C. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers, and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use plastic, wire bar type supports or concrete block supports complying with CRSI recommendations, unless otherwise specified. Wood, clay brick and other unspecified devices are not acceptable.

1. For slabs on grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
2. For exposed to view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class I) or stainless steel protected (CRSI, Class 2).

2.3 CONCRETE MATERIALS

A. Single-Source Supplier: Ready-mix concrete s hall be from one supplier unless specific written approval is received from the Department.

B. Portland Cement: ASTM C150/C150M, Type I or Type II, unless otherwise approved. Use one brand of cement throughout project, unless otherwise acceptable to the Department.

C. Normal Weight Aggregates: ASTM C33/C33M. Provide from a single source for exposed concrete. Do not use aggregates containing soluble salts or other substances such as iron sulfides, pyrite, marcasite, or ochre which can cause stains on exposed concrete surfaces.

D. Water: Potable.

E. Air Entraining Admixture: ASTM C260.

F. High Range Water Reducing Admixture (Super Plasticizer): ASTM C494/C494M, Type F or Type G containing not more than 1% chloride ions.

G. Normal range water reducing admixture: ASTM C494/C494M Type A containing no calcium chloride.

H. Accelerating Admixture: ASTM C494/C494M, Type C or E.

I. Blast Furnace Slag: ASTM C989.

J. Fly Ash: ASTM C618, Class C or F.

K. Calcium Chloride is not permitted.

2.4 RELATED MATERIALS

A. Underslab Vapor Retarder: Provide vapor retarder over prepared sub base. Refer to architectural drawings, geotechnical report and/or Division 7 specifications for additional requirements and vapor retarder location.

B. Non Shrink Cement Based Grout: Provide grout consisting of pre-measured, prepackaged materials supplied by the manufacturer requiring only the addition of water. Manufacturer's instructions must be printed on the outside of each bag.
   1. Non shrink: No shrinkage (0.0%) and a maximum 4.0% expansion when tested in accordance with ASTM C827/C827M. No shrinkage (0.0%) and a maximum of 0.3% expansion in the hardened state when tested in accordance with CRD C621.
   2. Compressive strength: A minimum 28 day compressive strength of 5000 psi w hen tested in accordance with ASTM C109/C109M.
   3. Setting time: A minimum initial set time of 60 minutes when tested in accordance with ASTM C191.
   4. Composition: Shall not contain metallic particles or expansive cement.

C. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M182, Class 2.

D. Moisture Retaining Cover: One of the following, complying with ASTM C171.
   1. Waterproof paper.
   2. Polyethylene film.
   3. Polyethylene coated burlap.

E. Liquid Membrane Forming Curing Compound: Liquid type membrane forming curing compound complying with ASTM C309, Type I, Class A unless other type acceptable to the Department. Curing compound shall not impair bonding of any material, including floor finishes, to be applied directly to the concrete. Demonstrate the non impairment prior to use.

F. Preformed Expansion Joint Formers:
   1. Bituminous Fiber Type, ASTM D 1751.
   2. Felt Void, Poly Styrene Cap with removable top as manufactured by SUPERIOR.

G. Slab Joint Filler: Multi component polyurethane sealant (self leveling type).

2.5 PROPORTIONING AND DESIGN OF MIXES

A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 318. Use material, including all admixtures, proposed for use on the project. If trial batch method used, use an independent testing facility acceptable to the Department for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to the Department.

B. Submit written reports to the Department of each proposed mix for each class of concrete. Do not begin concrete production until mixes have been reviewed by the Department.

C. Proportion design mixes to provide concrete with the following properties:
   1. Concrete for booth walls, footings, slabs, and crash barriers shall be Class LP in accordance with Maine DOT Standard Specifications Section 502 "Structural Concrete".
   2. Concrete for canopy columns and footings, and RPM footings shall be Class A in accordance with Maine DOT Standard Specifications Section 502 "Structural Concrete".

3. Add air entraining admixture at manufacturers prescribed rate to result in concrete at point of placement having the above noted air contents.
4. Additional slump may be achieved by the addition of a mid-range or high-range water reducing admixture. Maximum slump after the addition of admixture shall be 6 or 8 inches for mid-range or high range water reducing admixtures, respectively.

D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor, when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, at no additional cost to Owner and as accepted by the Department. Laboratory test data for revised mix design and strength results must be submitted to and accepted by the Department before using in work.
1. Water may be added at the project only if the maximum specified slump and design mix maximum water/cement ratio is not exceeded.
2. Additional dosages of superplasticizer should be used when delays occur and required slump has not been maintained. A maximum of two additional dosages will be permitted per ACI 212.3R recommendations.

2.6 CONCRETE MIXING

A. Job Site Mixing will not be permitted.

B. Ready Mix Concrete: Must comply with the requirements of ASTM C94/C94M, and as herein specified. Provide batch ticket for each batch discharged and used in work, indicating project name, mix type, mix time and quantity.
1. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C94/C94M may be required by the Department.
2. When the air temperature is between 85°F and 90°F, reduce the mixing and delivery time from 1 ½ hours to 75 minutes, and when the air temperature is above 90°F, reduce the mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMS

A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position.

B. Design, construct, erect, maintain, and remove forms for cast-in-place concrete work in compliance with ACI 345.

C. Design Formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.

D. Construct forms to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, keyways, recesses, moldings, rustication, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.

E. Fabricate forms for each removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, dovetail slots, reglets, recesses, and the like to prevent swelling and for easy removal.

F. Provide temporary openings where interior area of formwork is inaccessible for clean out, for inspection before concrete placement and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.

G. Chamfer exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

H. Form Ties: Factory fabricated, adjustable length, removable or snap-off metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.
1. Unless otherwise indicated, provide ties for concrete surfaces to be exposed to view in the final condition so portion remaining within concrete after removal is 1" (minimum) inside concrete.
2. Form ties shall not leave holes larger than 1" diameter in concrete surface. Repair holes left by form ties after removal of formwork.

I. Provision for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.

J. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement as required to eliminate mortar leaks and maintain proper alignment.

3.2 PLACING REINFORCEMENT

A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.
1. Subgrade tolerance shall conform to a tolerance of +0/-1 ½". Base tolerance (fine grading) for slabs shall conform to a tolerance of +0"/-3/4" in. Confirm compliance of above tolerances with surveyed measurements taken at 20 ft. intervals in each direction.
2. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.
3. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required.
4. Place reinforcement to obtain specified coverage for concrete protection within tolerances of ACI 318. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

5. Install welded wire fabric in flat sheets in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

3.3 JOINTS

A. Construction Joints: Locate and install construction joints, which are not shown on drawings, so as not to impair strength and appearance of the structure, as acceptable to the Department. Submit plan indicating proposed location of construction joints for review prior to beginning work.

1. Provide keyways at least 1 ½" deep in construction joints in walls, and slabs; bulkheads reviewed by the Department, designed for this purpose may be used for slabs.
2. Roughened surfaces shall be used between walls and footings unless shown otherwise on the drawings. The footing surface shall be roughened to at least an amplitude of 1/4" for the width of the wall before placing the wall concrete.
3. Place construction joints perpendicular to the main reinforcement. Continue reinforcement across construction joints.
4. Joints in slabs-on-grade shall be located and detailed as indicated on the drawings. If saw cut joints are required, the early-entry dry-cut process shall be used. Refer to ACI 302, Section 8.3.12.

3.4 INSTALLATION OF EMBEDDED ITEMS

A. General: Set, securely anchor and build into work prior to concrete placement all anchorage devices and all other embedded items, including but not by limitation reinforcement, reinforcing dowels, embedded plates, anchor rods, anchor inserts, sleeves, load transfer plates, diamond dowels and shelf bulkheads required for other work that is attached to, bear upon, or supported by, cast in place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto. Notify other trades to permit installation of their work. Templates to be utilized for setting of anchorage devices shall be constructed in a manner to allow mechanical consolidation of concrete without disturbance. Embedments shall be placed in a timely fashion to permit the inspection of embedments prior to concrete placement. "Wet Setting" of embedded items into plastic concrete is strictly prohibited.

B. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface.

C. Provide PVC sleeves where pipes and/or conduit pass through exterior concrete or slabs. Sleeves and penetrations shall not be placed through footings, piers, pedestals, drop caps, columns or pilasters unless specifically noted.

D. Tolerances: Tolerances for Anchor Bolts/Rods, other embedded items and bearing surfaces shall meet the requirement set forth in the latest edition of the American Institute of Steel Construction "Code of Standard Practice for Steel Buildings and Bridges," and ACI 117. The more stringent criteria from these documents shall apply.

3.5 INSTALLATION OF GROUT

A. Place grout for base plates in accordance with manufacturer's recommendations.

B. Grout below setting plates as soon as practicable to facilitate erection of steel and prior to removal of temporary bracing and guys. If leveling bolts or shims are used for erection grout shall be installed prior to addition of any column load.

C. Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials and allow to cure. For proprietary grout materials, comply with manufacturer's instructions.

3.6 PREPARATION OF FORM SURFACES

A. Coat contact surfaces of forms with a form coating compound before reinforcement is placed.

B. Thin form coating compounds only with thinning agent of type, and in amount, and under conditions of form coating material manufacturer's directions. Do not allow excess form coating to accumulate in forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

3.7 CONCRETE PLACEMENT

A. Pre-placement Review: Footing bottoms are subject to review by the Department. Reinforcement and all concrete preparation work shall be subject to review by the Department. Verify that reinforcing, ducts, anchors, seats, plates and other items cast into concrete are placed and securely held. Notify the Department/Project Special Inspector 48 hours prior to scheduled placement and obtain approval or waiver of review prior to placement. Be sure that all debris and foreign matter is removed from forms.

B. Concrete shall be placed in the presence of an approved testing agency.

C. General: Comply with ACI 304, and as herein specified.
   1. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation due to rehandling or flowing.
   2. Concrete shall be handled from the mixer to the place of final deposit as rapidly as practicable by methods which will prevent segregation or loss of ingredients and in a manner which will assure that the required quality of the concrete is maintained.
   3. Conveying equipment shall be approved and shall be of a size and design such that detectable setting of concrete shall not occur before adjacent concrete is placed. Conveying equipment shall be cleaned at the end of each operation or work day. Conveying equipment and operations shall conform to the following additional requirements:
      a. Belt conveyors shall be horizontal or at a slope which will not cause excessive segregation or loss of ingredients. Concrete shall be protected against undue drying or rise in temperature. An arrangement shall be used at the discharge end to prevent apparent segregation. Mortar shall not be allowed to adhere to the return length of the belt. Long runs shall be discharged into a hopper or through a baffle.

b. Chutes shall be metal or metal lined and shall have a slope not exceeding 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontal. Chutes more than 20 feet long, and chutes not meeting the slope requirements may be used provided they discharge into a hopper before distribution.

c. Pumping or pneumatic conveying equipment shall be of suitable kind with adequate pumping capacity. Pneumatic placement shall be controlled so that segregation is not apparent in the discharged concrete.

d. Concrete shall not be conveyed through pipe made of aluminum alloy. Standby equipment shall be provided on the site.

e. Tined rakes are prohibited as a means of conveying fiber reinforced concrete.

4. Do not use reinforcement as bases for runways for concrete conveying equipment or other construction loads.

D. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 18 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

1. Consolidate placed concrete by mechanical vibrating equipment. Hand-spading, rodding or tamping as the sole means for the consolidation of concrete will only be permitted with special permission from the Department. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.

2. Use vibrators designed to operate with vibratory equipment submerged in concrete, maintaining a speed of not less than 8000 impulses per minute and of sufficient amplitude to consolidate the concrete effectively. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine, generally at points 18 inches maximum apart. Place vibrators to rapidly penetrate placed layer and at least 6 inches into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion maintain the duration of vibration for the time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix, generally from 5 to 15 seconds. A spare vibrator shall be kept on the job site during all concrete placing operation.

E. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

1. Consolidate concrete using internal vibrators during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

2. Bring slab surfaces to correct level with straightedge and strike off. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations. Do not sprinkle water on plastic surface.

3. Maintain reinforcing in proper position during concrete placement operations.

4. Slab thicknesses indicated on the drawings are minimum. Provide sufficient concrete to account for structure deflection, subgrade fluctuations, and to obtain the specified slab elevation at the flatness and levelness indicated there within.

5. Finish: See Article 3.10 - Monolithic Slab Finishes in this specification for slab finish requirements.

F. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.

1. When air temperature has fallen to or is expected to fall below 40°F (4°C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F (10°C), and not more than 80°F (27°C) at point of placement.
2. Do not use frozen materials or materials containing ice of snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators.
4. Provided, prior to start of placing operations, all temporary heat, form insulation, insulated blankets, coverings, hay or other equipment and materials necessary to protect the concrete work from physical damage caused by frost, freezing action, or low temperature.
5. When the air temperature has fallen to or is expected to fall below 40°F, provide adequate means to maintain the temperature in the area where concrete is being placed between 50°F and 70°F.

G. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90°F. Mixing water may be chilled, or chopped ice may be used to control the concrete temperature provided the water equivalent of the ice is calculated to the total amount of mixing water.
2. Cover reinforcing steel with water soaked in burlap if it becomes too hot, so that the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
3. Wet forms thoroughly before placing concrete.
4. Do not use retarding admixtures without the written acceptance by the Department.

3.8 FINISH OF FORMED SURFACES

A. Rough Form Finish: For formed concrete surfaces not exposed to view in the finish work or by other construction, unless otherwise indicated. This concrete surface shall have texture imparted by form facing material, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4 in. in height rubbed down or chipped off.

B. Smooth Form Finish: For formed concrete surfaces exposed to view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, damp proofing, painting or other similar system. This as-cast concrete surface shall be obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.

C. Grout Cleaned Finish: Provide grout cleaned finish to scheduled concrete surfaces which have received smooth form finish treatment. Combine one part Portland cement to 1 ½ parts fine sand by volume and mix with water to consistency of thick paint. Proprietary additives may be used at Contractor's option. Blend standard Portland cement and white Portland cement, amounts determined by trial patches, so that final color of dry grout will closely match adjacent surfaces.

1. Thoroughly wet concrete surfaces and apply grout to coat surfaces and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.

D. Related Unformed Surfaces: At tops of walls and grade beams, horizontal offset surfaces occurring adjacent to formed surfaces, strike off, smooth and finish with a texture matching adjacent unformed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.9 FLOOR FLATNESS AND LEVELNESS

A. Floor flatness/levelness tolerances: Tolerances for various floor uses shall conform to the requirements set forth in ACI 117 and ACI 302 for "flat" floor profile, except as noted below at exposed concrete at corridors.
1. Minimum Test Area Flatness/Levelness: F_F35/F_L25, F_F45/F_L35 at corridors.
2. Minimum Local F Number: F_F25/F_L15, F_F30/F_L25 at corridors.

B. Levelness criteria shall be applied to slabs-on-grade only.

C. Contractor shall measure floor finish within 72 hours after slab finishing and provide corrective measures for finishes not within tolerance. Corrective procedures shall be reviewed by the Department prior to implementation.

3.10 MONOLITHIC SLAB FINISHES

A. Scratch Finish: Apply scratch finish to monolithic slab surfaces that are to receive concrete floor topping or mortar setting beds, and as otherwise indicated.
1. After placing slabs, plane surface to a tolerance not exceeding ½ in. in 10 ft. when tested with a 10 ft. straightedge. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set with stiff brushes, brooms or rakes.

B. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, and as otherwise indicated.

C. Trowel Finish: Apply trowel finish to monolithic slab surfaces indicated, including slab surfaces to be covered with carpet, resilient flooring, paint or other thin film finish coating system.

D. Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete platforms, steps and ramps, and elsewhere as indicated.

E. Slab finishes for floor coverings not indicated or exposed to view in the final condition shall be coordinated with the Department prior to slab placement.

F. Slab Joints: Where indicated, sawn slab contraction joints shall be "soft cut", immediately after concrete surface is firm enough not to be torn or damaged by the blade.

3.11 CONCRETE CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with the requirements of ACI 308 as herein specified.

B. Curing Methods: Perform curing of concrete by moist curing, by moisture retaining cover curing, by curing compound, and by combinations thereof, as herein specified unless noted otherwise. Curing shall commence as soon as concrete surfaces are sufficiently hard as to withstand surface damage. Slabs-on-grade shall be cured by "wet" curing methods unless otherwise noted; Slabs-on-grade to receive floor coverings with moisture sensitive adhesives shall be cured by means of moisture retaining covering. Coordinate curing with flooring adhesive manufacturer and flooring installer. Submit curing methods to Department for review and approval.

C. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

D. Protection From Mechanical Injury: During the curing period and duration of construction, the concrete shall be protected from damaging mechanical disturbances, such as load stresses, heavy shock, and excessive vibration. All finished concrete surfaces shall be protected from damage by construction equipment, materials, or methods, by application of curing procedures, and by rain or running water. Self supporting structures shall not be loaded in such a way as to overstress the concrete.

3.12 REMOVAL OF FORMS

A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 degrees F for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

B. Formwork supporting weight of concrete, such as joints, slabs and other structural elements, may not be removed in fewer than 14 days or until concrete has attained design minimum compressive strength at 28 days. Determine potential compressive strength of in place concrete by testing field cured specimens representative of concrete location or members.

C. Form facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and support.

3.13 REUSE OF FORMS

A. Clean and repair surfaces of forms to be reused in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and latency, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Department.

3.14 MISCELLANEOUS CONCRETE ITEMS

A. Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in-place. Mix, place, and cure concrete as herein specified, to blend with in place construction. Provide other miscellaneous concrete filling shown or required to complete work.

3.15 CONCRETE SURFACE REPAIRS

A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to the Department.
   1. Cut out honeycomb, rock pockets, voids over 1/4 inch in any dimension, and holes left by tie rods and bolts, down to solid concrete but in no case to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush coat the area to be patched with approved bonding agent. Place patching mortar after bonding compound has dried.
   2. For exposed to view surfaces, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicious location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.

B. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Department. Surface defects, as such, include color and texture irregularities, form tie holes, cracks, spalls, air bubbles, honeycomb, rock pockets, fins, and other projections on surface and stains and other discolorations that cannot be removed by cleaning.

3.16 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. Testing Agency/Project Special Inspector shall verify reinforcement, including foundation reinforcement and slab reinforcement (WWF or reinforcing bar). Agent shall verify WWF or reinforcement has been chair/placed with proper clearances.

B. The Contractor shall employ an independent Testing Laboratory at his cost to inspect, sample and test the materials and the production of concrete and to submit test reports. Concrete testing shall be performed by technicians certified by the Maine Concrete Technician Certification Board and/or ACI Concrete Field Testing Technician Grade I.

C. Concrete shall be sampled and tested for quality control during placement. Quality control testing shall include the following, unless otherwise directed by the Department.

D. See Submittals section for report requirements.

E. Sampling Fresh Concrete: ASTM C172/C172M.

1. Slump: ASTM C143/C143M; One test for each set of compressive strength test specimens. Sample shall be taken from middle third of the load per ASTM C172/C172M. A slump test must be run prior to the incorporation of the CFP fibers per recommendations of ACI 544. A slump test must be run prior to and following the addition of a water reducer (superplasticizer) per recommendations of ACI 301.
2. Air Content: ASTM C231/C231M, Pressure method for normal weight concrete. One test for each set of compressive strength specimens measured at point of discharge.
3. Concrete Temperature: Per ASTM C1064/C1064M; one test each time a set of compression test specimens are made.
4. Compression Test Specimen: ASTM C31/C31M; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field cure test specimens are required.
    a. An insulated Cure Box for specimen curing shall be supplied by Testing Agency for initial curing as defined in ASTM C31/C31M.
    b. Means of heating or cooling the Cure Box shall be provided by the Inspection Agency if required in order to maintain a temperature between 60 and 80 degrees F. Contractor shall provide an electrical source to the Testing Agency when required for temperature control.
    c. A maximum-minimum thermometer shall be provided in the Cure Box by the Testing Agency to record the temperature range of the Cure Box during specimen curing. The Testing Agency shall record the maximum/minimum temperature of the Cure Box when transferring the specimens to the laboratory.
    d. Test Specimens shall be moist cured.
    e. Refer to ASTM C31/C31M for additional requirements for Test Specimens.
5. Compressive Strength Tests: ASTM C39; one set for each 50 cu. yds. or fraction thereof, of each concrete class placed in any one day or for each 4,000 sq. ft. of surface area placed; 1 specimen tested at 7 days, 2 specimens tested at 28 days, 1 specimen retained in reserve for later testing if required.
6. Pumped concrete shall be tested at point of discharge per ACI 301.

F. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by the Department. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42, or by other methods, as directed. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of cast-in-place concrete for the booth foundations, islands, bollards, and crash barriers will not be measured separately, but rather will be incidental to the Hi Low and Regular Booth pay item.

B. Measurement of cast-in-place concrete for the canopy columns and footing will not be measured separately, but rather will be incidental to the Canopy and Foundation pay item.

C. Measurement of cast-in-place concrete for the Radiation Portal Monitors (RPMs) will not be measured separately, but rather will be incidental to RPM pay item.

4.2 BASIS OF PAYMENT

A. Payment for cast-in-place concrete for the Hi Low and Regular Booths will not be paid for separately, but shall be incidental to the Hi Low and Regular Booths.

B. Payment for cast-in-place concrete for the canopy columns and footing will not be paid for separately, but shall be incidental to the Canopy and Foundation pay item.

C. Payment for cast-in-place concrete Radiation Portal Monitors will not be paid for separately, but shall be incidental to Radiation Portal Monitor pay item.

Pay Item		Pay Unit
815.00	Radiation Portal Monitors	Lump Sum
815.00	Hi Low Booth and Foundations	Lump Sum
815.00	Regular Booth and Foundation	Lump Sum
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 05 12 23 - STRUCTURAL STEEL FOR BUILDINGS

PART 1 - GENERAL

1.1 SUMMARY

A. All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, STRUCTURAL STEEL, with the following modifications:

1.2 MODIFICATIONS:

504.01 Description

The first paragraph is deleted and replaced with the following paragraph:

This work shall consist of detailing, fabrication, and erecting structural steel members and other ancillary steel components including the miscellaneous steel for facia and billboard supports for the Canopy.

504.02 Materials

This Subsection is deleted and replaced with the following:

Structural steel for buildings shall conform to the requirements of ASTM A572 Grade 50.

High-strength steel bolts shall conform to the requirements of ASTM A325, Type I.

504.645 Method of Measurement

The following paragraph is added:

Measurement of Structural Steel for Buildings will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

504.65 Basis of Payment

The following paragraph is added:

Structural Steel for Buildings for the Canopy will not be paid separately but shall be incidental to the Canopy and Foundations pay item.

Payment will be made under the following Pay Item:

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 05 50 00 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED SECTIONS

A. 05 12 23 - Structural Steel for Buildings.

B. 05 51 29 - Steel Stairs and Ladders

1.2 REFERENCES

A. American Society for Testing and Materials International, (ASTM).
   1. ASTM A36/A36M-08, Standard Specification for Carbon Structural Steel.
   2. ASTM A307-07b, Specification for Carbon Steel Bolts and Studs, 60 000 psi Tensile.

B. The Society for Protective Coatings (SSPC).
   1. SSPC-SP1-82(Rev 2004), Solvent Cleaning.
   2. SSPC-SP2-82(Rev 2004), Hand Tool Cleaning.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

B. Fasteners:
   1. Ordinary bolts: to ASTM A307.

C. Universal Shop Primer: Fast curing, lead and chromate free, universal modified alkyd primer complying with MPI#79.

2.2 FABRICATION

A. Fit and shop-fabricate the various items of work in sections as large and complete as possible. Make inconspicuous connections, and clearly mark matching surfaces to insure correct reassembly on the site. Do not use paint or grease markers for identifying steel work sections.

B. Fabricate the work true to dimensions, free from distortion and defects detrimental to the appearance and performance. Accurately fit joints and intersecting members with adequate fastening.

C. Ensure bolts are free of burrs, deformations, discolorations, or other blemishes and of the same material, texture, colour and finish as the base material on which they occur, unless required for structural or safety reasons.

D. Drill or punch holes in base and template plates.

E. Provide miscellaneous clips, anchors and necessary accessories.

2.3 SHOP PAINTING

A. Preparation:
1. Solvent clean in accordance with SSPC-SP1 then hand tool clean in accordance with SSPC-SP2.

B. Primer:
1. Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
2. Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 16°F.
3. Clean surfaces to be field welded; do not paint.

2.4 MISCELLANEOUS METAL ITEMS

A. Contractor is responsible for all miscellaneous metal items shown and specified.

B. Refer to drawings for location, layout and details of all miscellaneous items.

C. Fabricate items from steel unless noted otherwise.

D. Miscellaneous metal items consist of, but are not limited to the following:
1. Canopy column enclosure.

PART 3 - EXECUTION

3.1 ERECTION

A. Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

B. Exposed fastening devices to match finish and be compatible with material through which they pass.

C. Touch-up field welds, bolts and burnt or scratched surfaces after completion of erection with primer.

3.2 CLEANING

A. Perform cleaning after installation to remove construction and accumulated environmental dirt.

B. Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of metal fabrications for the Canopy will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

4.2 BASIS OF PAYMENT

A. Payment for metal fabrications for the Canopy will not be paid for separately, but shall be incidental to the Canopy and Foundations pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 05 51 29 - STEEL STAIRS AND LADDERS

PART 1 - GENERAL

1.1 RELATED SECTIONS

A. 05 12 23 - Structural Steel for Buildings.

B. 05 50 00 - Metal Fabrications.

1.2 REFERENCES

A. American Society for Testing and Materials International, (ASTM).
   1. ASTM A36/A36M-08, Standard Specification for Carbon Structural Steel.
   2. ASTM A307-07b, Specification for Carbon Steel Bolts and Studs, 60 000 psi Tensile.
   3. ASTM A500/A500M-10a, Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

B. National Association of Architectural Metal Manufacturers (NAAMM)
   1. ANSI/NAAMM MBG 531-09, Metal Bar Grating Manual.

C. The Society for Protective Coatings (SSPC).
   1. SSPC-SP1-82(Rev 2004), Solvent Cleaning.
   2. SSPC-SP2-82(Rev 2004), Hand Tool Cleaning.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

B. HSS: to ASTM A500, Grade C.

C. Grating: to ANSI/NAAMM MBG 531, steel, standard style, Type 19-4, 1" x 3/16" bearing bar size; galvanized.

D. Stair tread: anti-slip diamond design, fabricated from 12 ga. steel; hot-dipped galvanized finish.
   1. Standard of acceptance: Grip Strut by McNichols.

E. Fasteners:
   1. Ordinary bolts: to ASTM A307.
   2. Adhesive anchors:
      a. Standard of acceptance: HVA by Hilti, Epcon System by Ramset/Readhead, Poly-All by UCAN.

F. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

G. Universal Shop Primer: Fast curing, lead and chromate free, universal modified alkyd primer complying with MPI#79.

2.2 FABRICATION

A. Fabricate to NAAMM, Metal Stair Manual.

.2 Weld connections where possible, otherwise bolt connections. Countersink exposed fastenings, cut off bolts flush with nuts. Make exposed connections of same material, color and finish as base material on which they occur.

.3 Accurately form connections with exposed faces flush; miters and joints tight. Make risers of equal height.

.4 Grind or file exposed welds and steel sections smooth.

.5 Shop fabricate stairs in sections as large and complete as practicable.

2.3 SHOP PAINTING

A. Preparation:
1. Solvent clean in accordance with SSPC-SP1 then hand tool clean in accordance with SSPC-SP2.

B. Primer:
1. Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
2. Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 16°F.
3. Clean surfaces to be field welded; do not paint.

PART 3 - EXECUTION

3.1 INSTALLATION OF STAIRS

A. Install in accordance with NAAMM, Metal Stair Manual.

B. Install plumb and true in exact locations, using welded connections wherever possible to provide rigid structure. Provide anchor bolts, bolts and plates for connecting stairs to structure.

C. Touch up shop primer to bolts, welds, and burned or scratched surfaces at completion of erection.

3.2 CLEANING

A. Perform cleaning after installation to remove construction and accumulated environmental dirt.

B. Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of steel stairs and ladders for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

4.2 BASIS OF PAYMENT

A. Payment for steel stairs and ladders for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

Pay Item		Pay Unit
815.00	Hi Low Booth	Lump Sum

END OF SECTION

SECTION 06 10 11 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED SECTIONS

A. 07 51 12 - Built-Up Asphalt Roofing and Waterproofing: cants.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)
   1. ASTM D245-06, Standard Practice for Establishing Structural Grades and Related Allowable Properties for Visually Graded Lumber.
   2. ASTM D2555-06, Standard Practice for Establishing Clear Wood Strength Values.
   3. ASTM F1667-11, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
   4. ASTM F2674-07, Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners [Metric]

B. National Institute of Standards & Technology (NIST)
   1. Voluntary Product Standard PS 20-10, American Softwood Lumber Standard.

1.3 QUALITY ASSURANCE

A. Lumber identification: mark each piece of lumber with a factory applied official mark of a grading agency. Identify grading agency, grade, species, moisture content at time of surfacing, and mill.

B. Plywood identification: Factory-mark each panel with APA trademark evidencing compliance with grade requirements.

PART 2 - PRODUCTS

2.1 LUMBER MATERIAL

A. Lumber Standards: Comply with PS 20 and with applicable grading rules of inspection agencies certified by American Softwood Lumber Committee's Board of Review. Lumber design values are to comply with ASTM D245 and ASTM D2555.
   1. Use S4S lumber with moisture content 19% or less.

B. Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:
   1. Board sizes: "Standard" or better grade.
   2. Dimension sizes: "Standard" light framing or better grade.

2.2 PANEL MATERIALS

A. Structural-Use Panel Standards: Panel thickness, grade, veneer qualities and group number or span rating, shall be in accordance with recommendations of APA. Comply with PS 1 for plywood panels.

2.3 ACCESSORIES

A. Nails, spikes and staples: to to ASTM F1667.

B. Bolts: 1/2" diameter unless indicated otherwise, complete with nuts and washers.

C. Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.

2.4 FINISHES

A. Galvanizing: to ASTM F2674, use galvanized fasteners for exterior work.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install wood cants, fascia backing, nailers, curbs and other wood supports and secure using galvanized fasteners.

3.2 ERECTION

A. Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

B. Countersink bolts where necessary to provide clearance for other work.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of rough carpentry for the Canopy will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

4.2 BASIS OF PAYMENT

A. Payment for rough carpentry for the Canopy will not be paid for separately, but shall be incidental to the Canopy and Foundations pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 07 24 13 - METAL BUILDING PANELS

PART 1 - GENERAL

1.1 RELATED SECTIONS

A. 07 44 53 - Glass-Fiber Reinforced Cementitious Panels.

B. 07 62 00 - Sheet Metal Flashing and Trim.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM A653/A653M-10, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   2. ASTM A792/A792M-06a, Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

1.3 DESIGN CRITERIA

A. Allow for thermal movement of component materials caused by ambient temperature range of 150°F without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.

B. Design members to withstand dead load and wind loads calculated in accordance with applicable local regulations, to maximum allowable deflection of 1/180th of span.

1.4 SUBMITTALS

A. Shop drawings:
   1. Indicate elevations, dimensions, type and gauge of material, finish; details at openings, changes in plane and penetrations; spacings of sub-girts and fasteners; fasteners and installation method, compliance with design criteria, and all other relevant details and data.

B. Samples:
   1. Submit duplicate 24" x 24" samples of each panel representative of materials, finishes and colors.

1.5 DELIVERY, STORAGE AND HANDLING

A. Handle and store siding to prevent stressing of panels. Warping, twisting or bending of panels may lead to oil-canning of finished product.

PART 2 - Products

2.1 PRODUCT SUBSTITUTIONS

A. Requests for use of product substitution (request for equals):
1. In addition to requirements as specified in Section 01 00 02 - Standard General Requirements, requests shall be accompanied by duplicate color samples as follows:
a. Color: submit 1-1/2" x 1-1/2" sample of each cladding color specified. Samples to be actual painted samples; photographic reproductions are not acceptable.
2. Requests will not be entertained unless accompanied by samples.
3. Consideration will be based upon technical requirements and color availability.

2.2 MATERIALS

A. Galvanized steel sheet: fabricated in accordance with ASTM A653/A653M, having a core of Grade 230 (33) steel; zinc-coated in accordance with ASTM A924/A924M to a G90 designation.
1. For metal wall panels:
a. Use coil stock specifically made for architectural flat.
b. Prefinish with finish system specified below.

2.3 METAL PANELS

A. Metal wall panels: plank style, rolled from prefinished galvanized sheet steel.
1. Size: nominal size 12" wide with 1" reveal x 1-1/2" deep x nominal 22 ga. thick; no rib.
2. Standard of acceptance: AD275-SR by VicWest Steel.

2.4 FLASHING AND TRIM

A. Flashing and trim: of same material, thickness, finish and color as panels.

B. Provide all foam closure strips, drip caps, sills, flashings, ridge caps, metal closures and corners shown or required for a complete, watertight enclosure.

C. In addition to above flashings, form and install flashings at transitions of metal panels with other materials.

2.5 ACCESSORIES

A. Subgirts: Z or U type, fabricated from commercial grade steel with G90 zinc finish, notched where required for liner panel. Thickness and spacing to suit conditions.

B. Exposed screws: zinc coated steel, head color same as exterior sheet, dished steel/neoprene washer.

C. Sealants/tape: as recommended by panel manufacturer for applicable application.

D. Touch-up paint: as recommended by panel manufacturer. Color to match.

E. Isolation coating: as recommended by panel manufacturer

2.6 FINISH

A. Silicone modified polyester:
1. Standard of acceptance: WeatherX by VicWest, Perspectra Series by Dofasco.
2. Coat topside of sheet with 1 mil silicone modified polyester; backside to have washcoat finish.
3. Color: as selected by the Department.

2.7 FABRICATION

A. Ensure rolling of siding and accessories do not cause stresses on products which could lead to oil-canning.
1. Roll former shall verify that products are good when rolled.
2. Exposed joint (perpendicular to profile): ends of cladding sheet shop cut clean and square.

PART 3 - Execution

3.1 INSTALLATION - GENERAL

A. Installation of panels shall be performed by qualified and experienced personnel. Installation contractor shall be certified by manufacturer.

B. Install in accordance with manufacturer's written instructions and shop drawings and as indicated.

C. Apply sealant/tape using hidden application unless otherwise directed.

D. Where horizontal joints are required, overlap joints in direction of water-flow and make watertight.

E. Cut necessary openings for mechanical, electrical and other penetrations and openings. Make joints around penetrating items perfectly tight.

F. Install flashing and trim as required for complete, watertight enclosure.

G. Use maximum practical length of panel to keep number of end laps to a minimum.

H. Install components to allow for thermal expansion and contraction.

3.2 INSTALLATION (FIELD ASSEMBLED)

A. Install metal panels to girts using concealed fasteners.
1. To prevent oil-canning, do not use panels that have been stressed.
2. Do not overdrive fasteners, so as to limit amount of thermal movement or to physically deform panel at fastener location.

B. Provide subframing, brackets, clips, inserts, shims as required to securely and permanently fasten wall system to building structure.

3.3 TOLERANCES

A. Maintain following installation tolerances:
   1. Maximum variation from plane or location shown on reviewed shop drawings: 3/8" in 3'0" of length and up to 3/4" in 300' maximum.
   2. Maximum offset from true alignment between two adjacent members abutting end to end, in line: 1/32".

3.4 CLEANING

A. Wash down exposed interior and exterior surfaces using solution of mild domestic detergent in warm water, applied with soft clean wiping cloths. Wipe interior surfaces clean as part of final clean-up.

B. Remove excess sealant with recommended solvent.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of metal building panels for the Canopy will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

4.2 BASIS OF PAYMENT

A. Payment for metal building panels for the Canopy will not be paid for separately, but shall be incidental to the Canopy and Foundations pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 07 44 53 - GLASS-FIBER REINFORCED CEMENTITIOUS PANELS

PART 1 - GENERAL

1.1 RELATED SECTIONS

A. 07 42 13 - Metal Building Panels.

B. 07 62 00 - Sheet Metal Flashing and Trim.

1.2 DESCRIPTION OF WORK:

A. This sub trade is responsible for the supply and installation of the following items, including all related labour and materials necessary to successfully complete the installation of same whether or not noted on the Contract Documents.
   1. Cementitious building panels.
   2. Fastening system.
   3. Closures and related trim.
   4. Other related work as indicated.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM)
   1. ASTM C1185-08, Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards.
   2. ASTM C1186-08, Standard Specification for Flat Fiber-Cement Sheets.
   3. ASTM E136-11, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.
   4. ASTM E330-02(2010), Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

1.4 DESIGN REQUIREMENTS

A. Design panel to withstand wind load of 25 psf when tested in accordance with ASTM E330.

B. Design panels and assembly to provide for thermal movement of component materials caused by ambient temperature range of 150°F without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.

C. Include expansion joints to accommodate movement in wall system and between wall system and building structure, caused by structural movements, without permanent distortion, damage to infills, racking of joints, breakage of seals, or water penetration.

D. Design members to withstand dead load and wind loads as calculated in accordance with applicable local regulations, to maximum allowable deflection of 1/180 of span.

E. Design wall system to accommodate specified erection tolerances of structure.

1.5 SHOP DRAWINGS

A. Indicate elevations, dimensions, thicknesses of material, finish; details at openings, changes in plane and penetrations; spacings; fasteners and installation method; compliance with design criteria, and all other relevant details and data. Details shall be at minimum 1:5 scale.

1.6 SAMPLES

A. Submit duplicate 6" x 6" samples of wall system, representative of materials, finishes and colors.

1.7 QUALITY ASSURANCE

A. Installation shall be performed using manufacturer trained contractor.

1.8 STORAGE, HANDLING AND PROTECTION

A. Store panels under cover, out of direct sunlight in a dry location. Protect from dirt and damage.

B. Stack panels flat, no more than 20" high; maximum two stacks on top of each other. Use foam protection between each panel.

C. Lift panels directly off stack, taking care at all times to avoid sliding.

D. Carry panels on their edge.

PART 2 - PRODUCTS

2.1 PANEL SYSTEM

A. The following specified products and materials form the complete building panel system required for this Project. Ensure that only compatible products and materials are used.

B. Panels
1. Composition: proprietary mixture of glass fibre reinforcing and concrete; to ASTM C1185 and ASTM C1186.
2. Size: 1/2" thick x width and height indicated on drawings.
3. Colour: Silvergrey.
4. Texture: matt (brushed).
5. Standard of acceptance: Fibre C by Rieder

C. Fire performance: Non-combustible when tested to ASTM E136.

2.2 FASTENERS AND ACCESSORIES

A. Aluminum extrusions: Aluminum Association alloy AA6063-T5.

B. Fixing assemblies: invisible fastening system with undercut anchor consisting of the following proprietary components.
   1. Horizontal suspension rail.
   2. Panel clip and undercut anchor.

C. Screws: to suit construction and material being fastened.

D. Trim/flashing/closures: 0.7 mm thick aluminum, prefinished to match panel.

E. Cleaning solutions: only use solutions recommended by panel manufacturer that will not discolor panels.

2.3 FABRICATION

A. Fabricate panels to correct size, consistent in color and free from warps, cracks and other imperfections.

B. Factory precut and predrill panels to maximum extent as possible.

C. Do site cutting using tools and methods recommended by panel manufacturer.

D. Factory seal faces and edges. Seal edges cut on site using sealer recommended by panel manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install system using fasteners appropriate for substrate.

B. Install panels in accordance with manufacturer's instructions for concealed back fastened installation.

C. Install panels level, true and plumb; maintain following installation tolerances:
   1. Maximum variation from plane or location shown on approved shop drawings:
      a. Vertical and horizontal tolerance: 3/32" in 10' up to a maximum of 3/4" in 300'.
      b. Diagonally: 1/8" in 10'0".
   2. Maximum offset from true alignment between two adjacent members abutting end to end, in line: 1/32".

3.2 CLEAN UP

A. Upon completion of panel installation
   1. Clean panels in accordance with panel manufacturer's instructions.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of glass-fiber reinforced cementitious panels for the Canopy will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

4.2 BASIS OF PAYMENT

A. Payment for glass-fiber reinforced cementitious panels for the Canopy will not be paid for separately, but shall be incidental to the Canopy and Foundations pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 075200 - MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED SECTIONS

A. 07 62 00 - Sheet Metal Flashing and Trim.

1.2 REFERENCES

A. American Society for Testing and Materials International, (ASTM).
   1. ASTM C208-08a, Standard Specification for Cellulosic Fiber Insulating Board.
   2. ASTM C1289-10, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
   3. ASTM D41-05, Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
   4. ASTM D312-00(2006), Standard Specification for Asphalt Used in Roofing.
   5. ASTM D226/D226M-09, Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
   6. ASTM D6164/D6164M-11, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
   7. ASTM F1667-11, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

1.3 PERFORMANCE REQUIREMENTS

A. Compatibility between components of roofing system is essential. Provide written declaration to Department stating that materials and components, as assembled in system, meet this requirement.

1.4 SUBMITTALS

A. Submit WHMIS MSDS - Material Safety Data Sheets.

B. Product data:
   1. Submit copies of most recent technical roofing components data sheets describing materials' physical properties.

C. Shop drawings:
   1. Submit insulation layout plan indicating locations of drains, crickets, curbs and other large penetrations. Show individual boards, and mark each board with a code number. Provide legend which cross references board number with the size, thicknesses and/or taper.

D. Samples:
   1. Submit duplicate 6" x 6" samples of:
      a. Cap sheet. Sample to have full width selvage edge.
      b. Base sheet.
      c. Base flashing.
      d. Insulation.
      e. Fiberboard.

E. Quality control submission:
   1. Laboratory tests: When requested, submit laboratory test reports certifying compliance of bitumens, membranes, flashing, insulation, fiberboard, mastic, sealant and accessories with specification.
   2. Submit work order indicating materials have been ordered and delivery dates

1.5 QUALITY ASSURANCE

A. The roofing contractor shall be fully experienced in this type of work and be recognized as an approved contractor by the membrane manufacturer.

1.6 STORAGE AND HANDLING

A. Provide and maintain dry, off-ground weatherproof storage.

B. Store rolls of felt and membrane in upright position. Store membrane rolls with selvage edge up.

C. Remove only in quantities required for same day use.

D. Place plywood runways over completed Work to enable movement of material and other traffic.

E. Store sealants at minimum 40°F.

F. Store insulation protected from daylight, weather and deleterious materials.

G. Handle roofing materials in accordance with manufacturer's written directives, to prevent damage or loss of performance.

1.7 FIRE PROTECTION

A. Provide one 20 lb, Class ABC portable fire extinguisher per torch applicator. Locate extinguisher on roof and within 30' of applicator.

B. Maintain fire watch for 1 hour after each day's roofing operations cease.

C. During work and at completion of days work, monitor for hot spots on roofs with thermal imaging devices. Take necessary action if hot spots are found.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not install roofing when temperature remains below 0°F for torch application, or 23°F for mop application.

B. Minimum temperature for solvent-based adhesive is 23°F.

C. Install roofing on dry deck, free of snow and ice, use only dry materials and apply only during weather that will not introduce moisture into roofing system.

1.9 WARRANTY

A. Contractor shall warrant all workmanship related to the installation of the roofing system and that the roof membrane will remain leakproof for a minimum period of two (2) years from date of Substantial Completion of project.

PART 2 - PRODUCTS

2.1 DECK PRIMER

A. Asphalt primer: to ASTM D41.

2.2 VAPOUR RETARDER

A. Two-ply bituminous membrane consisting of No. 15 asphalt saturated roofing felts to ASTM D226/D226M.

2.3 MEMBRANES

A. Modified bituminous membranes: SBS modified membrane.

B. Base sheet: to ASTM D6164/D6164M.
1. Asphalt applied sheet:Type I Grade S, film on upper surface, sanded on bottom, minimum 180 g non-woven polyester reinforcing, minimum thickness 88 mils.
a. Standard of acceptance: ModifiedPlus NP180p/s by Henry Company, Elastophene 180PS by Soprema.

C. Cap sheet: to ASTM D6164/D6164M.
1. Torch applied: Type II Grade G, ceramic granules on upper surface, film on bottom, minimum 250 g non-woven polyester reinforcing, minimum thickness 160 mils at selvage edge.
a. Standard of acceptance: ModifiedPlus NP250gT4 by Henry Company, Sopralene Mammouth GR by Soprema.

D. Base flashing:
1. Similar to base sheet; except, self adhesive type; film on upper surface, release - paper and adhesive on bottom.

E. Cap flashing:
1. Torch applied: same as cap sheet for roofing membrane.

F. Reinforcing sheet:
1. Torch applied: Type I Grade S, film on upper and bottom surface, minimum 180 g non-woven polyester reinforcing, minimum thickness 118 mils.
a. Standard of acceptance: ModifiedPlus NP180p/p by Henry Company, Sopralene Flam 180 by Soprema.

G. Asphalt felts: to ASTM D226/D226M, No. 15, perforated asphalt felts.

H. Fire seal membrane: SBS modified bitumen membrane, reinforced, thermofusible plastic film top surface, self-adhering bottom surface with release paper. Provide primer as recommended by manufacturer.
1. Standard of acceptance: NP Tack Sheet by Henry Company, Armorbond 90 by IKO, Sopralene Flam Stick by Soprema.

2.4 BITUMEN

A. Asphalt: to ASTM D312, Type 2 or 3.

2.5 INSULATION

A. Regulation compliance.
1. Insulation for this project shall not contain or be manufactured with Ozone Depleting substances.
2. Alternative insulation will not be considered unless the request is accompanied by a letter from the manufacturer stating their product complies with this Regulation.
3. Manufacturers may be requested to provide test results from certified independent testing agency to prove conformance to regulation.

B. Polyisocyanurate/polyurethane insulation: Factory moulded sandwich panels consisting of rigid polyurethane insulation core to ASTM C1289 Type 2, Class 1, Grade 3 and factory applied facers; all integrally bonded during the foaming process; square edges, minimum compressive strength of 25 psi and density of 2 pcf.
1. A.C. Foam II by Atlas Roofing Corporation, ISO 95+ by Firestone, ENRGY 3 25PSI by Johns Manville, Colgrip "B" by Soprema.

C. Fiberboard: to ASTM C208, roof board; high density wax impregnated, natural or coated one side; meeting following requirements:
.1 Density: to ASTM D1037; 14 pcf minimum.
.2 Water absorption: to ASTM C209; maximum 3.5 % by volume.
.3 Traverse load at rupture: to ASTM C209; 14 lbs minimum.

2.6 SEALERS

A. Plastic cement and sealing compound: of type compatible with modified bituminous membrane.

2.7 FASTENERS

A. Nails: to ASTM F1667.

B. Flat caps or discs: flat metal 1-1/4" diameter.

C. Fasteners: Factory Mutual approved, consisting of #12 or #14 self-tapping screw and metal plate of minimum 9 in^2, corrosion resistant coating.
   1. Standard of acceptance: Roofgrip with Climaseal coating or Dekfast screw with Sentri finish and Dekfast Hex Plate.

2.8 ACCESSORIES

A. Roof drain:
   1. Cast iron with aluminum dome, underdeck clamp to suit roof construction, clamp collar with integral gravel guard and roof sump receiver. Outlet type and size to suit piping.
      a. Standard of acceptance: RD-100-B-D-K80 by Watts, 1010-RC-A-D by J.R. Smith, ZA-100-CR by Zurn.

B. Exhaust stack flashing sleeve:
   1. One-piece, weather-resistant spun aluminum, weatherproof EPDM seal at top, primed flanges.
      a. Standard of acceptance: MEF-1 by Thaler Metal USA Inc.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to beginning of work ensure:
   1. Surfaces are dry, free of snow, ice or frost, and clean of dust and debris.
   2. Roof drains have been installed at proper elevations relative to finished roof surface.
   3. Surfaces are free of defects that will adversely affect the performance of the system.

B. Do not install roofing materials during rain or snowfall.

3.2 PROTECTION

A. Cover walls, walks and adjacent work where materials hoisted or used.

B. Use warning signs and barriers. Maintain in good order until completion of Work.

C. Clean off drips and smears of bituminous material immediately.

D. Dispose of rain water off roof and away from face of building until roof drains are installed and connected.

E. Protect roof from traffic and damage. Comply with precautions deemed necessary by the Department.

F. At end of each day's work or when stoppage occurs due to inclement weather, provide protection for completed Work and materials out of storage.

3.3 INSULATION APPLICATION

A. Mechanically fasten fiberboard into steel deck with fasteners spaced at rate as scheduled below. Fastener pattern in accordance with FM requirements.
   1. Roof perimeter (from roof edge to 4'0" from roof edge): one fastener per 2.5 ft^2.
   2. Remainder of roof: one fastener per 4 ft^2.

B. Asphalt applied insulation:
   1. Flood coat surface and while hot embed insulation boards. Butt boards together without gaps.
   2. In multilayer insulation application, ensure all layers are well adhered and each layer breaks joints with underlying layer.
   3. Apply fiberboard over insulation to provide total fiberboard thickness of 1". Mop in at rate of 25 lb/square and place over insulation while asphalt is liquid.

C. Do not install more insulation than can be roofed the same day,

3.4 MEMBRANE APPLICATION - GENERAL

A. Install membranes in accordance with manufacturer's application manual.

B. Keep hot asphalt below its flash point, at or below its final blowing temperature and within its equiviscous temperature range at place of application.

C. After installation of sheets, check all seams for proper adhesion.

3.5 BASE SHEET APPLICATION

A. Asphalt adhered:
   1. Starting at low point and at right angles to slope, unroll base sheet, align and reroll from both ends.
   2. Unroll and embed base sheet in uniform coating of hot asphalt applied at rate of 25 lb/square.
   3. Lap sides 3", ends 6", and fully seal watertight with hot asphalt. Extend 2" above top of roof.
   4. Stagger end laps minimum 18".
   5. Mopping should be not more than 3'0" ahead of unrolling process.
   6. Application to be free of blisters, wrinkles and fishmouths.

3.6 CAP SHEET APPLICATION

A. Torch-applied:
   1. Starting at low point and at right angles to slope, unroll cap sheet, align and reroll from both ends.
   2. Unroll and torch cap sheet onto base sheet taking care not to burn membrane or it's reinforcement. Take care to minimize asphalt seepage greater than 1/4" at seams. Sprinkle repair granules on all exposed asphalt.
   3. Lap sides 3", ends 6". Extend 2" above top of roof.
   4. Stagger end laps minimum 18".
   5. Offset cap sheet laps from base sheet laps as follows:
      a. Side laps: 12".
      b. End laps: 18".

6. Application to be free of blisters, wrinkles and fishmouths.
7. Securely fasten around perimeter and at penetrations, curbs, etc. using roofing nails spaced 8" o.c.
8. Do membrane application in accordance with manufacturer's recommendations.

3.7 MEMBRANE FLASHING

A. Flash roof perimeter and penetrations in accordance with manufacturer's application manual.

B. Membrane flashings shall be 39" wide x length to suit. Side laps shall be 4" and staggered minimum 12" from side and end laps in respective roof membrane layers.

C. Nail top of flashing using discs at 8" o.c. when support allows.

D. Base flashing:
1. Prime surfaces to receive flashing and allow to dry.
2. Base flashing length at parapet: to allow flashing to extend over parapet and down outside face 2" and to extend 4" onto roof.
3. Base flashing length at vertical intersections: to provide 8" overlap above surface of roof sheet and 4" onto roof.
4. Self-adhesive:
   a. Position membrane and remove release paper. Promptly apply firm pressure to membrane using roller to ensure full contact and uniform adhesion.

E. Cap flashing:
1. Cap flashing length at parapet: to allow flashing to extend over parapet and down outside face 3" and to extend 6" onto roof.
2. Cap flashing length at vertical intersections: to provide 8" overlap above surface of roof sheet and 6" onto roof.
3. Layout straight line on cap sheet surface, 6" from vertical face and, using torch and round-nosed roofing trowel, embed surface granules into the heated and soft bitumen.
4. Torch directly onto base flashing.
5. At thru-wall flashing applications, secure roof membrane with termination bar.

F. Reinforcing sheet:
1. Reinforcing sheet width: to extend beyond flange of item being flashed by 6" unless indicated otherwise.

3.8 ROOF DRAIN INSTALLATION

A. Modify height of roof drain to suit insulation height provided in this contract.

B. Set roof drain in mastic on top of base sheet.

C. Torch reinforcing sheet over flange ensuring it extends 6" beyond.

D. Insulate drains using antisweat tape and packing fiberglass insulation or by using foamed-in-place polyurethane insulation.

E. Ensure pipe is tied into vapour retarder.

3.9 EXHAUST STACK FLASHING SLEEVE

A. Install roof vent collar to vent pipes.

B. Set roof vent collar in mastic on top of base sheet.

C. Install reinforcing over flange, ensuring it extends 6" beyond.

D. Install sleeve 1/8" below vent stack and install sealant to vent stack. Place cap into bead of sealant to seal cap to vent stack over flange. Do not seal cap to vent stack until vent stack installation has been inspected.

3.10 OPERATION REQUIREMENTS

A. Submit preventive maintenance manual.

3.11 CLEANING

A. Remove bituminous markings from finished surfaces.

B. In areas where finished surfaces are soiled caused by work of this section, consult manufacturer of surfaces for cleaning advice and complying with their documented instructions.

C. Repair or replace defaced or disfigured finishes caused by work of this section.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of modified bituminous membrane roofing for the Canopy will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

4.2 BASIS OF PAYMENT

A. Payment for modified bituminous membrane roofing for the Canopy will not be paid for separately, but shall be incidental to the Canopy and Foundations pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 07 62 00 - SHEET METAL AND TRIM

PART 1 - GENERAL

1.1 RELATED SECTIONS

A. 07 42 13 - Metal Building Panels: flashing and trim for metal building panels.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM).
   1. ASTM A653/A653M-10, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   2. ASTM A924/A924M-10a, Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
   3. ASTM C920-10, Specification for Elastomeric Joint Sealants.
   4. ASTM F1667-11, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

1.3 SUBMITTALS

A. Submit duplicate 2" x 2" samples of each type of sheet metal material, color and finish.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Galvanized steel sheet: fabricated in accordance with ASTM A653/A653M, having a core of Grade 230 (33) steel; zinc-coated in accordance with ASTM A924/A924M to a G90 designation; prefinished with coating system as specified below.

2.2 FINISH

A. Silicone modified polyester
   1. Standard of acceptance: WeatherX by VicWest, Perspectra Series by Dofasco.
   2. Coat topside of sheet with 1 mil silicone modified polyester; backside to have washcoat finish.
   3. Color: as selected by the Department from standard range.

2.3 ACCESSORIES

A. Isolation coating: alkali resistant bituminous paint.

B. Plastic cement: asbestos free roofing cement.

C. Sealant: silicone, to ASTM C920, Type S, Grade NS, Class 100/50, Use NT, M, G, A and O.

D. Gasket: exterior grade, double-sided foam tape.

E. Cleats/hook strip: of same material, and temper as sheet metal, 2" wide unless noted otherwise. Thickness same as sheet metal being secured.

F. Fasteners: of same material as sheet metal, to ASTM F1667, ring thread flat head roofing nails of length and thickness suitable for metal flashing application.

G. Screws: zinc coated steel, head color same as exterior sheet, dished steel/neoprene washer.

H. Washers: of same material as sheet metal, 3/64" thick with rubber packings.

I. Touch-up paint: as recommended by prefinished material manufacturer. Color to match.

2.4 FABRICATION

A. Fabricate metal flashings and other sheet metal work as indicated.

B. Form pieces in 8'0" maximum lengths. Make allowance for expansion at joints.

C. Hem exposed edges on underside 1/2". Mitre and seal corners with sealant.

D. Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

E. Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

2.5 METAL FLASHINGS

A. Form flashings, copings and fascias to profiles indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install sheet metal work as detailed.

B. Use concealed fastenings except where approved before installation.

C. Lock end joints and caulk with sealant.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of sheet metal and trim for the Canopy will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

4.2 BASIS OF PAYMENT

A. Payment for sheet metal and trim for the Canopy will not be paid for separately, but shall be incidental to the Canopy and Foundations pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 07 95 13 - EXPANSION JOINT COVER ASSEMBLIES

PART 1 - GENERAL

1.1 SUBMITTALS

A. Submit manufacturer's product data indicating compliance with specified requirements. Include installation instructions for each type of expansion control material.

1.2 DELIVERY AND STORAGE

A. Deliver products in original intact labelled containers and store undercover in a dry location until installed.

B. Store off ground, protect from weather and construction activities.

PART 2 - PRODUCTS

2.1 BELLOWS-TYPE EXPANSION JOINT COVERS

A. Expansion joint cover: flexible rubber membrane supported by closed cell foam with metal flanges attached using adhesive and mechanical means.
   1. Standard of acceptance: BRJW-Series by Construction Specialties Inc., Expand-O-Flash Model EJ by Johns Manville, ERJ/ERJL Series by MM Systems Inc.
   2. Joint Bellow Width: 254 mm.
   3. Bellows: 0.060" thick nonreinforced, EPDM bellows adhesively and mechanically combined to metal flanges.
   4. Bellow Supports: Closed cell foam, 5/8" minimum thickness.
   5. Flange Metal: 26 ga. galvanized steel; 4" wide.
   6. Provide matching factory-fabricated corners, transitions, intersections and terminations.

B. Accessories:
   1. Fasteners: Corrosion-resistant fasteners compatible with flange metal and equivalent in corrosion resistance, of proper length and type for substrate.
   2. Splice kit.

2.2 FABRICATION

A. Fabricate expansion joint covers, square, true, straight and accurate to required sizes and profiles.

B. Fabricate in maximum practical lengths to minimize joints.

C. Shop assemble covers ready for installation where practicable.

D. Fabricate joint cover assemblies with anchors, filler inserts and shop applied protection as required for a complete installation to suit installation and project requirements.

E. Provide acceptable means of anchorage, such as anchor clips, expansion bolts and shields, welded studs or toggles.

F. Factory fabricate terminations and transitions.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

A. Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 INSTALLATION

A. Set work plumb, square, level, free from distortion.

B. Secure work accurately to structure in manner not restricting joint movement.

C. Seal/splice butt joints in accordance with manufacturer's instructions to provide watertight joints.

D. Ensure sound and clean substrates before installation.

3.3 CLEANUP

A. Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

B. Remove traces of primer, caulking, epoxy and filler materials; clean expansion joint covers.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of expansion joint cover assemblies for the Canopy will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

4.2 BASIS OF PAYMENT

A. Payment for expansion joint cover assemblies for the Canopy will not be paid for separately, but shall be incidental to the Canopy and Foundations pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 09 22 15 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 REFERENCES

A. American Society for Testing and Materials International, (ASTM).
   1. ASTM C645-11, Standard Specification for Nonstructural Steel Framing Members.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Non-load bearing channel stud framing: to ASTM C645, stud size indicated, roll formed from 25 ga. hot dipped galvanized steel sheet, for screw attachment of gypsum board.

B. Tracks: to ASTM C645, in widths to suit stud sizes, 1-1/4" flange height.

PART 3 - EXECUTION

3.1 ERECTION

A. Align tracks and secure at 16" on center maximum.

B. Erect metal studding to tolerance of 1:1000.

3.2 CLEANING

A. Upon completion of installation, remove surplus materials, rubbish, tools and equipment.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of non-structural metal framing for the Canopy will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

4.2 BASIS OF PAYMENT

A. Payment for non-structural metal framing for the Canopy will not be paid for separately, but shall be incidental to the Canopy and Foundations pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 095423 - LINEAR METAL CEILINGS

PART 1 - GENERAL

1.1 REFERENCES

A. American Society for Testing and Materials (ASTM)
   1. ASTM C635/C635M-07, Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustic Tile and Lay-In Panel Ceilings.
   2. ASTM C636/C636M-08, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustic Tile and Lay-In Panels.

1.2 SUBMITTALS

A. Product Data:
   1. Submit manufacturer's product data and installation instructions.

B. Shop Drawings:
   1. Reflected ceiling plans coordinating penetrations and ceiling mounted items. Show the following details:
      a. Details and reflected ceiling plans for the Linear Metal Ceiling installation
      b. Clearly illustrate all components of the Linear Metal Ceiling suspension and components
      c. System assembly details and connections to building components
      d. Location and direction of light fixtures, diffusers, speakers and other finish items
      e. Framing and support details for work supported by Linear Metal ceiling suspension system
      f. List of materials, dimensions, hanger fastenings and any special details

C. Samples:
   1. Submit duplicate samples of manufacturer's available colours. Samples to be actual paint samples; printed colour samples are not acceptable.

D. Maintenance Data:
   1. Submit maintenance manuals.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's unopened packages, suitably store to protect against exposure to moisture, sunlight, surface contamination and other unacceptable conditions

B. Handle linear metal pans, suspension system components, and accessories carefully to avoid damaging units and finishes.

1.4 COORDINATION

A. Coordinate layout and installation of linear metal pans and suspension system with other construction that penetrates ceilings or is supported by them.

PART 2 - PRODUCTS

2.1 LINEAR METAL CEILING PANS

A. Acoustical Metal Pan:
1. Pan: manufactured from minimum 0.022" aluminum; perforated and unperforated.
2. Size: nominal 3/4" high x 3" wide.
3. Pan design to snap on and be securely retained on carriers without separate fasteners.
4. Finish: polyester baked enamel.

B. Pan Splices: Construction same as pans, in lengths 8" to 12"; with manufacturer's standard finish.

C. End Caps: Metal matching pans; fabricated to fit and conceal exposed ends of pans.

D. Filler Strips: 1" wide, black plastic or aluminum. Design to snap into indentations in side of pan to ensure positive locking to panels.

E. Moldings and Trim:
1. Provide exposed members as indicated or required to comply with seismic requirements of authorities having jurisdiction, to conceal edges of penetrations through ceiling, to conceal ends of pans and carriers, for fixture trim and adapters, for fascia at changes in ceiling height, and for other conditions.
2. Fabricate from unperforated metal of finish to match linear metal pans.
3. For Circular Penetrations of Ceiling: Fabricate edge moldings to diameter required to fit penetration exactly.

2.2 METAL SUSPENSION SYSTEMS

A. Metal Suspension Systems Standard: Provide ceiling manufacturer's standard metal suspension systems of types and finishes indicated that comply with applicable ASTM C635 requirements. Suspension system shall limit upward lift of ceiling system.

2.3 ACCESSORIES

A. Access Panels: For access at locations indicated, provide door hinge assembly, retainer clip, and retainer bar, assembled with ceiling panels and carrier sections into access doors of required size, permitting upward or downward opening.

2.4 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work:
1. Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 PREPARATION

A. Measure each ceiling area and establish layout of linear metal pans to balance border widths at opposite edges of each ceiling. Avoid using less than half width or length pans at borders, and comply with layout shown on reflected ceiling plans.

3.2 INSTALLATION

A. Comply with ASTM C636 and manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers but without attaching to permanent metal forms, steel deck, or steel deck tabs.

C. Install edge moldings and trim of type indicated at perimeter of linear metal ceiling area and where necessary to conceal edges and ends of linear metal pans.

D. Install suspension system carriers so they are aligned and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

E. Cut linear metal pans for accurate fit at borders and at interruptions and penetrations by other work through ceilings. Stiffen edges of cut units as required to eliminate evidence of buckling or variations in flatness exceeding referenced standards for stretcher-leveled metal sheet.

F. Install linear metal pans in coordination with suspension system and exposed moldings and trim.
1. Align joints in adjacent courses to form uniform, straight joints parallel to room axis in both directions unless otherwise indicated.
2. Fit adjoining units to form flush, tight joints. Scribe and cut units for accurate fit at borders and around construction penetrating ceiling.
3. Install directionally textured metal pans in directions indicated.
4. Where metal pan ends are visible, install end caps unless trim is indicated.

3.3 CLEANING

A. Clean exposed surfaces of linear metal ceilings, including trim and edge moldings after removing strippable, temporary protective covering if any. Comply with manufacturer's written instructions for stripping of temporary protective covering, cleaning, and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage, including dented and bent units.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of linear metal ceilings for the Canopy will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

4.2 BASIS OF PAYMENT

A. Payment for linear metal ceilings for the Canopy will not be paid for separately, but shall be incidental to the Canopy and Foundations pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum

END OF SECTION

SECTION 09 91 13 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED SECTIONS

A. 05 50 00 - Metal Fabrications.

B. 05 51 29 - Steel Stairs and Ladders

1.2 REFERENCES

A. Master Painters Institute (MPI)
   1. MPI Architectural Painting Specifications Manual, 2004.

1.3 SUBMITTALS

A. Product Data:
   1. Submit product data and instructions for each paint and coating product.
   2. Indicate MPI number and cross-reference paint with painting system as specified in Part 2 of this specification.

B. Samples: Submit full range color sample chips to indicate where color availability is restricted.

C. Submit manufacturer's installation and application instructions.

1.4 DELIVERY, STORAGE AND HANDLING

A. Remove damaged and rejected materials from site.

B. Storage and Protection:
   1. Provide and maintain dry, temperature controlled, secure storage.
   2. Store materials and supplies away from heat generating devices.
   3. Store materials and equipment in well ventilated area within temperature range 45°F to 85°F.

C. Keep areas used for storage, cleaning and preparation clean and orderly. After completion of operations, return areas to clean condition.

D. Remove paint materials from storage only in quantities required for same day use.

1.5 SITE CONDITIONS

A. Temperature, Humidity and Substrate Moisture Content Levels:
   1. Unless pre-approved written approval by the Department and product manufacturer, perform no painting when:
      a. Ambient air and substrate temperatures are below 50°F.
      b. Substrate temperature is above 90°F unless paint is specifically formulated for application at high temperatures.

c. Substrate and ambient air temperatures are not expected to fall within MPI or paint manufacturer's prescribed limits.
d. The relative humidity is under 85% or when the dew point is more than 4°F variance between the air/surface temperature. Paint should not be applied if the dew point is less than 4°F below the ambient or surface temperature. Use sling psychrometer to establish the relative humidity before beginning paint work.
e. Rain or snow are forecast to occur before paint has thoroughly cured or when it is foggy, misty, raining or snowing at site.
f. Ensure that conditions are within specified limits during drying or curing process, until newly applied coating can itself withstand 'normal' adverse environmental factors.

2. Test concrete surfaces for alkalinity as required.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Paint Materials (primers, paints, coatings, varnishes, stains, lacquers):
1. listed in appropriate MPI Approved Products List (APL) as required by each painting system.
2. products from a single manufacturer for each system used.

B. Other paint materials such as shellac, turpentine, etc. shall be the highest quality product and shall be compatible with other coating materials as required.

C. Where possible, provide paint materials for paint systems from single manufacturer.

D. Conform to latest MPI requirements for painting work including preparation and priming.

2.2 COLORS

A. The Department will provide Color Schedule after Contract award.

B. Selection of colors will be from manufacturers full range of colors. There will be no limit on number of colors used on this project.

C. Second coat in a three coat system to be tinted slightly lighter color than top coat to show visible difference between coats.

2.3 EXTERIOR PAINTING SYSTEMS

A. Exterior painting systems shall be premium grade in accordance with MPI.

B. Concrete Vertical Surfaces: concrete columns at canopy
1. EXT 3.1A - Latex G3/4 - low sheen.

C. Structural Steel and Metal Fabrications: canopy column enclosure, steel stairs at Hi Low Booth.
1. EXT 5.1M - Water Borne Light Industrial Coating G5 - semi-gloss

D. Galvanized Metal: steel stairs at Hi Low Booth, exposed flanges of expansion joint cover.
   1. EXT 5.3J - Water Borne Light Industrial Coating G5 - semi-gloss.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

A. Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

3.2 GENERAL

A. Perform preparation and operations for painting in accordance with MPI Architectural Painting Specifications Manual except where specified otherwise.

B. Apply paint materials in accordance with paint manufacturer's written application instructions.

3.3 EXAMINATION

A. Investigate existing substrates for problems related to proper and complete preparation of surfaces to be painted. Report to the Department damages, defects, unsatisfactory or unfavourable conditions before proceeding with work.

3.4 PREPARATION

A. Protection:
   1. Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by the Department.
   2. Protect factory finished products and equipment.

B. Clean and prepare surfaces in accordance with MPI Architectural Painting Specification Manual requirements. Refer to MPI Manual in regard to specific requirements and as follows:
   1. Remove dust, dirt, and other surface debris by vacuuming, wiping with dry, clean cloths or other method acceptable to the Department.
   2. Wash surfaces with a biodegradable detergent and bleach where applicable and clean warm water using a stiff bristle brush to remove dirt, oil and other surface contaminants.
   3. Rinse scrubbed surfaces with clean water until foreign matter is flushed from surface.
   4. Allow surfaces to drain completely and allow to dry thoroughly.
   5. Prepare surfaces for water-based painting, water-based cleaners should be used in place of organic solvents.

C. Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats. Apply primer, paint, or pretreatment as soon as possible after cleaning and before deterioration occurs.

D. Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.

E. Clean metal surfaces to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with MPI requirements.

F. Touch up of shop primers with primer as specified.

3.5 APPLICATION

A. Method of application to be as approved by the Department. Apply paint by brush or roller. Use of spray equipment only when approved by the Department. Conform to manufacturer's application instructions unless specified otherwise.

B. Brush and Roller Application:
1. Apply paint in uniform layer using brush and/or roller type suitable for application.
2. Work paint into cracks, crevices and corners.
3. Paint surfaces and corners not accessible to brush using daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.
4. Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.
5. Remove runs, sags and brush marks from finished work and repaint.

C. Apply coat of paint in continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

D. Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

E. Sand and dust between coats to remove visible defects.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of painting for the Canopy and Foundations will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

B. Measurement of painting for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

4.2 BASIS OF PAYMENT

A. Payment for painting for the Canopy will not be paid for separately, but shall be incidental to the Canopy and Foundations pay item.

B. Payment for painting for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum
815.00	Hi Low Booth	Lump Sum

END OF SECTION

SECTION 13 34 23 - FABRICATED STRUCTURES

PART 1 - GENERAL

1.1 RELATED SECTIONS

A. 05 50 00 - Metal Fabrications: steel stairs.

B. Div. 20 - Mechanical Sections.

C. Div. 26 - Electrical Sections

1.2 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM)
   1. ASTM A36/A36M-08, Standard Specification for Carbon Structural Steel.
   2. ASTM A500/A500M-10a, Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
   3. ASTM A653/A653M-10, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   4. ASTM A666-10, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

B. American Welding Society (AWS)
   1. AWS D1.1/D1.1M: 2010, Structural Welding Code - Steel.
   2. AWS D1.3/D1.3M:2008, Structural Welding Code - Sheet Steel.

C. Underwriters Laboratories Inc. (UL)
   1. UL 752, Bullet-Resisting Equipment, 11th Edition.

1.3 PERFORMANCE REQUIREMENTS

A. Structural Performance: Inspection booths shall withstand dead loads and live loads and stresses within limits and under conditions indicated according to the International Building Code, latest version.

B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.

C. Ballistic Performance: UL 752 Level III.

1.4 SUBMITTALS

A. Product Data: submit, for each type of product indicated, construction details, material descriptions, dimensions of individual components and profiles, and finishes for inspection booths.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

C. Samples for color selection:
   1. Submit duplicate sample of actual pieces for color/finish selection.

D. Design Submittal:
   1. Submit performance requirements and design criteria, including analysis data, signed and sealed by the qualified professional engineer responsible for their preparation.

E. Welding certificates.

F. Maintenance Data: For inspection booths to include in maintenance manuals.

G. Certification of Ballistic Performance Testing and Level III compliance.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:
   1. AWS D1.1/D1.1 and AWS D1.3.

B. Safety Glazing Products: Category II materials complying with testing requirements in 16 CFR 1201.
   1. Subject to compliance with requirements, obtain safety glazing products permanently marked with certification label of SGCC or another certification agency or manufacturer acceptable to authorities having jurisdiction.

1.6 COORDINATION

A. Coordinate installation of anchorages for booths. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors that are to be embedded in concrete or masonry. Deliver items to Project site in time for installation.

1.7 WARRANTY

A. Provide warranty in which manufacturer agrees to repair finish or replace wall panels that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Zinc coated (Galvanized) steel sheet: to ASTM A653/A653M, commercial quality, G90 (Z275) coating designation; mill phosphatized.

B. Steel Structural Tubing: to ASTM A500, Grade B, 46KSI.

C. Steel Plates, Shapes, and Bars: to ASTM A36/A36M.

D. Stainless steel sheet: to ASTM A666, Type 304.

E. Anchorages: Anchor bolts; stainless steel.

2.2 PREFABRICATED BOOTHS - GENERAL

A. General: Provide a complete, integrated set of mutually dependent components that form a completely assembled, prefabricated booth, ready for installation on Project site.
1. Building Style: Standard square corners.
2. Doors: Sliding door and swinging as indicated.
3. Mechanical and electrical components: complete and factory installed by booth manufacturer. Refer to applicable mechanical and electrical drawings for services and locations.
4. Power connection by electrical trade.

B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Austin Mohawk and Company, Inc.
2. B.I.G. Enterprises, Inc.
3. Canada Kiosk; an NRB company.
4. Delta Scientific Corporation.
5. Keystone Structures, Inc.
6. Little Buildings, Inc.
7. Mardan Fabricators.
8. Parking Booth Company, Inc.
9. Par Kut International, Inc.
10. Porta King Building Systems.
11. Protech Armor Systems
12. Modular Engineering Co.

2.3 BOOTH ASSEMBLIES

A. Structural Framework:
1. Fabricated from 2" x 2" steel structural or mechanical tubing. Connect framework by welding; grind welds smooth.

B. Base/Floor Assembly:
1. 3" high assembly consisting of perimeter frame welded to structural framework of booth.
2. Finished Floor: 0.108" nominal thickness, galvanized, rolled steel tread plate.
3. Subfloor and finished floor: Assembly consisting of 0.079" nominal thickness, galvanized steel sheet underside with rigid insulation core; covered by 0.125" thick, aluminum rolled tread plate; with overall assembly thickness of 2".

C. Wall Panel assembly:
1. Consisting of exterior face panel fabricated from galvanized steel sheet; and interior face panel fabricated from stainless steel sheet; with rigid fiberglass or polystyrene board insulation in cavity between exterior and interior face panels.

D. Flat Roof/Ceiling Assembly:
1. Consisting of exterior roof panels, interior ceiling panels, and insulation between exterior and interior panels; sloped to drain at booth perimeter.

2. Exterior roof panel: Fabricated from galvanized steel sheet; with PVC membrane, continuously welded seams.
3. Interior Ceiling Panel: linear slat ceiling system.

2.4 BOOTH COMPONENTS

A. Windows:
1. Frames: 14 ga. galvanized steel, with concealed fasteners.
2. Glazing: Level III ballistics resistant glazing.

B. Sliding Door: Top suspended from aluminum track with ball bearing rollers; 1-3/4" thick; tubular frame design fabricated from galvanized steel; with top half of door glazed. Equip door with deadlock, lock support, guide hardware, and full weatherstripping.
1. Glazing: Fixed and sliding with Level III ballistic rated glass.
2. Deadlock: Mortised, laminated hook bolt type with removable cylinder capable of being master keyed.

C. Swinging Door: 1-3/4" thick; tubular frame design fabricated from galvanized steel; with top half of door glazed. Equip door with deadlock, continuous hinges, closer, and full weatherstripping.
1. Glazing: Fixed unit glazed with Level III ballistic rated glass.
2. Deadlock: Mortised, with lever handle and removable cylinder capable of being master keyed.

D. Work Counters: Full width of inspection booth, reinforced; with drawer below each counter.
1. Material: 0.08" thick stainless steel sheet.

E. Special Features and Accessories:
1. Provide following accessories and special design elements required as basic or optional features to booths. Refer to drawings.
a. Manually operated roll down window shades
b. Access panel in floor.
c. Sliding window in doors.
d. Antifatigue floor mat.

2.5 FABRICATION

A. Fabricate inspection booths completely in factory.

B. Preglaze windows and doors at factory.

C. Mechanical and electrical work shall be done in factory by booth manufacturer.

D. Fabricate inspection booths with forklift pockets in base of booth.

2.6 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Appearance of finished work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Galvanized steel factory finish: Immediately after cleaning and pretreating, apply manufacturer's standard two coat, baked on finish consisting of prime coat and thermosetting topcoat.
1. Color and Gloss: as seleted by the Department.

D. Exposed metal surfaces - including structural framework, walls, canopy, and ceiling: finish with rust inhibitive primer and one finish coat of industrial air dry polyurethane enamel.
1. Color: as selected by the Department.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install inspection booths according to manufacturer's written instructions.

B. Set inspection booths plumb and aligned. Level baseplates true to plane with full bearing on concrete bases.

C. Fasten inspection booths securely to cast-in weld plates.

3.3 ADJUSTING

A. Adjust doors, operable windows, and hardware to operate smoothly, easily, properly, and without binding. Confirm that locks engage accurately and securely without forcing or binding.

B. Lubricate hardware and other moving parts.

C. After completing installation, inspect exposed finishes and repair damaged finishes.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of fabricated structures for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

B. Measurement of fabricated structures for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

4.2 BASIS OF PAYMENT

A. Payment for fabricated structures for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

B. Payment for fabricated structures for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

Pay Item		Pay Unit
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum

END OF SECTION

SECTION 20 00 00 - MECHANICAL

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. All work shall be done in accordance with all local and state by-laws, the International Building Code, International Mechanical Code, and the authority having jurisdiction.

B. Do all cutting, patching and making good necessary for the proper installation of this work. Cooperate and make work conform with the work of other trades. Provide necessary support for all piping, ductwork and equipment.

C. This contractor shall give all notices, obtain all permits and pay all fees in order that the work here in may be carried out.

D. All power wiring by electrical contractor except control wiring.

E. All labour, materials, and workmanship shall be warranted for a period of one (1) year after the date of accepted substantial completion of the work. The general guarantee shall not act as a waiver of any specified guarantee for any greater length of time.

F. Before beginning the work, this contractor shall confirm to their own satisfaction that the work of this trade can be carried out without changes to the equipment shown on the drawings. Any defects, interferences or conflicts shall be reported at once to the consultant for resolution. No additional costs will be considered due to a failure to report such occurrences.

G. All equipment shall be UL Listed and labeled as such, bid price shall be based on products, equipment and systems "as specified".

H. Submit shop drawing for all equipment (6 copies), submit record drawings, indicating "as-built" conditions, marked-up in red ink. Submit operation and maintenance manuals for all equipment with warrantees.

PART 2 - PRODUCTS

2.1 PLUMBING

A. Roof drainage.
   1. PVC SDR 35 storm drainage piping.
   2. Solvent weld to ASTM D2564.

2.2 HVAC

A. Ductwork.
1. All new interior air system ductwork shall be constructed of galvanized steel, with appropriate reinforcing, in accordance with the SMACNA Pressure Classifications to 2".
2. Use standard radius elbows where space permits.
3. All ductwork shall be sealed with low pressure duct sealer.
4. Exterior ductwork shall be constructed of 304 stainless steel complete with weather tight joints

B. Refrigerant Piping
1. Refrigerant piping to be copper Type ACR, degreased and capped, fittings to be wrought copper suitable for silver solder connection.
2. Condensate drain piping to be copper Type M with wrought copper fittings suitable for lead free solder joints.
3. Piping supports to be Unistrut with Cush-a-clamp.
4. All refrigerant piping and condensate drain piping to be insulated with 20 mm urethane insulation. Longitudinal seams and butt joints to be sealed with adhesive. Outdoor piping insulation shall be protected with UV resistant PVC jacketing system.

C. Condensing Unit (CU-1, CU-2)
1. Exterior mounted condensing unit (heat pump) complete with R410A refrigerant, variable compressor speed inverter technology, factory mounted disconnect mated to a single indoor air conditioning unit. Unit to come complete with factory starters terminal strip to accept signals from DDC control system. Electrical: 230V/1 phase/60 HZ. Capacity: 18,000 Btuh nominal cooling capacity; 20,000 Btuh nominal heating capacity.
   a. Standard of acceptance: Mitsubishi Mr. Slim PUZ-A18NHA.

D. Air Conditioning Unit (AC-1, AC-2)
1. Interior recessed ceiling mounted evaporating unit complete with condensate lift pump, knockout for ventilation air and white grille. Unit to come complete with factory starters terminal strip to accept signals from DDC control system. Electrical: 230V/1 phase/60 Hz.
   a. Standard of acceptance: Mitsubishi PLA-A18BA.

E. Supply Fan
1. Inline duct fan complete with heavy gauge galvanized sheet metal housing, externally mounted electrical terminal box, permanently sealed self lubricating ball bearing type motor, thermal overload protection, and backward inclined centrifugal type fan wheel.
   a. Standard of acceptance: FANTECH FG 4.

2.3 CONTROLS

A. Supply and install a complete and operable system including all wiring, conduit, relays, devices and programming. System controller to be native BacNet with sufficient inputs and outputs to handle the work as indicated on the drawings. System controller to be completely programmable.
   1. Standard of Acceptance: Delta, Alerton, Automated Logic.

PART 3 - EXECUTION

3.1 DEMOLITION

A. Protect existing items designated to remain and materials designated for salvage. In the event of damage to such items, immediately replace or make repairs to approval of the Department and at no cost to the Department.

B. Remove items for reuse, salvage or disposal as indicated herein, in Section 02 41 99 - Demolition for Minor Works and on Drawing 48 - Demolition.

3.2 PLUMBING

A. All work shall be done in accordance with the international plumbing code and the authorities having jurisdiction.

B. Pressure test buried systems prior to backfilling. Hydraulically test to verify grades and freedom from obstructions.

3.3 HVAC

A. Fabricate and install ductwork and ventilation equipment in accordance with ASHRAE/SMACNA standards, manufacturers instructions, and as indicated.

B. Provide access doors for all devices requiring maintenance and as required by code.

C. Install instrument test ports to recommendations of SMACNA and where directed by tab contractor.

D. Conduct duct leakage testing for all new ductwork. Leakage rate must not exceed 2% of total airflow.

E. Contractor shall obtain the services of an independent air balancing agency for testing, adjusting and balancing the system. Tab accuracy tolerance to be plus or minus 10% of design values. Satisfactory operation of air handling equipment must be confirmed prior to the start of balancing. Three copies of complete test report shall be submitted to owner for review. Once reviewed and accepted the balance reports shall be included in the operation and maintenance manuals.

F. Refrigerant piping
   1. All work and connections to equipment shall be done in accordance with the manufacturers recommendations.

2. Supply and install all necessary components in order to provide fully functioning split system air conditioning systems to meet the requirements of the International Mechanical Code.
3. Perform pressure testing and leak testing in order to meet the requirements of the International Mechanical Code.
4. Contractor responsible for all cleaning, dehydration, charging, start up and adjustment required.

3.4 CONTROLS

A. Install products using trained journeymen.

B. Install instrumentation where indicated. Where position is not shown install in a position best suited for proper operation.

C. All controls to be properly set up and calibrated for control sequences specified. Put on controls through all specified sequences and verify correct operation on site.
1. Allow for additional ½ day for demonstration of sequences to engineer.
2. Allow for additional ½ day for training of maintenance staff.
3. Allow 2 days to visit the site for seasonal adjustments and report findings and adjustments made to engineer.

D. Controls contractor is responsible for all low voltage power wiring to control devices c/w transformers as required. 120V power will be provided to a junction box in the ceiling space.

E. Sequence of operation
1. Space temperature control to maintain a setpoint temperature of 72°F (22°C). When heating is required, operate heat pump in heating mode. If additional heat is required, modulate electric baseboard heater(s) as applicable. If space temperature drops to 68°F (20°C) turn on electric force flow heater. Turn off heater when space temperature reaches 75°F (24°C). If OA temperature is below 55°F (13°C), the heat pump shall not enter cooling mode.
2. Ventilation fan is to be started/stopped via push button control located on the wall mounted space temperature sensor.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of mechanical for the Canopy and Foundations will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

B. Measurement of mechanical for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

C. Measurement of mechanical for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

4.2 BASIS OF PAYMENT

A. Payment for mechanical for the Canopy and Foundations will not be paid for separately, but rather will be incidental to the Hi Low Booth pay item

B. Payment for mechanical for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

C. Payment for mechanical for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum

END OF SECTION

SECTION 26 05 01 - GENERAL ELECTRICAL REQUIREMENTS

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

PART 1 - GENERAL

1.1 GENERAL

A. This Section covers items common to Sections of Division 26, 27, and 28. This section supplements requirements of Division 1.

B. The contractor is to provide the requirements of the following:
1. This complete specification.
2. Electrical drawings #32 to 47 including all power, communication, lighting and special systems.
3. Local utilities and service providers.
4. Conduit and box installation for Licence Plate Reader (LPR) system and security camera system.
5. RPM system removal and installation.
6. Completing and interconnecting of all booth wiring.

C. Cooperate and coordinate with other trades to provide complete working systems. The sequence of demolition and construction is to be closely and cooperatively followed by all to maintain an operating crossing.

D. Contractor is to closely coordinate with Pacific Northwest National Laboratory (PNNL) personnel for the following:
1. Dismantling and packaging of the existing Radiation Portal Monitor (RPM) system.
2. Receiving new RPM Equipment.
3. Supply and pulling of all power and communication cables.
4. Termination of all power cables (120V and higher, 12V cables indicated).
5. Proper mounting of new RPM equipment.
6. Refer to the specification section 3.

E. Contractor is to closely coordinate with LPR Supplier personnel for the following:
1. Dismantling and packaging of the existing Licence Plate Reader (LPR) system.
2. Receiving new LPR Equipment.
3. Supply and pulling of all power and communication cables.
4. Termination of all power cables (120V and higher, 12V cables indicated).
5. Proper mounting of new LPR equipment.

F. "Special Provisions - Radiation Portal Monitor Installation Statement of Work".

G. Demolition
1. Remove power, communication and signal wiring and conduit to booth and special systems. See Drawing #35 and #48.
2. Coordinate closely with Owner and system representative as systems are to be stored for future use.
3. Sections of conduit routing may be reused with new installation.
4. Remove wiring back to junction with circuitry to remain.

5. Where existing electrical circuits that are required to remain active are interrupted, provide wiring and boxes as required to maintain circuit continuity. Provide blank covers for abandoned boxes that are not removed.
6. Remove all unused wiring. Cap all conduit and seal all holes remaining after removals.

1.2 CODES AND STANDARDS

A. Material and installation shall comply with all applicable Federal, State and local laws, Codes and ordinances including but not limited to the following:
1. Pertinent CSA Standards.
2. Underwriters Laboratory Inc. (UL).
3. National Fire Code of NFPA.
4. Requirements of authorities having jurisdiction.
5. Underground installation to NEC.
6. All local and State by-laws.
7. National Electrical Code of NFPA, NEC.

1.3 CARE, OPERATION AND START-UP

A. Instruct operating personnel in the operation, care and maintenance of systems, system equipment and components.

B. Arrange and pay for services of manufacturer's factory service personnel to supervise start-up of installation, check, adjust, balance and calibrate components and instruct operating personnel for systems such as but not limited to bridge gate, alarm systems and lighting. PNNL Services are not to be included.

C. Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with all aspects of its care and operation.

1.4 VOLTAGE RATINGS

A. Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits. Equipment to operate in extreme operating conditions without damage to equipment.

1.5 DESIGN DOCUMENTS

A. The drawings and these specifications are complementary each to the other and what is called for by one shall be binding as if called for by both.

B. Drawings for the electrical work are, in part diagrammatic. They are intended to convey the scope of work and to indicate the general arrangement of equipment, and outlets.

C. The drawings, which form a integral part of this contract, shall serve as the working drawings. They indicate the general layout of the complete electrical system, arrangement of feeders, circuits, outlets, switches, controls, panelboards, distribution centres, fixtures and other work. The drawings indicate the general location and routes to be followed, but do not show all conduit and/or wiring or all the structural, mechanical and architectural details. Plan and install conduit runs respecting all applicable conditions including structural, mechanical and architectural details. Check for the locations of all expansion/building joints and ensure that all electrical installations at or crossing these locations are as detailed and as required to compensate for the possible movement at the joint.

D. Before carrying out the work verify that there are no apparent obstructions or interferences. Changes to the work made necessary by failure to make this verification will not be considered for extra payment.

E. Co-ordinate the locations of equipment/devices with architectural and structural details and elevations as well as millwork and pertinent furniture layouts, etc.

F. The location of equipment/devices may be changed by the Consultant at any time prior to installation, within a radius of 3 metres from the location shown on the drawings, at no extra cost to the Contract.

G. Provide a complete Instructions and Maintenance Manual for Divisions 26, 27, and 28.

1.6 REGULATORY REQUIREMENTS

A. Complete installation shall conform with all applicable Federal, State and Local laws, Codes and Ordinances, included but not limited to latest approved editions of the following:
1. State Building Codes.
2. Specific Construction Safety Requirements, State Industrial Commission.
3. Life Safety Code - NFPA 101.
4. Occupational Safety and Health Act (OSHA) of 1971 and all amendments thereto.

B. Nothing contained in the drawings and specifications shall be construed to conflict with these laws, codes and ordinances, and they are thereby included in these specifications. All work shall comply with the 2011 edition of NFPA 70, The National Electrical Code. It shall be the Contractor's responsibility to assure that electrical work is in full compliance with the NEC.

C. Obtain and pay for all necessary permits. Request inspections from authority having jurisdiction.

1.7 MATERIALS AND EQUIPMENT

A. Provide materials and equipment in accordance with Section 01 10 01, Section 18 - Materials and Equipment.

B. Equipment and material to be UL certified. Where there is no alternative to supplying equipment which is not UL certified, obtain special approval from the Maine Department of Public Safety and Inspection Services.

C. Factory assemble control panels and component assemblies.

1.8 EQUIPMENT IDENTIFICATION

A. Identify electrical equipment with nameplates as follows:

B. Nameplates:
1. Lamicoid 1/8" thick plastic engraving sheet, white face, black core, attached with double sided tape. Use: 3M double sided tape.

C. Labels:
1. Embossed plastic labels with 1/4" high letters unless specified otherwise.

D. Wording on nameplates to be approved by Consultant prior to manufacture.

E. Allow for average of twenty-five (25) letters per nameplate.

F. Identification to be English.

G. Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.

H. Disconnects, starters and contactors: indicate equipment being controlled and voltage.

I. Terminal cabinets and pull boxes: indicate system and voltage.

1.9 WIRING IDENTIFICATION

A. Identify wiring with permanent indelible identifying markings, either numbered or coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring.

B. Maintain phase sequence and colour coding throughout.

1.10 CONDUIT AND CABLE IDENTIFICATION

A. Colour code conduits, boxes and metallic sheathed cables.

B. Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 50 foot intervals.

C. Colours: 1" wide prime colour and 3/4" wide auxiliary colour.

	Prime	Auxiliary
up to 600 V	Yellow	Green
Telephone	Green	-
Other Communication Systems	Green	Blue
Fire Alarm	Red	-
Emergency Voice	Red	Blue
Other Security Systems	Red	Yellow

1.11 WIRING TERMINATIONS

A. Lugs, terminals, screws used for termination of wiring to be suitable for copper conductors.

1.12 MANUFACTURERS AND UL LABELS

A. Visible and legible, after equipment is installed.

1.13 WARNING SIGNS

A. As specified and to meet requirements of Electrical Inspection Department and Engineer.

B. Porcelain enamel decal signs, minimum size 7" x 10".

1.14 LOCATION OF OUTLETS

A. Locate outlets in accordance the drawings and this specification.

B. Change location of outlets at no extra cost or credit, providing distance does not exceed 10', and information is given before installation.

1.15 MOUNTING HEIGHTS

A. Mounting height of equipment is from finished floor to centreline of equipment unless specified or indicated otherwise.

B. If mounting height of equipment is not specified or indicated, verify before proceeding with installation.

C. Install electrical equipment at following heights unless indicated otherwise.
1. Local switches: 48".
2. Wall receptacles:
   a. General: 18".
   b. Above top of counters or counter splash backs: 7".(exception receptacles in raceway).
3. Panelboards: as required by Code or as indicated.
4. Telephone and interphone outlets: 18".
5. Wall mounted telephone and interphone outlets: 48".

1.16 LOAD BALANCE

A. Measure phase current to panelboards with normal loads (lighting) operating at time of acceptance. Adjust branch circuit connections as required to obtain best balance of current between phases and record changes.

B. Submit, at completion of work, report listing phase and neutral currents on panelboards, operating under normal load. State hour and date on which each load was measured, and voltage at time of test.

1.17 CONDUIT AND CABLE INSTALLATION

A. Install conduit and sleeves prior to pouring of concrete. Sleeves through concrete: schedule 40 steel pipe, sized for free passage of conduit, and protruding 2". The Contractor will supply and install sleeves for conduit penetrations 3" over at the locations directed by the Trade Contractor. Trade Contractor to be responsible for all other openings, sleeved or core-drilled.

B. If plastic sleeves are used in fire rated walls or floors, remove before conduit installation.

C. Install cables, conduits and fittings to be embedded or plastered over, neatly and close to building structure so furring can be kept to minimum.

1.18 FIELD QUALITY CONTROL

A. All electrical work to be carried out by qualified, licensed electricians or apprentices as per the conditions of the State Act respecting manpower vocational training and qualification. Employees registered in a State apprentices program shall be permitted, under the direct supervision of a qualified licensed electrician, to perform specific tasks - the activities permitted shall be determined based on the level of training attained and the demonstration of ability to perform specific duties.

B. The work of this division to be carried out by a contractor who holds a valid Electrical contractor license as issued by the State of Maine.

C. Conduct and pay for the tests listed below which are presented in detail in the relevant Division 26,27 and 28 specification section that follows.
1. Power distribution system including phasing, voltage, grounding and load balancing.
2. Circuits originating from branch distribution panels.
3. Lighting and its control.
4. Motors, heaters and associated control equipment including sequenced operation of systems where applicable.
5. Communications horizontal cabling.

D. Furnish manufacturer's certificate or letter confirming that entire installation as it pertains to each system has been installed to manufacturer's instructions.

E. Insulation resistance testing.
1. Megger circuits, feeders and equipment up to 350 V with a 500 V instrument.
2. Megger 350-600 V circuits, feeders and equipment with a 1000 V instrument.
3. Check resistance to ground before energizing.

F. Carry out tests in presence of Consultant and others as required.

G. Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

H. Submit test results for Consultant's review as required.

1.19 CO-ORDINATION OF PROTECTIVE DEVICES

A. Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

PART 2 - PRODUCTS

2.1 INSERTS

A. Supply and deliver inserts, anchors, bolts, sleeves, ferrules and other items (required for electrical installations related work) to be built into the work of other Divisions, complete with the necessary templates, instructions and assistance for locating and installing.

2.2 ACCESSORIES

A. Where not specifically indicated, provide standard accessory items or materials such as equipment supports, brackets, channels, protection, etc., to make a complete and satisfactory installation.

2.3 PLYWOOD MOUNTING BOARDS

A. Provide plywood backboards for surface-mounted power distribution equipment. Plywood backboards shall be 3/4" thick, G1S with the good side out. Paint with two coats of intumescent paint and comply with pertinent Code requirements.

B. Also provide plywood backboards for communications and security equipment finished as described above. Communication equipment to include but not necessarily be limited to telephone, data, voice, video and special systems.

2.4 ACCESS DOORS

A. Provide access doors for electrical equipment, junction boxes and controls, as required to provide access for servicing and maintenance. Supply access doors for placing by trade whose work these panels are installed in.

B. Coordinate the location of all outlet/junction/pull boxes, and other concealed equipment requiring access so as to minimize the need for access doors. Where access doors become necessary, coordinate the size, quantity and location with the Consultant before installation.

C. Doors to be flush, 18" x 18" to items in 24" deep ceilings, 18" x 24" to items in ceilings deeper than 24". Doors shall open 180 degrees, have rounded safety corners, concealed continuous piano hinges and anchor straps. All steel to be perma-coated. Doors to be of approved manufacture with published literature.

D. Access doors to be fire rated to match walls or ceilings which form part of a fire rated enclosure or barrier.

2.5 LIGHTNING PROTECTION

A. A canopy roof top Lightning Protection System (LPS) is to be installed. The LPS is to be installed in accordance with the current editions of NFPA 780 and UL-96A. A "Master Label" is required. The roof top installation is to be in accordance with the roof manufacturer's recommendations. Do not void any roof warranty.

2.6 BRIDGE TRAFFIC GATE/PEDESTRIAN SENSOR

A. A bridge traffic gate is to be installed to control incoming traffic from bridge. Gate is to include a "Magnetic Automation" Model MBE-50 barrier, one "DS-2" directional signal. The Pedestrian Sensor "Optex Fit Series" is to be mounted on gate pedestal. The senor is to be complete with 115V power supply to be powered from same circuit as the gate. The sensor contacts are to control a chime in each kiosk and the main building. Chimes are to be Honeywell RCW3502N complete with transformer.

PART 3 - EXECUTION

3.1 CO-ORDINATION

A. Cooperate and co-ordinate with other Divisions as required for a satisfactory and expeditious completion of the Work. Co-ordinate locations of conduits, raceways, junction and pullboxes, etc., with Mechanical trade as well as other pertinent trades.

B. Instruct and supervise those trades doing related work.

3.2 PROTECTION

A. Take precautions to protect personnel on the job site from injury due to live equipment and circuits. Shield and clearly mark all such circuits or equipment "DANGER - LIVE 240 VOLTS" or the applicable voltage.

3.3 CLEANING

A. Do final cleaning in accordance with the General Conditions and, specifically, as follows:
   1. Clean lighting fixture reflectors, lamps, lenses and other lighting surfaces that have been exposed to construction dust and dirt.
   2. Clean and touch-up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.
   3. Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.
   4. Remove debris and vacuum clean within panelboard tubs, switchgear, transformers, terminal cabinets and electric heating fixtures.

B. Remove electrical waste and debris from the site.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of electrical general requirements for the Canopy and Foundations will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

B. Measurement of electrical general requirements for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

C. Measurement of electrical general requirements for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

D. Measurement of electrical general requirements for the Radiation Portal Monitors will not be measured separately, but rather will be incidental to the Radiation Portal Monitors pay item.

E. Measurement of electrical general requirements for the License Plate Readers will not be measured separately, but rather will be incidental to the License Plate Readers pay item.

F. Measurement of electrical general requirements for the Gate and Traffic Lights will not be measured separately, but rather will be incidental to the Gate and Traffic Lights pay item.

4.2 BASIS OF PAYMENT

A. Payment for electrical general requirements for the Canopy and Foundations will not be paid for separately, but rather will be incidental to the Canopy and Foundations pay item

B. Payment for electrical general requirements for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

C. Payment for electrical general requirements for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

D. Payment for electrical general requirements for the Radiation Portal Monitors will not be paid for separately, but rather will be incidental to the Radiation Portal Monitors pay item

E. Payment for electrical general requirements for the License Plate Readers will not be paid for separately, but rather will be incidental to the License Plate Readers pay item

F. Payment for electrical general requirements for the Gate and Traffic Lights will not be paid for separately, but rather will be incidental to the Gate and Traffic Lights pay item

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum
815.00	Radiation Portal Monitors	Lump Sum
815.00	License Plate Readers	Lump Sum
815.00	Gate and Traffic Lights	Lump Sum

END OF SECTION

SECTION 26 05 19 - LOW VOLTAGE POWER CONDUCTORS

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Building wire and cable.

B. Metal clad cable.

C. Wiring connectors and connections

1.2 RELATED SECTIONS

A. Section 26 05 28 - Grounding - Secondary.

1.3 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

1.4 REGULATORY REQUIREMENTS.

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc.

1.5 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions.

C. Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required

PART 2 - PRODUCTS

2.1 BUILDING WIRE AND CABLE

A. Description: Single Conductor insulated wire.

B. Conductor: Copper only.

C. Insulation Voltage Rating: 600 volts.

D. Insulation Type: THW or XHHW.

E. Insulation Color: Color of all service, feeder, branch, motor control, and signaling circuit conductors shall be green for grounding conductors, and white for neutrals. The color of the conductors shall be as follows:
1. 120/240V.
   a. Line A – Black
   b. Line B - Red
   c. Neutral - White
   d. Ground - Green

2.2 METAL CLAD CABLE

A. Description: ANSI/NFPA 70, Type MC.

B. Conductor: Copper only.

C. Insulation Voltage Rating: 600 volts.

D. Insulation Temperature Rating: 60 degrees C.

E. Insulation Material: Thermoplastic.

F. Armor material: Steel or aluminum.

G. Armor Design: Interlocked metal tape.

H. Jacket: None.

2.3 MANUFACTURERS - WIRING CONNECTORS

A. Connector manufacturers:
1. Burndy
2. 3M
3. Ideal
4. Thomas and Betts

B. Description: Compression set or twist-on type with integral molded insulation and internal metallic compression ring or spiral screw-on connecting device.

PART 3 - EXECUTION

3.1 PREPARATION

A. Completely and thoroughly swab raceway before installation wire.

3.2 WIRING METHODS

A. Concealed Interior Locations: Type MC cable.

B. Exposed Interior Locations: Building wire in conduit as specified in Section 26 05 33.

C. Panelboard Feeders: Building wire in conduit as specified in Section 26 05 33.

D. Exterior Locations: Building wire in conduit as specified in Section 26 05 33.

3.3 INSTALLATIONS

A. Install products in accordance with manufacturers' instructions.

B. Use solid conductor for feeders and branch circuits 10 AWG and smaller.

C. Use stranded conductors for control circuits.

D. Use conductor not smaller than 12 AWG for power and lighting circuits.

E. Use conductor not smaller than 16 AWG for control circuits.

F. Use 10 AWG conductors for 20 ampere, 120-volt branch circuits longer than 75 feet.

G. Pull all conductors into raceway at same time.

H. Use suitable wire pulling lubricant for building wire 4 AWG and larger.

I. Protect exposed cable from damage.

J. Support cables above accessible ceiling, using spring metal clips or cable ties to support cables from structure. Do not rest cable on ceiling panels. Support Type MC cable at spacing as identified in NFPA 70.

K. Group cables together neatly and secure as bundles where practical. Route cables parallel and/or perpendicular to building framing members or adjacent walls.

L. Neatly train and lace wiring inside boxes, equipment, and panelboards.

M. Clean connector surfaces before installing lugs and connectors.

N. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

O. Use split bolt connectors for copper conductor splices and taps, 6 AWG and larger. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.

P. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.

Q. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

3.4 FIELD QUALITY CONTROL

A. Inspect wire and cable for physical damage and proper connection.

B. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.

C. Verify continuity of each branch circuit conductor.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of low voltage power conductors for the Canopy and Foundations will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

B. Measurement of low voltage power conductors for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

C. Measurement of low voltage power conductors for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

D. Measurement of low voltage power conductors for the Radiation Portal Monitors will not be measured separately, but rather will be incidental to the Radiation Portal Monitors pay item.

4.2 BASIS OF PAYMENT

A. Payment for low voltage power conductors for the Canopy and Foundations will not be paid for separately, but rather will be incidental to the Hi Low Booth pay item

B. Payment for low voltage power conductors for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

C. Payment for low voltage power conductors for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

D. Payment for low voltage power conductors for the Radiation Portal Monitors will not be paid for separately, but rather will be incidental to the Radiation Portal Monitors pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum
815.00	Radiation Portal Monitors	Lump Sum

END OF SECTION

SECTION 26 05 28 - GROUNDING - SECONDARY

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

PART 1 - GENERAL

1.1 REFERENCES

A. American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)
   1. ANSI/IEEE 837-2002, Qualifying Permanent Connections Used in Substation Grounding.

B. Underwriters Laboratories Inc.

PART 2 - PRODUCTS

2.1 EQUIPMENT

A. Clamps for grounding of conductor: size as required to electrically conductive underground water pipe.

B. Underground conductor: bare, stranded, untinned, soft annealed, size as indicated on drawings for interconnecting ground grid, rod electrodes, land structural steel.

C. Rod electrodes: copper clad steel 3/4 inch dia by 10 feet long.

D. Grounding conductors: bare stranded copper, tinned, soft annealed, size as indicated.

E. Insulated grounding conductors: green, type RW90 XLLPE to Section 26 05 19.

F. Ground bus: copper, size as indicated, complete with insulated supports, fastenings, connectors.

G. Non-corroding accessories necessary for grounding system, type, size, material as indicated, including but not necessarily limited to:
   1. Grounding and bonding bushings.
   2. Protective type clamps.
   3. Bolted type conductor connectors.
   4. Thermit welded type conductor connectors.
   5. Bonding jumpers, straps.
   6. Pressure wire connectors.

2.2 MANUFACTURER

A. Acceptable Manufacturers:
   1. Burndy Ltd.
   2. McGraw - Edison (Canada) Ltd.
   3. Erico Inc. - Cadweld Div.
   4. Ilsco.

PART 3 - EXECUTION

3.1 INSTALLATION GENERAL

A. Install complete permanent, continuous grounding system including, electrodes, conductors, connectors, accessories as indicated, to conform to requirements of Consultant, and local authority having jurisdiction over installation. Where EMT is used, run ground wire in conduit.

1. For multiple branch circuits using shared neutrals in the same conduit, install one oversized, minimum #10 AWG ground wire per circuit. Minimum size of ground wire to be #12 copper.

B. Install connectors in accordance with manufacturer's instructions.

C. Protect exposed grounding conductors from mechanical injury.

D. Make buried connections, and connections to conductive water main, electrodes, using copper welding by thermit process.

E. Use mechanical connectors for grounding connections to equipment provided with lugs.

F. Soldered joints not permitted.

G. Install flexible ground straps for bus duct enclosure joints, where such bonding is not inherently provided with equipment.

H. Install separate ground conductor to outdoor lighting standards.

I. Connect building structural steel and metal siding to ground by welding copper to steel.

J. Make grounding connections in radial configuration only, with connections terminating at single grounding point. Avoid loop connections.

K. Bond single conductor, metallic armoured cables to cabinet at supply end, and provide non-metallic entry plate at load end.

L. Ground all metallic raceways for systems, i.e., fire alarm, telephone, cablevision, voice and data.

3.2 ELECTRODES

A. Install rod, electrodes and make grounding connections.

B. Bond separate, multiple electrodes together.

C. Use size 3/0 AWG copper conductors for connections to electrodes.

D. Make special provision for installing electrodes that will give acceptable resistance to ground value where rock or sand terrain prevails. Ground as indicated.

E. Install ground rods as indicated on device manufacturer drawings.

3.3 SYSTEM AND CIRCUIT GROUNDING

A. Install system and circuit grounding connections to neutral of secondary 120/240 V system.

3.4 EQUIPMENT GROUNDING

A. Install grounding connections to typical equipment included in, but not necessarily limited to following list. Service equipment, transformers, switchgear, duct systems, frames of motors, motor control centres, starters, control panels, building steel work, generators, elevators and escalators, distribution panels, outdoor lighting.

B. Make ground connections to NEC and manufacturer requirements.

3.5 GROUNDING BUS

A. Install copper grounding bus mounted on insulated supports on wall of each booth pit.

B. Ground items of electrical equipment to ground bus with individual green stranded copper connections.

3.6 COMMUNICATION SYSTEMS

A. Install grounding connections for telephone, sound, intercommunication systems as follows:
1. Telephones: make telephone grounding system in accordance with telephone company's requirements.
2. Sound and communication systems as indicated.

3.7 FIELD QUALITY CONTROL

A. Perform tests in accordance with Section 26 05 01 - Electrical General Requirements.

B. Perform ground continuity and resistance tests using method appropriate to site conditions and to approval of Consultant and local authority having jurisdiction over installation.

C. Perform tests before energizing electrical system.

D. Disconnect ground fault indicator during tests. ARTICLE TITLE IN CAPS

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of grounding - secondary for the Canopy and Foundations will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

B. Measurement of grounding - secondary for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

C. Measurement of grounding - secondary for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

D. Measurement of grounding - secondary for the Radiation Portal Monitors will not be measured separately, but rather will be incidental to the Radiation Portal Monitors pay item.

4.2 BASIS OF PAYMENT

A. Payment for grounding - secondary for the Canopy and Foundations will not be paid for separately, but rather will be incidental to the Canopy and Foundations pay item.

B. Payment for grounding - secondary for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

C. Payment for grounding - secondary for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

D. Payment for grounding - secondary for the Radiation Portal Monitors will not be paid for separately, but rather will be incidental to the Radiation Portal Monitors pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum
815.00	Radiation Portal Monitors	Lump Sum

END OF SECTION

SECTION 26 05 29 - SUPPORTING DEVICES

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Conduit and equipment supports.

B. Telecommunications cable supports.

C. Fastenings hardware.

1.2 QUALITY ASSURANCE

A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

PART 2 - PRODUCTS

2.1 SUPPORT CHANNELS

A. Support Channel: Galvanized or painted steel.

2.2 TELECOMMUNICATIONS CABLE J-HOOKS

A. Manufacturers:
   1. Panduit.
   2. Caddy.
   3. Chatsworth.
   4. Substitutions: or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors or beam clamps.

B. Anchors and Fasteners:
   1. Concrete Surfaces: Use expansion anchors.
   2. Hollow Masonry, Plaster, and Gypsum Board Partitions: Use toggle bolts and hollow wall fasteners.
   3. Wood Elements: Use wood screws.

C. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.

D. Do not use powder-actuated anchors.

E. Install surface-mounted cabinets and panelboards with minimum of four anchors.

F. Bridge studs top and bottom with horizontal members to support flush-mounted cabinets and panelboards in stud walls.

G. Install telecommunications J-hooks to support network and video cables above accessible ceilings only.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of supporting devices for the Canopy and Foundations will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

B. Measurement of supporting devices for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

C. Measurement of supporting devices for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

D. Measurement of supporting devices for the Radiation Portal Monitors will not be measured separately, but rather will be incidental to the Radiation Portal Monitors pay item.

E. Measurement of supporting devices for the License Plate Readers will not be measured separately, but rather will be incidental to the License Plate Readers pay item.

F. Measurement of supporting devices for the Gate and Traffic Lights will not be measured separately, but rather will be incidental to the Gate and Traffic Lights pay item.

4.2 BASIS OF PAYMENT

A. Payment for supporting devices for the Canopy and Foundations will not be paid for separately, but rather will be incidental to the Canopy and Foundations pay item

B. Payment for supporting devices for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

C. Payment for supporting devices for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

D. Payment for supporting devices for the Radiation Portal Monitors will not be paid for separately, but rather will be incidental to the Radiation Portal Monitors pay item

E. Payment for supporting devices for the License Plate Readers will not be paid for separately, but rather will be incidental to the License Plate Readers pay item.

F. Payment for supporting devices for the Gate and Traffic Lights will not be paid for separately, but rather will be incidental to the Gate and Traffic Lights pay item

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum
815.00	Radiation Portal Monitors	Lump Sum
815.00	License Plate Readers	Lump Sum
815.00	Gate and Traffic Lights	Lump Sum

END OF SECTION

SECTION 26 05 33 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Rigid metal conduit and fittings.

B. Electrical metallic tubing and fittings.

C. Flexible metal conduit and fittings.

D. Liquid-tight flexible metal conduit and fittings.

E. Non-metallic conduit and fittings.

F. Sealing of conduit penetrations through walls.

G. Wall and ceiling outlet boxes.

H. Interior pull and junction boxes.

I. Exterior in-grade wiring boxes.

1.2 COORDINATION OF WORK PROVIDED UNDER OTHER SPECIFICATION DIVISIONS

A. The Contractor shall coordinate requirements for conduit and boxes associated with the following:
   1. Telecommunications – Section 27 10 00.

1.3 RELATED SECTIONS

A. Section 27 10 00 – Structured Cabling System.

1.4 REFERENCES

A. ANSI C80.1 -Rigid Steel Conduit, Zinc-Coated.

B. ANSI C80.3 - Electrical Metallic Tubing, Zinc-Coated.

C. ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies.

D. NEMA TC-2 - Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80).

E. NEMA TC-3 - PVC Fittings for use with Rigid PVC Conduit and Tubing.

1.5 SUBMITTALS

A. Submittals shall be prepared and submitted in accordance with Maine DOT Standard Specifications
   1. Product Data: Provide dimensions, knockout sizes and locations, materials, fabrication details, finishes, and accessories, for junction and pull boxes greater than 36 sq. in size

1.6 PROJECT CONDITIONS

A. Verify field measurements are as shown on Drawings.

B. Electrical boxes are shown in approximate locations unless dimensioned. Install at location required for box to serve intended purpose. Include installation within 10 feet of location shown.

PART 2 - PRODUCTS

2.1 RIGID METAL CONDUIT AND FITTINGS

A. Rigid Steel Conduit: ANSI C80.1.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; threaded type, material to match conduit.

2.2 ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS

A. EMT: ANSI C80.3. galvanized tubing.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel compression type.

2.3 FLEXIBLE METAL CONDUIT AND FITTINGS

A. Conduit: steel.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1.

2.4 PLASTIC CONDUIT AND FITTINGS.

A. Conduit: NEMA TC-2 Schedule 40 PVC.

B. Fittings and Conduit Bodies: NEMA TC-3.

2.5 LIQUID-TIGHT FLEXIBLE CONDUIT AND FITTINGS

A. Conduit: Flexible metal conduit with PVC jacket.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1.

2.6 CONDUIT SUPPORTS

A. Conduit Clamps, Straps, and Supports: Steel or malleable iron.

2.7 OUTLET BOXES

A. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, galvanized steel.
1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include ½ inch male fixture studs where required.

B. Cast Boxes: NEMA FB 1, Type FD. Provide gasketed cover by box manufacturer. Provide threaded hubs.

2.8 INTERIOR PULL AND JUNCTION BOXES

A. Sheet Metal Boxes: NEMA OS1, galvanized steel.

2.9 EXTERIOR IN-GRADE WIRING BOXES

A. Provide exterior, in-grade pre-cast concrete wiring boxes for telecommunications wiring as detailed on the drawings.

PART 3 - EXECUTION

3.1 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

A. Size conduit for conductor type installed, 3/4-inch minimum.

B. Arrange conduit to maintain headroom and present a neat appearance.

C. Route conduit parallel and perpendicular to walls, ceiling joists, and adjacent piping. In spaces where exposed ceiling joists exist, route conduit at ceiling deck between joists where possible. Group conduits together where multiple conduits are installed along corridors. Do not drill through joists without prior permission from Architect.

D. Maintain minimum 6-inch clearance between conduit and heat sources such as flues, steam pipes and heating appliances.

E. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.

F. Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.

G. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

H. Support conduit at spacing not to exceed limits stipulated in NFPA 70.

3.2 CONDUIT INSTALLATION

A. Cut conduit square using a saw or a pipecutter; de-burr cut ends.

B. Bring conduit to the shoulder of fittings and couplings and fasten securely.

C. Use conduit hubs or sealing locknuts for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet locations.

D. Install no more than the equivalent of three 90-degree bends between boxes.

E. Use conduit bodies to make sharp changes in direction, as around beams.

F. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 1-inch size.

G. Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point.

H. Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.

I. Provide No. 12 AWG insulated conductor or suitable nylon pull rope in empty conduit, except sleeves and nipples.

J. Install expansion joints where conduit crosses building expansion joints.

K. Where conduit penetrates walls or floors, seal opening around conduit. Use UL listed foamed silicone elastomer compound for fire rated walls.

L. Route conduit through roof openings for piping and ductwork where possible; otherwise, route through roof jack with pitch pocket.

M. Do not install conduits within the poured-in-place floor slabs above grade.

N. Where conduit(s) pass(es) from refrigerated or cooled atmosphere to warmer areas where condensation of water vapor may occur within raceways, conduit bodies sealed with "Duct Seal" type compound shall be provided after conductors are installed.

O. Flexible conduit shall not exceed three (3) feet in length.

P. Install top of underground conduit 30 inches (min.) below finished grade.

Q. Slope underground conduit away from building.

R. Use rigid galvanized steel conduit sweeps for underground elbows in conduit sizes 2 inch and larger.

3.3 CONDUIT INSTALLATION SCHEDULE

A. Underground Installations: PVC Schedule 40.

B. Exposed Outdoor Locations: Rigid steel conduit.

C. Concealed Interior Locations: Electrical metallic tubing.

D. Exposed Interior Locations: Electrical metallic tubing.

E. Interior Motor Connections: Flexible metal conduit.

F. Exterior Motor Connections: Liquid-tight flexible conduit.

3.4 FIRE STOP INSTALLATION

A. Provide fire stop for all cables and conduits and conduit sleeves that pass through fire-rated partitions, ceilings and/or floors.

3.5 BOX INSTALLATION

A. Install electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

B. Install electrical boxes to maintain headroom and to present neat mechanical appearance.

C. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

D. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.

E. Install boxes to preserve fire resistance rating of partitions and other elements.

F. Align adjacent wall-mounted outlet boxes for fire alarm devices, switches, receptacle outlets, intercom call stations, telecommunications outlets, thermostats, and similar devices with each other.

G. Use flush mounting outlet boxes in finished areas.

H. Do not install flush mounting boxes back-to-back in walls; provide minimum 6-inch separation. Provide minimum 24 inches separation in acoustic rated walls.

I. Where two (2) or more single-gang boxes are to be installed side-by-side, mount boxes a stud-width apart.

J. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.

K. Use stamped steel bridges to fasten flush mounting outlet box between studs.

L. Install flush mounting box without damaging wall insulation or reducing its effectiveness.

M. Use adjustable steel channel fasteners for hung ceiling outlet box.

N. Do not fasten boxes to ceiling support wires.

O. Support boxes independently of conduit.

P. Use gang boxes where more than one device is mounted together. Do not use sectional box.

Q. Use gang box with plaster ring for single device outlets.

R. Use cast outlet box in exterior locations and wet locations.

S. Install knockout closure in unused box openings.

T. Obtain approval from Architect for exact locations of floor boxes prior to installation.

U. Coordinate installation of exterior, in-grade wiring boxes with final grade elevations as indicated on the civil site plans.

3.6 INTERFACE WITH OTHER PRODUCTS

A. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.

3.7 ADJUSTING

A. Adjust flush-mounting outlets to make front flush with finished wall material.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of raceway and boxes for the Canopy and Foundations will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

B. Measurement of raceway and boxes for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

C. Measurement of raceway and boxes for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

D. Measurement of raceway and boxes for the Radiation Portal Monitors will not be measured separately, but rather will be incidental to the Radiation Portal Monitors pay item.

E. Measurement of raceway and boxes for the License Plate Readers will not be measured separately, but rather will be incidental to the License Plate Readers pay item.

4.2 BASIS OF PAYMENT

A. Payment for raceway and boxes for the Canopy and Foundations will not be paid for separately, but rather will be incidental to the Canopy and Foundations pay item.

B. Payment for raceway and boxes for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

C. Payment for raceway and boxes for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

D. Payment for raceway and boxes for the Radiation Portal Monitors will not be paid for separately, but rather will be incidental to the Radiation Portal Monitors pay item.

E. Payment for raceway and boxes for the License Plate Readers will not be paid for separately, but rather will be incidental to the License Plate Readers pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum
815.00	Radiation Portal Monitors	Lump Sum
815.00	License Plate Readers	Lump Sum

END OF SECTION

SECTION 26 24 17 - PANELBOARDS BREAKER TYPE

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

PART 1 - GENERAL

1.1 SHOP DRAWINGS

A. Submittals shall be prepared and submitted in accordance with Maine DOT Standard Specifications.

B. Drawings to include electrical detail of panel, branch breaker type, quantity, ampacity and enclosure dimension.

1.2 REFERENCES

A. UL.

B. NEC.

PART 2 - PRODUCTS

2.1 PANELBOARDS

A. Panelboards: product of one manufacturer.
   1. Install circuit breakers in panelboards before shipment.
   2. In addition to UL requirements manufacturer's nameplate must show fault current that panel including breakers has been built to withstand.

B. 250 and 600 V panelboards: bus and breakers rated for symmetrical interrupting capacity or as indicated or as determined by the coordination study, whichever is higher.
   1. In Branch Circuit Panels, the interrupting rating for the breakers shall be not less than 10,000 A rms symmetrical for 240 V Panels.
   2. In Distribution Panels, the breakers shall be rated for symmetrical interrupting capacity not less than 18,000 A rms symmetrical. Breakers in Distribution Panels shall be selected for proper protection co-ordination. Where standard moulded case breakers cannot provide proper coordination, solid state Design D moulded case breakers must be provided.

C. Sequence phase bussing with odd numbered breakers on left and even on right, with each breaker identified by permanent number identification as to circuit number and phase.

D. Panelboards: mains, number of circuits, and number and size of branch circuit breakers as indicated.

E. Two keys for each panelboard and key panelboards alike.

F. Copper bus with neutral of same ampere rating as mains.

G. Mains: suitable for bolt-on breakers.

H. Trim with concealed front bolts and hinges.

I. Trim and door finish: baked grey enamel air dried grey enamel as per colour schedule.

J. Drip hoods for sprinkler protection.

K. Integral surge suppression where indicated on panel schedule, Appendix A and shown on the drawings.

L. Through - Feed Lugs to supplementary panels as indicated on drawings.

2.2 BREAKERS

A. Breakers with thermal and magnetic tripping in panelboards except as indicated otherwise.

B. Main breaker: separately mounted on top or bottom of panel to suit cable entry. When mounted vertically, down position should open breaker.

C. Feeder Breakers in Distribution Panels must be selected to provide proper protection coordination. Where standard moulded case breakers cannot provide proper coordination, provide solid state Design D moulded case breakers.

2.3 EQUIPMENT IDENTIFICATION

A. Provide equipment identification in accordance with Section 26 05 01- Electrical General Requirements.

B. Nameplate for each panelboard required.

C. Nameplate for each circuit in distribution panelboards required.

D. Complete circuit directory with typewritten legend showing location and load of each circuit as indicated on drawings and shown on panel schedule.

2.4 SURGE PROTECTION

A. Provide 120/240V, 3 wire and ground surge protection, c/w contacts for remote monitoring integral with panel boards.

2.5 MANUFACTURER

A. Acceptable manufacturer's:
   1. Cutler Hammer.
   2. Square D.
   3. Siemens.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Locate panelboards as indicated and mount securely, plumb, true and square, to adjoining surfaces.

B. Mount panelboards to height specified in Section 26 05 01 - Electrical General Requirements or as indicated.

C. Connect loads to circuits.

D. Connect neutral conductors to common neutral bus with respective neutral identified.

E. Provide separate neutral for each circuit of the surge protected panel.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of panelboards breaker type for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

B. Measurement of panelboards breaker type for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

4.2 BASIS OF PAYMENT

A. Payment for panelboards breaker type for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

B. Payment for panelboards breaker type for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

Pay Item		Pay Unit
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum

END OF SECTION

SECTION 26 29 01 - CONTACTORS

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Materials and installation for contactors for system voltages up to 600 V.

1.2 REFERENCES

A. UL Standards.

1.3 PRODUCT DATA

A. Submittals shall be prepared and submitted in accordance with Maine DOT Standard Specifications

PART 2 - PRODUCTS

2.1 CONTACTORS

A. Electrically held controlled by pilot devices as indicated and rated for type of load controlled.

B. Complete with 2 normally open and 2 normally closed auxiliary contacts unless indicated otherwise.

C. Include following options in cover:
   1. Red indicating lamp.
   2. Hand-Off-Auto 3-way selector switch.

D. Control transformer: in contactor enclosure as required.

2.2 EQUIPMENT IDENTIFICATION

A. Provide equipment identification in accordance with Section 26 05 01 - Electrical General Requirements.

2.3 MANUFACTURER

A. Acceptable Manufacturers:
   1. Siemens.
   2. Cutler-Hammer.
   3. Allen Bradley.
   4. ABB Control.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install contactors and connect auxiliary control devices.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of contactors for the Canopy and Foundations will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

B. Measurement of contactors for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

C. Measurement of contactors for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

4.2 BASIS OF PAYMENT

A. Payment for contactors for the Canopy and Foundations will not be paid for separately, but rather will be incidental to the Canopy and Foundations pay item

B. Payment for contactors for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

C. Payment for contactors for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum

END OF SECTION

SECTION 26 50 00 - LIGHTING

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

PART 1 - GENERAL

1.1 REFERENCES

A. American National Standards Institute (ANSI)
   1. ANSI C82.1-97, Electric Lamp Ballasts-Line Frequency Flourescent Lamp Ballast.
   2. ANSI C82.4-92, Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps.

B. American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE)
   1. ANSI/IEEE C62.41-1991, Surge Voltages in Low-Voltage AC Power Circuits.

C. American Society for Testing and Materials (ASTM)
   1. ASTM F1137-88(1993), Specification for Phosphate/Oil and Phosphate/Organic Corrosion Protective Coatings for Fasteners.

D. United States of America, Federal Communications Commission (FCC)
   1. FCC (CFR47) EM and RF Interference Suppression. A

1.2 SHOP DRAWINGS AND PRODUCT DATA

A. Submittals shall be prepared and submitted in accordance with Maine DOT Standard Specifications

B. Submit complete photometric data prepared by independent testing laboratory for luminaires where specified, for review by the Consultant.

C. Photometric data to include: VCP Table spacing criterion.

PART 2 - PRODUCTS

2.1 LAMPS

A. Refer to Fixture Schedule on drawings for Luminaires and lamp types.

2.2 LED DRIVER

A. The following requirements shall be met:
   1. The driver shall have tool-less access for ease of maintenance.
   2. The driver shall be equipped with a solid state electronic power supply, 120V output and operating at 60Hz.
   3. The power factor shall be greater than 95%.
   4. Total Harmonic Distortion (THD) shall be less than 20% at 120V.
   5. The driver shall include overheat, overload, and short circuit protection.
   6. The surge protection shall be effective up to 10kV.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Locate and install luminaires as indicated.

3.2 WIRING

A. Connect luminaires to lighting circuits:
   1. Directly for all luminaire designs.
   2. Luminaire wiring to be #12 AWG unless otherwise indicated.
   3. All wiring to be done to NEC.

3.3 LUMINAIRE SUPPORTS

A. For suspended ceiling installations support luminaires independently of ceiling. Support luminaires with threaded rod and unistrut.

3.4 LUMINAIRE ALIGNMENT

A. Align luminaires mounted in continuous rows to form straight uninterrupted line.

B. Align luminaires mounted individually parallel or perpendicular to building grid lines.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of lighting for the Canopy and Foundations will not be measured separately, but rather will be incidental to the Canopy and Foundations pay item.

B. Measurement of lighting for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

C. Measurement of lighting for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

4.2 BASIS OF PAYMENT

A. Payment for lighting for the Canopy and Foundations will not be paid for separately, but rather will be incidental to the Hi Low Booth pay item

B. Payment for lighting for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

C. Payment for lighting for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum

END OF SECTION

SECTION 27 00 00 - GENERAL COMMUNICATIONS REQUIREMENTS

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Furnish all materials, labor, tools, transportation, incidentals, and appurtenances to complete in every detail and leave in working order all items of work called for herein or shown on the accompanying drawings, including work related to:
   1. Gate system equipment and wiring.
   2. Voice/data network system including wiring, equipment racks, outlets and wiring.

B. Include any minor items of work necessary to provide a complete and fully operative electrical system.

C. The Contractor for this work is referred to Bidding Requirements, General Conditions, Special Conditions, Temporary Services and other pertinent Sections of these Specifications.

1.2 RELATED SECTIONS

A. Section 26 05 28 – Grounding.

B. Section 26 05 33 – Raceway and Boxes for Electrical Systems.

1.3 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

B. OSHA 1910 - Occupational Safety and Health Act.

1.4 GENERAL REQUIREMENTS

A. Contractor shall read the entire specifications covering other branches of work. He is responsible for coordination of his work with work performed by other trades.

B. Consult all Contract drawings which may affect the location of any equipment or apparatus furnished under this work and make minor adjustments in location as necessary to secure coordination.

C. System layout is schematic and exact locations shall be determined by structural and other conditions. This shall not be construed to mean that the design of the system may be arbitrarily changed. The equipment layout is to fit into the booth as constructed and to coordinate with equipment included under other Divisions of work.

D. Contractor shall contact the Owner's Representative immediately if he notices any discrepancies or omissions in either the drawings or the specifications, or if there are any questions regarding the meaning or intent thereof.

E. Submit all changes, other than minor adjustments, to the Architect for approval before proceeding with the work.

1.5 REGULATORY REQUIREMENTS

A. Complete installation shall conform with all applicable Federal, State and Local laws, Codes and Ordinances, included but not limited to latest approved editions of the following:
1. State Building Codes.
2. Specific Construction Safety Requirements, State Industrial Commission.
3. National Electrical Code - NFPA 70.
4. Occupational Safety and Health Act (OSHA) of 1971 and all amendments thereto.

B. Nothing contained in the drawings and specifications shall be construed to conflict with these laws, codes and ordinances, and they are thereby included in these specifications. All work shall comply with the 2008 edition of NFPA 70, The National Electrical Code. It shall be the Contractor's responsibility to assure that electrical work is in full compliance with the NEC.

C. The Contractor shall visit the site to become familiar with all existing conditions affecting this work. No claim will be recognized for extra compensation due to failure of contractor to familiarize himself/herself with the conditions and extent of proposed work.

D. Obtain and pay for all necessary permits. Request inspections from authority having jurisdiction.

1.6 RECORD DRAWINGS

A. Record any changes in location of equipment items, telecommunications outlets, and similar construction items on a set of prints and deliver them to the Owner's Representative upon completion of the work.

1.7 PROJECT CONDITIONS

A. Install Work in locations shown on Drawings, unless prevented by Project conditions.

B. Prepare drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Architect/Engineer before proceeding.

1.8 COORDINATION WITH WORK PROVIDED UNDER DIVISION 26

A. Telecommunications work shall be coordinated with associated work being provided under Division 26. Work provided under Division 26 shall include the following:
1. Raceway and boxes for wiring.
2. Wiring support means.
3. 120-volt power circuits.

1.9 COORDINATION WITH WORK PROVIDED UNDER OTHER DIVISIONS

A. Division 27 – Alarms: Provide communications wiring equipment and connections to the RPM, LPR, and gate systems.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Furnish new and undeteriorated materials and of a quality not less than what is specified.

B. B. The selection of materials and equipment to be furnished shall be governed by the following:
1. Where single trade name, brand of manufacturer or material is listed in the specification, the exact equipment listed shall be used in the bid.
2. Where more than one name is listed, Contractor may select any one of the several brands specified.
3. Where trade name, brand of manufacturer of equipment or material is listed in the specification followed by the word "or approved equal," the Contractor may substitute product of equal quality from another manufacturer for consideration by the Engineer.

C. Conduit shall be as specified under Section 26 05 33.

PART 3 - EXECUTION

3.1 PROTECTION AND CLEANING

A. Protect all telecommunications work and products against damage during construction and pay the cost of repair or replacement of telecommunications products made necessary by failure to provide suitable safeguards or protection. After all work has been inspected and approved, thoroughly clean all equipment, provided under this work.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of general communications requirement for the Canopy and Foundations will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

B. Measurement of general communications requirement for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

C. Measurement of general communications requirement for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

4.2 BASIS OF PAYMENT

A. Payment for contact general communications requirement for the Canopy and Foundations will not be paid for separately, but rather will be incidental to the Canopy and Foundations pay item

B. Payment for general communications requirement for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

C. Payment for general communications requirement for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum

END OF SECTION

SECTION 27 10 00 - STRUCTURED CABLING SYSTEM

All work and materials shall conform to the Contract Drawings and the provisions of the State of Maine Department of Transportation Standard Specifications, Revision December 2002, with the following additions:

PART 1 - GENERAL

1.1 GENERAL

A. This section of the specification includes the furnishing, installation, connection and testing of a complete Structured Cabling System (SCS). The SCS is defined as all required equipment and cabling including hardware, termination blocks, cross connect wire, patch panels, patch cords, telecommunication outlets, UTP fiber optic cable, installed and configured to provide a computer data, voice connectivity from each data, voice device to the network file server network/switch designated as the service point of the local area network. Provide all equipment required to form a complete, operative, and coordinated system as shown on the drawings and specified herein. Components of the SCS shall include, but are not limited to, the following:

1. Telecommunications data network racks.
2. Network patch panels.
3. Telecommunications data network outlet jacks.
4. Intra-building telecommunications cable.
5. Network patch cords.

1.2 RELATED SECTIONS

A. Section 27 00 00 – General Communications Requirements.

B. Section 26 05 28 – Grounding.

C. Section 26 05 29 – Supporting Devices.

D. Section 26 05 33 – Raceway and Boxes for Electrical Systems.

1.3 REFERENCES

A. ANSI/TIA/EIA 568A - Electronic Industries Association Telecommunications Industry Association - Commercial Building Telecommunications Wiring Standards.

B. ANSI/TIA/EIA 569 - Commercial Building Standard for Telecommunications Pathways and Spaces.

C. ANSI/TIA/EIA 607 -Grounding and Bonding Requirements for Telecommunications in Commercial Buildings.

D. Institute of Electrical and Electronics Engineers (IEEE).

1.4 QUALIFICATIONS

A. Installer: Company specializing in the installation of telecommunications systems, including installation and certification of "Category 6" cabling and optical fiber cable. Company shall have five (5) years (minimum) documented experience on completed projects. All work shall be performed and supervised by telecommunications technicians who are qualified to install voice, data and image cabling systems and to perform related tests. The telecommunications technicians employed shall be fully trained and qualified by the manufacturer of the test equipment for the installation. Evidence that the Contractor is a current certified installer of the manufacturer must be provided in writing prior to commencing work.

B. System: The cabling system shall conform to the current of industry standard ANSI/TIA/EIA 568A. Certification shall be provided that the system will support applications for which it is designed including Category 5e intra-building telecommunications cable performance.

1.5 QUALITY ASSURANCE

A. Contractor Quality Assurance:
1. Provision of all manufactured components, installation, wiring, and testing shall be the responsibility of a single contractor.
2. Maintain the same person in charge of work throughout installation.
3. Supply and install any incidental equipment needed in order to result in a complete and operable system.
4. Verify correctness of parts lists and equipment model numbers and conformance of each component with manufacturer's specifications.
5. Unless otherwise specified, supply only new equipment, parts and material, and operate only as required for testing as part of installation procedure.

B. Manufacturer Quality Control for Telecommunications Data Network Systems
1. All systems components and products specified shall be supplied by a single manufacturer. Unless the words "Or Approved Equal" are included, only the manufacturers listed will be considered.
2. Each system is to be fully tested upon completion of installation in accordance with PART 3 - EXECUTION of this specification.

1.6 SUBMITTALS

A. Submittals shall be prepared and submitted in accordance with MaineDOT Standard Specifications Section 105.7, Working Drawings.

B. Submittals shall be prepared and submitted in accordance with Maine DOT Standard Specifications

C. Submit for review prior to the submission of any Submittal, an itemized list of manufacturers of material and equipment and of Subcontractors proposed to be used under this Section. Include a Schedule of anticipated submittal and anticipated lead times after release of reviewed Submittal.

D. Equipment shall be of proper size for its allotted space. Equipment may be disassembled as required, where it does not invalidate the manufacturers' warranty, so that it can be installed through available window, door, or louver openings.

E. Indicate clearly all equipment, components or assemblies that are not Nationally Recognized Testing Laboratory (NRTL) listed or labeled. Failure to indicate otherwise implies NRTL listing or labeling. Products found not to be NRTL listed or labeled where such listing or labeling is available shall be replaced.

F. Product Data: Submit catalog data sheets or other published materials showing appearances, electrical ratings characteristics and connection requirements, performance characteristics, dimensions, weights, installation methods, and space requirements of equipment and their accessories, as listed below and required by the individual paragraphs:
1. Identification Methods.
2. Grounding and Bonding.
3. Test Report Formats.
4. Test Equipment.
5. Test Procedures.

1.7 TRAINING

A. Give detailed instructions, prior to the Substantial Completion of the work, to the responsible personnel designated by the Owner in the operation and maintenance of all work installed under this Section. A letter with two copies containing the name of the person or persons to whom the instructions were given and the dates of the instruction period shall be submitted to the Architect-Engineer at the completion of the project.

1.8 PROJECT RECORD DOCUMENTS

A. Submit record documents under provisions of Section 27 00 00.

B. Accurately record location of telecommunications outlets.

1.9 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions. Include wire and cable lengths within 10 feet of length shown for all local data outlets.

C. Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

1.10 OPERATION AND MAINTENANCE DATA

A. Submit data under provisions of Section 27 00 00 and Division 01.

B. Provide name, address and telephone number of the manufacturer's representative and Service Company for all items supplied so that the source of replacement parts and service can be readily obtained.
   1. Include copies of manufacturer's and Installer's warranties and maintenance contracts and performance bonds properly executed and signed by an authorized representative.

C. Include copies of all test reports and certifications.

PART 2 - PRODUCTS

2.1 UNSHIELDED TWISTED PAIR (UTP) CABLING SYSTEM

A. Approved Manufacturers.
   1. Belden.
   2. CommScope.
   3. General Cable.
   4. Mohawk.
   5. Substitutions: or Approved Equal.

B. UTP Pin/pair Termination Assignment: The UTP cabling systems shall have TIA/EIA T568B pin/pair termination assignment. All conductors provided shall be properly and consistently terminated at both ends throughout the entire systems.

C. Horizontal Cable - Voice & Data.
   1. Voice Cable shall be TIA/EIA Category 5e Unshielded Twisted Pair (UTP) cable, as specified.
   2. Plenum rated cable - CMP rated jacket for Plenum applications.

D. Backbone Cable-Voice (Category 5e).
   1. TIA/EIA Category 5e Unshielded Twisted Pair (UTP).
      a. Cable shall meet or exceed all current specifications for Category 5e cable per EIA/TIA, 24 AWG, 25-pair cable.

E. Patch Panels.
   1. Patch panels shall be EIA nineteen inch (518 mm), rack mounted, TIA/EIA Category 5e, UL Category 5e type patch panels with integral printed circuit board, color-coded, high density, IDC type terminations and 8 position modular jacks. Keyed jacks are not allowed. Jacks shall be able to withstand at least a minimum of 2000 mating cycles without any transmission degradation.

2.2 SURGE PROTECTED POWER STRIP

A. Manufacturers.
   1. Wiremold.
   2. Sentrex.
   3. TrippLite.
   4. S.L. Weber.
   5. Substitutions: Or approved equal.

B. Surge protected power strip shall be rack mount type.

C. Surge protected power strip with six NEMA 5-15R outlets 15 amp capacity, 120 volts, UL 1449 listed, maximum surge current of 33,000 amps, clamping voltage of 260 volts, maximum 5 picosecond response time, resettable overload circuit breaker, surge suppression warning light, surge protection for line to neutral, line to ground, neutral to ground, EMI/RFI filters. One required for each load up to 1200 watts (total of individual equipment loads).

2.3 TELECOMMUNICATIONS DATA NETWORK OUTLET JACKS

A. Manufacturers:
1. Leviton "Quickport" Series.
2. AMP.
3. Hubbell.
4. Ortronics.
5. Panduit.
6. Substitutions: Or approved equal.

B. Each Outlet shall consist of the following:
1. Single gang or dual gang face plate shall be thermoplastic (nylon) with number of voice, data, video and sound jacks as indicated in the Specifications and Drawings.
2. Electrical Subcontractor shall provide 4" square backboxes for all Single gang and Dual gang outlet face plates. Provide single gang and dual gang plaster rings for the specified Single gang and Dual gang outlet face plates.
3. Refer to Electrical drawings for placement of Work Area Outlets.
4. Outlets:
   a. Data Outlet - shall consist of two (2) white color modular Category 5e RJ-45 8-position connectors mounted on single gang faceplate, with the capabilities listed below. Provide blanks for faceplate.
      1) Two (2) RJ45 connectors shall be used for data and cabled to relevant patch panel with two (2) 4-pair Category 5e unshielded twisted pair cables. .

2.4 BONDING AND GROUNDING JUMPER CABLE

A. Manufacturer: Provide products meeting the requirements of the Drawings and Specifications from one of the following manufacturers:
1. Belden (No. 8669)

B. Jumper cable shall be hollow braided, 60 amp capacity, copper.

C. Provide equal conduct of as described in "B" above for aluminum equipment.

D. Jumpers shall have compression or exothermic type terminals on both ends of cables. Terminals shall be compatible with jumper cable material and equipment material in order to not have any degenerative reaction.

2.5 EQUIPMENT/CABLE IDENTIFICATION

A. All equipment and cabling shall be properly identified by means of clear and concise labels. All identification shall meet or exceed the minimum requirements of EIA/TIA568A, 606 and BICSI standards.

B. Permanently label, using pre-printed labels, all cables and terminations. Handwritten or embossed type labels are specifically prohibited.
   1. Label all equipment racks, panels and cross connect blocks uniquely.
   2. Label patch panels and cross connect blocks numerically, top-to-bottom.
   3. Label cable segments by designated incoming cable.

C. Labels
   1. Provide color-coded labels with CODED identifiers.
   2. Labels shall be constructed of approved material in order to meet the legibility, defacement, adhesion (adhesive labels only), and exposure requirements of UL 969. All labels shall be mounted horizontally in order to be read from left to right.
      a. Adhesive Labels shall be constructed of color-coded paper with a clear polyester over laminate, Brady USA, Inc. PermaShield, RayChem TMS or approved equal. Adhesive material used shall be approved for material being attached to, typeface shall be medium density, Helvetica, 1/8 inch (3mm) high black characters unless indicated otherwise.
      b. Heat-Shrink Labels shall be constructed of color-coded flame retardant, heat shrinkable polyolefin, Brady USA, Inc, RayChem TMS or approved equal. Typeface shall be medium density, Helvetica 1/8 inch (3mm) high black characters unless indicated otherwise.
      c. Insert Labels shall be constructed of color-coded paper inserted behind clear plastic label holder. Work Area Outlets shall have white color labels inserted behind a flush mounted (recessed) plastic window. Patch panels and cross connect block may have continuous clear plastic insertion strips label holders with label strips. Label strips shall have distinct markings to indicate where one jack or cross connect ends and the adjacent one starts. Typeface shall be medium density, Helvetica 1/8 inch high black characters unless indicated otherwise.
      d. Each Network Interface Outlet shall have each of its modular jacks provided with a color-coded, embossed modular ICON. The telephone jack icon shall be red and shall have either the word "VOICE" or a telephone logo. The data jack icon shall be blue and shall have either the word "DATA" or a computer logo.
      e. Handwritten or embossed labels are not allowed.

2.6 CABLE SUPPORTS

A. Wiring cable supports shall be as specified under Section 26 05 29.

2.7 PATCH CORDS

A. Patch cords shall match the characteristics of UTP cable and shall be in lengths as required. Provide terminations at each cable end.
   1. Test each cord according to the requirements listed under paragraph 3.4.

2. Provide one patch cord for each switch service cable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive work.

B. Verify that field measurements are as shown on Drawings.

C. Beginning of installation means installer accepts existing conditions.

3.2 TELECOMMUNICATIONS DATA NETWORK OUTLET JACKS

A. Install and connect data outlet jacks in boxes at locations indicated on Drawings.

B. Install outlet jacks in accordance with manufacturer's instructions.

3.3 TELECOMMUNICATIONS DATA NETWORK WIRING

A. Provide continuous, unspliced, UTP horizontal drop cable from data/voice outlets to owner-furnished network switches.

B. Conceal intra-building telecommunications cable, above accessible ceilings or in walls. All telecommunications cables shall be run in conduit.

C. Do not make splices in optical fiber cable or intra-building telecommunications cable.

D. Terminating intra-building telecommunications cable pairs (Category 5e) shall have a maximum of ½ inch of cable untwisted before termination.

3.4 CABLE TESTING

A. Sub-contract with a independent testing company to test and certify all intra-building telecommunications cabling to identify pair reversal, crossed pairs, opens and shorts. Testing shall comply with ANSI/TIA/EIA 568A, TSB67. Perform test using a network analyzer, Microtest Penta scanner, or approved equal. Test results shall be documented, corrections implemented and re-testing conducted and documented. In addition, documentation shall be presented to show the length of the cable between outlet jack and the telecommunications rack. Submit written test results for review and acceptance.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

A. Measurement of structured cabling system for the Canopy and Foundations will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

B. Measurement of structured cabling system for the Hi Low Booth will not be measured separately, but rather will be incidental to the Hi Low Booth pay item.

C. Measurement of structured cabling system for the Regular Booth will not be measured separately, but rather will be incidental to the Regular Booth pay item.

4.2 BASIS OF PAYMENT

A. Payment for structured cabling system for the Canopy and Foundations will not be paid for separately, but rather will be incidental to the Canopy and Foundations pay item

B. Payment for structured cabling system for the Hi Low Booth will not be paid for separately, but shall be incidental to the Hi Low Booth pay item.

C. Payment for structured cabling system for the Regular Booth will not be paid for separately, but shall be incidental to the Regular Booth pay item.

Pay Item		Pay Unit
815.00	Canopy and Foundations	Lump Sum
815.00	Hi Low Booth	Lump Sum
815.00	Regular Booth	Lump Sum

END OF SECTION

Fort Kent International Bridge Approach And Customs Facility Project

Aroostook County

PIN 10042.10

SECTION 3

Radiation Portal Monitor Installation
Statement of Work: Lane Relocation,
Fort Kent, ME

Crossing Code: 01102
Revision 3
January 22, 2013

Homeland Security

Prepared for the U.S. Department of Homeland Security
U.S. Customs and Border Protection and Domestic Nuclear Detection Office
under U.S. Department of Energy Contract DE-AC05-76RL01830

RADIATION PORTAL MONITOR PROJECT

Radiation Portal Monitor Installation Statement of Work: Lane Relocation, Fort Kent, ME

Crossing Code: 01102

Revision 3

January 22, 2013

Pacific Northwest
NATIONAL LABORATORY

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Radiation Portal Monitor Project

Radiation Portal Monitor Installation Statement of Work: Lane Relocation, Fort Kent, ME

Crossing Code: 01102

Revision 3

January 22, 2013

Prepared for the U.S. Department of Homeland Security
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Pacific Northwest National Laboratory
Richland, Washington 99352

Revision Log and Approvals

for

Radiation Portal Monitor Installation
Statement of Work: Lane Relocation, Fort Kent, ME

Rev. No.	Date	Describe Changes	Pages Changed
0	4/21/2011	Original document	n/a
1	5/19/2011	Replace GSA with Maine Department of Transportation as the contracting agency for the construction contractor.	1,2,10,24,25, 26
2	10/25/2011	Updated with minor comments based on PNNL design review.	1, 3, 5-7, 10, 14-19
3	1/22/2013	Updated with change of lane 4 RPM from POV to POV/Cargo and related updates.	1, 3 ,9-11, 15, 19-21

Acronyms and Abbreviations

4-Pair	Shielded 4-pair cable for detectors and annunciators
Cat 6	Ethernet category 6 Ethernet cable
CBP	U.S. Customs and Border Protection
CDF	control density fill (also known as flowable backfill or lean concrete)
CI	contractor installed
CP	contractor provided (equipment)
GFE	government furnished equipment
GSA	U.S. General Services Administration
NEMA	National Electrical Manufacturers Association
PNNL	Pacific Northwest National Laboratory
POC	point of contact
POE	port of entry
POV	privately owned vehicle
RMC	rigid metal conduit
RPM	radiation portal monitor
RSP	radiation sensor panel
SOW	statement of work
TLC	traffic light controller
UPS	uninterruptible power supply
VPS	vehicle presence sensors
VIS	vehicle identification system

Contents

Figures and Tables

Figures

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1 Overview

The Radiation Portal Monitor Project is in the process of deploying radiation detection systems at land border crossings. A radiation portal monitor (RPM) system consists of radiation detector panels mounted in steel support stands and associated electronics (see Appendix A: RPM Glossary). A replacement bridge across the Saint John River, providing entry into the United States, will require the realignment of inbound traffic lanes and resultant relocation of three RPMs at the Fort Kent, ME Land Port of Entry (LPOE). New traffic lanes are being designed adjacent to and northeast of the existing lanes. Three existing primary lanes will be replaced with 3 reoriented primary lanes. The existing POV secondary and RPM computer will not be affected by this reconstruction. Radiation portal monitors (RPMs) will be removed from their existing locations and reinstalled in the new lanes along with the other infrastructure being installed at the site. The RPM installation and demolition scope will be performed in a closely controlled phased manner so that the POE can continue to scan vehicles during the construction period. The work consists of exterior work and interior work that includes: mobilization; demolition; infrastructure installation; dismantling and temporary storage of existing RPMs until they can be reinstalled on site; foundations; mounting, assembly and installation of the RPMs and associated conduit/cabling; and demobilization.

1.1 Roles and Responsibilities

1.1.1 Maine Department of Transportation

- Serves as the design agency and procuring construction documents.
- Serves as the contracting agency and procuring construction services.
- Provides guidance to contractors regarding document and site security regulations and requirements.
- Approves and issues contract change orders to its contractors before field implementation.
- Oversight of the contractor.

1.1.2 GSA Site Representative

- Assist the contracting agency during procurement of construction services.
- Act as GSA representative on site for observation and reporting on construction activities on a regular basis.
- Assist the contracting agency in preparation, approval and issuance of contract change orders to its contractors before field implementation.
- Coordinate between the contractor and the Maine DOT contracting officer, PNNL and CBP to maintain Maine DOT as the single point of contact for the contractor. GSA representative will be required to identify and manage issues requiring coordination with PNNL, CBP and

the Maine DOT contracting officer, e.g., Hold Point Inspections, infrastructure routing, permissibility of exposed conduit, etc.

- Notify and provide PNNL documentation of proposed changes and submittals for review and concurrence prior to approval by the GSA representative.

1.1.3 Pacific Northwest National Laboratory (PNNL)

- Assess technical compliance with design, maintain cognizance of schedule performance, and oversee PNNL subcontractors on site.
- Provide technical advice, interpretation/clarification of the design, and verify hold point inspections for action by the GSA representative.

  NOTE: Interpretations that result in contract scope, schedule, or cost change must be approved by the Maine DOT Contracting Officer or other representative authorized by Maine DOT.

- Coordinate delivery of government-furnished contractor-installed (GFE CI) RPM and associated equipment.
- Relay any damage noted during receipt of the RPMs/GFE CI components per Section 2.3.1 in this document to the PNNL Deployment Manager for resolution with the RPM vendor.
- Coordinate signal cable (4-pair and Cat 6) terminations of RPM components by RPM vendor.
- Coordinate acceptance testing and turnover of the RPM system to CBP.
- Provide recommendations to the Construction Manager on stop-work policies if unsafe or inappropriate actions are observed.

1.1.4 U.S. Customs and Border Protection

- Provide site access control (verifying all workers have badges/identification).
- Coordinate release of lanes for contractor work.
- Confirm exact wording of signage.
- Specify the exact location (within the general location shown on the construction documents) of the alarm annunciator(s) and RPM computers.
- Design and install the necessary components to link the new RPMs and computers to the Ethernet backbone for the POE.

1.1.5 Contractor

- Provide all materials and equipment required to complete the RPM installation, other than equipment identified in this SOW as Government Furnished Equipment (GFE).
- Complete all RPM installation activities and infrastructure installation, including installation of GFE. This includes standing up the RPM stands on the constructed foundations; installation of all ancillary RPM components such as control box, battery box, annunciators, Ethernet system components; trenching; installation of all conduits including associated

conduit bodies and junction boxes; cable infill; and completing all 120 VAC circuits between the source panel and termination points.

- Removal and storage of existing RPM equipment from the current lanes for re-use in new lanes.
- Consult with the PNNL Site Manager and GSA representative before making any changes to the RPM portions of the design.
- Supply all RPM-related material and equipment identified as "contractor provided" in the equipment list in the construction drawings and in this statement of work and provide material and equipment submittals to GSA representative. Examples of submittals include (but are not limited to) material receipt inspection reports, contractor-procured equipment data sheets, material certifications, weld inspection reports, concrete test reports, redline markups of construction documents, and other documentation of actual installed materials/equipment.
- Remain on-site during final terminations and testing of the RPM system and address any deficiencies related to their scope, that are identified during final termination and testing.

1.2 Scope

1.2.1 Installation and Operational Requirements

- Contractor shall call for a "mark and locate" to coordinate with local utility companies to identify the location of underground utilities in the area before commencing RPM-related excavation.
- Contractor shall confirm all existing infrastructure and operating system components, such as license plate readers (LPRs), located where the RPMs are to be installed have been marked and located. This will include a review of existing documentation provided by GSA and inspection of the site.
- Contractor shall be responsible for maintaining RPM-related redline modifications (weekly at a minimum) and completing redline as-built construction documents and documentation for the RPM portion of the installation.

1.2.2 Hold Points

The construction sequence has specific hold points that require inspection and approval prior to proceeding with the work. See Appendix C: Hold Point Inspections.

1.2.3 Completion

For the contractor, installation shall be complete when all inspections have been approved by the Maine Department of Transportation and GSA representative. The GSA representative will coordinate with PNNL on the inspections, review, and approval as required by PNNL's commissioning of the RPM equipment. See Appendix D: Contractor Completion Checklist.

2 Major Tasks

2.1 Existing Utilities Confirmation

The contractor will confirm that all utilities have been marked and located, including contacting the local "dig-safe" program and review of any GSA historical documentation showing existing or abandoned utilities that may interfere with or may impact RPM construction work and a site inspection by the contractor. The final infrastructure routing will be marked and the hold point inspection conducted prior to proceeding (see Appendix C).

2.2 Infrastructure

The contractor is responsible for installation of all infrastructure required for the RPMs. This includes installation of all conduit and wiring for power and data including pulling all power and instrumentation cables (e.g., alarm annunciator, Ethernet/fiber optic, and traffic signal lights), grounding and a hold point inspection for testing.

NOTE: Building penetrations and routing of any wiring inside any of the buildings (if necessary) will be determined in conjunction with GSA representative.

NOTE: All wires, cables, and circuit breakers shall be marked with electronically printed labels.

NOTE: The contractor shall not open or penetrate the radiation sensor panels (RSPs).

NOTE: The control box shall not be disassembled.

2.2.1 Trenching

Installation of the conduit for the RPMs will typically require trenching and burial, as noted in the construction document drawings. Exact trenching locations shall be confirmed in consultation with the GSA representative prior to commencing work (see layout hold point inspection in Appendix C).

1. The contractor shall be responsible for damage to underground utilities.
2. All trenches shall be back-filled up to the base layers of existing surfaces. Refer to trench details in construction document drawings for backfill and surface repair requirements. Prior to backfilling any trench the trench shall be inspected per the trench excavation hold point inspection (see Appendix C).

2.2.2 Conduit Runs

1. Each cable type shall be run as shown in the construction document drawings. The wires and cables hold point inspection must be completed prior to installation (see Appendix C).
2. Conduit shall generally be run in trenches or using the canopies and building penetrations following existing conduit routings (wherever possible). Routing of exposed surface mounted conduit runs under canopies or on buildings requires approval of GSA representative.

3. Penetrations into the RSP require the use of watertight gasketed rigid hub and the threaded conduit connection to the back of the hub must be sealed (e.g., with silicon sealing compound or thread tape) to prevent water intrusion. The penetration shall be conducted in accordance with the *RPM8 Radiation Portal Monitor Installation Manual, Section 2.3.4* (Revision 1.1, March 8, 2007). The contractor shall install properly sized conduit runs and the hub is installed into the RSP under guidance from PNNL.
4. The contractor is required to provide and install pull boxes, weatherproof enclosures, and junction boxes, as necessary to facilitate installation and meet code (even if not shown in the construction document drawings). Exterior locations require the use of a NEMA 4 or 4X enclosure.
5. Conduit runs containing 110/120 VAC power cables shall be installed a minimum of 6 inches from any conduit containing other types of wire or cable.
6. Recommended conduit sizes and types and cable specifications are provided in the drawing. All conduit sizes shall be verified to meet or exceed compliance with National Electrical Code and local requirements.
7. In all RPM trenches, empty conduits shall be provided with a pull string. Empty conduit stub ups shall be capped.
8. The contractor shall use rigid metal conduit (RMC) for conduit runs on the RPM stands. The use of flexible conduit is prohibited without consultation with GSA, CBP, and PNNL and without GSA approval.

NOTE: The contractor is encouraged to use existing conduit installed on the RPM stands.

9. Underground conduit shall be PVC. All underground horizontal transitions to vertical stub-ups are to be made with RMC.
10. All conduits shall be properly grounded.
11. The contractor shall make every reasonable effort to protect conduit and prevent water from entering before, during, and after construction. This shall include the application of silicon sealant or approved alternate to all threaded conduit connections on the RPM stands.
12. Where conduit needs to be installed on the RPM stands, this conduit routing is described on the construction document drawings.
13. Each cable type (110/120 VAC power vs. signal) is to be run in separate conduits and all conduit and electronic equipment are to be appropriately grounded to protect the equipment and eliminate unwanted signal noise.

2.2.3 Electrical Power for RPMs

Each RPM has back up power (batteries) incorporated into the design but the power circuit should be connected to site backup power (if available) at a nominal 110/120 VAC.

1. The contractor shall coordinate with GSA to verify use of existing source panels as appropriate for RPM power.

NOTE: The contractor may use existing breakers and receptacles as appropriate.

2. The contractor shall provide and install a separate 20-A breaker for each RPM (i.e., one per RPM lane) in the source panel. All RPM breakers shall be labeled to identify to which RPM they supply power.
3. All supervisor computer, monitor computers, Ethernet switches, and media converters shall be plugged into receptacles (through their associated uninterruptible power source [UPS]) that are on site backup power (if available).
4. The construction document drawings have recommended wire sizes (minimum of three #12 AWG wires [hot, neutral, and ground]); the contractor shall verify wires are sized to meet code.
5. The contractor shall perform all 120 VAC power wire terminations and energize the circuits to verify proper function.

2.2.4 Control Box and Battery Box

Control boxes and battery boxes shall be installed by the contractor per the construction documents.

NOTE: The contractor is encouraged to use existing installation of the control and battery boxes on the RPM stands. The RPM stands were originally shipped with the equipment and conduit installed. Care should be taken when lifting and moving the panels with equipment attached as the attached equipment changes the normal uniform balance of the panels alone.

1. The contractor shall provide and mount a NEMA 4-rated junction box (or raceway) to connect between control box and all other satellite/ancillary components. This junction box (or raceway) will be where the contractor coils all cables destined for termination in the control box (wire pulls to the control box are by others).
2. The contractor shall use RMC for connection to the junction boxes and battery boxes. The use of flexible conduit is prohibited without consultation with GSA, CBP, and PNNL and without GSA approval.

   The contractor shall pull and label the 4-pair detector cables, leaving sufficient cable in the junction box (or raceway) to be pulled into the control box (plus an additional 2 ft) as shown in the drawings. At the RSP end of the 4-pair detector cable, the cable shall be coiled in a junction box on the back of the RPM, leaving sufficient cable to be pulled into the RSP plus an additional 2 ft.
3. The contractor shall mount GFE CI RPM battery and control boxes provided by the vendor to the RPMs. The control box and battery box shall be mounted on Unistrut (or approved equal) using stainless-steel 3/8-16 UNC hardware (including lock washers) and tighten to 228 inch-lbs.
4. The contractor shall penetrate the battery box to install power conduit and wire. This penetration shall be made on the side or back and will maintain the NEMA 3R rating of the battery box. All chips, shavings, and other debris shall be vacuumed out.

5. The contractor shall penetrate the control box to install conduit. This penetration shall be made at the bottom. The NEMA 4 rating must be maintained. All chips, shavings, and other debris shall be vacuumed out. The control box shall not be disassembled.

2.2.5 Vehicle Presence Sensor Unistrut

The contractor shall mount Vehicle presence sensors (VPS) on each RPM. The VPSs are attached to CP CI Unistrut installed by the contractor on the driver-side and passenger-side stands.

NOTE: The RPM stands were originally shipped with the VPSs installed. The contractor is encouraged to maintain the original installation.

1. Two 5-ft pieces of P7000 stainless steel Unistrut (or approved equal) are required per stand (4 per RPM).
2. The Unistrut is mounted on the shroud (lower shroud for cargo and privately owned vehicle POV/cargo RPMs) using the existing VPS mounting holes. There are three mounting holes on each side; all three holes are to be captured on the driver-side stand. The bottom two holes shall be captured on the passenger-side stand.
3. The Unistrut shall be mounted on the inside and fastened to the sides of the shroud using stainless-steel ¼-20 hardware (including locknuts).
4. The bottom of the Unistrut is to be 12 in. from the bottom of the driver side shroud and 1 in. from the bottom of the passenger side shroud.

2.2.6 Annunciator Box and Wiring

1. The contractor shall install GFE CI annunciators in locations specified in the construction document drawings. The exact locations and mounting method shall be verified with CBP. For interior annunciators, a simple angle bracket or direct wall mount is most often used (and may be assumed the method for bidding purposes).
2. The contractor shall pull the annunciator cable. The contractor shall not open the annunciator to install cable or during mounting.

2.2.7 Ethernet Wiring and Switches

The necessary Ethernet backbone will be designed and installed by CBP-OIT and, for purposes of this statement of work, is considered existing.

1. Cat 6 cables are to be provided and routed by the contractor from each RPM control box to necessary Ethernet switches and media converters per the design documents. The contractor shall pull and label Cat 6 cables, leaving sufficient wire in the junction box (or raceway) to be pulled into the control box (plus an additional 2 ft) as shown in the drawings.
2. An approved surge suppression device (SPD) shall be installed on each end of any Cat 6 Ethernet run for which at least one end is located outside. These devices are specified in the construction drawings and shall be installed in accordance with installation instructions.

Outdoor SPDs shall be grounded to the nearest ground rod and indoor SPDs shall be grounded to an approved local ground.

3. The contractor shall use appropriate Cat 6 cable. Cat 6 cable specifications are provided in the drawings in the general notes. Equivalent cables may be used with approved submittal.
4. Cat 6 cables shall meet the Category 6 specification. All Cat 6 runs greater than 295 ft shall use Ethernet switches (repeaters) or conversion to appropriate fiber optic cable.
5. All fiber optic cables (if required to be installed) shall be provided by the contractor and be rated for both plenum and burial and shall include a minimum of six strands.
6. All fiber optic cables and connectors installed for the RPM network shall be compatible with existing fiber optic cables and connectors.
7. If applicable, all installed fiber optic cables and connectors shall be compatible with existing fiber optic cables and connectors.
8. The contractor or subcontractor shall be certified as a Mohawk Accredited Contractor (or approved equivalent).
9. The contractor shall properly terminate all Ethernet cables with RJ45 connectors and shall test with a Fluke DTX CableAnalyzer®[1] cable tester (or approved equivalent).
10. The contractor shall use appropriate fiber patch cords for making any required connections between fiber breakout boxes, and between fiber breakout boxes and the small form-factor ports on the Ethernet switches.
11. The contractor may use patch panels at the Ethernet switch(es).
12. The contractor shall use outdoor rated Ethernet switches, media converters, and UPSs in interior locations that are not environmentally controlled for occupancy.

2.2.8 Computers

All RPMs must be connected via the CBP-OIT designed and installed Ethernet backbone to the supervisor computer. The Ethernet switch and supervisor computer are existing in the Main Building and all that is required is for the RPM signals to be transmitted to the switch in a manner that maintains the integrity of the signal.

2.2.9 Lightning Protection

RPM stands and shrouds are inherently hardened against the effects of lightning strikes. Additional lightning attraction equipment (such as air terminals) is not required.

2.2.10 Grounding

1. Supplementary grounding rods are required at the RPMs and shall be installed per article NEC 250.54. Quantity and design of ground rods and embedment shall be per local conditions and consistent with accepted practice for the area. Contact the local electric

[1] Fluke DTX CableAnalyzer is a registered trademark of Network Systems and Services.

utility company for clarification. For purposes of this design, a separate ground rod is required for each RPM foundation. Multiple stands on a single foundation may be connected to a single ground rod for the foundation.

2. All conduit shall be grounded per accepted local practice for the area.
3. New electrical services shall establish a grounding rod system per article NEC 250 Section III. Grounding rod conductors shall be sized per table NEC 250.66. Furthermore, additions to existing systems shall be grounded by bounding to the existing grounding rod system per article NEC 250.
4. Separately derived systems (transformers) shall be grounded and bonded per the requirements of article NEC 250.30.

2.3 RPM Installation

2.3.1 RPM Component Receiving

NOTE: The RPM stands are currently in use on site. The contractor will move the RPM stands to temporary secured storage until they can be re-installed on the new foundations. The contractor my remove the top panels on the cargo RPMs and leave the bottom panels attached to the bases during temporary storage. When ready to install on the new foundations, the bottom panels shall be removed from the foundation base.

1. The contractor is responsible for inspection for visible damage during dismantling, storage, and installation of all GFE CI components. Contractor will report any damage to the GSA representative to allow notification of other affected parties. In the case of Fort Kent, RPM equipment used is already present on site and will be dismantled and reinstalled on new foundations constructed according to this scope of work.
2. RPM components (including ancillary GFE CI components) will be delivered to arrive within one week of the time of installation. Computer equipment is present at Fort Kent and will be used in their current locations or relocated as directed by CBP.
3. Contractor to specify a minimum three-day delivery window and provide for a minimum four hour availability during normal business hours to receive GFE CI component shipments.
4. The contractor shall inspect all GFE CI components for damage prior to unloading.
5. After inspection of all parts and components for labeling and physical damage, the parts and components shall be staged in secure locations.
6. PNNL will collect all shipping documentation.

2.3.2 RPM Installation

1. Prior to installation of the RPMs, the foundations on which the stands will be installed shall be constructed according to design. The RPM stands shall be installed per the stand installation procedures in the *RPM8 Radiation Portal Monitor Installation Manual, Section*

2.3 (Revision 1.1, March 8, 2007). The PNNL site manager will have a copy of this document on site for reference as needed.

2. The total weight per RSP/shroud assembly is approximately 2500 lb.
3. Install lower shrouds on the anchor bolts. The contractor shall supply the necessary nuts and washers to install these shrouds as specified.
4. On the cargo lanes, the upper RPM shroud is to be mounted on top of the lower shroud by the contractor. Care shall be taken on the selection of appropriate rigging, hoisting equipment, and safety practices for mounting of the top shrouds in the two-high structures.
5. Fastening hardware for assembly of upper and lower shrouds into a cargo RPM stand is GFE CI. The contractor shall not reuse the existing connecting hardware, but use new hardware supplied by PNNL.

2.4 Special Tasks – Dismantling of Existing RPMs for Temporary Storage

The reconstruction work at Fort Kent will result in the removal of the existing 3 primary RPMs consisting of 10 RPM shrouds, 6 prefabricated RPM foundation bases, 3 battery and 3 control boxes, and 3 indoor annunciators. The contractor will be required to dismantle these 3 RPMs including the RPM stands and ancillary RPM equipment, and provide temporary storage and packaging to prevent water intrusion into the equipment. The RPMS shall then be reinstalled on prepared foundations in the new lanes. The RPMs and attached equipment are to be dismantled to the point that the equipment can be stored safely until reinstalled in the lanes as they are completed. Conduit, J-boxes, unistrut, and any other components attached to the stands should be reused if possible. The bottom RPM panels may remain attached to the foundation base during storage.

NOTE: The Contractor's construction schedule shall provide the schedule for the different phases of RPM dismantling/storage and re-installation on the newly constructed foundations.

NOTE: PNNL Land Border Crossing Deployment Manager or Land Vector Manager should be notified one (1) week in advance of the work to allow PNNL staff to be on site to observe work.

NOTE: A phasing plan will be implemented to re-use existing RPMs in the new lanes. Excess RPM equipment will shipped off site.

- Existing lane 3 cargo panels will be moved to new lane 5.
- Existing lane 2 cargo panels will be moved to new lane 4.
- Existing lane 1 POV RPM will be moved to new lane 3.
- Prefabricated foundation bases (6) will be disposed of by the contractor.

2.4.1 Dismantling RPMs and Associated Equipment

NOTE: Prior to initiation of this work, the RPM vendor (**under separate contract to PNNL**) will turn off the RPMs and disconnect the batteries from the low voltage power circuits. The contractor will then turn off the 120 VAC power to the RPM at the source panel and disconnect the power wires in the source panel and in the battery box. The RPM vendor will then disconnect signal and low voltage cables as needed to dismantle the RPMs for temporary storage.

NOTE: Location of all equipment including source panels, control box, battery box, annunciators, and supervisor computer shall be verified prior to dismantling.

NOTE: The RPMs were shipped to the site in a pre-fabricated mode with control box, battery box, J-boxes, and connecting conduit attached. The contractor is encouraged to leave these pre-fabricated items attached and just disconnected conduit as appropriate to disconnect top panels from bottom panels and bottom panels from incoming/outgoing conduit.

Primary POV and Cargo RPMs

NOTE: The contractor is shall leave all connections/terminations in place for all cables/wires connected to a single RSP. Any cabling connecting two RSPs on a single stand, shall be disconnected at one end and coiled in the nearest J-box so that it can be reconnected when the stand is re-installed. Conduit extending from lower to upper panels shall be disconnected at a convenient point to separate the two panels.

- 120V power wires shall be disconnected at the battery boxes and removed from conduit attached to the RPM panel.
- 24-VDC power and ground wires between the control box and battery box shall remain connected if possible. Only the batteries are to be disconnected from their wiring harnesses and removed from the battery boxes.
- Conduit connections to the RPM stands shall be unmade and conduits removed as necessary to move the stands to temporary storage. Conduit and other components that will be reused as currently installed and will not interfere with RPM removal, storage, and reinstallation should remain connected to the stands if possible.
- RPM Signage shall be removed and provided to GSA for future use.
- Annunciators mounted in the POV inspection booths shall be removed and stored for reuse.

3 Division of Labor and Materials

The following materials and/or services are included in the construction documents:

3.1 Contractor Provided and Installed

- All overhead and underground conduit and associated conduit components and pull boxes.
- All electrical power cables and associated connectors.
- Ethernet (Cat 6) cable and fiber optic cable.
- Ethernet Switches/media converters with UPS.
- Electrical circuit breakers.
- Weatherproof enclosures, junction boxes, and utility vaults.
- HILTI concrete fasteners and adhesives (or equivalent).
- Signs and sign brackets/frames, associated anchors and fasteners.
- Asphalt (patch), where necessary.
- Bedding, backfill, sub-base, and base materials (as needed).
- All materials and components required and not provided by the government.
- See equipment schedule for more details.

3.2 Government Furnished Equipment, Contractor Installed

- RSPs, control boxes, battery boxes, and anchor bolt templates.
- Vehicle Presence Sensors
- Alarm annunciator with enable/disable switch.
- Bolts and associated nuts and washers for connecting upper to lower RPM shrouds (applies to cargo RPMs).

3.3 Contractor Services

- General construction services.
- Redline construction document drawings during construction and final redline as-built drawing package at completion.
- Termination of all 120-VAC electrical power wiring.
- Termination and testing of all Cat 6 and fiber optic Ethernet cable.
- Decommissioning, dismantling, packaging, and loading RPM equipment on vehicles for transport off site.
- All services identified in Section 2 of this document.
- Touchup painting of RPM components.

4 Schedule and Contacts

4.1 Schedule

See Appendix F: Schedule Milestones for schedule assumptions. The contractor shall include in its detailed schedule of activities the necessary date(s) of receipt of all GFE CI (e.g., palletized RPM components and anchor templates) to meet construction and installation efforts.

4.2 Contacts

4.2.1 PNNL

Deployment Manager
Max Phelps
(509) 375-6678 (office)
(509) 308-9661 (cell)

Land Border Engineering and Design Authority
George Mellinger
(509) 372-6866 (office)
(509) 539-2805 (cell)

RPM Site Manager
Ron Smith
(509) 371-7144 (office)
(509) 539-3338 (cell)

Appendix A: RPM Glossary

Alarm Annunciator – See *annunciator.*

Annunciator – A small box mounted in the inspection booth that provides an audible and visual indication of the radiation alarm or errors and a means to acknowledge the alarm/s and errors (also known as *remote annunciator* or remote alarm indicator). See also *local annunciator.*

Battery Box – An engineered set of components including two gel-cell batteries, trickle charger, power supply (120 VAC to 24 VDC converter) inside a weather protected, ventilated enclosure. The battery box provides DC power and a state-of-health communication to the *control box*. On prefabricated RPM foundations the battery box is preassembled and comes as part of the RPM.

Bus RPM or Bus Portal – A bus lane requires a *cargo RPM*, even though buses typically enter the port on the noncommercial side of the facility.

Cargo – Relating to commercial traffic. Typically referring to tractor-trailer rigs but pickups and vans use the cargo lanes if they are carrying commercial merchandise or a manifest.

Cargo RPM or Cargo Portal – A set of *shroud/RSPs* mounted two-high (one *stand*) on both sides of the lane. In the cargo configuration, the top RSP is mounted such that the electrical penetration is at the top and the bottom RSP is mounted such that the electrical penetration is at the bottom. RSPs used in cargo RPMs have an "N1" in the serial number.

Control Box – A NEMA 4X stainless-steel housing that contains the necessary firmware, light-emitting diode panel, and associated relays and electronics to operate the portal. There is one control box per RPM. On prefabricated RPM foundations the control box is preassembled and comes as part of the RPM. The control box is connected to the following components:

- *annunciator* using a shielded 4-pair cable
- *supervisor computer* via Ethernet cable (Cat 6E and/or fiber optic cable with media converter) and the associated Ethernet switch
- set of *detectors* on either side of the lane using a cable with four shielded twisted pairs; one cable per side
- *Battery box* supplies 24 VDC power and a state of health signal.

Detector; Detector Box; Detector Panel – See *radiation sensor panel.*

Dual Use – A dual-use lane is one that POVs and *cargo* and/or buses use. As such, a dual-use lane requires a *cargo RPM.*

Echo Computer – See *monitor computer.*

Enable/Disable (E/D) Switch – A two-position switch that allows the *RPM* to be on or off. Also known as an *idle switch.*

Idle Switch – A two-position switch that allows the *RPM* to be on or off. Also known as an *enable/disable switch.*

Local Annunciator – Normally the annunciator is mounted remotely from the RPM in an inspection booth (*see remote annunciator*). The local annunciator is designed to be mounted on the RPM stand, typically in a secondary inspection location. The local annunciator has the

features of the remote annunciator but uses a NEMA 4 enclosure and 0.75-in. lights to indicate the alarms and status. It also has an *enable/disable switch*.

Monitor Computer – An additional computer that allows CBP officers in a remote facility to "monitor" the *supervisor computer*. CBP officers can view and print a selected set of *RPM* data. The monitor computer is typically located at the *secondary* facility (also known as an *echo computer*).

Portal – The set of RPM *stands* that a vehicle passes through; i.e., the physical structures on either side of the lane.

POV RPM or POV portal – A pair of shroud/RSP mounted as a single-high (i.e., one detector high) stand, one on either side of a lane. In the POV configuration, the RSP is mounted such that the electrical penetration is at the top. RSPs used in POV RPMs have an "N2" in the serial number.

Prefabricated RPM – A *Radiation Portal Monitor* that is fabricated on a portable foundation slab that can be fabricated and assembled at a separate manufacturing facility and shipped to the site for installation as a unit. The prefabricated RPM does not require excavation. It consists of a driver side RPM assembly and a passenger side RPM assembly. It may also include a conduit bridge,, Visual Identification System (VIS), and a traffic light controller (TLC).

Primary – The primary inspection lanes; this is the first point of contact for vehicles entering the port. Typically, there is one RPM per primary lane.

Privately Owned Vehicle (POV) – Noncommercial traffic.

Radiation Portal Monitor (RPM) – The *portal* and associated electronics (*control box*, *battery box*, *annunciator*, etc.) that comprise the equipment used to monitor one lane of traffic. There are several styles of RPMs: e.g., *POV*, *cargo*, and *wide-load cargo RPMs*. The difference in style is based only on the number of *RSPs* that comprise the portal; the electronics are otherwise the same.

Radiation Sensor Panel (RSP) – The NEMA 4 enclosure that contains the radiation detection and sensing equipment and electronics (a.k.a., *detector*, *detector box*, *detector panel, panel*). The RSP is delivered preassembled into a *shroud*.

Remote Annunciator – The *alarm annunciator* mounted in the inspection booth. See also *local annunciator*.

RPM System – The sum total of all the radiation detection equipment and accessories that are associated with a *supervisor computer*. This includes *primary* and *secondary RPMs*, any *monitor computers*, Ethernet components (*switches, media converters*), VIS, etc.

Secondary – The referral area where vehicles are sent or escorted for additional screening away from the main flow of traffic. Typically, there is one *RPM* in the secondary area. If the RPM cannot be located in a manner that is outside the normal flow of traffic in the area, then an *enable/disable switch* must be included with the RPM.

Shroud – The steel-housing weldment into which one *RSP* is assembled. The shroud serves as a structural support and provides an added level of physical protection and radiological shielding for the *RSP*.

Stand – The vertical set of shroud/RSPs on either side of a lane. For *POV portals*, a stand is the same as a single *shroud/RSP*. For *cargo portals*, the stand consists of two shroud/RSPs

stacked one on top of the other. For *wide-load cargo portal*, there are two stands on each side of the lane.

Supervisor Computer – A desktop personal computer that monitors data from all *RPMs* in the *system*. It is typically located in the shift supervisor's office or as otherwise designated by CBP. The supervisory inspector is able to monitor alarms in any lane, state of health of the RPMs, print data, and set various system parameters.

Traffic Light Controller (TLC) – An electronic device connected to the *control box* that uses the signal for the alarm to activate traffic lights (red; red and green; or red, yellow, and green) according to defined logic.

Vehicle Identification System (VIS) – An assembly of several high-resolution cameras on each lane, associated with an *RPM*. VIS is currently in development but infrastructure accommodation is being made as best as possible during RPM deployment.

Wide-Lane Cargo RPM or Wide-Lane Cargo Portal – A set of four *stands* (eight *shroud/RSPs*), two stands adjacent on both sides of the lane. The additional pair of stands is necessary to achieve the required detection sensitivity with the increased lane-width distance.

Appendix B: Fort Kent, ME POV and POV/Cargo RPM Layout – Summary Table

The following table is provided for reference only. The contractor is responsible for all components not provided but necessary to install the RPM system as shown in the construction documents.

Table B-1. Government-Furnished-Equipment Contractor-Installed

	Primary POV Lanes	Secondary POV Lanes	Primary Cargo Lanes	Secondary Cargo Lanes	Primary Bus Lanes	Secondary Bus Lanes	Headhouse	Main Building	In Secondary Inspection Booth	Total
RPM Type										
POV	1	NA*	0	0	0	0	0			1
POV/Bus Lane	0	0	0	0	0	0	0			0
Cargo Standard	0	0	2*	0	0	0	0			2
Cargo Wide Lane	0	0	0	0	0	0	0			0
Cargo Super Wide Lane	0	0	0	0	0	0	0			0
Special Design	0	0	0	0	0	0	0			0
Anchor Bolt Templates (required if excavated foundations are used)	4	0	8	0	0	0	0			12
RPM Options										
Traffic Light Controller	0	0	0	0	0	0	0			0
Visual Identification System	0	0	0	0	0	0	0			0
Alarm Annunciator										
In Booth (indoor)	2	0	3	0	0	0	0			5
At Stand (outdoor)	0	0	0	0	0	0	0			0
Elsewhere (per drawing)	0	0	0	0	0	0	0			0
Computers*										
Supervisor	0	0	0	0	0	0	0	0	0	0
Monitor	0	0	0	0	0	0	0	0	0	0
UPS	0	0	0	0	0	0	0	0	0	0

Note: It is assumed that existing supervisor will be used and therefore, new computers will not be needed. Also, the Secondary RPM will not be affected by this modification. Lane 4 is a cargo RPM, but calibrated for POV/Cargo traffic.

Appendix C: Hold Point Descriptions

The following hold points will be enforced on the contractor and must be accounted for in the Contractor's schedule. Inspections will be made by GSA representative and PNNL using the construction document as the basis. Inspection results will be reported to PNNL if they are not present during the inspections. The GSA representative will authorize the contractor to proceed or direct them to make the necessary corrections based on inspection results.

- **Layout approval.** Contractor will call for a "mark and locate" to identify the location of underground utilities in all construction areas. The location of all proposed RPM trenches, RPM footings etc. will be marked by the contractor. GSA representative and PNNL will inspect and approve this final layout prior to the contractor proceeding with saw-cutting, demolition and excavation. The GSA representative will authorize the contractor to proceed or direct them to make the necessary corrections based on inspection results.
- **Offload of RPM equipment.** PNNL personnel shall be present to witness the unloading of RPM stands and associated components. This standard hold point is not applicable for the Fort Kent reconfiguration work because all RPM equipment is already on site, but PNNL staff will verify that the RPMs are dismantled as necessary and stored in an appropriate manner.
- **Foundation excavation and assembly inspection.** If a foundation is required for the design, the size and location of every foundation excavation is depicted in the construction document drawings. Critical dimensions relative to anchor bolt placement are also shown on the construction document drawings. Most foundations also have embedded conduit and associated conduit stub-ups. Prior to ordering concrete delivery, the contractor will inform GSA representative and PNNL the foundation excavation/s is/are complete and ready for inspection. GSA representative and PNNL will inspect the dimensions, anchor bolt placement, rebar placement, and conduit placement for compliance with requirements the construction document drawings. The GSA representative will authorize the contractor to proceed or direct them to make the necessary corrections based on inspection results.
- **Trench excavation inspection.** Each trench is excavated for the placement of underground conduits. Conduit size and numbers for each run are depicted on the construction documents. Prior to backfilling any trench, the contractor will inform the GSA representative that trench excavation/s is/are complete and ready for inspection. The PNNL Site Manager will inspect the conduit type, placement, size, and numbers for compliance with requirements of the construction documents. If the trench is in concrete, the inspection will also include the rebar dowels provided to repair the trench. The GSA representative will authorize the contractor to proceed or direct them to make the necessary corrections based on inspection results.
- **Wire and cable inspection.** The size and type of wire for electrical, Ethernet, detectors, and other signals in the RPM circuits are specified on the construction documents. Prior to pulling any wire or cable, wire and cable specifications shall be provided to PNNL. PNNL will confirm that the cable or wire meets the specification. The actual cable and wire used shall be noted on the redline construction documents. The GSA representative will authorize the contractor to proceed or direct them to make the necessary corrections based on inspection results.
- **Electrical circuit testing.** The RPM system requires installation of a separate branch power circuit for each RPM and often additional feeder circuits for a new subpanel.

Occasionally, additional branch circuits are required for ancillary support equipment such as computers, Ethernet switches, etc. Prior to releasing the electrical subcontractor from the site, an electrician shall ring out all newly installed branch and feeder circuits. Closed circuits shall exhibit the proper voltage (typically 115-V ± 10%); open circuits shall exhibit a zero voltage. No stray currents or ground voltages shall be observed. Proper check-off of this inspection shall be made on the RPM Contractor Completion Checklist (Appendix D: Contractor Completion Checklist).

- **Ethernet cable functional inspection.** As described in these contract documents, all Ethernet cables shall be terminated and tested with the Fluke DTX CableAnalyzer cable tester (or approved equivalent) prior to releasing installer. Fiber optic cables shall be installed and tested in accordance with IEEE Standard C2, NFPA 70 and TIA Standard TIA-590-A. The contractor shall perform end-to-end tests including power meter light source and OTDR tests. Perform OTDR measurements as required by TIA/EIA-568-B.1 and TIA/EIA-568-B.3. Single-mode fiber shall be tested in accordance with TIA-526-7 (optical power loss). Multi-mode fiber shall be tested in accordance with TIA-526-14-A. Proper check-off of this inspection shall be recorded on the RPM Contractor Completion Checklist (Appendix D).
- **Dismantling and storage of RPMs on site.** The existing RPM equipment will be decommissioned, dismantled, and stored for reuse on site. PNNL shall be present during this demolition work and verify that the equipment is adequately stored to prevent damage until reinstalled on site.

These hold points are established to minimize difficulties in the field and compliance with construction documents. Failure to secure an inspection and achieve an affirmative inspection result means the contractor proceeds at its own risk and is accountable for any rework and repair. The GSA representative will authorize the contractor to proceed or direct them to make the necessary corrections based on inspection results at each of the hold point inspections.

Appendix D: Contractor Completion Checklist

The following items shall be completed by the contractor before RPM vendor personnel arrive on site. Because the work will be done in phases, these items represent those items for each phase and only include those items related to RPM installation and do not include RPM decommissioning tasks.

- All foundations, anchor bolts, bollards, and lane control features (e.g., curbing or Jersey barriers) shall be installed.
- Stands shall be plumb. All nuts shall be installed and tightened per the *RPM8 Radiation Portal Monitor Installation Manual, Section 2.3* (Revision 1.1, March 8, 2007).
- Cargo/bus upper shrouds shall be securely fastened to lower shrouds. The nuts/bolts shall be installed using GFE CI bolts, nuts and washers using a star pattern tightening procedure, completing at least two, ⅛-turn rotations of each nut.
- All annunciators shall be installed in their respective locations (i.e., inspection booths or on stand).
- All conduits shall be run neatly and above-ground conduit clamped securely in place. Spare conduit shall have pull strings installed and shall be capped. All conduit penetrations shall be sealed. Water-tight hubs that will penetrate into the RSPs shall be installed on conduit that can be turned 90° and secured in the conduit port for the RSPs. All threaded conduit connections on the stands shall be sealed to prevent entrance of water into the conduit.
- Ethernet cable (Category 6) shall be pulled and labeled, leaving a sufficient tail (an additional 2 ft) in the control box and to the associated Ethernet switches (or) media converter.
- Annunciator cable (4-pair) shall be pulled and labeled, leaving a sufficient tail (an additional 2 ft) in the control box and into the annunciator (plus an additional 1 ft).
- All Ethernet cable shall be pulled, terminated, and tested with the Fluke DTX CableAnalyzer cable tester (or approved equivalent). Surge protection devices shall be installed on each end of the Ethernet cables for which at least one end is outside. Each surge protection device shall be properly grounded.
- RPM power wire shall be run from the battery boxes to the corresponding backed-up power subpanel and terminated at both the battery box and the circuit breaker. The power circuit shall be tested (i.e., no floating neutrals) and shall be clean.
- Detector cable shall be pulled and labeled into appropriate termination points and left for others to terminate.
- Signage shall be installed and pavement markings completed.
- Ancillary GFE CI equipment (if applicable) shall be installed.
- Redline as-built construction documents shall be provided.

Appendix E: Template Setting Procedure for Placing RPM Anchor Bolts in Concrete Foundations

If excavated foundations are required, GFE CI metal templates representing the footprint of the RPM stand will be provided to the contractor. One template per stand is provided. Using this procedure, the concrete can be completely finished, including the area under the template and 2x4s. Figure E-1 shows an example of the finished anchor bolt/template placement general approach. The following method shall be used to ensure proper alignment of the anchor bolts in below-grade foundations:

1. Drill a pair of 1 1/8-in.-diameter holes in two 2x4s to exactly match the holes in the short side of the template (1 ft.–5-1/4 in. spacing). The 2x4s should be long enough to span the width of the concrete island forms. (Drill two pairs of holes if the stands are to be placed back-to-back, taking care to ensure correct spacing of stands.)
2. Force the anchor bolts through the holes in the 2x4s and place the template over the bolts. Thread a nut onto each bolt to hold it in place.
3. Secure a set of shims (made from scrap 2x4s) to the concrete forms such that the 2x4s will be placed on top of the shims. This assures that the 2x4s will not touch the concrete and provides a guide to assist in slightly sloping the concrete for drainage.
4. Place the 2x4s with the bolts in templates across the concrete forms. Take care to ensure that the critical lane-spacing dimensions are met as shown in the drawings.
5. When the bolts are accurately positioned, secure the 2x4s to the top of the forms with deck screws or duplex nails.
6. Measure the bolt exposure and adjust the nuts to ensure a 4-in. exposure (should provide for 13-in. minimum embedment).
7. Secure a spare template with additional nuts to the top of the protruding bolts to assure vertical alignment of the bolts.
8. Once the templates and bolts are securely in place, finish assembly of the remaining anchor bolt rebar and top mat rebar.
9. Protect all threads (i.e., cover with duct tape).

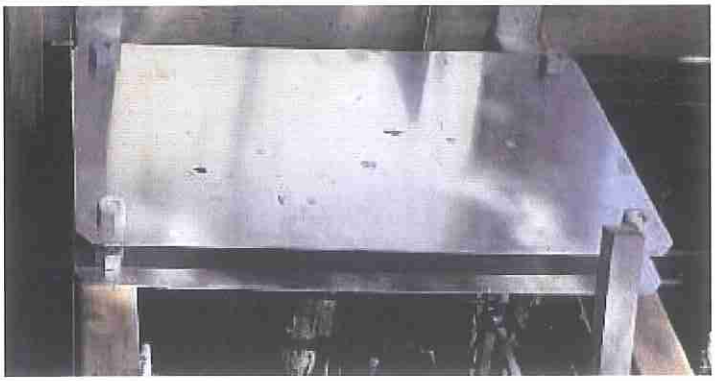

Figure E-1. Example of Finished Anchor Bolt/Template Placement

Appendix F: Schedule Milestones

The contractor shall include in its detailed schedule of activities the necessary date(s) of receipt of all GFE CI (e.g., palletized RPM components and anchor bolt templates) to meet construction and installation efforts.

Appendix H: Construction Documents Drawings

The design for this installation is provided in design drawings provided by Maine DOT.

Pacific Northwest
NATIONAL LABORATORY

U.S. DEPARTMENT OF
ENERGY

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Richland, WA 99352
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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 More Than	Up to and Including	Amount of Liquidated 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 Water Pollution Control Plan (SEWPCP) will result in a violation letter and a reduction in payment as shown in the schedule below. 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.

ORIGINAL CONTRACT AMOUNT

From	Up to and	Amount of Penalty Damages per Violation		
More Than	Including	1st	2nd	3rd & Subsequent
$0	$1,000,000	$250	$500	$1,250
$1,000,000	$2,000,000	$500	$1,000	$2,500
$2,000,000	$4,000,000	$1,000	$2,000	$5,000
$4,000,000	and more	$2,000	$4,000	$10,000"

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

Environmental Summary Sheet

Pin: 10042.10 **Date Submitted: 4/5/11**
Town: Fort Kent
CPD Team Leader: J Nichols
NEPA Complete: 4/4/11

☒ **Section 106**
SHPO Concurrence
Special Conditions:

☒ **Section 4(f) and 6(f)**
Section 4(f)
Review Complete
Section 6(f)
Not Applicable

☒ **Maine Department of Inland Fisheries and Wildlife Essential Habitat**

Not Applicable **Timing Window: Not Applicable**

☒ **Section 7**
No Effect
Species of Concern: Lynx

Comments/References: Not Applicable

☒ **Maine Department of Conservation/Public Lands, Submerged Land Lease**
Not Applicable

☒ **Maine Land Use Regulation Commission**
Not Applicable

**Applicable Standards and Permits are included with the contract*

☒ **Maine Department of Environmental Protection**
Not Applicable

**Applicable Standards and Permits are included with the contract*

☒ **Army Corps of Engineers, Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act.**
Not Applicable

**Applicable Standards and Permits are included with the contract*

☒ **Coast Guard**
Not Applicable
**Applicable Standards and Permits are included with the contract*

☒ **Special Provisions Required**

Special Provision 105-Timing of Work Restriction	N/A☒	Applicable☐
Special Provision 656-Erosion Control Plan	N/A☐	Applicable☒
Special Provision 203-Dredge Spec	N/A☒	Applicable☐
General Note for Hazardous Waste	N/A☐	Applicable☒
Special Provision 203-Hazardous Waste	N/A☒	Applicable☐
Special Provision 105.9	N/A☒	Applicable☐

**All permits and approvals based on plans/scope as of: 4/5/11*