MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

CONTRACT DOCUMENTS

CONTRACT 2014.11

BRIDGE REPAIRS

STROUDWATER RIVER BRIDGES
(MILE 46.7)
MAINE CENTRAL RAILROAD BRIDGES
(MILE 47.9)

NOTICE TO CONTACTORS

PROPOSAL

CONTRACT AGREEMENT

CONTRACT BOND

FINAL LIEN AND CLAIM WAIVER AND AFFIDAVIT

SPECIFICATIONS

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

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

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

TABLE OF CONTENTS

	PAGE
NOTICE TO CONTRACTORS	N-1
PROPOSAL	P-1
CONTRACT AGREEMENT	C-1
CONTRACT BOND	CB-1
FINAL LIEN AND CLAIM WAIVER AND AFFIDAVIT	F-1

ARRANGEMENT OF SPECIFICATIONS

PART I - GENERAL PROVISIONS	GP-1
PART II - SPECIAL PROVISIONS	SP-1
PART III - APPENDICES (Part of Special Provisions)	AP-1

PART I - GENERAL PROVISIONS

SECTION	TITLE	PAGE
100	GENERAL PROVISIONS	
100.1	REPLACEMENT OF FORMER STANDARD SPECIFICATIONS AND DETAILS	GP-1
101	CONTRACT INTERPRETATION	
101.2	DEFINITIONS	GP-1
102	BIDDING	
102.1.1	BASIC REQUIREMENTS	GP-2
102.6	BID GUARANTY	GP-3
102.7.1	LOCATION AND TIME	GP-3
102.7.2	EFFECTS OF SIGNING AND DELIVERY OF BIDS	GP-3

PART I - GENERAL PROVISIONS - Continued

SECTION	TITLE	PAGE
103	AWARD AND CONTRACTING	
103.3.1	NOTICE AND INFORMATION GATHERING	GP-3
103.3.2	NOTICE OF DETERMINATION	GP-3
103.3.3	APPEAL	GP-4
103.4	NOTICE OF AWARD	GP-4
103.5.4	EXECUTION OF CONTRACT BY BIDDER	GP-4
103.8	EXECUTION OF CONTRACT BY DEPARTMENT	GP-5
104	GENERAL RIGHTS AND RESPONSIBILITIES	
104.2.1	FURNISHING OF RIGHT-OF-WAY	GP-5
104.2.3	AUTHORITY OF PROJECT MANAGER AND RESIDENT	GP-5
104.3.5	DUTIES REGARDING INSPECTION OF WORK	GP-5
104.3.7	LAWS TO BE OBSERVED	GP-6
104.3.8	WAGE RATES AND LABOR LAWS	GP-6
104.3.11	RESPONSIBILITY FOR PROPERTY OF OTHERS	GP-7
104.3.14	INTERPRETATION AND INTERPOLATION	GP-7
104.4.2	PRECONSTRUCTION CONFERENCE	GP-7
104.4.5	EARLY NEGOTIATION	GP-8
104.4.7	COOPERATION WITH OTHER CONTRACTORS	GP-8
104.4.10	COORDINATION OF BRIDGE CLOSURE/BRIDGE WIDTH RESTRICTION NOTIFICATION	GP-9
104.5.9	LANDSCAPE SUBCONTRACTORS	GP-9
105	GENERAL SCOPE OF WORK	
105.1	INTENT OF THE CONTRACT	GP-9

PART I - GENERAL PROVISIONS - Continued

SECTION	TITLE	PAGE
105.2.3	JOINT DUTY REGARDING SAFETY	GP-10
105.2.4.1	LOCKOUT/TAGOUT PROCEDURES	GP-10
105.4.1	MAINTENANCE DURING CONSTRUCTION	GP-10
105.4.3	MAINTENANCE DURING WINTER CONSTRUCTION	GP-11
105.5.1	GENERAL REQUIREMENTS	GP-11
105.6	CONSTRUCTION SURVEYING	GP-13
105.6.1	AUTHORITY PROVIDED SERVICES	GP-13
105.6.2	CONTRACTOR PROVIDED SERVICES	GP-13
105.6.2.1	QUALITY CONTROL	GP-13
105.6.3	QUALITY ASSURANCE	GP-13
105.6.4	BOUNDARY MARKERS	GP-14
105.7.1	GENERAL	GP-14
105.7.4	SUBMITTAL REQUIREMENTS	GP-15
105.8.1	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	GP-15
105.10	EQUAL OPPORTUNITY AND CIVIL RIGHTS	GP-16
105.10.1	REQUIREMENTS APPLICABLE TO FEDERALLY FUNDED CONTRACTS	GP-16
105.10.2	REQUIREMENTS APPLICABLE TO ALL CONTRACTS	GP-16
105.11	OTHER FEDERAL REQUIREMENTS	GP-17
105.12	LIMITATIONS OF OPERATIONS	GP-17
106	QUALITY	
106.3.3	SOURCES	GP-18
106.3.4	STORAGE	GP-18

SECTION	TITLE	PAGE
106.3.7	SAMPLING AND TESTING	GP-18
106.6	ACCEPTANCE	GP-18
106.8.3	UNAUTHORIZED WORK	GP-18
107	TIME	
107.1.1	SUBSTANTIAL COMPLETION	GP-19
107.3.1	GENERAL	GP-19
107.3.2	NIGHT WORK	GP-19
107.3.3	SUNDAYS AND HOLIDAYS	GP-20
107.4.2	SCHEDULE OF WORK REQUIRED	GP-20
107.4.4	SCHEDULE REVISIONS	GP-20
107.7.2	SCHEDULE OF LIQUIDATED DAMAGES	GP-20
107.9.1	FINAL CLEAN-UP AND FINISHING	GP-21
108	PAYMENT	
108.1	MEASUREMENT OF QUANTITIES FOR PAYMENT	GP-21
108.1.2	GENERAL MEASUREMENT PROVISIONS	GP-21
108.1.3	PROVISIONS RELATING TO CERTAIN MEASUREMENTS	GP-21
108.2.1	GENERATION OF PROGRESS PAYMENT ESTIMATES	GP-21
108.2.2	PAYMENT	GP-22
108.2.3	MOBILIZATION PAYMENTS	GP-22
108.3	RETAINAGE	GP-22
108.4	PAYMENT FOR MATERIALS OBTAINED AND STORED	GP-23
108.4.1	PRICE ADJUSTMENT FOR HOT MIX ASPHALT	GP-23
108.5	RIGHT TO WITHHOLD PAYMENT	GP-23

PART I - GENERAL PROVISIONS - Continued

SECTION	TITLE	PAGE
108.6	TAXES, FEES, ALLOWANCES, AND NOTICES	GP-24
108.8	FINAL PAYMENT	GP-24
109	CHANGES	
109.1.1	CHANGES PERMITTED	GP-24
109.1.2	SUBSTANTIAL CHANGES TO MAJOR ITEMS	GP-24
109.3	EXTRA WORK	GP-24
109.4	DIFFERING SITE CONDITIONS	GP-25
109.4.1	DEFINITION	GP-25
109.4.4	INVESTIGATION / ADJUSTMENT	GP-25
109.5.1	DEFINITIONS – TYPES OF DELAYS	GP-25
109.5.2	ENTITLEMENT TO ADJUSTMENTS	GP-25
109.5.5	DOCUMENTING THE DELAY AND REQUEST FOR ADJUSTMENTS	GP-26
109.5.6	DECISION BY PROGRAM MANAGER	GP-26
109.5.7	ADDITIONAL CONSIDERATION BY DEPARTMENT	GP-26
109.6.1	OVERVIEW – GENERAL REQUIREMENTS	GP-26
109.7.2	BASIS OF PAYMENT	GP-26
109.7.3	COMPENSABLE ITEMS	GP-26
109.7.5	FORCE ACCOUNT WORK	GP-27
110	INDEMNIFICATIONS, BONDING AND INSURANCE	
110.2.1	BONDS	GP-27
110.2.3	BONDING FOR LANDSCAPE SUBCONTRACTORS	GP-28
110.2.3	BONDING FOR LANDSCAPE ESTABLISHMENT PERIOD	GP-28

PART I - GENERAL PROVISIONS - Continued

SECTION	TITLE	PAGE
110.3	INSURANCE	GP-29
110.3.05	UMBRELLA LIABILITY	GP-29
110.3.2	COMMERCIAL GENERAL LIABILITY	GP-29
110.3.4	PROFESSIONAL LIABILITY	GP-29
110.3.5	OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY	GP-30
110.3.6	BUILDER'S RISK INSURANCE	GP-30
110.3.8	ADMINISTRATIVE AND GENERAL PROVISIONS	GP-30
111	RESOLUTION OF DISPUTES	
111.1.2	ESCALATION PROCESS	GP-30
111.1.8	COMMISSIONER COMMUNICATIONS BEFORE APPEAL	GP-31
111.2	PROJECT LEVEL NEGOTIATION TO 111.6 JUDICIAL REVIEW	GP-31
112	DEFAULT AND TERMINATION	
112.2	TERMINATION	GP-31
203	EXCAVATION AND EMBANKMENT	
203.01	DESCRIPTION	GP-32
203.18	METHOD OF MEASUREMENT	GP-32
502	STRUCTURAL CONCRETE	
502.10	FORMS AND FALSE WORK	GP-32
502.11	PLACING CONCRETE	GP-32
502.15	CURING CONCRETE	GP-32
503	REINFORCING STEEL	
503.06	PLACING AND FASTENING	GP-33

SECTION	TITLE	PAGE
504	STRUCTURAL STEEL	
504.09	FACILITIES FOR INSPECTION	GP-33
504.18	PLATES FOR FABRICATED MEMBERS	GP-33
504.31	SHOP ASSEMBLY	GP-33
535	PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE	
535.02	MATERIALS	GP-34
535.05	INSPECTION FACILITIES	GP-34
535.26	LATERAL POST-TENSIONING	GP-34
603	PIPE CULVERTS AND STORMDRAINS	
603.0311	CORRUGATED POLYETHYLENE PIPE FOR OPTION III	GP-34
604	MANHOLES, INLETS, AND CATCH BASINS	
604.02	MATERIALS	GP-34
605	UNDERDRAINS	
605.05	UNDERDRAIN OUTLETS	GP-35
606	GUARDRAIL	
606.02	MATERIALS	GP-35
606.09	BASIS OF PAYMENT	GP-35
615	LOAM	
615.02	MATERIALS	GP-35
618	SEEDING	
618.01	DESCRIPTION	GP-36
618.03	RATES OF APPLICATION	GP-36
618.09	CONSTRUCTION METHOD	GP-36

SECTION	TITLE	PAGE
618.15	TEMPORARY SEEDING	GP-36
620	GEOTEXTILES	
620.03	PLACEMENT	GP-36
620.07	SHIPMENT, STORAGE, PROTECTION AND REPAIR OF FABRIC	GP-36
620.09	BASIS OF PAYMENT	GP-36
621	LANDSCAPING	
621.0036	ESTABLISHMENT PERIOD	GP-37
626	HIGHWAY SIGNING	
626.034	CONCRETE FOUNDATIONS	GP-37
639	ENGINEERING FACILITIES	
639.04	FIELD OFFICES	GP-37
639.09	TELEPHONE	GP-37
639.11	BASIS OF PAYMENT	GP-38
652	MAINTENANCE OF TRAFFIC	
652.2	MATERIALS	GP-38
652.2.4	OTHER DEVICES	GP-38
652.2.5	SAFETY VESTS	GP-38
652.3.1	RESPONSIBILITY OF THE DEPARTMENT	GP-38
652.3.2	RESPONSIBILITY OF THE CONTRACTOR	GP-39
652.3.3	SUBMITTAL OF TRAFFIC CONTROL PLAN	GP-39
652.3.4	GENERAL	GP-39
652.3.41	LOCAL ROAD GENERAL REQUIREMENTS	GP-40

SECTION	TITLE	PAGE
652.3.5	INSTALLATION OF TRAFFIC CONTROL DEVICES	GP-41
652.3.6	TRAFFIC CONTROL	GP-42
652.41	TRAFFIC OFFICERS	GP-42
652.6	NIGHT WORK	GP-42
652.61	CONSTRUCTION VEHICLES	GP-42
652.7	METHOD OF MEASUREMENT	GP-42
652.8.2	OTHER ITEMS	GP-43
653	POLYSTYRENE PLASTIC INSULATION	
653.05	PLACING BACKFILL	GP-43
653.06	COMPACTION	GP-43
656	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	
656.01	DESCRIPTION	GP-43
656.02	GENERAL	GP-44
656.03	SILT FENCE	GP-44
656.04	TEMPORARY EROSION CHECKS	GP-45
656.041	EROSION CONTROL FILTER BERM	GP-45
656.05	TEMPORARY BERMS	GP-45
656.06	TEMPORARY SLOPE DRAINS	GP-45
656.07	DUMPED STONE	GP-45
656.08	SILT FENCE	GP-46
656.081	BOOM SUPPORTED FLOATING SILT FENCE	GP-46
656.082	MAINTENANCE	GP-46

SECTION	TITLE	PAGE
656.085	EROSION CONTROL COMPLIANCE OFFICER	GP-46
656.09	REMOVING AND DISPOSING	GP-47
656.10	METHOD OF MEASUREMENT	GP-47
656.11	BASIS OF PAYMENT	GP-47
701	STRUCTURAL CONCRETE RELATED MATERIALS	
701.10	FLY ASH – CHEMICAL REQUIREMENTS	GP-48
703	AGGREGATES	
703.06	AGGREGATE FOR BASE AND SUBBASE	GP-48
703.22	UNDERDRAIN BACKFILL MATERIAL	GP-49
706	NON-METALLIC PIPE	
706.06	CORRUGATED POLYETHYLENE PIPE FOR UNDERDRAIN, OPTION I AND OPTION II IN CULVERT PIPE	GP-49
709	REINFORCING STEEL AND WELDED STEEL WIRE FABRIC	
709.03	STEEL STRAND	GP-49
712	MISCELLANEOUS HIGHWAY MATERIALS	
712.07	TOPS AND TRAPS	GP-49
712.08	CORRUGATED METAL UNITS	GP-49
712.09	CATCH BASIN AND MANHOLE STEPS	GP-50
712.23	FLASHING LIGHTS	GP-50
712.32	COPPER TUBING	GP-51
712.33	NON-METALLIC PIPE, FLEXIBLE	GP-51
712.34	NON-METALLIC PIPE, RIGID	GP-51
712.341	METALLIC PIPE	GP-51

SECTION	TITLE	PAGE
712.35	EPOXY RESIN	GP-51
712.36	BITUMINOUS CURB	GP-52
712.37	PRECAST CONCRETE SLAB	GP-52
712.38	STONE SLAB	GP-52
717	ROADSIDE IMPROVEMENT MATERIAL	
717.03	C. METHOD #3 – ROADSIDE MIXTURE #3	GP-52
717.05	MULCH BINDER	GP-53

PART II - SPECIAL PROVISIONS

SECTION	TITLE	PAGE
__	GENERAL DESCRIPTION OF WORK	SP-1
__	PLANS	SP-1
101.2	DEFINITION	SP-1
103.4	NOTICE OF AWARD	SP-1
104.2.2	FURNISHING OF PERMITS	SP-2
104.3.8	WAGE RATES AND LABOR LAWS	SP-2
104.4.4	REQUEST FOR INFORMATION (RFI)	SP-4
104.4.6	UTILITY COORDINATION	SP-4
104.4.7	COOPERATION WITH OTHER CONTRACTORS	SP-4
104.4.8	COOPERATION WITH RAILROADS	SP-4
105.2.4.2	LEAD PAINT	SP-5
105.3	TRAFFIC CONTROL AND MANAGEMENT	SP-8
105.5.1	GENERAL REQUIREMENTS	SP-8
105.7.4	SUBMITTAL REQUIREMENTS	SP-8
105.8.1	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	SP-8
105.8.1.1	ENVIRONMENTAL STANDARDS	SP-10
105.8.1.11	WATER POLLUTION CONTROL REQUIREMENTS	SP-11
105.8.1.12	CONSTRUCTION REQUIREMENTS	SP-12
105.8.2	PERMIT REQUIREMENTS	SP-13
105.8.3	WETLAND AND WATER BODY IMPACTS	SP-14
107.1	CONTRACT TIME AND CONTRACT COMPLETION DATE	SP-14
107.1.1	SUBSTANTIAL COMPLETION	SP-14

PART II – SPECIAL PROVISIONS - Continued

SECTION	TITLE	PAGE
107.3.2	NIGHT WORK	SP-15
107.4.2	SCHEDULE OF WORK REQUIRED	SP-15
107.4.6	PROSECUTION OF WORK	SP-15
107.4.7	LIMITATIONS OF OPERATIONS	SP-15
107.4.8	FAILURE TO STOP COMPLETE DAILY WORK ON TIME	SP-17
107.4.9	FAILURE TO STOP WORK WHEN DIRECTED	SP-17
107.7.2	SCHEDULE FO LIQUIDATED DAMAGES	SP-18
108.4	PAYMENT FOR MATERIALS OBTAINED AND STORED	SP-18
108.4.1	PRICE ADJUSTMENT FOR HOT MIX ASPHALT	SP-19
109.7.3	COMPENSABLE ITEMS	SP-20
202.	REMOVING STRUCTURES AND OBSTRUCTIONS (Removing Existing Structural Concrete)	SP-21
202.	REMOVING STRUCTURES AND OBSTRUCTIONS (Removing Existing Drainage Troughs)	SP-22
202.	REMOVING STRUCTURES AND OBSTRUCTIONS (Removing Pavement Surface) (Removing Pavement Surface – Bridge Deck)	SP-24
202.	REMOVING STRUCTURES AND OBSTRUCTIONS (Removing Rumble Strips)	SP-27
203.	EXCAVATION AND EMBANKMENT	SP-29
206.	STRUCTURAL EXCAVATION	SP-31
401.	HOT MIX ASPHALT PAVEMENTS	SP-33
403.	HOT BITUMINOUS PAVEMENT	SP-53
409.	BITUMINOUS TACK COAT	SP-55

PART II – SPECIAL PROVISIONS - Continued

SECTION	TITLE	PAGE
419.	SAWING AND SEALING JOINTS IN BITUMINOUS PAVEMENT (Sawing Bituminous Pavement)	SP-57
502.	STRUCTURAL CONCRETE	SP-58
502.	STRUCTURAL CONCRETE (Structural Concrete Abutments and Retaining Walls)	SP-89
502.	STRUCTURAL CONCRETE (Bridge Drain Grate Modifications)	SP-90
502.	STRUCTURAL CONCRETE (Installation of Plastic Deck Drains)	SP-92
503.	REINFORCING STEEL (Measurement and Payment)	SP-94
504.	STRUCTURAL STEEL	SP-95
507.	RAILINGS (Aluminum Bridge Railing Splice Modification)	SP-99
508.	MEMBRANE WATERPROOFING	SP-100
510.	SPECIAL DETOURS (Temporary Steel Plate Special Detour)	SP-101
511.	COFFERDAMS (Temporary Earth Support Systems)	SP-103
515.	PROTECTIVE COATING FOR CONCRETE SURFACES (Pigmented Concrete Protective Coating)	SP-108
515.	PROTECTIVE COATING FOR CONCRETE SURFACES (Clear Concrete Protective Coating)	SP-111
518.	STRUCTURAL CONCRETE REPAIR (Granite Curb Joint Mortar and Bedding Mortar Repair)	SP-114
518.	STRUCTURAL CONCRETE REPAIR (Abutment Repairs) (Partial Depth Concrete Deck Repairs) (Full Depth Concrete Deck Repairs)	SP-116

PART II – SPECIAL PROVISIONS - Continued

SECTION	TITLE	PAGE
520.	EXPANSION DEVICES – NON MODULAR (Locking Compression Seal Joints)	SP-121
520.	EXPANSION DEVICES – NON MODULAR (Modify Joint Armor)	SP-124
523.	BEARINGS (Bearing Removal and Reinstallation) (Bearing Replacement)	SP-126
524.	TEMPORARY STRUCTURAL SUPPORTS (Jacking Existing Superstructure)	SP-128
524.	TEMPORARY STRUCTURAL SUPPORTS (Protective Shield – Steel Girders)	SP-131
526.	CONCRETE BARRIER (Temporary Concrete Barrier Type I - Supplied by Authority)	SP-133
527.	ENERGY ABSORBING UNIT (Work Zone Crash Cushion)	SP-136
604.	MANHOLES, INLETS, AND CATCH BASINS (Secure Catch Basin Grate)	SP-137
606.	GUARDRAIL (Reflectorized Beam Guardrail Delineator)	SP-139
606.	GUARDRAIL (Guardrail – Remove, Modify and Reset)	SP-141
619.	MULCH	SP-143
626.	FOUNDATIONS, CONDUIT AND JUNCTION BOXES FOR HIGHWAY SIGNING, LIGHTING AND SIGNALS (Aluminum Junction Box) (Metallic Conduit)	SP-145
627.	PAVEMENT MARKINGS (Temporary Painted Pavement Markings)	SP-147
627.	PAVEMENT MARKINGS (Temporary Raised Pavement Markers)	SP-149

PART II – SPECIAL PROVISIONS - Continued

SECTION	TITLE	PAGE
627.	PAVEMENT MARKINGS (Temporary Pavement Markings - Tape)	SP-151
627.	PAVEMENT MARKINGS (Temporary Pavement Markings – Black Tape)	SP-153
652.	MAINTENANCE OF TRAFFIC (General)	SP-155
652.	MAINTENANCE OF TRAFFIC (Specific Project Maintenance of Traffic Requirements)	SP-160
652.	MAINTENANCE OF TRAFFIC (Temporary Mainline Lane Closures) (Lane Closure Installation and Removal Procedures) (Temporary Mainline Shoulder Closures) (Work Requiring Complete Stoppages of Traffic) (Short-Term or Work Hour Speed)	SP-162
652.	MAINTENANCE OF TRAFFIC (Portable Changeable Message Sign)	SP-167
652.	MAINTENANCE OF TRAFFIC (Truck Mounted Attenuator)	SP-169
656.	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	SP-171

PART III – APPENDICES

SECTION	TITLE	PAGE
APPENDIX A -	LANE CLOSURE GUIDANCE	A - A1

MAINE TURNPIKE AUTHORITY

NOTICE TO CONTRACTORS

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

CONTRACT 2014.11

BRIDGE REPAIRS
STROUDWATER RIVER BRIDGES
(MILE 46.7)
MAINE CENTRAL RAILROAD BRIDGES
(MILE 47.9)

at the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, ME, until 1:00 p.m., prevailing time as determined by the Authority on January 13, 2014 at which time and place the Proposals will be publicly opened and read. Bids will be accepted from Contractors **prequalified** by the Maine Department of Transportation for Bridge Construction Projects. All other bids may be rejected. This Project includes a wage determination developed by the State of Maine Department of Labor.

The work consists of repairs to four bridge structures for the Maine Turnpike Authority. The work includes bridge expansion joint and joint seal replacements, rocker bearing resets and replacements, substructure repairs, deck repairs, bridge deck membrane and paving, approach paving, guardrail modifications and reset, maintenance of traffic and all other work incidental thereto in accordance with the Plans and Specifications.

The general limits of work are from Mile 46.7 to Mile 47.9 in the city of Portland, Maine.

Plans and Contract Documents may be examined by prospective Bidders weekdays between 8:00 a.m. and 4:30 p.m. at the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine. **The full size Plans** and Contract Documents may be obtained from the Authority upon payment of One Hundred ($100.00) Dollars for each set, which payment will not be returned. **The half** size Plans and Contract Documents may be obtained from the Authority upon payment of Seventy ($70.00) Dollars for each set, which payment will not be returned. Checks shall be made payable to: Maine Turnpike Authority. The Plans and Contract Documents may also be downloaded from a link on our website at **http://www.maineturnpike.com/project-and-planning/Construction-Contracts.aspx**.

For general information regarding Bidding and Contracting procedures, contact Nate Carll, Purchasing Manager, at (207) 871-7771 Ext. 105. For information regarding Schedule of Items, plan holders list and bid results, visit our website at **http://www.maineturnpike.com/project-and-planning/Construction-Contracts.aspx** . For Project specific information, fax all questions to Nate Carll, Purchasing Manager, at (207) 871-7739. Responses will not be prepared for questions received by telephone. Bidders shall not contact any other Authority staff or Consultants

for clarification of Contract provisions, and the Authority will not be responsible for any interpretations so obtained.

All work shall be governed by the Specifications entitled "State of Maine, Department of Transportation, Standard Specifications, Revision of December 2002", "Standard Details, Revision of December 2002" and "Best Management Practices for Erosion and Sediment Control", latest issue. Copies and recent updates to these publications can be downloaded at: http://www.maine.gov/mdot/contractors/publications/ .

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

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

A pre-bid conference will be held on January 6, 2014 at 1:00 p.m. at the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine.

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

MAINE TURNPIKE AUTHORITY

Nate Carll
Purchasing Manager
Maine Turnpike Authority

Portland, Maine

Maine Turnpike Authority

MAINE TURNPIKE

PROPOSAL

CONTRACT 2014.11

BRIDGE REPAIRS

STROUDWATER RIVER BRIDGES
(MILE 46.7)

MAINE CENTRAL RAILROAD BRIDGES
(MILE 47.9)

MAINE TURNPIKE AUTHORITY

PROPOSAL

CONTRACT 2014.11

BRIDGE REPAIRS
STROUDWATER RIVER BRIDGES
(MILE 46.7)
MAINE CENTRAL RAILROAD BRIDGES
(MILE 47.9)

TO MAINE TURNPIKE AUTHORITY:

The work consists of repairs to four bridge structures for the Maine Turnpike Authority. The work includes bridge expansion joint and joint seal replacements, rocker bearing resets and replacements, substructure repairs, deck repairs, bridge deck membrane and paving, approach paving, guardrail modifications and reset, maintenance of traffic and all other work incidental thereto in accordance with the Plans and Specifications.

The general limits of work are from Mile 46.7 to Mile 47.9 in the city of Portland, Maine.

This Work will be done under a Contract known as Contract 2014.11 according to the Plans and Specifications which are on file in the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine.

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

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

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

SCHEDULE OF BID PRICES
CONTRACT NO. 2014.11
BRIDGE REPAIRS
STROUDWATER RIVER BRIDGES MILE 46.7
MAINE CENTRAL RAILROAD BRIDGES MLE 47.9

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
202.122	Removing Existing Concrete	Cubic Yard	26				
202.202	Removing Pavement Surface	Square Yard	2,145				
202.2021	Removing Pavement Surface - Bridge Deck	Square Yard	1,345				
202.206	Removing Rumble Strips	Linear Foot	3,980				
203.20	Common Excavation	Cubic Yard	150				
206.082	Structural Earth Excavation - Major Structures	Cubic Yard	18				
304.09	Aggregate Base Course - Crushed	Cubic Yard	12				
403.208	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size, Surface	Ton	265				
403.2081	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size - Bridge Deck	Ton	380				
403.211	Hot Mix Asphalt (Shimming)	Ton	120				
403.213	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size, Base	Ton	70				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
			BROUGHT FORWARD:				
409.15	Bituminous Tack Coat - Applied	Gallon	160				
409.151	Bituminous Tack Coat - Applied, Bridge	Gallon	200				
419.30	Sawing Bituminous Pavement	Linear Foot	1,090				
502.21	Structural Concrete, Abutments and Retaining Walls	Cubic Yard	28				
502.701	Bridge Drain Grate Modification	Each	12				
502.81	Installation of Plastic Deck Drains	Each	7				
503.14	High Performance Membrane	Lump Sum	1				
507.095	Aluminum Bridge Railing – Splice Modification	Each	176				
510.13	Temporary Steel Plate Special Detour	Lump Sum	1				
511.091	Temporary Earth Support Systems	Lump Sum	1				
514.06	Curing Box for Concrete Cylinders	Each	2				
515.201	Pigmented Protective Coating for Concrete Surfaces	Square Yard	130				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
				BROUGHT FORWARD:			
515.202	Clear Protective Coating for Concrete Surfaces	Square Yard	300				
518.11	Abutment and Bridge Seat Repairs	Square Foot	255				
518.39	Granite Curb Joint Mortar and Bedding Mortar Repair	Linear Foot	160				
518.80	Partial Depth Concrete Repairs	Square Foot	700				
518.81	Full Depth Concrete Repairs	Square Foot	5				
520.2225	Stroudwater River NB - Install Complete New Locking Compression Seal Joints	Linear Foot	84				
520.2226	Stroudwater River SB - Install New Locking Compression Seals	Linear Foot	84				
520.2227	Maine Central Railroad NB - Install Complete New Locking Compression Seal Joints	Linear Foot	86				
520.2228	Maine Central Railroad SB - Install New Locking Compression Seals	Linear Foot	86				
520.2234	Stroudwater River SB - Modify Joint Armor	Linear Foot	76				
523.521	Bearing Removal and Reinstallation	Each	9				
523.5304	Steel Bearing Replacement, Expansion, Rocker	Each	4				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
			BROUGHT FORWARD:				
524.7211	Jacking Existing Superstructure (Bearing)	Each	13				
526.306	Temporary Concrete Barrier, Type I - Supplied by Authority	Lump Sum	1				
527.34	Work Zone Crash Cushions - TL-3	Unit	2				
604.40	Secure Catch Basin Frame Grate	Each	4				
606.178	Guardrail Beam	Linear Foot	50				
606.352	Reflectorized Beam Guardrail Delineator	Each	240				
606.3605	Guardrail - Remove, Modify, & Reset Single Rail	Linear Foot	525				
606.48	Single Galvanized Steel Post	Each	6				
615.07	Loam	Cubic Yard	40				
618.14	Seeding Method Number 2	Unit	4				
619.12	Mulch	Unit	4				
619.1202	Temporary Mulch	Lump Sum	1				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
			BROUGHT FORWARD:				
626.112	Aluminum Junction Box	Each	2				
626.212	Metallic Conduit - 2 Inch Rigid Galvanized	Linear Foot	604				
627.681	Temporary 6 Inch Pavement Marking Line, Yellow or White	Linear Foot	20,880				
627.73	Temporary 6 Inch Pavement Marking Tape	Linear Foot	11,520				
627.731	Temporary 6 Inch Black Pavement Marking Tape	Linear Foot	6,400				
627.77	Removing Pavement Markings	Square Foot	3,540				
627.812	Temporary Raised Pavement Markers	Each	620				
629.05	Hand Labor	Hour	80				
631.10	Air Compressor (including operator)	Hour	40				
631.11	Air Tool (including operator)	Hour	80				
631.12	All Purpose Excavator (including operator)	Hour	20				
631.172	Truck - large (including operator)	Hour	20				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
				BROUGHT FORWARD:			
631.36	Foreman	Hour	40				
631.40	Welder (including operator)	Hour	40				
652.30	Flashing Arrow Board	Each	2				
652.312	Type III Barricades	Each	8				
652.33	Drum	Each	260				
652.35	Construction Signs	Square Foot	2,450				
652.361	Maintenance of Traffic Control Devices	Lump Sum	1				
652.41	Portable - Changeable Message Sign	Each	2				
652.451	Truck Mounted Attenuator	Calendar Day	160	$75	00	$12,000	00
656.50	Baled Hay, in place	Each	20				
656.60	Temporary Berms	Linear Foot	300				
656.62	Temporary Slope Drains	Linear Foot	160				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
			BROUGHT FORWARD:				
656.632	30 inch Temporary Silt Fence	Linear Foot	1,000				
659.10	Mobilization	Lump Sum	1				
					TOTAL:		

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

_____

_____

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

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

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

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

_____ *(SEAL)*

_____ *(SEAL)*

Affix Corporate Seal
or Power of Attorney
Where Applicable

_____ *(SEAL)*

By: _____

Its: _____

Information below to be typed or printed where applicable:

INDIVIDUAL:

(Name)	(Address)

PARTNERSHIP - Name and Address of General Partners:

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

INCORPORATED COMPANY:

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

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

YORK TO AUGUSTA

CONTRACT AGREEMENT

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

_____

herein termed the "Contractor":

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

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

_____

_____

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

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

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

AUTHORITY -

MAINE TURNPIKE AUTHORITY

By: _____

Title: CHAIRMAN

Date of Signature: _____

ATTEST:

_____
Secretary

CONTRACTOR -

_____
CONTRACTOR

By: _____

Title: _____

Date of Signature: _____

WITNESS:

_____

CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS that _____

of _____ in the County of _____ and State of _____

as Principal, and _____ a Corporation duly organized under

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

_____

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

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

Signed and sealed this _____ day of _____, A.D., 201___

Witnesses:	CONTRACTOR	
_____	_____	*(SEAL)*
_____	_____	*(SEAL)*
_____	_____	*(SEAL)*
	SURETY	
_____	_____	*(SEAL)*
_____	_____	*(SEAL)*
_____	_____	*(SEAL)*

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

FINAL LIEN AND CLAIM WAIVER AND AFFIDAVIT

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

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

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

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

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

_____
(Contractor)

By: _____

Title: _____

State of MAINE

County of _____

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

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

are true and correct upon his own knowledge and that the foregoing is his free act and deed in said capacity and the free act and deed of the above-named _____.
(Company Name)

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

(SEAL)

_____
Notary Public

My Commission Expires: _____

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART I – GENERAL PROVISIONS

(Rev. May 18, 2009)

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART II – SPECIAL PROVISIONS

DIVISION 100 - GENERAL PROVISIONS

100.1 Replacement of Former Standard Specifications and Details

The following paragraphs are added:

The Maine Department of Transportation Standard Specifications Revisions of 2002 as modified herein is referenced and incorporated in all Maine Turnpike Authority Construction Contracts. These Maine Turnpike General Provisions replace all previous Maine Turnpike General Provisions and are additions and alterations to the Maine Department of Transportation Standard Specifications. Maine Department of Transportation Consolidated Special Provisions or corrections, additions, and revisions to their Standard Specifications are not referenced or incorporated unless specifically included in the Contract. Applicable MaineDOT December 28, 2004 Consolidated Special Provisions, corrections, additions, and revisions have been incorporated into this document.

All references to components or employees of the Maine Department of Transportation listed in Column A shall also refer to components or employees of the Maine Turnpike Authority in Column B unless otherwise stated.

A	B
Maine Department of Transportation	Maine Turnpike Authority
Department	Authority
Commissioner	Executive Director
Contracts Engineer	Purchasing Manager
Contracts Section	Purchasing Department
Chief Engineer	Director of Engineering
Bureau of Project Development	Maine Turnpike Authority

SECTION 101 – CONTRACT INTERPRETATION

101.2 Definitions

The following definitions are added or revised:

Authority - The Maine Turnpike Authority, a body corporate and politic duly created and existing under and by virtue of an act of the Legislature of the State of Maine, Chapter 69 of the Private and Special Laws of 1941, as amended.

Award - The resolution of the Authority at an official meeting expressly authorizing the Executive Director or his designee to notify the successful Bidder that his/her Proposal has been accepted and that he/she is required to execute the Contract Agreement and to furnish satisfactory Bonds.

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 Subsection 104.3.14, Interpretation and Interpolation.

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 Subsection 104.3.14, Interpretation and Interpolation.

Holidays - The following are extended to include the Holiday Period:

HOLIDAY	HOLIDAY PERIOD
Martin Luther King Day	12:01 a.m. (Midnight) to 11:59 p.m. Martin Luther King Day.
President's Day	12:01 a.m. (Midnight) preceding Friday to 12:01 p.m. following Tuesday.
Easter	12:01 a.m. (Midnight) preceding Friday to 12:01 p.m. following Monday.
Memorial Day	12:01 p.m. preceding Thursday to 6:00 a.m. following Tuesday.
Labor Day	12:01 p.m. preceding Thursday to 6:00 a.m. following Tuesday.
Columbus Day	12:01 a.m. (Midnight) preceding Friday to 12:01 p.m. following Tuesday.
Veterans' Day	12:01 a.m. (Midnight) to 11:59 p.m. Veterans' Day.
Thanksgiving Day	12:01 a.m. (Midnight) preceding Wednesday to 12:01 p.m. following Monday.

Project - The following sentence is added:

All the Work to be performed under the Contract.

Solicitation - Contract proposal sent to a select list of Contractors. Solicitations do include a requirement for a bid bond. Solicitations do not need Maine Turnpike Board Approval for an award.

Turnpike - The entire toll highway, including all approaches, bridges, interchanges, toll facilities, and structures owned by the Maine Turnpike Authority, and authorized by Chapter 69, Private and Special Laws of Maine, 1941, as amended, and located on properties held in the name of the Authority.

Working Day - The Contractor shall not work during the period from 1/2-hour after sunset to 1/2-hour before sunrise, unless otherwise approved by the Resident.

If, after approval, Work is performed on a Saturday, Sunday, or a holiday, the day shall be considered a Working Day.

SECTION 102 - BIDDING

102.1.1 Basic Requirements

This Subsection is amended by the addition of the following:

To be eligible to Bid, prospective Bidders must not have been debarred or suspended from Bidding by the Authority or the Maine Department of Transportation.

102.6 Bid Guaranty

The second paragraph is deleted and replaced with the following:

No Proposal will be considered unless accompanied by a "Proposal Guaranty" in the form of an original bid bond, certified or cashier's check in favor of the Maine Turnpike Authority, in the amount of not less than five (5%) percent of the Total Amount of the Proposal, except that the amount of the check or Proposal Guaranty shall not be less than $500.00. Solicitations do not require a Bid Guaranty.

Sentence (C) of the third paragraph is deleted and not replaced.

102.7.1 Location and Time

The first paragraph is deleted and replaced with the following:

The Proposal and the Proposal Guaranty shall be enclosed in a sealed envelope furnished by the Authority for this purpose, and shall bear on the outside, the name and address of the Bidder as well as the designation of the Project as named in the Proposal form. Proposals will be received at the place and time stated in the Notice to Contractors, Solicitation, or Addendum as determined by the Authority. Proposals received after the time for opening of bids will be returned to the Bidder unopened. See also Subsection 102.11, Bid Responsiveness.

102.7.2 Effects of Signing and Delivery of Bids

Paragraph C, Certifications, is deleted and not replaced.

SECTION 103 - AWARD AND CONTRACTING

103.3.1 Notice and Information Gathering

This Subsection is deleted and replaced with the following:

The Authority will review the Bid Proposals. As a condition for Award of a Contract, the Authority may require an Apparent Successful Bidder to demonstrate to the Authority's satisfaction that the Bidder is responsible and qualified to perform the Work. If such information is required, the Authority, or the Authority’s agent, will contact the Apparent Successful Bidder and request specific information. If requested by the Apparent Successful Bidder, this request can be in writing. The Apparent Successful Bidder shall respond to the request within 24-hours (one work day) unless both parties agree in writing to extend the deadline.

103.3.2 Notice of Determination

The first paragraph is deleted and replaced with the following:

If the Authority determines that a Bidder is “Not Qualified”, the Authority or its representative will notify the Bidder in writing of its determination. The notice will set forth the specific reasons therefore to the extent practical. Such reasons may include the following:

N. Bidder has previously performed Work for the State or for the Authority in an unsatisfactory manner;

O. Bidder does not have the capacity to perform the required Work in the opinion of the Authority;

P. This Project combined with other projects committed to by the Bidder puts him in excess of his capacity in the opinion of the Authority;

Q. Reasonable grounds for believing that the Bidder is interested in more than one Proposal for the Work contemplated;

R. Developments arise which, in the opinion of the Authority, adversely affect the Bidder's responsibility; and/or,

S. Lack of qualifications as determined by the Authority.

The Maine Turnpike Authority Board or Executive Director must approve the Award of a Contract. Once approved, the Contractor will be provided with a "Notice of Award". See Subsection 103.4.

103.3.3 Appeal

"Commissioner" is replaced with "Chief Operations Officer".

The third and fourth paragraphs are deleted and replaced with the following:

Within 14 Days of Receipt of such information and arguments, the Chief Operations Officer will notify the Bidder in writing as to whether the decision of "Not Qualified" is upheld, modified, or reversed. The Chief Operations Officer's decision is final.

After a final determination of "Not Qualified" the Bidder's Bid Guaranty will be returned and the Bidder will be ineligible to bid on future MTA Contracts until the Bidder has been determined "Qualified" by the Maine Turnpike.

103.4 Notice of Award

This Subsection is deleted and replaced with the following:

Within five (5) days of the Maine Turnpike Authority Board or Executive Director approval of a Contract Award, the Authority will transmit to the successful Bidder a Notice of Award along with the Contract Documents for execution by the Contractor. The Authority has the option of notifying the successful low Bidder that the above noted material is available at the Authority for the Contractor to pick-up. The Contractor has 20 days following the Bid Opening to deliver to the Authority the signed Contract Documents, required bonds, insurance certificates, and other required information from the successful Bidder. Once these Documents are submitted to the Authority, the Authority will execute the Contract. If the Authority does not execute the Contract within 30 days of receipt of all the proper requested information, the successful Bidder may withdraw their bid without forfeiture of its Bid Guaranty or bidding eligibility. If the Authority and the successful Bidder agree in writing, an extension may be allowed.

103.5.4 Execution of Contract by Bidder

The first sentence is deleted and replaced with the following:

The properly completed and signed Contract Agreement form provided in the Contract Documents constitutes the Bidder's offer.

103.8 Execution of Contract by Department

This Subsection is deleted and replaced with the following:

The Contract will be awarded or Proposals rejected within twenty (20) days from the date of Proposal openings, except that by mutual written agreement between the Bidders and the Authority, the award may be withheld for any length of time. Any Bidder not agreeing to extend the award date shall be eliminated from the Bid List without prejudice, and their Bid Bond released.

The Contract shall not be binding until the Contract has been executed by the Authority, nor shall any Work be performed on account of the proposed Contract until the Contract has been fully executed and delivered.

SECTION 104 - GENERAL RIGHTS AND RESPONSIBILITIES

104.2.1 Furnishing of Right-of-Way

The first sentence is deleted and replaced with the following:

The Maine Turnpike Authority will secure all necessary rights to real property within the Project Limits shown on the Plans.

104.2.3 Authority of Project Manager and Resident

The following sentences are added:

The Resident is not responsible for supervising the construction Work and is not responsible for monitoring jobsite safety.

The Resident is not authorized to increase the obligation of the Authority to the Contractor, except as specifically set forth in the Specifications.

104.3.5 Duties Regarding Inspection of Work

The following paragraphs are added at the end of Paragraph A. Safe Access:

The Contractor shall furnish the Resident with every reasonable facility for ascertaining whether or not the Work is performed and the materials are furnished in accordance with the requirements and intent of the Contract. Such inspection may include mill, plant or shop inspection. If at any time before acceptance of the Work, the Resident requests it in writing, the Contractor shall remove or uncover such portion of the finished Work as directed. After examination, the Contractor shall restore said portions of the Work to the standards required by the Specifications. Should the Work exposed or examined meet the requirements of the Plans and Specifications, the uncovering or removing and the restoration of the uncovered Work shall be paid for as Extra Work except that no such payment will be made in those cases for which such removal is required by the Plans and Specifications as a part of the Work under the Project. Should the Work not meet the requirements of the Plans and Specifications, the uncovering or removing and restoration shall be at the Contractor's own expense. Any Work done or materials used without suitable supervision or inspection may be ordered to be removed and replaced by the Contractor without extra compensation.

No Work shall be done at night, on weekends, or legal holidays, without prior notice and approval of the Resident. No night Work shall be done until the Contractor has provided an adequate and sufficient source of artificial light to permit examination by the Resident of the suitability of the materials being used and the quality and character of the workmanship.

104.3.7 Laws to be Observed

This Subsection is amended by the addition of the following:

Any section of roadway open to the traveling public is a public way and subject to the applicable rules, regulations, and laws.

104.3.8 Wage Rates and Labor Laws

This Subsection is amended as follows:

A. Federal Wage Rates and Labor Laws is deleted and not replaced.

B. State Wage Rates and Labor Laws.

This Subsection is amended by the addition of the following:

This Contract is governed by the Prevailing Wage Provisions in Title 26, Chapter 15 of the Maine Revised Statutes Annotated. State Wage Rates, if applicable to the Contract, will be included in the Special Provisions.

Fair Minimum Wages

The hourly wage rate paid to laborers of the General Contractor and all Subcontractors shall not be less than the prevailing hourly rate of wages for Work of similar character in the State of Maine. The fair minimum hourly rates determined by the State of Maine Department of Labor for this Contract are included as part of this Contract.

A copy of the Wage Determination(s) shall be provided by the Contractor to all Subcontractors on the Project. In addition, the Wage Determination(s) must be kept posted at the Work site by the Contractor and by all Subcontractors at a prominent location, easily accessible by the workers. On a Project where there is no such location, a Contractor may comply with this requirement by providing each worker with a copy of the Wage Determination(s) within the first full day that the worker works on that Project. The Contractor must be able to document that each worker has received a copy of the Wage Determination(s).

Records

The Contractor and all Subcontractors shall keep an accurate record noting:

- The name and occupation of each and all laborers, workmen, and mechanics employed by them, and all independent Contractors working under Contract to them in connection to the Project;
- Number of hours worked;
- Title of the job;
- Hourly rate or other method of remuneration for the job; and,
- Actual wages or other compensation paid to each of the laborers, workmen, mechanics, and independent Contractors.

A copy of this record must be kept at the jobsite and shall be available at all reasonable hours to the inspection of the Bureau of Labor and/or the Maine Turnpike Authority, its officers and agents. These records must be preserved for a minimum of three (3) years after the completion of the Contract.

A copy of each record must be filed monthly with the Maine Turnpike Authority. This information shall be sent directly to the Maine Turnpike Authority, Director of Engineering and Building Maintenance, Attention: Wage Rate Records, 2360 Congress Street, Portland, ME 04102. The records shall note the Maine Turnpike Contract Number.

The Contractor and all Subcontractors are subject to penalties described in Title 26, Chapter 15 of the Maine Revised Statutes Annotated, for any violations of the Fair Minimum Wage Rates Policy for the State of Maine.

104.3.11 Responsibility for Property of Others

This Subsection is amended by the addition of the following:

The Contractor shall respond to all damage claims in writing, within 30 days, to the party making a damage claim. The response shall state that the Contractor accepts responsibility for the damage or outlines the reasons why the claim has been denied. If the Contractor has turned the claim over to their insurance agent or carrier, the name of the agent or carrier, along with the contact person, address and telephone information shall be included in the response to the claimant and a copy to the Authority. A standard form letter denying the claim without an explanation of the situation shall be unacceptable. A copy of the response letter shall be submitted to the Authority within the 30 day response time. The Authority shall review the response letter and will determine if the Contractor has replied in a responsive manner. If the Authority does not receive a response letter or action report from the Contractor within the 30 day response time, the Authority will determine if the Contractor is responsible for the claimed damage. If, in the absence of the Contractor's response or action report, the Authority deems the claim to be valid, the Authority will at its option pay the damage claim and deduct the amount of the claim from the Contractor. The Contractor will not be entitled to recoup these funds if their response was not transmitted within the 30 day response time. The Authority will not intervene in any claim actions where the Contractor's insurance carrier is conducting a valid, ongoing claim investigation.

104.3.14 Interpretation and Interpolation

The first sentence is change from "...and Geotechnical Information." to "...Environmental Information, and Geotechnical Information".

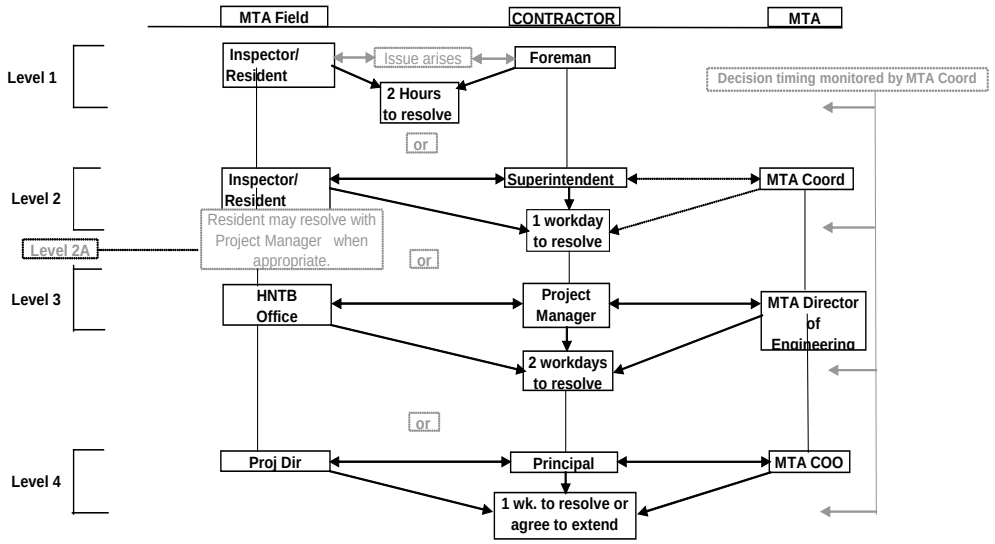
104.4.2 Preconstruction Conference

The following Matrix is added:

Project Decision Matrix

A Project "communication decision tree" will be developed mutually by the Authority and the Contractor during either the preconstruction meeting or partnering session. This Decision Matrix will clearly define, by descriptive job title and name, the respective counterparts for the Authority, and the Contractor who will be responsible for resolving issues at their respective levels of communication. Each level of communicators will be assigned a dollar magnitude of authority and a designated period of time within which all disputed issues must either be resolved or referred to the next higher level of communicators. The purpose of this Decision Matrix is to accelerate the resolution of decisions, to promote resolution at the lowest possible level, and to reduce the number of issues that become disputes.

The following is a sample of the Decision Matrix:



Level 5 **If an issue is not resolved at Level 4, the matter becomes a Dispute. Refer to Section 111**

Notes:

1) **Each project will enter names in all title boxes at Preconstruction or Partnering sessions.**
2) **Substitute names will be provided for all key decision levels.**
3) **Each decision level will be empowered with a maximum dollar guidance value.**
4) **Issues will automatically bounce up to next level if decision time limits are surpassed.**

104.4.5 Early Negotiation

The second paragraph in Part A is deleted and replaced with the following:

Such notice may not be verbal. Notice shall be in the form of a written memo with signatures representing both the Owner and Contractor or shall be in the form of meeting minutes within 14 days of the date that the issue became known. Meeting minutes shall not be valid documentation until they are accepted by the Resident and the Contractor.

Paragraph C, Additional Consideration, is deleted and not replaced. See related Subsection 104.4.2.

104.4.7 Cooperation With Other Contractors

This Subsection is amended by the addition of the following:

The Contractor shall cooperate with the Maine Turnpike Authority. The Authority reserves the right to conduct maintenance operations and to erect and remove traffic control devices as deemed necessary by the Authority or the Resident within or adjacent to the Project.

The Contractor shall note that other contracts may be awarded for Work adjacent to this Contract and these shall be considered adjacent contracts. The Contractor shall cooperate with other Contractors and the Resident so that all Work can be completed in a safe and timely manner. The Resident may direct the Contractor to revise the Work or schedule based on Work that is ongoing in the adjacent Contract. The Contractor's Superintendent or Project Manager shall attend coordination meetings with the Resident and the adjacent Contractors at least once every two weeks. All Contractors bear the full responsibility of cooperation and coordination with each other in the planning and scheduling of traffic closures, stoppages, and other construction activity. The Resident's responsibility for coordination is limited to the timely dissemination of all schedules and information submitted by adjacent Contractors. Neither the Resident, nor the Maine Turnpike Authority, shall bear any responsibility for costs resulting from a Contractor's failure to submit all information as required. Issues and concerns not presented for review and discussion at joint Contractor meetings will not later be cause for claims. This cooperation shall be completed at no additional cost to the Authority.

The Contractor working on an adjacent section may require the placement of temporary construction signs and traffic control devices within this Project area. The placement and maintenance of these devices by another Contractor shall be allowed in this Contract at no additional cost to the Authority.

104.4.10 Coordination of Bridge Closure/Bridge Width Restriction Notification

This Subsection is deleted and replaced with the following:

The Contractor shall notify the Authority a minimum of two (2) weeks prior to the date of closure/restriction with the date on which the closure/restriction will begin and the anticipated duration of the closure/restriction. The Authority will be responsible for notification to others.

104.5.9 Landscape Subcontractors

This Subsection is deleted and replaced with the following:

The Contractor shall retain only Landscape Subcontractors that are certified by the Maine Department of Transportation Environmental Office Landscape Unit.

SECTION 105 – GENERAL SCOPE OF WORK

Scope of Section

The second paragraph is deleted and replaced with the following:

This Contract is not federally funded.

105.1 Intent of the Contract

This Subsection is amended by the addition of the following:

The Plans and Specifications complement and supplement each other. Should any Work be required, which is not denoted on the Plans or in the Specifications because of an omission, but which is nevertheless necessary for the proper performance and completion of the Project, such Work shall be fully performed as if it were described and delineated. Should any misunderstanding arise as to the intent or meaning of said Plans and Specifications, refer to Subsection 104.4.4, Requests for Information.

The silence of the Specifications, Plans, or other supplemental documents as to any detail, or the apparent omission from them of a detailed description concerning any point, shall be regarded as meaning that only material and workmanship of excellent quality are to be used.

105.2.3 Joint Duty Regarding Safety

The first sentence is amended as follows:

The “Contractor’s TCP” is deleted and replaced with “Traffic Control Plan”.

This Subsection is amended by the addition of the following:

Nothing in the foregoing paragraphs shall be construed as relieving the Contractor from full responsibility for safe prosecution of the Work at all times. The Resident is not responsible for jobsite safety.

The following Subsection is added:

105.2.4.1 Lockout/Tagout Procedures

Prior to the start of Work, the Contractor and the Maine Turnpike Authority shall exchange and review the other party's Lockout/Tagout Procedures for the control of hazardous energy. If the Lockout/Tagout Procedures are similar and neither party has concerns, the two parties shall agree to abide by the procedures of the other party. Only the authorized individual who locked or tagged-out a circuit or piece of equipment is permitted to remove the lockout/tagout, except as provided for in the respective Lockout/Tagout Procedures.

Should either the Contractor or the Maine Turnpike Authority have concerns with the other party's Lockout/Tagout Procedures, the Safety Officers of the Contractor and the Maine Turnpike Authority shall meet, discuss and resolve the areas of concern. The Authority reserves the right to have the Contractor comply with the restrictions and prohibitions of the Maine Turnpike Authority's Lockout/Tagout Procedures if the Authority determines the Contractor's Lockout/Tagout Procedures are inadequate to protect the Authority's employees and patrons.

105.4.1 Maintenance During Construction

This Subsection is amended by the addition of the following:

Paved Surface - The Contractor is responsible for maintaining the existing paved shoulder, ramps, and travel lanes on the Maine Turnpike in good condition. The presence of tracked-dirt on the paved surfaces is unacceptable. The Resident shall have the sole authority to determine the acceptability of the paved surfaces. The use of stabilized construction entrances and frequent sweeping of the shoulder are the responsibility of the Contractor and shall be completed at no additional costs to the Authority.

Gravel Surface - The Contractor is responsible for maintaining gravel surfaces that are used for traffic in good condition. Potholes and wheel ruts are unacceptable. The Resident shall have the sole authority to determine the acceptability of the surfaces. Repairing the surfaces are the responsibility of the Contractor and shall be completed at no additional costs to the Authority.

Signs and Delineators - The Contractor is responsible for maintaining all mile markers, delineator, and signs including regulatory, warning, and guide signs during construction. Maintenance of signs shall mean that signs are clearly visible to motorists at the required height during construction. These items shall be kept in their existing location as long as is practicable. At no time shall any signs not be visible to the

driver. Construction material or equipment shall not obscure signs. This Work shall be accomplished at no additional cost to the Authority.

Erosion and Sedimentation Control - The Contractor shall plan their operations to protect existing Work from erosion. The Contractor is responsible for the inspection and maintenance of all erosion and sedimentation control devices until final acceptance. No payment will be made to repair failed areas if the Best Management Practices had not been utilized prior to a weather event.

105.4.3 Maintenance During Winter Construction

This Subsection is amended by the addition of the following:

The Maine Turnpike Authority will be responsible for winter maintenance including snow removal and application of salt on Maine Turnpike pavement open to traffic.

105.5.1 General Requirements

This Subsection is amended by the addition of the following:

Toll Free Passage on the Turnpike

The Contractor shall be granted free use of the turnpike for movement of vehicles, labor and equipment and for delivery of material essential to the Work. The Contractor will be issued cards with the Contract Number and Contractor Name while working on the Project. The cards shall be transferable and distributed by the Contractor to employees and vehicles working on the Project. The cards may only be used while working on the Project designated on the cards. Such free use shall be limited to the portion of the turnpike between the site of the Work and the nearest practicable exit including movement of vehicles, labor, equipment and materials from one site to another Work site. All vehicles must stop at a manned lane at the toll plazas to present the cards to the toll attendant. Vehicles without the required cards shall pay the required toll. This shall not be a reimbursable expense. The Contractor shall advise the Resident of the number of cards that are required. All cards shall be returned to the Resident at the completion of the Project. The use of the cards for toll free travel shall be revoked if the cards are misused. The Contractor shall nevertheless comply with regulations of the Authority relating to use of the turnpike and with established controls for non-revenue vehicles.

Existing Access

All existing access from local roads to the Maine Turnpike shall remain passable to emergency vehicles at all time. At no time shall construction equipment or material block these roads. Any misuse of this privilege will result in the Contractor's loss of access through these gates. The Contractor shall provide a lock and a piece of chain to link to the existing padlock on the gate allowing access to the Contractor and emergency vehicles.

Access From Local Roads

The Contractor shall not impact wetlands or streams to construct access to the Project. The Contractor may construct temporary access to the turnpike to facilitate the Project. Any damage caused to private property or local roads as a result of the access shall be repaired at the Contractor's own expense. The Contractor shall prepare a written plan outlining the proposed access.

At a minimum, the plan shall outline the following:

- Estimated number of vehicles;

- Time and duration of operation;
- Types of vehicles to use the access;
- Plans to construct a stabilized construction entrance;
- Plan to keep the local road free of tracked-mud and dust;
- Plan to control access to prevent unauthorized use;
- Restoration plan; and,
- Written permission from private property owners (if required).

The Contractor is required to retain the services of qualified flaggers to control the Contractor's operation at the local road access. Flaggers shall be present whenever construction vehicles are utilizing the access. The Contractor shall be responsible for constructing a gate across the access point to prohibit unauthorized access. The Contractor shall also construct a stabilized construction entrance in accordance with the MaineDOT Best Management Practices. All cost associated with the access including, but not necessarily limited to, the construction, restoration, flaggers, gate, and stabilized construction entrance shall be the responsibility of the Contractor. Failure to utilize flaggers will result in termination of permission to use local roads for access. Failure to keep local roads clear of tracked-mud will result in termination of permission to use local roads for access.

Construction Access

The Contractor shall construct a stabilized construction entrance in accordance with the Best Management Practices at all locations where construction vehicles will exit the mainline and/or enter the existing paved shoulder from a non-paved area. The Resident shall approve of the locations. The stabilized construction entrance shall be constructed in conjunction with the clearing activities or other early activities. Additional stabilized construction entrances may be required due to the Contractor's operations as well as site conditions. The construction and maintenance of the stabilized construction entrance shall be incidental.

Change of Direction

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

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

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

NUMBER OF OCCURRENCES	FINE
First	$100

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

105.6 Construction Surveying

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

105.6.1 Authority Provided Services

The Authority will provide the Contractor with the description and coordinates of vertical and horizontal control points, set by the Authority, 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 Authority will provide three points. For Projects between 1,500 and 5,000 feet in length: The Authority will provide one set of two points at each end of the Project. For Projects in excess of 5,000 feet in length: The Authority 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 Authority will not set any control points and, therefore, will not provide description and coordinates of any control points: Upon request of the Contractor, the Authority will provide the Authority's survey data management software and Survey Manual to the Contractor, or its survey Subcontractor, for the exclusive use on the Authority's Projects.

105.6.2 Contractor Provided Services

Utilizing the survey information and points provided by the Authority, described in Subsection 105.6.1, Authority Provided Services, the Contractor shall provide all additional survey layout necessary to complete the Work. This may include, but not necessarily be limited to, reestablishing all points provided by the Authority, 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 facility 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 Authority of any errors or inconsistencies regarding the data and layout provided by the Authority as provided by Subsection 104.3.3, Duty to Notify Department If Ambiguities Discovered.

105.6.2.1 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 or 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 Quality Assurance

It is the Authority's prerogative to perform construction survey quality assurance. Construction survey quality assurance may or may not be performed by the Authority. 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 Authority elects to physically check the

Contractor's survey layout, the Contractor's designated surveyor may be required to be present. The Authority 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 Authority.

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 in order to perform the Work. The Contractor indemnifies and holds harmless the Authority 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 Subsection 104.3.11, Responsibility for Property of Others.

105.7.1 General

The following paragraphs are added:

Within ten (10) days after the date of execution of the Contract, the Contractor shall inform the Resident in writing of the sources from which he proposes to obtain the materials required for the Project and statements of quality of these materials as hereinafter required in Subsection 106.01, Roles Regarding Quality. Information or materials not required to be incorporated in the Work within six (6) months after said date of execution, may be furnished within thirty (30) days.

Prior to the approval of the submittal, any Work done or materials ordered shall be at the Contractor's own risk. All submittals shall be stamped and signed by the Contractor verifying their approval of the Shop Drawings.

Prior to forwarding submittals to the Resident for review and approval, the Contractor shall mark the Item Number on each submittal for identification, thoroughly check the submittals for compliance with the Contract Documents, and place its stamp of approval on each sheet certifying that the Contractor has so checked each submittal. The Contractor shall certify that "This Shop Drawing has been thoroughly checked and complies with the Contract Documents and field measurements and the item fits with adjoining Work except as noted". Submittals which do not contain this stamp of approval and certification, or which are incomplete, have not been checked, have been checked only superficially, or contain numerous errors, will be returned un-reviewed by the Resident for resubmission by the Contractor. Delays in obtaining approvals, other than those caused by the Authority, are not grounds for granting an extension of time. Disclaimers by the Contractor, any Subcontractor, or supplier of responsibility for any requirements of the Contract Documents, will not be accepted by the Authority and will be deemed invalid.

The following submissions are required if applicable to the Work:

- Construction plans for access
- Project master schedule
- Updated schedules as required
- Shop Drawings
- Spill Prevention Control and Countermeasure (SPCC) Plan
- Traffic control plans
- Temporary earth support system submission
- Bridge beam or structural steel erection plan

105.7.4 Submittal Requirements

The second paragraph is deleted and replaced with the following:

For the first and subsequent submittals, the Contractor shall submit a minimum of seven (7) sets of drawings to the Resident on the size sheets required unless otherwise directed by the Resident.

105.8.1 Temporary Soil Erosion and Water Pollution Control

This Subsection is amended by the addition of the following:

Spill Prevention Control and Countermeasure (SPCC) Plan

Any areas where petroleum products, oils or hazardous materials are handled or stored will require a Spill Prevention Control and Countermeasure (SPCC) Plan. The Plan will be submitted to the Resident before construction begins for review and approval. At a minimum, the Plan shall provide the following information:

1. Name of person who is responsible for spill prevention;

2. Description of handling or storage location, noting setbacks from water bodies where relevant. Significant sand and gravel aquifers and other sensitive resources must be avoided wherever possible;

3. Description of storage and containment facilities;

4. Description of equipment and/or materials used to prevent discharges (including sorbent materials);

5. Preventative measures to minimize the possibility of a spill; and,

6. Contingency plan if spill should occur.

The approved plan must be posted at the jobsite. All personnel working in the area are required to read and be familiar with the plan.

There shall be no separate payment for preparation of a SPCC Plan acceptable to the Resident and preparation is considered incidental to the Work.

ENVIRONMENTAL STANDARDS

The Project will be performed in accordance with the MaineDOT Best Management Practices (BMP) latest issue. The Contractor shall fully comply with all erosion and sedimentation control requirements outlined in the BMP's or contained herein. Non-compliance with these requirements as determined by the Resident shall result in a financial penalty of $1,000 per day, per violation. Any fines assessed to the Maine Turnpike Authority as a result of the Contractor's non-compliance shall be paid by the Contractor. If the Contractor fails to pay, the cost of the fine will be deducted from monies due, or which may become due to the Contractor under this Contract.

In the event of conflict between these Specifications and other erosion and pollution control laws, rules or regulations of other Federal, State and local agencies, the more restrictive law, rules or regulations shall apply.

The standards as described below shall be met on the Project:

1. Temporary erosion control measures shall be maintained until the site is permanently stabilized with vegetation or other permanent control measures.

2. The Contractor will immediately take appropriate measures to prevent erosion or sedimentation from occurring or to correct any existing problems regardless of the time of year.

3. Work in wetlands is prohibited except to the minimum extent necessary for completion of the Work as detailed on the Plans. Excavated and other material shall not be stockpiled in wetlands. Haybales, silt fence or other suitable barriers shall be used, where necessary, to prevent sedimentation from eroding materials.

4. Uncured concrete shall not be placed directly into the water body. Concrete may be placed in forms and shall cure at least one (1) week prior to form removal. No washing of tools, forms, etc. shall occur in or adjacent to the water body or wetland. Any additional requirements are outlined in Subsection 107.261 of the Special Provisions.

5. Disturbance of natural resources beyond the construction limits shown on the Plans is not allowed.

6. Bare earth slopes shall be roughened to dissipate sheet flow. This shall be accomplished by "tracking" the slope perpendicular to the centerline. No bare earth shall be maintained for more than five days without surface roughening. This Work will not be measured separately for payment, but shall be incidental to the Excavation item.

7. No wheeled or tracked equipment shall be operated in the water. Equipment operating on the shore may reach into the water with a bucket or similar extension. Equipment may NOT cross streams.

8. Existing ditches shall be maintained until the new ditches are stabilized. Stone check dams shall be placed in existing ditches prior to construction as to prevent the release of sedimentation. Stone check dams shall be installed at the outlets of all existing and proposed ditches adjacent to all stream and wetlands.

9. The Contractor's operation may require the placement of temporary pipes and fill over a ditch line to provide access to the Work area. The Resident shall approve the size of the pipe. The placement and removal of the temporary access will not be measured separately for payment, but shall be incidental to the Excavation item.

105.10 Equal Opportunity and Civil Rights

105.10.1 Requirements Applicable to Federally Funded Contracts

This Subsection is deleted and not replaced.

105.10.2 Requirements Applicable to All Contracts

The following is added after Paragraph (A), Maine Code of Fair Practice and Affirmative Action, Paragraph 4).

The Maine Turnpike Authority is an equal opportunity employer and as such, requires all Contractors to pursue in good faith affirmative action programs.

THEREFORE;

The Contractor hereby agrees to the following requirements:

1. The Contractor will pursue an affirmative action program which includes procedures designed to increase the numbers of minorities, women, and handicapped at all levels and in all segments of the workforce where imbalances exist. Such a program should include an assessment of the existing situation, and the development of realistic goals for necessary actions. These goals and related procedures and timetables should not require rigid quotas but are commitments which the Contractor should make every good faith effort to achieve.

2. In connection with Contracts in excess of $250,000, the Contractor will insure contractually that all Subcontractors shall also pursue an affirmative action program meeting the above requirements. The Contractor shall also ensure contractually that all Subcontractors with Contracts in excess of $50,000 pursue an affirmative action program meeting the above requirements.

3. An affirmative action program will provide that no Contractor and/or Subcontractor will discriminate against an employee or applicant for employment because of race, color, religious creed, sex, national origin, ancestry, age, physical handicap or mental handicap unless based upon a bona fide occupational qualification. Such action shall include, but not necessarily be limited to, the following; employment, upgrading, demotions, transfers, recruitment or recruitment advertising, layoffs or terminations, rates of pay and compensation, and selection for training and apprenticeship.

Paragraph (D), Prevention of Sexual Harassment, is deleted and replaced with the following:

Contractors are responsible, under Maine State Law, for ensuring and maintaining a Work environment that is free from sexual harassment. The Contractor shall comply with all relevant provisions of Maine State Law in regard to sexual harassment including, but not necessarily limited to, 5 MRSA 4572, 26 MRSA 806-807, and the regulations of the Maine Human Rights Commission.

Subsections 105.10.2 (E), DBE Reporting Requirements, and (F), Certification of Continuing EEO Efforts, are deleted and not replaced.

105.11 Other Federal Requirements

This Subsection is deleted in its entirety and not replaced.

The following Subsection is added:

105.12 Limitations of Operations

The Contractor shall keep the existing shoulder clear of construction activity except for the period of shoulder reconstruction. The Contractor shall not park or store construction equipment, vehicles, or materials on the shoulder. Construction vehicles shall not enter the mainline travel lane until they can safely merge with the traffic in the travel lane. The construction access shall be in accordance with the details in the Plans. The Resident must approve all shoulder closures.

Existing drainage shall be maintained at all times. All ditches that discharge into wetlands shall have a series of stone check dams installed in the ditch near the outlet prior to the commencement of clearing activities in the area.

SECTION 106 – QUALITY

106.3.3 Sources

Paragraph A, General, is amended by the addition of the following:

Preference in the purchase of supplies and materials, other considerations being equal, shall be given in favor first of supplies and materials manufactured and sold within the State of Maine, and second, of supplies and materials manufactured within the United States. Materials and supplies sold outside the United States will be considered third in the preference order.

106.3.4 Storage

This Subsection is amended by the addition of the following:

The Contractor shall be responsible for the security of all storage areas. Materials and supplies that are stolen, damaged or otherwise made unacceptable while in storage shall be replaced in kind at the Contractor's own expense.

106.3.7 Sampling and Testing

The forth paragraph is deleted in its entirety and not replaced.

106.6 Acceptance

All paragraphs after the first paragraph are deleted and not replaced.

106.8.3 Unauthorized Work

The following paragraphs are added:

No omission or failure on the part of the Resident to disapprove or reject any Work or material shall be taken to be an acceptance of any defective Work or material. Within the time set by the Resident, the Contractor shall remove any Work or material condemned by the Resident and shall rebuild and replace the same without extra compensation and in default thereof the removal and replacement may be done by the Authority at the expense of the Contractor; or, in case the Resident should not consider the defect of sufficient importance to require the Contractor to rebuild or replace any imperfect Work or material, he shall have power, and is hereby authorized, to make an equitable deduction from the Contract price.

Materials which do not conform to the requirements of these Specifications shall be considered as defective and will be rejected, whether in place or not, and shall be removed from the Project. No material which has been rejected, the defects of which have been corrected or removed, shall be used until approved by the Resident in writing.

SECTION 107 – TIME

The following Subsection is added:

107.1.1 Substantial Completion

An 80 percent reduction of retainage will be considered by the Authority when the Project is substantially complete. The Contractor shall include an explanation of the outstanding Work, an estimate of the cost to complete the Work, and a schedule for completing the Work. Seasonal limitations as well as warranty and establishment periods (for vegetation) shall be addressed.

107.3.1 General

This Subsection is amended as follows:

See related Subsection 101.2, Definitions: Holidays.

Work that impacts traffic may be subjected to further restrictions. See related Special Provision Section 652.

107.3.2 Night Work

This Subsection is amended by the addition of the following:

- The Maine Turnpike encourages the Contractor to construct the Project cost effectively while maintaining quality and conformance with all Federal, State and local laws. To facilitate this process, the Maine Turnpike recognizes that the Contractor may choose to construct portions of the Project at night.
- The following is a partial list of activities that would be favorably considered for night construction. The final determination of applicability by the Authority will be based on the Contractor's plan of operation. The Contractor shall demonstrate that the Work can be accomplished in conformance with the appropriate regulations.

Highway Related Work

- Installation and removal of traffic control devices (drums, concrete barrier, impact attenuators)
- Installation and removal of painted pavement markings
- Placement of pavement
- Sawcutting of pavement
- Installation and removal of guardrail

Bridge Related Work

- Delivery of materials (except oversize loads)
- Placement and removal of pier forms
- Shielding of old and new bridge
- Installation and removal of deck and diaphragm forms
- Installation and removal of overhang brackets
- Field painting and preparation of damaged paint areas
- Application of penetrating sealers
- Installation of sign panels on sign bridges

107.3.3 Sundays and Holidays

This Subsection is amended by the addition of the following:

"Saturday" is added before Sunday.

Requests to work outside of the allowable periods must be submitted in writing and approved by the Resident prior to the start of Work. Approval for Work, that in the Authority's opinion will not significantly impact traffic flow, will not be unreasonably withheld.

107.4.2 Schedule of Work Required

This Subsection is amended by the addition of the following:

No Pay Requisition will be approved for payment until the schedule requirement is fulfilled and accepted by the Maine Turnpike Authority.

In addition to the Schedule required hereinbefore, the Contractor shall submit, no later than 12:00-noon every Thursday, a detailed plan of his operations for the following week. This plan shall show the type of Work to be done and the traffic lanes that are to be impacted. This updated plan will be used by the Resident to schedule the appropriate resources and inform other interested parties of the proposed Work.

107.4.4 Schedule Revisions

This Subsection is amended by the addition of the following:

The progress of Work shall be compared against the Schedule of Work at a job meeting once every month. If the Authority determines that the Contractor's actual progress is not in substantial conformity with the Schedule of Work, then the Contractor shall submit a revised Schedule of Work to the Authority depicting the increased or decreased variations in activity durations and milestones as compared to previously submitted schedule(s). If noted in the meeting minutes, or directed in writing by the Resident, the Contractor shall submit a revised Schedule to the Authority within one week of the request. If a revised realistic Schedule is not received within one week of the request, the monthly pay requisition will be withheld. Failure to modify completion dates without a commitment to modify Project resources shall be deemed an unrealistic Schedule unless the particular activity had adequate float.

107.7.2 Schedule of Liquidated Damages

The table of liquidated damages is deleted and replaced with the following:

Original Contract Amount From More Than	Original Contract Amount up to and Including	Amount of Liquidated Damages per Calendar Day
$0	$100,000	$100
$100,000	$300,000	$200
$300,000	$500,000	$400
$500,000	$1,000,000	$575
$1,000,000	$2,000,000	$750
$2,000,000	$4,000,000	$900
$4,000,000	and more	$1,875

This Subsection is amended by the addition of the following:

At the option of the Authority, the Contractor may be held responsible for all costs incurred by the Authority which are due to any Work that remains incomplete after the time specified for the completion of the Contract, in addition to the daily calendar day charge.

107.9.1 Final Clean-up and Finishing

This Subsection is amended by the addition of the following:

No separate payment will be made for final clean-up and restoration of property, but the cost thereof shall be included in the prices bid for the various items scheduled in the Proposal.

SECTION 108 - PAYMENT

108.1 Measurement of Quantities for Payment

This Subsection is amended by the addition of the following:

The quantities in the Schedule of Items are the approximate totals. The breakdown of quantities for various locations is approximate and is for information only. No change in the bid price will be considered for changes in the actual quantities at each location except as provided for in Subsection 109.1, Changes in Quantities.

108.1.2 General Measurement Provisions

The first sentence is deleted and replaced with the following:

The Maine Turnpike Authority will utilize the U.S. Customary system for all units of measurement.

108.1.3 Provisions Relating to Certain Measurements

This Subsection is amended by the addition of the following:

No allowance will be made for surface laid over a greater area than indicated on the Plans or otherwise authorized, or for excavation removed or embankment placed beyond the slope lines shown on the cross-sections, except as otherwise specifically noted or authorized by the Resident in writing.

108.2.1 Generation of Progress Payment Estimates

The first paragraph is deleted and replaced with the following:

The Resident will make current estimates in writing once each month, on or before the date set by the Resident at the time of starting Work, or from time to time as the Work progresses. Progress payments twice per month will not be allowed. The estimate shall include all materials complete in place and the amount of Work performed in accordance with the Contract, during the preceding month or period and the value thereof figured at the unit prices contracted together with estimates of the cost of Extra Work performed during the same period. Estimates or payments will not be made, if in the opinion of the Resident, the Work is not proceeding in accordance with the provisions of the Contract. The Contractor agrees to waive all claims relating to the timing and amount of such estimates.

108.2.2 Payment

The first two sentences are deleted and replaced with the following:

The Maine Turnpike Authority will make payment within 30 days of Contractor and Resident concurrence of progress payment.

108.2.3 Mobilization Payments

The second paragraph is deleted and replaced with the following:

A. The first payment of 50 percent of the lump sum price for mobilization or five percent of the original Contract Amount, whichever is less, will be made with the first monthly estimate.

B. The second payment of 25 percent of the lump sum price for mobilization or 2.5 percent of the original Contract Amount, whichever is less, will be made following completion of 25 percent of the proposed Contract Amount.

C. The third payment of 25 percent of the lump sum price for mobilization or 2.5 percent of the original Contract Amount, whichever is less, will be made following completion of 50 percent of the proposed Contract Amount.

D. Upon substantial completion of the Work on the Project, as determined by the Resident, payment of any amount bid for mobilization in excess ten percent of the original Contract Amount will be paid.

All payments are subject to standard retainage.

Demobilization will not be measured separately for payment, but shall be incidental to Item 659.10, Mobilization.

108.3 Retainage

This Subsection is deleted and replaced with the following:

From the total of the amounts so ascertained there will be deducted an amount equivalent to 7.5 percent of the whole, to be retained by the Authority until after the completion of the entire Contract in an acceptable manner, and the balance, or a sum equivalent to 92.5 percent of the whole shall be certified by the Resident to the Authority for payment.

If it became evident, on the basis of approved progress schedules, or otherwise, that the completion date for the Contract will not be met, the Authority reserves the right to retain the amount of the liquidated damages which have apparently accumulated, in addition to 7.5 percent of the value of the Work done to date.

If at any time there shall be evidence of any lien or claim for which, if established, the Authority might become liable and which is chargeable to the Contractor, the Authority shall have the right to retain out of any payment, then due or thereafter to become due, an amount sufficient to completely indemnify the Authority against such lien or claim.

If the Contractor elects to furnish to the Authority a surety bond in the amount of twice the amount of all liens or claims pending against the Contractor, then the Authority will not exercise the aforementioned right to make retention out of payments on account of such liens or claims.

The payment of any current estimates or of any retained percentages shall in no way affect the obligations of the Contractor to repair or renew any defective parts of the construction and to be responsible for all damage due to such defect.

All material estimates and payments shall be subject to correction in subsequent partial estimates and payments and on the final estimate and payment.

108.4 Payment for Materials Obtained and Stored

The first paragraph is amended as follows:

In the second sentence, the words "...Delivered on or near the Work site at acceptable storage places." are deleted and not replaced.

108.4.1 Price Adjustment for Hot Mix Asphalt

This Subsection is deleted and replaced with the following:

For Contracts containing an excess of 5,000 tons of bituminous pavement, an asphalt price adjustment will be made for all bituminous concrete placed six (6) months after the bid date of the Contract. No asphalt price adjustment will be allowed for Contracts containing less than 5,000 tons. For Contracts containing more than 5,000 tons, no adjustment will be made for asphalt placed at any time within six months of the bid date.

Price adjustment will be based on the variance in cost for the performance-graded binder component of the hot mix asphalt. The quantity of hot mix asphalt for each pay item will be multiplied by performance graded binder given in the table below, times the difference in price in excess of ten percent between the base price and the period price of asphalt cement. Adjustments will be made upward or downward, as prices increase or decrease. The quantity of Hot Mix Asphalt will be determined from the quantity shown on the progress estimate for each pay period. The base price of performance graded binder to be used is the price per standard ton current with the bid opening date. The period price shall be determined by the Authority and shall be the price per standard ton current with the ending date of the progress estimate. The prices shall be determined by using the average N.E. Barge Price, FOB, as listed in the Asphalt Weekly Monitor.

Plant Mix B Pavement	4.0%
Hot Bituminous Pavement Grading B	4.5%
Hot Bituminous Pavement Grading C	5.5%
Hot Bituminous Pavement Grading D	5.5%
Hot Bituminous Pavement Grading E	5.5%

108.5 Right to Withhold Payment

This Subsection is amended by the addition of the following:

L. Contractor's failure to, or refusal to, remove within 24-hours after receipt of proper notice, any employee or person engaged in Work under Contract.

M. Contractor's failure to submit required schedule or schedule updates.

108.6 Taxes, Fees, Allowances, and Notices

This Subsection is amended by the addition of the following:

The Maine Turnpike Authority, an agency of the State of Maine, is exempt from payment of sales tax, under the present Maine Sales Tax Law, on any property purchased by it at retail for consumption. The Maine Tax Bureau has interpreted this to mean that all materials purchased by the Contractor which ultimately remain the property of the Maine Turnpike Authority, even though in a changed form, are not subject to the sales tax.

108.8 Final Payment

This Subsection is amended by the addition of the following:

Before final payment is made, the Contractor shall furnish to the Authority, on the forms prescribed (Sheet F-1), a sworn affidavit to the effect that no claims are pending. If such affidavit that claims have been paid cannot be given because of a dispute as to the amount or legality of such claim, the Contractor's affidavit shall clearly set out the facts as to the name, address, amount, and nature of the dispute. The Authority will review the matter and will make payment that the Authority deems is appropriate to the Contractor.

SECTION 109 – CHANGES

109.1.1 Changes Permitted

The following is added 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

The following is added 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 Authority.

109.3 Extra Work

The following paragraphs are added:

No Extra Work shall be performed except pursuant to the written orders of the Resident, expressly and unmistakably indicating its intention to treat the Work described therein as Extra Work.

If the Contractor determines that Work directed by the Resident is Extra Work, he shall, within 48-hours, give written notice thereof to the Resident stating why he deems it to be Extra Work and shall furnish to the Resident daily time slips and memoranda for the purpose of affording to the Authority an opportunity to verify the Contractor's claim at the time and (if it desires to do so) cancel promptly such order, direction or requirement of the Resident.

Accordingly, the failure of the Contractor to serve such notice or to furnish such time slips and memoranda shall be deemed to be a conclusive and binding determination on his part that the direction,

order or requirement of the Resident does not involve the performance of Extra Work, and shall be deemed to be a waiver by the Contractor of all claims for additional compensation or damages by reason thereof.

Refer to related Subsections 104.4.2, Preconstruction Conference, and 109.7.5, Force Account Work.

109.4 Differing Site Conditions

109.4.1 Definition

This Subsection is amended by the addition of the following:

Paragraph (A) is the definition of Differing Site Conditions. Paragraphs (B), (C) and (D) are not all required along with Paragraph (A) to prove Differing Site Conditions. However, they will be considered by the Maine Turnpike Authority as part of the evaluation of Differing Site Conditions. See related Subsection 102.3, Examination of Documents, Site, and Other Information.

109.4.4 Investigation / Adjustment

This Subsection is amended as follows:

In the third sentence, delete the words "Subsections (A) - (E)".

109.5.1 Definitions - Types of Delays

This Subsection is amended as follows:

B. Compensable Delay -

Replace (1) with the following:

1(A) 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.

1(B) a weather related Uncontrollable Event of such an unusually severe nature that the Contractor's critical path schedule is disrupted.

109.5.2 Entitlement to Adjustments

This Subsection is amended as follows:

A. Types of Adjustments -

Paragraph 2. is deleted and replaced with the following:

2. If a Compensable Delay 1(A), (2), or (3), the Contractor is entitled to an extension of time and an equitable adjustment as set forth in Subsection 109.7, Equitable Adjustment to Compensation. If a Compensable Delay 1(B), the Contractor is entitled to an extension of time and an equitable adjustment as set forth in Subsection 109.7, Equitable Adjustment to Compensation, except that Cost of extended jobsite overhead and time will not be allowed.

109.5.5 Documenting the Delay and Request for Adjustments

The last paragraph is deleted and replaced with the following:

The Authority may require that all cost shown in the report be certified by an accountant.

109.5.6 Decision by Program Manager

This Subsection is deleted and not replaced.

Refer to related Subsection 104.4.2, Preconstruction Conference.

109.5.7 Additional Consideration by Department

This Subsection is deleted and not replaced.

Refer to related Subsection 104.4.2, Preconstruction Conference.

109.6.1 Overview - General Requirements

This Subsection is amended by the addition of the following:

The Maine Turnpike will not participate in any costs borne by the Contractor that are not in accordance with Maine Turnpike policies. All money paid to a business or resident as compensation for impacts created by the Contractor's operation will not be reimbursed by the Authority. All Contractor costs must be documented. Monies paid by the Contractor to others must be documented by a receipt for the cost to be considered as part of the VECP. Copies of all receipts shall be submitted to the Resident.

109.7.2 Basis of Payment

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

Equitable Adjustments will be established by mutual Agreement for compensable items listed in Subsection 109.7.3, Compensable Items, based upon Unit or Lump Sum Prices. If Agreement cannot be reached, the Contractor shall accept payment on a Force Account basis as provided in Subsection 109.7.5, Force Account Work, as full and complete compensation for all Work relating to the Equitable Adjustment.

109.7.3 Compensable Items

This Subsection is deleted and replaced with the following:

The Contractor is entitled to compensation for the following items, with respect to agreed upon Unit or Lump Sum Prices:

1. Labor expenses for non-salaried workers and salaried foremen.

2. Costs for Materials.

3. A markup on the totals of Items 1 and 2 of this Subsection (109.7.3) for home office overhead and profit of the Contractor, its Subcontractors and suppliers, and any lower tier Subcontractors or suppliers, with no mark-ups on mark-ups.

4. Cost for Equipment, based on Blue Book Rates or leased rates, as set forth in Subsection 109.7.5(C), or the Contractor's Actual Costs.

5. Costs for extended jobsite overhead.

6. Time.

7. Subcontractor quoted Work, as set forth below in Subsection 109.7.5, Force Account Work.

109.7.5 Force Account Work

This Subsection is amended by the addition of the following:

C. Equipment

When the Contractor is paid for furnishing and operating equipment on an hourly or daily basis, it shall be operated as approved by the Resident in such a manner as to obtain maximum production under the prevailing conditions. The Resident may order the removal and require replacement of any unsatisfactory equipment.

The first sentence of the second paragraph, which begins: "Equipment leased...", is deleted.

The second sentence of the sixth paragraph is changed from "The Contractor may furnish..." to read "If requested by the Authority, the Contractor will produce cost data to assist the Authority 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."

The following sentence is added:

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 percent markup for administrative costs.

The following sentence is added:

F. Subcontractor Quoted Work - When accomplishing Force Account Work that utilizes Subcontractor quoted Work, the Contractor will be allowed a maximum markup of five percent for profit and overhead.

SECTION 110 - INDEMNIFICATIONS, BONDING AND INSURANCE

110.2.1 Bonds

The first three paragraphs are deleted and replaced with the following:

The Bidder to whom the Contract is awarded shall furnish a Surety Corporation Bond, satisfactory to the Authority, on the form of the Contract Bond bound herewith, as security for the faithful performance of the Work. The Contract Bond must be executed or countersigned on the part of such Surety by the Resident Agent of the Surety for the State of Maine.

The Bond shall be in an amount not less than the Total Amount bid in the Proposal and shall be maintained by the Contractor until the final payment under the Contract is made. In the event of insolvency

of the Surety, the Contractor shall forthwith furnish and maintain as above provided, other security satisfactory to the Authority.

If the Contractor is unable to continue the Work, then the completion of the Contract shall be the sole responsibility of the Surety. The Surety shall assume the role of and become the Contractor. Work shall not commence until the Authority has approved, in writing, the Subcontractor's employed by the Surety. All Work to complete the Contract will be paid for at Contract bid prices as shown on the Proposal bid sheets. All payments made by the Authority will be paid directly to the Surety who in turn will then pay the Subcontractors and suppliers. Regardless of the amounts previously paid to the Contractor as Progress Estimates for Work reported to have been put in place by the Contractor or his Subcontractors, the full Scope of the Contract Work shall be completed by the Surety and its designates for compensation not to exceed the Contract Price less the aggregate of prior payments to the Contractor.

110.2.3 Bonding for Landscape Subcontractors

This Subsection is deleted and replaced 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 Section 621, Landscape, made payable to the Maine Turnpike Authority.

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 as 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 Subsection and 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 as provided in Subsection 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.

110.3 Insurance

This Subsection is amended by the addition of the following:

Each policy shall be signed by the President and Secretary of the insurance company and shall be countersigned by a licensed Resident Agent of the State of Maine as an authorized representative of the company.

Before Work is commenced pursuant to the Agreement, the Contractor shall file with the Authority a Certificate of Insurance, executed by an insurance company or companies satisfactory to the Authority and licensed or approved by the State of Maine Department of Business Regulation, Bureau of Insurance to do business in the State of Maine, stating that the Contractor carries insurance in accordance with the requirements of the Contract.

If at any time, any of the said policies shall be or become unsatisfactory to the Authority, the Contractor shall promptly obtain new and satisfactory policies and furnish certificates therefor as required above. All policies shall contain a valid provision or endorsement providing that the insurance company will notify the Authority in writing at least thirty (30) days prior to the termination of any policy or before any changes are made in any policies. The policy shall also indicate which exclusions have been deleted and any additional coverages.

Neither approval by the Authority, nor a failure to disapprove insurance furnished by a Contractor, shall release the Contractor of full responsibility for liability, damages and accidents as set forth herein.

No separate payment shall be made for any insurance that the Contractor may be required to carry, but all costs thereof shall be included in the prices bid for the various items scheduled in the Proposal.

The following Subsection is added:

110.3.05 Umbrella Liability

An Umbrella Liability Policy in excess of Employer's Liability, General Liability, and Automobile Liability shall be provided with a limit of $4,000,000.

110.3.2 Commercial General Liability

This Subsection is amended by the addition of the following:

Where the Work to be performed has to do with railroads, then railroad Protective Liability Insurance shall be provided, with the Maine Turnpike Authority as a named insured.

The Contractual Liability Insurance shall cover the Contractor's obligation to indemnify the Authority as provided in Subsection 110.1, Indemnification.

110.3.4 Professional Liability

The first sentence is deleted and replaced with the following:

Contractors who engage in design Work, preliminary engineering Work, and environmental consulting Work for the Authority shall maintain a Professional Liability policy for errors and omissions with a minimum limit of liability of $5,000,000. The Authority reserves the right to require increased insurance limits for certain major Projects.

110.3.5 Owner's and Contractor's Protective Liability

This Subsection is deleted and replaced with the following:

For Projects with a Contract price in excess of $500,000, an "Owner's Protective" policy in the name of the Maine Turnpike Authority, with a $5,000,000 limit, shall also be provided.

110.3.6 Builder's Risk Insurance

This Subsection is amended by the addition of the following:

The Contractor shall provide Builder's Risk Insurance if the Project requires it. This determination will be made by the Authority and shall be so stated in the Special Provisions. The insurance coverage shall be shown on a special form and provide for transient and off-premise coverage and materials intended for use at the Project site. Any exclusion related to design, materials, or workmanship shall not apply to resulting damage.

110.3.8 Administrative and General Provisions

A. Additional Insured

This paragraph is deleted and replaced with the following:

Each policy, with the exception of Workers' Compensation and Professional Liability Insurance, shall name the Authority as an additional named insured. The Maine Turnpike Authority Contract Number shall be clearly stated on each policy.

SECTION 111 - RESOLUTION OF DISPUTES

111.1.2 Escalation Process

This Subsection is deleted and replaced with the following:

To resolve Issues and Disputes, the Contractor and the Maine Turnpike Authority will develop a Decision Matrix at the preconstruction or partnering meeting. See related Subsection 104.4.2, Preconstruction Conference. If an issue is not resolved, the matter becomes a Dispute and is eligible for settlement by an Alternate Dispute Resolution (ADR) process as outlined in this Section. Either the Authority or the Contractor may request an ADR process. If a Contractor is dissatisfied with an ADR recommendation, the decision may be appealed to the MTA Executive Director. A decision by the MTA Executive Director may be appealed to either Mediation or Arbitration. All costs of ADR, including Neutral Evaluations, Dispute Review Boards (DRBs), Mediation or Arbitration shall be shared equally.

ALTERNATIVE DISPUTE RESOLUTION

Preliminary ADR:

The purpose of the optional use of ADR is to assist the consenting parties to resolve disputes in a manner that complies with the Contract, that is fair, impartial, less expensive, faster and less formal than litigation. A Project issue becomes a Dispute eligible for ADR only when mutually acceptable resolution can not be achieved within the Decision Matrix-prescribed time period at the level of the Authority's Chief Operating Officer (COO), and the Contractor's Principal.

The Contractor and the Authority shall select a mutually acceptable form of Preliminary ADR from the following options, with the preference expressed in the order of listing.

1. NEUTRAL EVALUATION: Jointly selected by the disputing parties, the Neutral would conduct a third party, neutral investigation of both sides of the dispute, resulting in the submission of a Report of Recommended Settlement to the disputing parties.

2. DISPUTE REVIEW BOARD (DRB): The parties would jointly select two to three mutually acceptable experts who would hear and weigh a presentation of positions and evidence by the parties; resulting in the issuance by the DRB of a Recommended Settlement of the matter.

Recommendations by either a Neutral or a DRB will be non-binding unless the parties mutually agree in writing at the time of process selection that such recommendations will be binding.

Appeal to the Executive Director:

If either party rejects a recommendation resulting from ADR, the Dispute may be appealed to the Executive Director of the Authority. Once a dispute has been submitted to ADR, no party shall discuss the elements of the dispute with the Executive Director.

Final ADR - Mediation or Arbitration:

At the request of the Contractor, appeal decisions rendered by the Executive Director may be appealed by the Contractor to a Final ADR process of either Mediation or Arbitration. The costs of Mediation or Arbitration shall be borne equally by the Contractor and the Authority. Decisions by either a Mediator or an Arbitrator(s) will be non-binding unless the parties mutually agree in writing at the time of process selection that such recommendations will be binding.

NOTE: It is the intent of this Specification to retain maximum flexibility for the specific procedures for either Preliminary or Final Alternative Dispute Resolution. The processes shall follow the guidelines of construction industry ADR practices in general. The Authority and the Contractor will contribute equal input to the selection of location, methods, experts and timing of such processes. When a Dispute Review Board is utilized, the Authority and the Contractor shall have equal veto power in the selection of DRB composition.

111.1.8 Commissioner Communications Before Appeal

This Subsection is deleted and not replaced.

111.2 Project Level Negotiation to 111.6 Judicial Review

These Subsections (inclusive) are deleted and not replaced.

SECTION 112 - DEFAULT AND TERMINATION

112.2 Termination

This Subsection is amended by the addition of the following:

When the Contract is terminated, the Contractor shall, if so required by the Authority, promptly remove any or all of his/her equipment and supplies from the Project site or from other property of the

Authority, failing which the Authority may remove such equipment and supplies at the expense of the Contractor.

SECTION 203 - EXCAVATION AND EMBANKMENT

203.01 Description

The following is added at the end of the last paragraph:

Unclassified bids are submitted at the sole risk of the Bidder. The Contractor shall only be entitled to compensation at the unit prices submitted for the actual quantity of Common Excavation and Rock Excavation. No additional compensation shall be considered for changes from the estimated quantities to the actual quantities regardless of the reason for the change.

203.18 Method of Measurement

The seventh paragraph is amended as follows:

Elevations for final cross sections shall be determined as shown and calculated on the Plans. Measurements shall be determined at the bottom of loam line unless otherwise noted.

SECTION 502 - STRUCTURAL CONCRETE

502.10 Forms and False Work

D. Removal of Forms and False Work

The first paragraph is amended as follows:

In the first, second, and third sentences, "forms and false work" are replaced with "forms".

502.11 Placing Concrete

G. Concrete Wearing Surface and Structural Slabs on Precast Superstructures

The last paragraph is amended as follows:

In the 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

The first paragraph is amended as follows:

The first sentence is replaced with: "All concrete surfaces shall be kept wet with clean, fresh water for a curing period of at least seven (7) days after concrete placing, with the exception of vertical surfaces as provided for in Subsection 502.10 (D), Removal of Forms and False Work.

The second paragraph is amended as follows:

The first two sentences are deleted.

The third paragraph is amended as follows:

The entire paragraph, which starts "When the ambient temperature....", is deleted.

The fourth paragraph is amended as follows:

Delete "approved" to now read "...continuously wet for the entire curing period…".

The fifth paragraph is amended as follows:

The second sentence is changed from "...as soon as it is possible to do so without damaging the concrete surface." to: "...as soon as possible."

The seventh paragraph is amended as follows:

The first sentence is changed from "...until the end of the curing period." to "...until the end of the curing period, except as provided for in Subsection 502.10(D), Removal of Forms and False Work."

SECTION 503 - REINFORCING STEEL

503.06 Placing and Fastening

The second paragraph is amended as follows:

The third sentence is changed 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

The following is added to 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

The second paragraph is amended as follows:

The first sentence is changed 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

The following is added to the last sentence:

The minimum assembly length shall include bearing centerlines of at least two substructure units.

SECTION 535 - PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE

535.02 Materials

"Steel Strand for Concrete Reinforcement" is changed to "Steel Strand."

The following is added to the beginning of the third paragraph:

Concrete shall be Class P conforming to the requirements in this Subsection. Twenty-eight day compressive strength shall be as stated on the Plans. Coarse aggregate...

535.05 Inspection Facilities

The following is added to the last paragraph:

Failure to comply with the above requirements will be considered 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.

535.26 Lateral Post-Tensioning

The first paragraph is replaced with the following:

Overstressing strands for setting losses cannot be accomplished for chuck to chuck lengths of 7.6 m [25 feet] 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 as noted in the Plans. The applied jacking force shall be no less than 100 percent of the design jacking force.

SECTION 603 - PIPE CULVERTS AND STORM DRAINS

603.0311 Corrugated Polyethylene Pipe for Option III

Minimum Mandrel Diameter Table is replaced with the following:

Nominal Size US Customary (in)	Minimum Mandrel Diameter (in)	Nominal Size Metric (nun)	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

The following are added:

Tops and Traps 712.07

Corrugated Metal Units	712.08
Catch Basin and Manhole Steps	712.09

SECTION 605 - UNDERDRAINS

605.05 Underdrain Outlets

The first paragraph is amended as follows:

In the second sentence, the words "metal pipe" are deleted.

SECTION 606 - GUARDRAIL

606.02 Materials

The fourth paragraph, which reads "Retroreflective beam guardrail delineators..." is deleted and replaced with the following:

Reflectorized sheeting for Guardrail Delineators shall meet the requirements of Subsection 719.01, Reflective Sheeting. Delineators shall be fabricated from high-impact, ultraviolet and weather resistant thermoplastic.

The eighth paragraph, which reads "The sole patented supplier of multiple mailbox..." is deleted and replaced with the following:

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

606.09 Basis of Payment

The second and third sentences in the first paragraph are deleted in their entirety and replaced with the following:

Butterfly-type guardrail reflectorized delineators shall be mounted on all W-beam guardrail at an interval of every 10 posts [62.5 feet] on tangents sections and every five posts [31.25 feet] 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 incidental to the guardrail items.

SECTION 615 - LOAM

615.02 Materials

This Subsection is amended as follows:

One hundred percent of the loam material must pass the two inch sieve.

Organic Content	Percent by Volume
Humus	"5% - 10%", as determined by Ignition Test

SECTION 618 - SEEDING

618.01 Description

The first sentence is amended to read:

This Work shall consist of furnishing and applying seed.

The words “and cellulose fiber mulch” are deleted from 618.01(a).

618.03 Rates of Application

The last sentence in 618.03(a) is deleted and replaced 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." is deleted and replaced with "1.95 kg [4 lb]/unit."

618.09 Construction Method

In 618.09(a) 1, sentence two, "100 mm [four inches]" is replaced with "25 mm [one inch] (Method 1 areas) and 50 mm [two inches] (Method 2 areas)".

618.15 Temporary Seeding

The Pay Unit is changed from “Unit” to “Kg [lb]”.

SECTION 620 - GEOTEXTILES

620.03 Placement

Section (c): Replace "Non-woven" in title with "Erosion Control".

The word "Non-woven” in the first paragraph is replaced with "Woven monofilament”.

The word "Non-woven" in the second paragraph is replaced with "Erosion Control".

620.07 Shipment, Storage, Protection and Repair of Fabric

Section (a): the second sentence is replaced with the following:

Damaged geotextiles, as identified by the Resident, shall be repaired immediately.

620.09 Basis of Payment

Pay Item 620.58: "Non-woven" is replaced with "Erosion Control".

Pay Item 620.59: "Non-woven" is replaced with "Erosion Control".

SECTION 621 - LANDSCAPING

621.0036 Establishment Period

In the fourth and fifth paragraphs, "time of Final Acceptance" is replaced with "end of the period of establishment".

In the seventh paragraph, "Final Acceptance date" is replaced with “end of the period of establishment”; and "date of Final Acceptance" is replaced with "end of the period of establishment".

SECTION 626 - HIGHWAY SIGNING

626.034 Concrete Foundations

The following is added to the end of the second paragraph:

Pre-cast and cast-in-place foundations shall be warranted against leaning and corrosion for two years after the Project is complete. If the lean is greater than two degrees from normal or the foundation is spalling within the first two years, the Contractor shall replace the foundation at his own cost.

SECTION 639 - ENGINEERING FACILITIES

639.04 Field Offices

This Subsection is amended by the addition of the following:

The Field Office location shall be approved by the Resident and shall be provided when the Contract starts and shall remain until the Contract is complete. The Contractor shall be responsible for furnishing and maintaining electricity, heat, facsimile machine and appliances for the entire duration of the Contract, which includes periods of time which Work has been suspended.

The Contractor shall provide a plain paper (8-1/2” x 11”) fax/copier machine with a 10 page (minimum) auto document feeder, 15 page (minimum) fax memory, 50 sheet (minimum) paper capacity, and a transmission speed of six pages (minimum) per minute for the Resident's use during the Project. All maintenance and supplies shall be the responsibility of the Contractor. The fax machine shall be connected to a separate telephone line so that the fax machine operates independent of the telephone and answering machine. A total of three phone lines shall be provided by the Contractor. All of the costs associated with the above shall be the responsibility of the Contractor except for the monthly telephone charges.

The following are not required:

- Accessible route conforming to the Americans with Disabilities Act
- Wheelchair accessible toilet

639.09 Telephone

This Subsection is amended as follows:

The Contractor shall be reimbursed at cost for the monthly telephone service charges. Telephone service shall remain throughout the Contract including periods of seasonal shutdowns.

639.11 Basis of Payment

The following is added after the first paragraph:

The Contractor shall be reimbursed at cost for the monthly telephone service charges. No additional markup will be allowed. The Contractor shall submit copies of the monthly bills to the Resident for payment.

SECTION 652 - MAINTENANCE OF TRAFFIC

652.2 Materials

The first sentence in the second paragraph is replaced with the following:

All construction signs shall be fabricated with super high intensity (ASTM 4956 – Type VII) retroreflective sheeting. All construction signs and construction sign packages shall have the Type VII sheeting material. 3924 Diamond Grade fluorescent orange sheeting manufactured by 3M conforms to ASTM 4956 – Type VII.

652.2.4 Other Devices

The eighth paragraph is amended by the addition of the following:

The Portable Message Signs shall be capable of being programmed remotely by telephone, of monitoring the speed of traffic in a travel lane, and of displaying a message in response to a vehicle exceeding an allowable speed threshold. The Contractor shall submit a catalog cut to the Resident for approval, establish a cellular account so that signs may be programmed remotely and provide training for the operation of the sign to the Resident.

The portable-changeable message signs may be moved throughout the Project area as required to provide advance warning of construction operations which may impact the flow of traffic as well used during lane closures to display messages relative to the speed of traffic. The Contractor shall remove, transport and maintain the signs as directed and approved by the Resident.

The Authority will be responsible for the actual programming of the signs.

A deduction will be made from money due the Contractor for signs that fail to operate for extended periods of time.

The following Subsection is added:

652.2.5 Safety Vests

All jobsite personnel shall wear a safety vest labeled as ANSI 107-199 standard performance for Class 2 risk exposure or an equivalent.

652.3.1 Responsibility of the Department

The first paragraph is deleted and replaced with the following:

The Authority will provide Project specific traffic control requirements and traffic control plans for use by the Contractor. The specific traffic control requirements for the Project are identified in Special Provision Section 652, Maintenance of Traffic (Specific Project Maintenance of Traffic Requirements). No

revisions to these requirements or Plans will be permitted unless the Contractor can thoroughly demonstrate an overall benefit to the public and a Contract Modification is approved.

The following sentence is added to the end of this Subsection:

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

652.3.2 Responsibility of the Contractor

The first paragraph is amended as follows:

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

The following paragraph is added:

The Contractor shall designate a supervisor to be responsible for the safe placement and maintenance of all traffic control devices. This individual shall be trained to safely install and maintain the devices. The Contractor shall submit to the Resident, in writing, documentation stating that this individual has reviewed and understands the traffic control requirements of the Contract and the Manual of Uniform Traffic Control Devices.

652.3.3 Submittal of Traffic Control Plan

This Subsection is deleted and not replaced.

652.3.4 General

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

Prior to starting any Work on any part of the Project adjacent to or being used by the traveling public, the Contractor shall install the appropriate traffic control devices in accordance with the Plans, Specifications and the latest edition of the Manual of Uniform Traffic Control Devices, Part VI. The Contractor shall continuously maintain the traffic control devices in their proper position, and they shall be kept clean, legible and in good repair throughout the duration of the Work. The Contractor shall correct all problems or violations upon observation by the Contractor or upon notification by the Resident. Failure to correct a problem within one hour of notification during non-working hours or to respond immediately to a problem during Work hours, shall result in a penalty of $150.00 per occurrence. The Resident shall be the sole judge as to the time and response.

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

Vehicles parked on the shoulder shall be located so all portions of the vehicle(s) are a minimum of one foot from the traveled way. No operation (including loading or unloading vehicles) shall be conducted

on or near the traveled lanes or shoulders without first setting up the proper lane closure and traffic control devices. These precautions shall be maintained at all times while this Work is being performed.

The Contractor shall keep all paved areas of the highway as clear as possible at all times. No materials shall be stored on any paved area of the highway or within 30 feet of the traveled way (unless protected by concrete barriers and specifically approved by the Resident). Private vehicles owned by Contractor's employees shall be parked close together in a group no closer than 30 feet from the traveled way in pre-approved areas.

Channelization devices shall include Vertical Panel Markers, Barricades, Cones, and Cones and Drums. These devices shall be installed and maintained at the spacing shown on the Traffic Control Plans, or determined by the MUTCD, through the Work area.

No lane closures will be allowed during non-working hours, weekends and/or holiday periods unless included in the Contract as long-term traffic control requirement or approved by the Resident.

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

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

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

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

The following Subsection is added:

652.3.41 Local Road General Requirements

Channelization devices consisting of barricades or drums, at a maximum spacing of 50 feet, shall be used in guardrail areas when neither the existing nor the new guardrail is in place. The Contractor shall not remove guardrail until absolutely necessary for construction operations in that area. The guardrail shall be replaced as soon as possible thereafter.

All excavation areas adjacent to the roadway shall be channelized continuously in both directions for the length of the Project in all areas where the centerline strip is not effective in accordance with the latest edition of MUTCD.

Where the roadway is adjacent to an area being excavated or filled, a minimum two foot shoulder should be maintained and the effective slope of the earth excavation or fill slope, beyond the two foot shoulder, shall not be steeper than 1-1/2 horizontal to 1 vertical. The effective slope of rock excavation shall not be steeper than 1 horizontal to 1 vertical beyond the two foot shoulder. In the case of cuts over five feet deep, an earth berm or other approved barrier shall be placed between the travel lane and the excavated area. In this instance, travel speeds shall be limited by specific advisory signing to 20 miles per hour in all cases. When excavation does not leave sufficient usable widths to maintain two-way traffic as provided in

Subsection 105.4, Maintenance of Work, one-lane traffic controlled by a traffic signal or continuous flagging may be considered. Closely spaced vertical panels, drums or other channelizing devices shall be used on any of these types of areas that are left exposed for short durations.

When paving operations or shoulder grading leave a three inch or less exposed vertical face at the edge of the traveled way, channelization devices shall be placed two feet outside of the pavement at intervals not exceeding 600 feet and a 48 inch by 48 inch W8-9 "Low Shoulder" sign shall be placed at a maximum spacing of 1/2 mile. When paving operations or shoulder grading leave a three inch or grater exposed vertical face at the edge of the traveled way, the Contractor shall place shoulder material for a width of at least four feet to meet the pavement grade, and place channelizing devices as above, before the lane is opened to traffic.

652.3.5 Installation of Traffic Control Devices

The first paragraph is deleted and replaced with the following:

Portable signs shall be erected on temporary sign supports approved crashworthy devices in conformance with NCHRP 350 requirements so that the bottom is either 1) 300 mm [12 inches]; or 2) greater than 1.5 m [five feet] above the traveled way. Post-mounted signs shall be erected so the bottom is no less than 1500 mm [five feet] above the traveled way, and 2100 mm [seven feet] above the traveled way in business, commercial, and residential areas. All post-mounted signs on the turnpike mainline shall be erected so the bottom is no less than 2100 mm [seven feet] above the traveled way. Post-mounted signs must also be erected so that the sign face is in a true vertical position. All signs shall be mounted within four feet of the existing edge of pavement. All signs shall be placed so that they are not obstructed in any manner and immediately modified to ensure proper visibility if obstructed. Due to Contractor or Project staging, it may be necessary to relocate previously erected portable or post-mount signs so they are clearly visible. Signs may be mounted lower or higher to fit the situation when authorized by the Resident. Cones shall either be weighted or nailed. Tires will not be allowed as weights.

The following is added to the end of the third paragraph:

NHCRP 350 tested drums with tire sidewall ballasts are acceptable. During winter periods, drums shall be placed on the grass shoulder or removed from the roadway so winter maintenance operations will not be impacted. This requires the placement of drums behind the median guardrail. Drums shall not be placed on snow banks.

The following is added to the end of the fifth paragraph:

The method of covering existing signs must be approved by the Resident. The use of adhesives on the sign face is prohibited.

The sixth paragraph is deleted and replaced with the following:

The Contractor shall replace damaged or missing traffic control devices with similar devices of acceptable quality.

The following paragraph is added to the end of this Subsection:

The Contractor is required to cover all existing signs, including regulatory and warning signs, within the Work zone which may conflict with the proposed construction signs. The Contractor is also required to cover all permanent construction signs when they conflict with a daily traffic control setup.

652.3.6 Traffic Control

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

The minimum roadway width for local road one-way and two-way traffic, and minimum number of lanes and lane widths for the Maine Turnpike, are identified on the Project's traffic control plans and/or in Special Provision Section 652, Maintenance of Traffic (Specific Project Maintenance of Traffic).

The last sentence of the third paragraph is deleted and not replaced.

652.41 Traffic Officers

The first paragraph is deleted and replaced with the following:

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

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

652.6 Night Work

The sixth and seventh paragraphs are deleted and not replaced.

The following Subsection is added:

652.61 Construction Vehicles

The Contractor shall furnish approved signs reading "Construction Vehicle - Keep Back" to be used on trucks hauling to the Project. The signs shall be a minimum of 30 inch by 60 inch, Black and Orange, Type VII. The older type "Construction Vehicle - Do Not Follow" may be used until the end of their service life.

All vehicles used on the Project shall be equipped with amber flashing lights, visible from both front and rear, or by means of a single, approved type, revolving, flashing or strobe lights mounted so as to be visible 360 degrees. The vehicle flashing system shall be in continuous operation while the vehicle is on any part of the Project. Dump trucks and utility trucks shall have a strobe light mounted on each side of the vehicle.

652.7 Method of Measurement

The following is added to the end of the first paragraph:

The per unit measurement for payment of the portable–changeable message sign shall include the establishment and payment of a cellular phone account so that the portable–changeable message sign may be programmed remotely.

The following is added to the end of the second paragraph:

The number and locations of Flaggers will be determined by the Resident. Flaggers used during the Contract, for the convenience of the Contractor, will not be measured separately for payment, but shall be

incidental to the various pay items. The Authority will make payment for the State Police officers and vehicles directly to the State Police when utilized for mainline traffic control activities. State Police escorts, if required to move oversize material or equipment loads to the jobsite, will not be paid separately, but shall be incidental to the various pay items.

652.8.2 Other Items

The last paragraph is deleted and replaced 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, "...shall be not less than 150 mm [six inches] loose measure." is changed to "...shall be not less than 250 mm [10 inches] loose measure."

In the third sentence "...crawler type bulldozer of not more than 390 kg/m^2 [80 lb/ft^2] ground contact pressure..." is changed to "...crawler type bulldozer of not more than 4875 kg/m^2 [2000 lb/ft^2] ground contact pressure..."

653.06 Compaction

In the final sentence "...crawler type bulldozer of not more than 390 kg/m^2 [80 lb/ft^2] ground contact pressure..." is change to "...crawler type bulldozer of not more than 4875 kg/m^2 [2000 lb/ft^2] ground contact pressure..." it]."

SECTION 656 - TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL

Section 656 is deleted in its entirety and replaced with the following:

656.01 Description

This Work shall consist of providing temporary erosion control during construction in accordance with these Specifications, standard details, Best Management Practices, or as otherwise directed.

All temporary erosion control devices shall be in place and approved by the Resident prior to any embankment and excavation operations. The Contractor is responsible for repairing and replacing damaged or missing sandbags, haybales, and silt fence material. The Contractor shall maintain these devices in a clean and properly operating condition as described herein.

The Contractor is responsible for all temporary drainage and erosion control measures. The Contractor shall review his construction operations and staging to determine if additional erosion control measures are required. The Resident may also request additional erosion control measures. The cost for all erosion control devices necessary, due solely to the Contractor's construction operations and are not shown on the Plans, shall be borne solely by the Contractor. The frequency of inspection of these devices by the Contractor and the Erosion Control Compliance Officer (ECCO) shall be bi-weekly and immediately following a rainfall of greater than 1/2 inch in a 24-hour period.

In areas of ledge or frozen ground only, the Contractor may opt to furnish and install an erosion control filter berm in lieu of silt fence. The erosion control filter berm shall be a water permeable windrow of a composted bark mix to remove suspended soil particles from water moving off the site. Erosion control filter berm shall be considered an erosion control device. This material and specific application shall be submitted to the Resident for approval.

656.02 General

Baled hay shall be bales at approximately 350 by 450 by 750 mm [14 by 18 by 30 inch], or an equivalent, securely tied to form a firm bale.

Sandbags shall consist of heavy cloth or woven plastic bags, approximately 0.03 m3 [one cubic foot] capacity, filled with sand or gravel.

Dumped stone shall be a graded mixture of large and small stone with approximately 50 percent of the stones larger than 150 mm [six inch].

Flexible drainage pipe shall consist of collapsible neoprene pipe, a minimum of 12 inches in diameter or equal.

656.03 Silt Fence

(a) Posts

Either hardwood posts or steel posts shall be used.

Hardwood posts shall be straight, at least 450 mm [18 inches] longer than the height of the silt fence and at least 32 mm by 32 mm [1 inch by 1 inch].

Staples shall be of No. 9 wire.

Steel posts shall be at least 450 mm [18 inches] longer than the height of the silt fence and have the means provided for fastening wire to the fence.

(b) Wire Support Fence

If required, wire support fence shall be at least 50 mm [2 inches] higher than the height of the silt fence. Horizontal and vertical wires shall be spaced no more than 150 mm [6 inches] apart. The top and bottom wires shall be at least 10 gauge; all other wires at least 12 gauge.

(c) Silt Fence

The woven geotextile fabric and components shall be made from polypropylene, polyester, polymide or other chemically stable material and be resistant to ultraviolet radiation degradation for at least 12 months of installation. Silt retention capacity shall be no less than 75 percent. The fabric shall have a Mullen burst test of no less than 1790 kPa [260 pounds per square inch] with a maximum average sieve opening size of 850 pm to 250 pm [No. 20 to No. 60]. Roll width of the fabric shall be no less than 150 mm [6 inches] wider than the height of the fence, except fabric for boom supported floating silt fence which shall be no less than 600 mm [two feet] wider than the design width.

(d) Flotation Devices

The flotation boom and weighing devices for boom supported floating silt fence shall be sufficient to hold the fence in an approximately vertical position.

656.04 Temporary Erosion Checks

Temporary erosion checks shall be constructed in ditches and at other locations designated. Checks shall be in accordance with the Standard Detail unless otherwise directed.

Baled hay, sandbags, or both, shall be used in other areas as necessary to inhibit soil erosion.

Sediment deposits behind haybales and silt fence shall be removed when the depth of sediment reaches 50 percent of the erosion control device height.

The Contractor is also required to have on-site, at all times, 25 percent additional Contract quantities of silt fence for use as backup devices.

656.041 Erosion Control Filter Berm

The erosion control berm shall be placed uncompacted, in a windrow in locations approved by the Resident. The cross section of the berm shall be four feet wide at the base and 1-1/2 feet high at the center. The erosion control filter berm shall be removed when no longer required, as determined by the Resident, and shall be distributed over an adjacent area.

656.05 Temporary Berms

When designated, temporary barriers shall be constructed along the edge of the embankment. The barriers shall be of embankment earth material, gravel or sand as available and shaped approximately as shown in the Standard Details. The barriers shall be compacted with the wheels of construction equipment. When placed on pavement, the berms shall be constructed of asphalt grindings or other non-erodible soil material as approved by the Resident, and shaped as shown in the Standard Details.

At designated intervals, temporary slope drains shall be constructed with a crescent shaped barrier placed at each slope drain to direct the water into the inlet pipe.

656.06 Temporary Slope Drains

Collapsible pipe with corrugated metal pipe inlet shall be placed down the embankment slopes at designated locations and in accordance with the Best Management Practices.

At the outlet end of the drain, dumped stone shall be placed to prevent scoring unless otherwise directed.

656.07 Dumped Stone

Dumped stone shall be placed at designated locations and shaped to the extent necessary to spread the stone over the area and in sufficient depth to prevent soil erosion.

656.08 Silt Fence

The silt fence shall be installed at all environmentally sensitive areas as shown on the Plans or as directed. The Contractor shall have the option to provide a reinforced filter fabric or an un-reinforced filter fabric attached to a wire fence.

The fence posts shall be spaced as specified by the Resident, however, not to exceed a maximum of 2.5 m [eight feet] apart when either type of silt fence is used and be driven a minimum of 450 mm [18 inches] into the ground.

The geotextile fabric shall be secured to the post or fence by suitable staples, tie wire or hog rings in such a manner as to prevent tearing and sagging of the fabric. The bottom of the geotextile fabric shall be entrenched into the ground a minimum depth of 150 mm [six inches] to prevent water from flowing under the fence. The geotextile shall be spliced together only at support posts with a minimum 150 mm [six inches] overlap and secure post connection which prevents leakage of silt. The top of the geotextile shall be installed with a reinforced top end section.

The Contractor shall maintain the silt fence in a functional condition at all times. All deficiencies shall be immediately corrected by the Contractor. The Contractor shall make a daily inspection of the silt fences in areas where construction activity causes drainage runoff, to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist, additional silt fences shall be installed as approved or directed.

Sediment deposits shall be removed when sediments reach 50 percent of the height of the device. All sediment deposits remaining in place after the device is no longer required shall be graded to conform with the existing ground, seeded, and mulched immediately.

Geotextile fabric which has decomposed or has become ineffective and is still needed shall be replaced with material equal to the original design.

656.081 Boom Supported Floating Silt Fence

The silt fence fabric shall be securely attached to the flotation boom with a continuous weight placed the entire length of the fence to maintain the fence in a vertical submerged position from the surface of the water to the design depth.

Anchor's shall be placed at the ends of the fence, and intermediate locations if necessary, to hold the fence securely in place.

656.082 Maintenance

The erosion control devices will be cleaned, repaired, or replaced as necessary. All deficiencies shall be corrected immediately by the Contractor.

656.085 Erosion Control Compliance Officer

The Contractor shall designate an Erosion Control Compliance Officer (ECCO) on this Project who shall accompany the Resident's ECCO in the inspection of all erosion control devices. An inspection log shall be maintained by the Resident and the log shall be signed by the Resident's ECCO and the Contractor's ECCO after each inspection. Failure to comply with the erosion and sedimentation control requirements herein or as directed by the Resident's ECCO within 24-hours after the violation is noted in the inspection log, will result in the $1,000 per day per violation penalty until the violation is corrected to the satisfaction of the Resident.

656.09 Removing and Disposing

When no longer needed, material and devices for temporary erosion control shall be removed or may be left in place and dispersed over an adjacent area, as directed.

When removed, such devices may be reused in other locations provided they are in good condition and suitable to perform the erosion control for which they are intended.

When dispersed over adjacent areas, the material shall be scattered to the extent that it causes no unsightly conditions nor creates future maintenance problems. Dumped stone shall be dispersed or covered in such a manner that it will not interfere with future mowing operations.

656.10 Method of Measurement

Baled hay and sandbags will be measured for payment by the number of bales or bags satisfactorily placed. Dumped stone will be measured for payment by the cubic meter [cubic yard] in vehicles.

Temporary berms and temporary slope drains will be measured for payment by the meter [linear foot] measured parallel with the flow line including the pipe inlet.

Temporary silt fence will be measured by the meter [linear foot] along the gradient of the fence, end post to end post.

Boom supported floating silt fence will be measured by the meter [linear foot] not including anchorages.

Erosion control filter berm shall be measured by the linear foot.

The quantity of additional haybales and silt fence material required herein will be measured for payment only when and if they are actually put to use as additional measures on the Project as directed by the Resident. Haybales and silt fence material used for maintenance or replacement of existing devices will not be measured for payment.

The removal of silt and other material from behind the haybales and silt fence will not be measured separately for payment, but shall be incidental to the Erosion Control items.

656.11 Basis of Payment

The accepted quantity of baled hay or sandbags will be paid for at the Contract unit price each for each bale or bag which price shall be full compensation for furnishing and placing the bales or sandbags, for furnishing and driving the stakes for baled hay and for the removing and disposing of the bales, stakes and sandbags when no longer needed.

The accepted quantity of temporary berms will be paid for at the Contract unit price per meter [linear foot] of berm which price shall be full compensation for furnishing, placing and compacting material, for maintaining and for removing the berm when no longer needed.

There will be no separate payment for excavation done in the construction of temporary erosion control items under this Section and all necessary excavation shall be incidental to the Work.

The accepted quantity of dumped stone will be paid for at the Contract unit price per cubic

meter [cubic yard] which price shall be full compensation for furnishing the stone, transporting, placing and shaping. Payment for removal or for covering will be made under Item 629.05, Hand Labor, and the appropriate equipment rental items.

The accepted quantity of temporary silt fence and boom supported floating silt fence will be paid for at the Contract unit price per meter [linear foot] complete in place. Payment shall be full compensation for furnishing, installing, maintaining, for replacing deteriorated geotextile and clogged geotextile when required and for removing and disposing of the fence when no longer needed.

The accepted quantity of erosion control filter berm will be paid for at the Contract unit price per linear foot under Item 656.632, 30 Inch Temporary Silt Fence, which price shall be full compensation for furnishing, placing, and removing the erosion control filter berm.

The removal of sediments and debris that accumulate around erosion control devices, when directed by the Resident, will be paid for under the appropriate Contract items.

Cost of seeding and mulching the area after removal of the temporary silt fence will be paid for at the Contract unit prices for Item 618, Seeding, and Item 619, Mulch.

Payment will be made under:

Pay Item		Pay Unit
656.50	Baled Hay, in place	Each
656.51	Sandbag, in place	Each
656.55	Dumped Stone	Cubic Meter [Cubic Yard]
656.60	Temporary Berms	Meter [Linear Foot]
656.62	Temporary Slope Drains	Meter [Linear Foot]
656.631	375 mm [15 inch] Temporary Silt Fence	Meter [Linear Foot]
656.632	750 mm [30 inch] Temporary Silt Fence	Meter [Linear Foot]
656.64	Boom Supported Floating Silt Fence	Meter [Linear Foot]

SECTION 701 – STRUCTURAL CONCRETE RELATED MATERIALS

701.10 Fly Ash - Chemical Requirements

All references to “ASTM C311’ are changed to “ASTM C114”.

SECTION 703 - AGGREGATES

703.06 Aggregate for Base and Subbase

The first paragraph is deleted and replaced with the following:

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 (March 2002 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 [1/2 inch] sieve and is retained on the 2.00 mm [No. 10] sieve, minus any reclaimed asphalt pavement used.

703.22 Underdrain Backfill Material

The first paragraph is amended as follows:

"...for Underdrain Type B..." is changed to "... for Underdrain Type B and C..."

SECTION 706 - NON-METALLIC PIPE

706.06 Corrugated Polyethylene Pipe for Underdrain, Option I and Option II in Culvert Pipe

The first sentence is changed from "...300 mm diameters to 900 mm" to "...300 mm diameters to 1,200 mm".

The last sentence which begins "This pipe and resins..." is deleted in its entirety and replaced with the following:

The manufacturing plants of polyethylene pipe shall be certified by the Eastern States Consortium. Polyethylene pipe shall be accepted based on third party certification by the AASHTO's National Transportation Product Evaluation Program.

SECTION 709 - REINFORCING STEEL AND WELDED STEEL WIRE FABRIC

709.03 Steel Strand

The second paragraph is changed from "...shall be 12mm [1/2 inch] AASHTO M203M/M203 (ASTM A416/A416M)..." to "...shall be 15.24 mm [0.600 inch] diameter AASHTO M203 (ASTM A416)...".

SECTION 712 - MISCELLANEOUS HIGHWAY MATERIALS

The following Subsections are added:

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 castings shall conform to the requirements of AASHTO M105, Class 30, unless otherwise designated.

Carbon steel castings shall conform to the requirements of AASHTO M103/M103M. Grade shall be 450-240 [65-35] unless otherwise designated.

Structural steel shall conform to the requirements of AASHTO M183/M183M or ASTM A283/A283M, Grade B or better. Galvanizing, where specified for these units, shall conform to the requirements of AASHTO M 111.

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 M 190 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 B21 1] 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 three to 90 m [10 to 300 feet] 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 rotateable sun visor not less than 175 nun [seven inches] 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 [eight inches].

The lens shall consist of a round one-piece convex amber material which, when mounted, shall have a visible diameter of approximately 200 mm [eight inches]. 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 five 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 nine degrees each side of the vertical axis and five degrees each side of the horizontal axis. The lens shall not be less than 175 mm [seven inches] in diameter including a reflex reflector ring of 13 mm [1/2 inch] 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 Authority. 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 D 1785. 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 [1/2 inch] under a 600 mm [two foot] straightedge or over 25 mm [one inch] under a 1200 mm [four foot] 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 inch] shall show in the joint for the full exposed height.

Lift pin 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

Seed proportions are amended as follows:

Crown Vetch	25.0%
Perennial Lupine	25.0%

Red Clover	12.5%
Annual Rye	37.5%

717.05 Mulch Binder

The third sentence is amended as follows:

"Paper fiber mulch may be used as a binder at the rate of 2.3 kg/unit [5 lb/unit]."

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART II – SPECIAL PROVISIONS

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART II - SPECIAL PROVISIONS

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

General Description of Work

The work consists of repairs to four bridge structures for the Maine Turnpike Authority. The work includes bridge expansion joint and joint seal replacements, rocker bearing resets and replacements, substructure repairs, deck repairs, bridge deck membrane and paving, approach paving, guardrail modifications and reset, maintenance of traffic and all other work incidental thereto in accordance with the Plans and Specifications.

The general limits of work are from Mile 46.7 to Mile 47.9 in the city of Portland, Maine.

Plans

The drawings included in these Contract Documents, and referred to as the Plans, show the general character of the work to be done under this Contract. They bear the general title "Maine Turnpike – Contract 2014.11 - Bridge Repairs, Stroudwater River Bridges (Mile 46.7), Maine Central Railroad Bridges (Mile 47.9)". The right is reserved by the Resident to make such minor corrections or alterations in the Plans as he deems necessary without change in the unit prices on the Schedule of Prices of the Proposal.

101.2 Definition

Holidays

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

Independence Day 2014 (on a Friday)	6:00 a.m. preceding Thursday to 6:00 a.m. the following Monday.

103.4 Notice of Award

The following sentence is added:

The Maine Turnpike Authority Board is scheduled to consider the Contract Award on January 23, 2014.

104.2.2 Furnishing of Permits

The following sentences are added:

See related Subsection 105.8.2, Permit Requirements (Environmental).

104.3.8 Wage Rates and Labor Laws

The fourth paragraph under Records on GP Page 7 of 53 has been amended as follows:

A copy of each record must be filed monthly with the Maine Turnpike Authority. This information shall be sent directly to the Maine Turnpike Authority, Director of Engineering and Building Maintenance, Attention: Wage Rate Records, 2360 Congress Street, Portland, ME 04102. The records shall note the Maine Turnpike Contract Number.

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

THIS DOCUMENT MUST BE CLEARLY POSTED AT THE PERTAINING STATE FUNDED PREVAILING WAGE CONSTRUCTION SITE

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

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

Title of Project --2014.11 Bridge Repairs Stroudwater River Bridge Mile 46.7, Maine Central Railroad Bridges Mile 47.9

Location of Project --Portland, Cumberland County

2014 Fair Minimum Wage Rates
Heavy & Bridge Cumberland County

Occupation Title	Minimum Wage	Minimum Benefit	Total	Occupation Title	Minimum Wage	Minimum Benefit	Total
Backhoe Loader Operator	$18.79	$2.64	$21.43	Ironworker - Structural	$22.70	$6.70	$29.40
Boom Truck (Truck Crane) Operator	$25.00	$15.46	$40.46	Laborers (Incl.Helpers & Tenders)	$16.00	$2.84	$18.84
Bricklayer	$28.01	$17.04	$45.05	Laborer - Skilled	$16.83	$4.87	$21.70
Bulldozer Operator	$17.98	$2.55	$20.53	Line Erector - Power/Cable Splicer	$29.50	$7.35	$36.85
Carpenter	$19.38	$5.04	$24.42	Loader Operator - Front-End	$19.50	$2.73	$22.23
Carpenter - Rough	$18.00	$4.73	$22.73	Mechanic- Maintenance	$20.43	$5.20	$25.63
Communication Equip Installer	$18.00	$1.76	$19.76	Mechanic- Refrigeration	$23.22	$3.27	$26.49
Comm Trans Erector-Microwave & Cell	$20.14	$6.53	$26.67	Millwright	$22.25	$0.00	$22.25
Concrete Pump Operator	$20.50	$3.53	$24.03	Oil/Fuel Burner Servicer & Installer (Licensed)	$20.33	$4.04	$24.37
Crane Operator <15 Tons	$19.50	$4.66	$24.16	Painter	$17.75	$0.00	$17.75
Crane Operator =>15 Tons)	$23.94	$6.99	$30.93	Paver Operator	$17.25	$1.63	$18.88
Crusher Plant Operator	$17.00	$4.06	$21.06	Pile Driver Operator	$21.37	$5.97	$27.34
Diver	$25.00	$16.38	$41.38	Pipe/Steam/Sprinkler Fitter	$23.00	$7.48	$30.48
Driller - Rock	$18.00	$3.53	$21.53	Pipelayer	$17.55	$11.42	$28.97
Dry-Wall Taper & Finisher	$20.00	$1.04	$21.04	Propane & Natural Gas Servicer & Inst	$23.00	$3.44	$26.44
Electrician - Licensed	$26.00	$9.16	$35.16	Pump Installer	$21.00	$2.77	$23.77
Electrician Helper/Cable Puller (Licensed)	$17.00	$8.60	$25.60	Rigger	$20.50	$5.32	$25.82
Excavator Operator	$19.00	$3.06	$22.06	Roller Operator - Earth	$19.36	$22.45	$41.81
Flagger	$11.50	$0.00	$11.50	Roller Operator - Pavement	$17.25	$5.41	$22.66
Grader/Scraper Operator	$16.73	$2.98	$19.71	Truck Driver - Light	$15.50	$1.93	$17.43
Hot Top Plant Operator	$20.75	$9.69	$30.44	Truck Driver - Medium	$15.90	$2.71	$18.61
HVAC	$22.66	$4.51	$27.17	Truck Driver - Heavy	$13.75	$0.94	$14.69
Insulation Installer	$22.00	$9.75	$31.75	Truck Driver - Tractor Trailer	$18.00	$2.00	$20.00
Ironworker - Reinforcing	$22.00	$7.20	$29.20				

The Laborer classifications include a wide range of work duties. Therefore, if any specific occupation to be employed on this project is not listed in this determination, call the Bureau of Labor Standards at the above number for further clarification.

Welders are classified in the trade to which the welding is incidental.

Apprentices - The minimum wage rate for registered apprentices are those set forth in the standards and policies of the Maine State Apprenticeship and Training Council for approved apprenticeship programs.

Posting of Schedule - Posting of this schedule is required in accordance with 26 MRSA §1301 et. seq., by any contractor holding a State contract for construction valued at $50,000 or more and any subcontractors to such a contractor.

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

Determination No: HB-005-2014

Filing Date: December 12, 2013

Expiration Date: 12-31-2014

A true copy

Attest: Pamela Taylor

Pamela Taylor
Director
Bureau of Labor Standards

BLS 424HB (R2014) (Heavy & Bridge Cumberland)

104.4.4 Request for Information (RFI)

This Subsection is amended by the addition of the following:

RFI's shall be submitted on company letterhead or on a standard company form with a tracking number. The General Contractor shall maintain a corresponding RFI log.

RFI's may be attached to an e-mail, but shall not be in the form of an e-mail, and at a minimum, must reference the subject Plan or Specification in question.

RFI's with multiple questions may be treated as a submittal and the allowed 21 calendar days for review and response will govern.

104.4.6 Utility Coordination

This Subsection is amended by the addition of the following:

There is no utility relocation work in this contract.

Existing utilities at the Stroudwater River site include the Portland Pipeline Corporation's high pressure underground oil pipeline. There are no existing utilities at the Maine Central Railroad site.

104.4.7 Cooperation With Other Contractors

This Subsection is amended by the addition of the following:

Numerous Maine Turnpike construction projects are scheduled between Mile 44 and Mile 53 in 2014. They include, but are not necessarily limited to:

- Contract 2013.11 Bridge Rehabilitation – Exit 52 and Blackstrap Road;
- Contract 2014.09 Cash Lane Conversion – Exits 19, 46, and 48;
- Contract 2013.13 Clearing MM 51.0 - 63.0; and
- Contract 2014.14 Bridge Repairs – Forest Avenue Bridges and Riverside Street Bridges; construction schedule April 2014 through October 2014

The above contracts, and any additional contracts tendered by the Authority between Mile 44 and Mile 53, shall be considered adjacent Contracts.

104.4.8 Coordination With Railroads

This Subsection is amended by the addition of the following:

The Maine Central Railroad Bridge at Mile 47.9 crosses over the Maine Central Railroad (MCRR), owned and operated by Pan Am Railways (also known as Maine Central Railroad Company, Springfield Terminal Railway Company, Guilford Transportation Industries, Inc.). This MCRR is an active single track serving an unknown number of freight trains per day which do not operate on a set daily schedule.

Any work on or affecting Pan Am property or operations requires the presence of a Pan Am Inspector-Flagman.

The contract work does not require the contractor to access or cross the Pan-Am right-of-way so the Authority has not entered into a Railroad Service Agreement with Pan-Am Railroad on this project; and will not be paying for any Pan Am Inspectors or Flagmen on this project.

Whereas there is no Railroad Service Agreement with Pan-Am Railroad on this project; and the Authority will not be paying for any Pan Am Inspectors or Flagmen the contractor shall not enter onto the Pan Am right-of way or cross the Pan Am facility at any time without the expressed written consent of Pan Am Railways.

Should any of the contractor's workmen or subcontractors be observed on the tracks or within the Pan Am right-of-way the Resident will provide one written warning to the contractor. A second observed violation will result in the Contractor will be assessed a fine every time any employee of the Contractor, Subcontractor or supplier is observed entering onto the Pan Am right-of way or crossing the Pan Am facility throughout the duration of the Contract. The fine will be deducted from monies owed to the Contractor.

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

NUMBER OF OCCURRENCES	FINE
First	$0 Written Warning Issued
Second	$100

For the third occurrence, and any occurrence thereafter, the fine is increased by $100 per each occurrence. The number of occurrences is not specific to a Contract, an individual or a vehicle, but based solely on the number of times any employee of the Contractor, Subcontractor or supplier is observed entering onto the Pan Am right-of way or crossing the Pan Am facility throughout the duration of the Contract. The Contractor shall be notified in writing of the violation by the Authority.

The following Subsection is added:

105.2.4.2 Lead Paint

The Contractor shall presume that the existing bridge structures contain lead based paint whereas the structures were last painted in 1993-94. Paint samples were not taken on these structures therefore Lead Determination Reports are not available**.** The Contractor shall institute every precaution when working with materials coated with lead based paints.

At the Contractor's option, the Contractor may have the bridge paint sampled and analyzed. Each pair of structures would require the 1992- 93 fascia girders (shop painted); and the interior girders (field painted) be sampled. Should the Contractor's testing demonstrate the girders are not lead based paint the requirements of this section are waived.

Lead Paint Removal

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

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

Drilling of Lead Based Paint

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

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

Health and Safety Plan

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

Hazardous Waste Management Plan

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

The Hazardous Waste Management Plan shall:

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

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

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

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

- Inspections (including frequency and checklist):
  - Inspections shall be performed each day the Contractor works
  - Inspection checklist shall be similar to MaineDEP format (Refer to Appendix A1 of MaineDEP Handbook for Hazardous Waste Generators – January 2003)

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

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

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

The lead based hazardous waste must remain on-site, unless the removal is being performed by a licensed lead abatement subcontractor that collects the paint residue in HEPA

vacuums and is licensed by DEP/EPA to transport and temporarily store lead based hazardous waste at the removal Contractor's licensed waste storage facility. Both on-site and licensed off-site lead based hazardous waste storage facilities require secure storage and daily inspection of the stored waste.

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

The removal, storage, handling, transporting, and disposal of lead based paint and lead based paint residue will not be measured separately for payment, but shall be incidental to the various Contract work items.

105.3 Traffic Control and Management

See Special Provision Section 526, Concrete Barrier.

See Special Provision Section 652, Maintenance of Traffic.

This Subsection is deleted from the General Provisions and replaced with the following:

105.5.1 General Requirements

Construction Access

The Contractor shall construct a stabilized construction entrance in accordance with the Best Management Practices at all locations where construction vehicles will exit and/or enter existing paved shoulders or travel ways from non-paved areas. The Resident shall approve of the locations. The stabilized construction entrance shall be constructed in conjunction with the clearing activities or other early activities. Additional stabilized construction entrances may be required due to the Contractor's operations as well as site conditions. The construction and maintenance of the stabilized construction entrance including frequent sweeping of the paved surfaces shall be incidental to the Contract.

105.7.4 Submittal Requirements

The following paragraph is added:

In addition to the hardcopy requirement, the contractor shall also make submittals in PDF electronic file format via email. Submittals shall be accompanied by a cover sheet, which identifies the submittal number, subject date, and any revision numbers associated with the submittal.

105.8.1 Temporary Soil Erosion and Water Pollution Control

This Subsection in the General Provisions is deleted and replaced with the following:

The Contractor shall certify in writing to the Resident that an On-Site Responsible Party (OSRP) has been trained and is knowledgeable in erosion and sediment control (ECS) through the MaineDEP's Non-Point Source Training Center, or an equivalent program, or is licensed in the State of Maine as a Professional Engineer, Landscape Architect or Soil Scientist. Proof of certification for the OSRP, and any other Contractor employees charged with conducting ESC inspections, must be submitted to the Authority's Environmental Coordinator prior to starting work.

Spill Prevention Control and Countermeasure (SPCC) Plan

Any areas where petroleum products, oils or non-petroleum hazardous materials are handled or stored will require a Spill Prevention Control and Countermeasure (SPCC) Plan. These materials may not be stored or handled in areas of the site draining to an infiltration area. The Plan will be submitted to the Resident before construction begins. In addition to petroleum products and hazardous materials, controls must be used to prevent additional pollutants (i.e., fertilizers, pesticides, salt/brine, litter, construction demolition debris, etc.) from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation. The Plan shall provide the following information at a minimum:

1. The name and emergency response numbers (telephone number, cellular phone and pager numbers, if applicable) of the Contractor's representative responsible for spill prevention and response;

2. Description of handling or storage location noting setbacks from water bodies where relevant. Significant sand and gravel aquifers and other sensitive resources, including infiltration areas, must be avoided wherever possible;

3. Description of storage and containment facilities, such as dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater or surface water;

4. Description of equipment and/or materials used to prevent discharges (including sorbent materials);

5. Preventative measures to minimize the possibility of a spill; and,

6. Contingency plan if spill should occur.

The approved plan must be posted at the Project site. All personnel working in the area are required to read and be familiar with the plan.

There shall be no separate payment for preparation of a SPCC Plan acceptable to the Resident and preparation shall be incidental to the work.

Notification of Authority of Hazardous Material Spills

In addition to MaineDEP reporting requirements for spills greater than five (5) gallons, the Contractor shall notify the on-site Resident Inspector. The on-site Resident Inspector shall notify the Maine Turnpike Radio Room at 207-871-7701. When the on-site Resident Inspector is not available, the Contractor shall notify the Maine Turnpike Radio Room directly at 207-871-7701.

In addition to MaineDEP reporting requirements for all spills where any stream or water body is threatened, the Contractor shall notify the on-site Resident Inspector. The on-site Resident Inspector shall notify the Maine Turnpike Radio Room at 207-871-7701. When the on-site Resident Inspector is not available, the Contractor shall notify the Maine Turnpike Radio Room directly at 207-871-7701.

These notification procedures shall be incorporated into the Spill Prevention Control and Countermeasure (SPCC) Plan.

Responsibility for Control and Cleanup of Hazardous Material Spills

The Contractor shall be responsible to control spills and properly cleanup, containerize, and dispose of petroleum and/or other hazardous material waste that results from the actions and/or equipment of the Contractor or his employees, subcontractors and suppliers. Chemicals, exposed to stormwater must be prevented from becoming a pollutant source.

The Contractor shall also be responsible for all direct and indirect costs associated with the control of spills and proper cleanup, containerization, and disposal of petroleum and/or other hazardous material waste that results from the actions and/or equipment of the Contractor or his employees, subcontractors and suppliers.

The following Subsections are added:

105.8.1.1 Environmental Standards

The Project will be performed in accordance with the MaineDOT Best Management Practices (BMP) latest issue. The Contractor shall fully comply with all erosion and sedimentation control requirements outlined in the BMP's or contained herein. Non-compliance with these requirements as determined by the Resident shall result in a financial penalty of $1,000 per day, per violation. Any fines assessed to the Maine Turnpike Authority as a result of the Contractor's non-compliance shall be paid by the Contractor. If the Contractor fails to pay, the cost of the fine will be deducted from monies due, or which may become due, to the Contractor under this Contract.

In the event of conflict between these Specifications and other erosion and pollution control laws, rules or regulations of other Federal, State and local agencies, the more restrictive law, rules or regulations shall apply.

The standards as described below shall be met on the Project:

105.8.1.1.1 Water Pollution Control Requirements

(a) General

1. The Contractor must comply with the applicable Federal, State and local laws and regulations relating to prevention and abatement of water pollution.
2. Except as allowed by an approved permit or otherwise authorized by the Authority in writing, pollutants containing construction debris including excavated material, aggregate, residue from cleaning, sandblasting or painting, cement mixtures, chemicals, fuels, lubricants, bitumens, raw sewage, wood chips, and other debris shall not be discharged into water bodies, wetlands or natural or manmade channels leading thereto and such materials shall not be located alongside water bodies, wetlands, or such channels such that it will be washed away by high water runoff. Furthermore, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in the areas of the site draining to an infiltration area, unless these portions of the site (where storage and handling of these materials) are isolated using dikes, berms, sumps and other forms of secondary containment that prevent discharge to groundwater.
3. Temporary winter stabilization must be used between November 1st and April 15th or outside of said time period if the ground is frozen or snow covered. Temporary winter stabilization involves, at a minimum, covering all disturbed soils and seeded ground that is not Acceptable Work with an approved method. Use of these methods for over-winter temporary erosion control will be paid for under the appropriate Erosion Control items included in the Contract.
4. Construction operations in water bodies or wetlands shall be restricted to the construction limits shown on the Plans and to those areas that must be entered for the construction of temporary or permanent structures, except as allowed by approved permit or otherwise authorized by the Authority in writing. Mechanized equipment shall not be operated in water bodies or wetlands except as allowed by approved permit or otherwise authorized by the Authority in writing.
5. Upon completion of the work, water bodies or wetlands shall be promptly cleared of all falsework, piling, debris or other obstructions caused by the construction operations, except as allowed by approved permit or otherwise authorized by the Authority in writing.

(b) Earthwork

If earthwork disturbance is part of the Project scope:

1. Newly disturbed earth shall be mulched or otherwise stabilized by the end of each workday. Mulch shall be maintained on a daily basis.
2. All disturbed ditches shall be stabilized by the end of each workday. Stabilization shall be maintained on a daily basis.

3. Erosion control blanket shall be installed in the bottom of all ditches except where a stone lining is planned. Seed shall be applied prior to the placement of the blanket.
4. Permanent slope stabilization measures shall be applied within one (1) week of the last soil disturbance. Newly seeded or sodded areas must be protected from vehicle traffic, excessive pedestrian traffic, and concentrated runoff until the vegetation is well-established. If necessary, areas must be reworked and restabilized if germination is sparse, plant coverage is spotty, or topsoil erosion is evident.
5. Dust control items, other than those under Standard Specification Section 637, Dust Control, if applicable, shall be included in the plan.

105.8.1.1.2 Construction Requirements

1. The Contractor, to the maximum extent practicable, shall install temporary and permanent sedimentation control measures prior to conducting clearing and grubbing operations.
2. The Contractor shall conduct inspections of disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspections shall be conducted (1) at least once a week as well as before and after a storm event and prior to completing permanent stabilization measures; and (2) by a person knowledgeable of erosion and stormwater control, including the standards and conditions in the permit.
3. The Contractor shall maintain all measures in effective operating condition until areas are permanently stabilized. If BMPs need to be modified (i.e., corrective action, additional BMPs installed, etc.), implementation must be completed within seven (7) calendar days and prior to any storm event.
4. Temporary erosion control measures shall be maintained until the site is permanently stabilized with vegetation or other permanent control measures.
5. The Contractor will immediately take appropriate measures to prevent erosion or sedimentation from occurring or to correct any existing problems regardless of the time of year.
6. During periods of approved suspension, the Contractor shall inspect and maintain temporary and permanent erosion and sedimentation controls.
7. Work in wetlands is prohibited except to the minimum extent necessary for completion of the work as detailed on the Plans. Excavated and other material shall not be stockpiled in wetlands. Haybales, silt fence or other suitable barriers shall be used, where necessary, to prevent sedimentation from eroding materials.
8. Disturbance of natural resources beyond the construction limits shown on the Plans is not allowed.
9. Existing ditches shall be maintained until the new ditches are stabilized. Stone check dams shall be placed in existing ditches prior to construction as to prevent the release of sedimentation. Stone check dams shall be installed at the outlets of all existing and proposed ditches adjacent to all stream and wetlands.
10. For proposed ditches, stabilize the outlet first and build from the bottom up. Only excavate what can be stabilized or protected by the end of the work day.
11. Before permitting permanent channels to carry water, they shall be stabilized. This may require the installation of temporary erosion control BMP's or temporarily diverting flows.

12. All cross culvert outlets shall be armored before the end of the work day.
13. The Contractor's operation may require the placement of temporary pipes and fill over a ditch line to provide access to the work area. The Resident shall approve the size of the pipe. The placement and removal of the temporary access shall not be measured for payment and shall be incidental to the Excavation item.
14. Bare earth slopes shall be roughened to dissipate sheet flow. This shall be accomplished by "tracking" the slope perpendicular to the centerline. This work will not be measured separately for payment, but shall be incidental to the Excavation item.
15. Uncured concrete shall not be placed directly into the water body. Concrete may be placed in forms and shall cure at least one (1) week prior to form removal. No washing of tools, forms, etc. shall occur in or adjacent to the water body or wetland.
16. The Contractor shall contain all demolition debris (including debris from wearing surface removal, sawcut slurry, dust, etc.) and shall not allow it to discharge to any resource. Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source. The Contractor shall dispose of debris in accordance with Maine Solid Waste Law, Title 38 M.R.S.A., Section 1301 et. seq.
17. No wheeled or tracked equipment shall be operated in the water. Equipment operating on the shore may reach into the water with a bucket or similar extension. Equipment may NOT cross streams.
18. The Contractor shall not remove rocks from below the normal high water line of any wetland, great pond, river, stream or brook, except to the extent necessary for completion of the work and as allowed by environmental permits.

105.8.2 Permit Requirements

The Project is subject to the requirements of the Maine Pollutant Discharge Elimination System (MPDES) General Permit for Stormwater Discharge from Construction Activity, as promulgated by the US Environmental Protection Agency (US EPA) and Administrated by the Maine Department of Environmental Protection (DEP) if the limit of disturbance equals or exceeds one acre.

A Notice of Intent (NOI) was not submitted by the Authority to the DEP for coverage under the Maine Construction General Permit (MCGP) since the estimated LOD is under the permitting threshold and the work is classified as maintenance and, therefore, is exempted. Compliance with the erosion and sedimentation control requirements outlined in this Contract is required by the Contractor.

The Contractor shall prepare a LOD plan to include all sites illustrating the Contractor's proposed limit of earthwork disturbance. The LOD plan shall show all construction access locations, field office locations, material and temporary waste storage locations, as well as include the Contract limits of earthwork disturbance. All applicable erosion and sedimentation control devices needed shall be detailed on the Contractor's LOD plan and are not limited to those devices shown on the Contract LOD plan. This Plan shall be submitted for review and approval, to the Resident within 14 days of Contract award. Payment for creating, revising, and completing this plan shall be incidental to related erosion control pay items.

The LOD for this Contract has been estimated to be 0.94 acres.

At any time during the Contract, if the Limit of Disturbance needs to be adjusted to accommodate construction activities, the Contractor shall resubmit the LOD plan (including any additional erosion and sedimentation control measures needed) to the Resident for review and approval prior to any additional disturbance taking place:

- If the cumulative area of disturbance at all sites exceeds the estimated LOD noted above, by less than .05 acre, the Resident shall have a minimum of five (5) working days to approve the revised LOD plan.
- If the cumulative area of disturbance at all sites exceeds the estimated LOD noted above, by .05 acre or more, the Resident shall first approve of the plan and then possibly submit the NOI for MaineDEP approval. The approval may take a minimum of 21 working days.

This Project is also subject to the requirements of the Maine Pollutant Discharge and Elimination System (MPDES) General Permit for the Discharge of Stormwater from MTA's Municipal Separate Storm Sewer Systems (MS4), because it is located within an Urbanized Area (UA) as defined by the 2000 census by the U.S. Bureau of the Census. MS4 compliance requires all Contractors to be properly trained in Erosion and Sedimentation Control (ESC) measures (as per Special Provision Subsections 105.8.1 and 656.07) and implement measures to reduce pollutants in stormwater runoff from construction activities.

105.8.3 Wetland and Water Body Impacts

The following locations are classified as streams:

Stroudwater River	2318+00

No work is permitted in the stream or adjacent wetland areas.

107.1 Contract Time and Contract Completion Date

This Subsection is amended by the addition of the following:

Work on the project shall commence on or before February 10, 2014 at the discretion of the Authority, and all work shall be completed on or before August 15, 2014.

107.1.1 Substantial Completion

This Subsection is amended by the addition of the following:

There is no separate substantial completion date or scope of work on this project. All work shall be completed on or before August 15, 2014.

107.3.2 Night Work

The following serves as a guide to the local regulations pertaining to night work. This information is not guaranteed to be accurate and is for information and planning only. The Contractor shall plan his work accordingly.

The City of Portland has an Ordinance that regulates noise from construction activities in residential zones. The City's Construction Activities Ordinance can be found online at www.ci.portland.me.us/citycode.htm.

The following Subsection is added:

107.4.2 Schedule of Work Required

This Subsection is amended by the addition of the following:

The work shall be completed in logical timely increments. The Contractor shall submit a schedule for review that shows large segments of work scheduled for continuous blocks of time. Work in a segment shall be completed over a period of continuous work days. Work shall not be started in an area until the Contractor has scheduled the labor and equipment necessary to complete all work in the segment. The Contractor will not be permitted to "stretch" the Project over the entire Contract period, doing a day or two per week.

A schedule that shows sporadic work activities through the duration of the Contract will not be approved. Actual work activities that are sporadic will not be allowed.

The weekly detailed schedule submitted by the Contractor shall show all lane closures that are anticipated for the following week. Lane closures that are not shown on this schedule will only be allowed if they are deemed emergency lane closures by the Resident.

The following Subsection is added:

107.4.6 Prosecution of Work

All work requiring lane closures shall be done in the permitted lane closure windows shown in **Appendix A**, or outlined in Special Provision 652.

The following Subsection is added:

107.4.7 Limitations of Operations

The construction in each location shall proceed expeditiously. Once operations commence at a location work shall progress for every day/night work is allowed by Contract and weather permits.

Contractor shall coordinate the maintenance of traffic, guardrail, bridge and paving work at all locations to ensure the timely completion of the project.

Two lanes of traffic in each direction shall be maintained on the mainline at all times, except when Appendix A expressly permits mainline lane closure. Ramp closures at Exits 46 or Exit 47 are not permitted.

The Contractor will be allowed to close a lane in both directions at the same time, subject to the Appendix A requirements.

No permanent lane shifts will be permitted until March 17, 2014.

The bridge repair work shall be completed (joint replacements, joint modifications, deck repairs, partial depth milling, membrane and pavement repairs, and resurfacing) prior to the approach/ departure mill, shim and overlay paving work.

The Contractor will not be permitted to mill approach and departure areas in any work area until he is prepared to undertake the approach/ departure shim and paving operations within two working days (4 calendar days maximum). Temporary ramps shall be installed if the shimming and paving operation cannot occur in the same closure(s). The Contractor shall submit his milling and paving schedule for review and acceptance.

The Contractor shall replace and secure all catch basin grates with Sikaflex 1a before being allowed to shift traffic onto the catch basins.

The Contractor shall limit the construction operations such that temporary pavement markings or pavement markers are applied daily prior to the roadway being open to traffic.

Mainline lane shall be as shown on the Traffic Phasing plans or as otherwise approved by the Resident. Temporary mainline lane closure(s) will not be allowed during non-work periods, weekends or Holiday periods.

Temporary bituminous ramps, minimum 35’ per 2 inches of pavement elevation change, will be required at all butt joints and bridge joints.

Traffic will be allowed to traverse the longitudinal joint where the pavement is lower in one lane than the adjacent lane.

Wide loads will be allowed to pass through the project area during daylight hours as authorized by the Authority. Wide loads are restricted from moving on the Turnpike one-half hour after sunset until one-half hour before sunrise. Wide loads must be able to safely pass all daytime work areas. See SP 652, Project Specific Maintenance of Traffic for additional information.

The work shall be timed and phased to allow the roadways to be open to two lanes of traffic in each direction daily per Appendix A.

Drainage

Care shall be taken when working near catch basins to ensure foreign material and contaminants do not enter the basin. If foreign material and/or contaminants enter the basin, it

shall be removed prior to the material exiting the basin into a waterway. Removal shall be completed to the satisfaction of the Resident and payment shall be incidental to the Contract.

Bridge Repair Work

The Contractor shall steel plate any bridge joint work not behind concrete barrier at the end of each work shift and open the roadway up to two lanes of mainline traffic.

The Contractor shall complete all partial or full depth concrete deck repairs by the end of each work shift and open the roadway up to two lanes of mainline traffic. If the repairs cannot be completed in time to open the roadway the Contractor shall temporarily "patch" the concrete repair areas with rapid set concrete or bituminous pavement and open the roadway up to two lanes of mainline traffic. The partial and full depth concrete deck repairs quantities are estimated. The actual quantities will be determined in the field after the removal of the existing bituminous overlay and membrane.

Traffic will not be permitted to travel on the new high performance membrane, or significantly deteriorated concrete surfaces.

Equipment Storage

The Contractor shall submit his proposed staging and storage areas for approval by the Resident. All stored equipment must be outside of the clear zone. Proposed equipment storage locations shall be selected based on (1) proximity to UIS/Protected Natural Resources; (2) minimizing rutting or other actions that may hinder sheet flow from roadway; and (3) spill control and prevention, in the event of a fluid release from the equipment.

107.4.8 Failure to Complete Daily Work on Time (Lane Rental)

All mainline lanes shall be fully open to traffic for all times outside the allowed lane closure times in Appendix A. The Contractor shall pay a $500.00 lane rental fee for each five (5) minute block of time or portion thereof, per location, that a mainline lane, ramp, and toll plaza area closure(s) remains in place outside the allowed times on each roadway.

The paved lanes shall not be opened to traffic until the pavement internal temperature has cooled to 120°F, pavement markers (temporary and/or permanent) have been installed, and all traffic control devices have been removed from the mainline to the satisfaction of the Resident.

The following Subsection is added:

107.4.9 Failure to Stop Work When Directed

In the event the Authority determines that the safety of the turnpike users (public) might be unduly compromised if work on the Project is not halted; the Resident Engineer, Resident Inspector or other authorized Authority representative will notify the Contractor to stop work. This may include directive to the Contractor to remove lane closures due to significant traffic delays. If the Contractor refuses to stop work within the time frame determined by the Authority, the Contractor will not be allowed to recommence work until after the Contractor meets with the

Authority. In addition, work completed after the time allotted by the Authority to stop work, will not be measured for payment.

107.7.2 Schedule of Liquidated Damages

The table of liquidated damages is deleted and replaced with the following:

Original Contract Amount From More Than	Original Contract Amount up to and Including	Amount of Liquidated Damages per Calendar Day
$0	$100,000	$225
$100,000	$300,000	$350
$300,000	$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

108.4 Payment for Materials Obtained and Stored

This Subsection in the General Provisions is deleted and not replaced.

This Subsection of the Standard Specifications is deleted and replaced with the following:

Acting upon a request from the Contractor, accompanied by the required documentation, the Authority 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 Authority (e.g. at a facility controlled by the Contractor or his Subcontractor\Fabricator). Examples of such Materials include steel piles, structural steel, prestressed concrete beams and slabs, stone masonry, curbing, timber and lumber, metal culverts, and other similar Materials. The Authority will not make payment on living or perishable Materials until acceptably planted in their final locations.

For structural steel fabrication, the Authority will not make partial payments for expenses such as shop drawing development, overhead, transportation, rent, storage, heat, Contractor mark-ups or other items until after fabrication has commenced. Payment will be based on the Authority's determination of percent complete at the close of the period.

As a condition of payment, the Contractor or his Subcontractor\Fabricator shall provide the following:

1. Proof that all Materials are stored in a secure location acceptable to the Authority.
2. Detailed invoices from the material supplier including a summary of the Materials provided, quantities shipped and received, unit costs, taxes, transportation fees, and all other charges included in the invoice total.
3. Copies of mill certifications, or other material certifications, as required by the Specifications relevant to the Materials.
4. Right of access for the Authority, or its duly authorized agent, to inspect and quantify the Materials at the approved storage site.

5. Proof of insurance for the stored Materials. The Contractor or his Subcontractor\Fabricator shall carry insurance, equal to 100% of the replacement value of the Materials, for all stored Materials. The Maine Turnpike Authority shall be named as an Additional Insured on the insurance policy.

If payment for Materials obtained and stored by the Contractor's Subcontractor\Fabricator is made to the Contractor, then the Contractor must provide proof of payment from his Subcontractor\Fabricator within 14 calendar days of the date the Contractor receives payment for the Materials. Failure by the Contractor to provide timely proof of payment for these Materials will result in the paid amount being withheld from the subsequent progress payment, or payments, until such time proof of payment is received by the Authority.

Materials paid for by the Authority will become the property of the Authority, 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 Authority has paid are later found to be unacceptable, then the Authority may withhold amounts reflecting such unacceptable Materials from payments otherwise due the Contractor.

In the event of Default, the Authority may use, or cause to be used, all paid-for-Materials in any manner that is in the best interest of the Authority.

108.4.1 Price Adjustment for Hot Mix Asphalt

This Subsection in the General Provisions is deleted and replaced with the following:

For Contracts containing an excess of 500 tons of bituminous pavement, an asphalt price adjustment will be made for all bituminous concrete placed after the bid date of the Contract. No asphalt price adjustment will be allowed for Contracts containing less than 500 tons.

Price adjustments will be based on the variance in cost for the performance-graded binder component of the hot mix asphalt. The quantity of hot mix asphalt for each pay item will be multiplied by performance graded binder 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. The quantity of Hot Mix Asphalt will be determined from the quantity shown on the progress estimate for each pay period. The base price of performance graded binder to be used is the price per standard ton current with the bid opening date. The period price of performance grade binder shall be determined by the Authority by using the average New England Selling Price and shall be the price per standard ton current with the ending date of the progress estimate. The Authority will determine the price adjustment weekly as prices increase or decrease and the sum of the weekly totals will be included in the monthly payment. No price adjustment will be made after the project completion date of August 15, 2014. The last price listed before August 15, 2014 will be used for pavement placed after the project completion date. The prices shall be determined by using the average New England Selling Price, as listed in the Asphalt Weekly Monitor.

Item 403.208	Hot Mix Asphalt - 12.5 mm	5.6%
Item 403.209	Hot Mix Asphalt - 9.5 mm	6.2%
	(sidewalks, drives, & incidentals)	
Item 403.211	Hot Mix Asphalt - Shim	6.2%
Item 403.213	Hot Mix Asphalt - 12.5 mm	5.6%
	(base and intermediate course)	

109.7.3 Compensable Items

The following is added to Item 3.:

3. "A maximum 15% markup will be allowed on the total..."

The following is added to the end of the paragraph:

4. ..."if determined by the Authority to be lower."

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Existing Structural Concrete)

202.01 Description

The following paragraphs are added:

This work shall include removal and disposal of the existing top of back walls, deck ends, and back wall and deck curbs as shown on the Plans to facilitate the replacement locking compression seal joint systems.

After removal of the concrete, all newly exposed structural steel surfaces to be incorporated into the new construction shall be thoroughly cleaned with chipping hammers or other means as necessary so all surfaces are free of rust, scale, chunks of concrete, or other foreign materials.

All demolition materials shall become the property of the Contractor and shall be removed from the site at the completion of the Project. The Contractor shall provide the Resident with an affidavit stating the final location of all disposed material and that the material was disposed of in accordance with the Maine Department of Environmental Protection Solid Waste Regulations.

202.07 Method of Measurement

The first and third sentences of the first paragraph are deleted and replaced with the following:

Removing Existing Structural Concrete at top of back walls, deck ends, and back wall and deck curbs will be measured by the cubic yard in place prior to beginning the work.

Any excavation required to remove existing structural concrete or superstructure concrete will not be measured under this pay item, but shall be measured and paid under Item 206.082 Structural Earth Excavation – Major Structures.

Removing, stacking and resetting existing bridge rail and bridge rail posts that interfere with the removal of the existing structural concrete or the installation of the specified joint modifications or replacements will not be measured separately but shall be incidental to the various New Locking Compression Seal with Steel Edge Beams pay items. Providing anchor bolts, and bridge rail hardware to re-install components removed will not be measured separately but shall be incidental to the various New Locking Compression Seal with Steel Edge Beams pay items.

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Existing Drain Troughs)

202.01 Description

The following paragraph is added:

The work shall consist of removing, stacking and re-installing select existing drain troughs attached to, or in front of, the abutments at the Stroudwater River bridge structures to undertake abutment breast wall substructure repairs. Drain troughs to be removed, stacked and re-installed for substructure breast wall repairs shall be marked by the Resident.

The work may also consist of removing, stacking and re-installing select existing drain troughs attached to, or in front of, the abutments at the Stroudwater River and Maine Central Railroad bridge structures to install temporary structural supports to jack the existing superstructure for rocker bearing resets and rocker bearing replacements. Existing drain troughs may remain in place, and the temporary structural supports may be built on or over them, if the Contractor's temporary structural support design has capacity to support the superstructure without damage to the existing drain troughs.

The following Subsections are added:

202.025 General

All drain trough components may be temporarily stored on the turnpike right-of-way.

Drain troughs shall be reset to line and grade to allow water to flow to the outlet. The reset drain troughs shall be locked in securely between drain troughs not reset; and the joints between the adjacent reset drain troughs, and reset drain troughs and adjacent drain troughs not reset shall be watertight.

Temporary drain troughs and/or slope protection shall be installed to control drainage and prevent erosion of the existing slopes while the abutment breast wall substructure repairs, and/or the rocker bearing are replaced or reset until the precast drain troughs can be re-installed.

Voids created by removal of the precast and cast-in-place drain troughs shall be in-filled with on-site material if available. If additional material is required Common Borrow shall be imported, placed, leveled and compacted.

If the condition of any drain trough components is significantly deteriorated, and not suitable for re-installation, a replacement component will be provided by the Authority. The replacement component shall be available at the Crosby Maintenance Area at Mile 46 Southbound.

202.07 Method of Measurement

The following paragraphs are added:

Removing Existing Drain Troughs at the Stroudwater River bridge structures to undertake abutment breast wall substructure repairs will be measured for payment by the linear foot.

Removing Existing Drain Troughs abutments at the Stroudwater River and Maine Central Railroad bridge structures to install temporary structural supports to jack the existing superstructure for rocker bearing resets and rocker bearing replacements will not be measured separately for payment but shall be incidental to Item 524.7211 Jacking Existing Superstructure.

Temporary drain troughs and/ or slope protection installed to control drainage and prevent erosion of the existing slopes until the until the precast drain troughs can be re-installed and are functioning will not be measured separately for payment but shall be incidental to the Removing Existing Drain Troughs pay item for troughs removed to undertake abutment breast wall substructure repairs; and to Item 524.7211 Jacking Existing Superstructure for troughs removed to install temporary structural supports to jack the existing superstructure for rocker bearing resets and rocker bearing replacements.

202.08 Basis of Payment

The following paragraphs are added:

Removing Existing Drain Troughs at the Stroudwater River bridge structures to undertake abutment breast wall substructure repairs shall be paid for at the Contract linear price which includes all removals, stacking, and resetting precast troughs, temporary drain troughs and/or slope protection, infilling of voids with on-site materials, equipment and labor necessary to satisfactorily complete the work.

Payment will be made under:

Pay Item		Pay Unit
202.192	Removing Existing Drain Troughs	Linear Foot

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Pavement Surface)
(Removing Pavement Surface – Bridge Deck)

202.01 Description

The following paragraphs are added:

This work shall also consist of removing the surface of the bituminous concrete pavement from bridge decks and approach roadways to the depth, width, grade, and cross section as shown on the Plans or as directed by the Resident.

Removal of the pavement and membrane surface from the Stroudwater River and Maine Central Railroad bridge decks shall be completed by scraping or other methods that will not damage the existing concrete deck surface. Milling of bridge deck pavement shall not be allowed.

Removal of approach pavement shall be completed through the use of a milling machine. The milling machine(s) shall be capable of accurately establishing profile grades by referencing from a floating straight edge, a minimum of 50 feet.

Areas requiring shim pavement to reach final pavement grade shall not be milled.

This work shall also consist of construction of temporary ramps at all butt joints as shown in the MaineDOT Standard Detail – Pavement Overlay Butt Joint Detail (Roadways), Page 202(01) or as approved by the Resident. The length of the temporary ramp shall be at least 18 feet for each 1 inch of pavement elevation change.

The following Subsection is added:

202.032 Removing Bridge Pavement Surface and Membrane

All bridge deck pavement, membrane and scrapings shall be disposed of by the Contractor off of the turnpike right-of-way in accordance with the Maine Department of Environmental Protection Solid Waste Management Requirements.

The following Subsection is added:

202.0611 Removing Approach Pavement (non-bridge decks)

The equipment for removing the bituminous surface shall be a power-operated milling machine or planer capable of removing the bituminous concrete pavement to the required depth. The milling machine shall be capable of accurately establishing profile grades by referencing from a floating straight edge, a minimum of 50 feet. The equipment shall also have an effective

means for removing excess material from the surface and preventing accidents from flying material in compliance with Subsection 105.2.5, Safety and Convenience of the Public, of the Specification.

The Contractor shall locate and remove all objects in the work area that would be detrimental to his milling or planing machine.

All pavement grindings shall be disposed of by the Contractor off of the turnpike right-of-way in accordance with the Maine Department of Environmental Protection Solid Waste Management Requirements.

202.07 Method of Measurement

The second paragraph is deleted and replaced with the following:

Removing Pavement Surface will be measured by the square yard of material removed to the required depth.

Removing Pavement Surface – Bridge Deck will be measured by the square yard of material removed to the required depth, and will include the complete removal of the existing waterproofing membrane on the bridge deck.

The following paragraph is added:

The removal of temporary bituminous ramps will not be measured separately for payment, but shall be incidental to the Contract.

202.08 Basis of Payment

The following paragraphs are added:

The accepted quantity of Removing Pavement Surface will be paid at the Contract unit price per square yard which price shall be full compensation for removing the pavement surface from bridge approach roadways to the required depth, hauling, and stockpiling the material, locating and removing objects detrimental to the milling or planing machine, sweeping, labor, equipment and all other incidentals necessary to complete the work.

The accepted quantity of Removing Pavement Surface - Bridge Deck will be paid at the Contract unit price per square yard which price shall be full compensation for removing the pavement surface and membrane materials from the bridge deck, hauling, and stockpiling the material, locating and removing objects detrimental to the equipment removing the pavement and membrane, sweeping, labor, equipment and all other incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
202.202	Removing Pavement Surface	Square Yard
202.2021	Removing Pavement Surface – Bridge Deck	Square Yard

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Rumble Strips)

202.01 Description

The following paragraph is added:

This work shall consist of grinding existing rumble strip locations to a depth of 1-1/2 inches, coating vertical and horizontal surfaces with bituminous tack coat, and installing 1-1/2 inches of hot mix asphalt, 9.5 mm over the entire milled area. Locations and lengths of removal shall be as shown on the Plans or as approved by the Resident.

The following Subsections are added:

202.011 Materials

Grinding shall be done in accordance with Section 202. Bituminous tack coat shall conform to Section 409.

Hot mix asphalt, 9.5 mm shall conform to Section 401.

202.025 General

Existing rumble strips are approximately 16 inches long, seven inches wide, 1/2 inch deep, and spaced approximately every five inches.

202.07 Method of Measurement

The following paragraph is added:

Removing Rumble Strips shall be measured by the linear foot removed and accepted. Measurement shall be parallel to the baseline.

202.08 Basis of Payment

The following sentences are added:

Removing Rumble Strips shall be paid for at the Contract unit price per linear foot which includes all grinding, bituminous tack coat, pavement, equipment and labor necessary to satisfactorily complete the work.

Payment will be made under:

Pay Item		Pay Unit
202.206	Removing Rumble Strips	Linear Foot

SPECIAL PROVISION

SECTION 203

EXCAVATION AND EMBANKMENT

This Section is amended as follows:

All references to "waste storage areas" shall be deleted.

203.01 Description

The following paragraph is added:

This work shall consist of cutting, removing and disposing of the full depth of existing bituminous concrete pavement at the approaches to the bridge structures within the limits of work as shown on the Plans or as approved by the Resident. The pavement shall be sawcut to the full depth of pavement at the limits of the excavation to provide a clean, vertical cut surface.

This work shall consist of removing and disposing of excess sod and earth materials that have accumulated under and adjacent to guardrail; and shaping the excavation for pavement and loam, seed and mulch.

This work shall consist of compacting the excavated areas prior to the installation of pavement and loam, seed and mulch. Importation of embankment materials is not anticipated.

203.04 General

The third paragraph is deleted and replaced with the following:

There are no approved waste storage areas or waste areas within the Project limits. Unsuitable materials shall be disposed of off-site in accordance with Subsection 203.06.

Any temporary earth support required to install or remove drainage structures and utilities and support existing or proposed utilities will not be measured separately for payment, but shall be incidental to the Excavation items.

All excavations shall be accomplished in accordance with the applicable OSHA Standards. The Resident reserves the right to request the Contractor to prepare an excavation plan. This plan shall include, but not necessarily be limited to, the limit and depth of excavation, side slope, shoring, trench box and utility support.

After excavation in clay areas, the surface of the clay material must be scarified or roughened prior to placing loam and seed. Failed slopes shall be repaired at the Contractor's own expense.

203.18 Method of Measurement

The following paragraphs are added:

There will be no additional payment for the required excavation plan, and costs shall be incidental to the Excavation items.

Shaping and compacting the excavated areas, prior to the installation of pavement and loam, seed and mulch, will not be measure separately but shall be incidental to Item 203.20 Common Excavation.

SPECIAL PROVISION

SECTION 206

STRUCTURAL EXCAVATION

This Section is amended as follows:

All references to "waste storage areas" shall be deleted.

206.01 Description

The following is added after the first paragraph:

This work also shall consist of excavating and removal of earth materials at the bridge abutments at areas requiring repair within the limits of work as shown on the Plans or as approved by the Resident.

206.02 Construction Methods

The following paragraphs are added:

There are no approved waste storage areas or waste areas within the Project limits. Unsuitable materials shall be disposed of off-site in accordance with Subsection 203.06.

The bituminous pavement shall be disposed of by the Contractor off the Turnpike Right-of-Way. All bituminous pavement shall be disposed of in accordance with Chapter 404 of the Maine Department of Environmental Protection Solid Waste Management Regulations.

206.04 Method of Measurement

The following paragraph is added:

Excavation required to expose repair areas will be paid for under Item 206.08, Structural Earth Excavation - Major Structures. Backfill of the repair areas, not requiring gravel or hot bituminous pavement, will not be measured separately for payment, but shall be incidental to the Structural Earth Excavation item.

The structural excavation pay limits are 1'-6" wide by the concrete removal depth plus 0'6".

206.05 Basis of Payment

The following is added after the first paragraph:

The work shall also include all materials, equipment and labor associated with excavating, backfilling and compacting areas of structural excavation.

Payment will be made under:

Pay Item		Pay Unit
206.08	Structural Earth Excavation – Major Structures	Cubic Yard

SPECIAL PROVISION

SECTION 401

HOT MIX ASPHALT PAVEMENT

The following Specification is based on the MaineDOT February 11, 2009 Specification for Division 400, Pavements.

Section 401, Hot Mix Asphalt is deleted in its entirety and replaced with the following:

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 as shown on the Plans or established by the Resident. The Authority will accept this work under Quality Assurance provisions, in accordance with these Specifications and the requirements of Section 106, Quality, the provisions of AASHTO M 323, except where otherwise noted in Sections 401 and 703 of these Specifications, and the MaineDOT Policies and Procedures for HMA Sampling and Testing.

401.02 Materials

Materials shall meet the requirements specified in Section 700, Materials:

- Asphalt Cement 702.01
- Aggregates for HMA Pavement 703.07
- 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 Authority according to the MaineDOT Policies and Procedures for HMA Sampling and Testing. If approved by the Authority, the Contractor shall provide documentation stating the source, average 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 Authority will obtain samples for verification and approval prior to its use.

In the event that RAP source or properties change, the Contractor shall notify the Authority 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.

The RAP shall be from an interstate highway.

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 may use a maximum of 15 percent reclaimed asphalt pavement (RAP) in any base, binder, surface, or shim course. The Contractor may be allowed to use more than 15 percent RAP, up to a maximum of 25 percent RAP, in a base, binder, or shim course provided that PG 58-34 asphalt binder is used in the mixture.

The MaineDOT (Department) will be providing the mix design verification (Job Mix Formula) for the Authority's approval. The Job Mix Formula (JMF) will be sent to the Department Central Laboratory in Bangor, Maine. The samples will be obtained by the Department for laboratory testing. Before the start of paving, the Contractor and the Department will split a sample for verification of design before production will be allowed. The Contractor shall submit for Authority approval a JMF for each mixture to be supplied. The Authority may approve one (1) active design per nominal maximum size, per traffic level, per plant, plus a 9.5 mm "fine" mix @ 50 gyrations for shimming, and where required, a non-RAP design for bridge decks. The Authority 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 Subsection 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 Subsection 703.09. The JMF shall state the original source, gradation, and percentage to be used of each portion of the aggregate 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 Structural 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 135 Mg [150 ton] for stone stockpiles, 70 Mg [75 ton] for sand stockpiles, and 45 Mg [50 ton] of blend sand before the Authority will sample. The Authority shall obtain samples for laboratory testing. The Contractor shall also make available to the Authority 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 Authority 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 Authority's Lab, which will test the Authority's split of the sample. The results of the two split samples will be compared and shared between the Authority and the Contractor. If the Department finds the mixture acceptable, an approved JMF will be forwarded to the Authority. The Authority will then notify the Contractor that 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. Should all of the Acceptance samples of a Lot be obtained prior to the receipt of the first Acceptance result, the Authority 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 percent. 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 adjusted up to five percentage points from the amount listed on the JMF but shall not exceed the maximum allowable percentage for RAP for the specific application.

TABLE 1
VOLUMETRIC DESIGN CRITERIA

<table>
<tr><th rowspan="3">Design ESAL's (Millions)</th><th colspan="3" rowspan="2">Required Density (Percent of G_{mm})</th><th colspan="5">Voids in the Mineral Aggregate (VMA)(Minimum Percent)</th><th rowspan="3">Voids Filled with Binder (VFB) (Minimum %)</th><th rowspan="3">Fines/Eff. Binder Ratio</th></tr>
<tr><th colspan="5">Nominal Maximum Aggregate Size (mm)</th></tr>
<tr><th>$N_{initial}$</th><th>N_{design}</th><th>N_{max}</th><th>25</th><th>19</th><th>12.5</th><th>9.5</th><th>4.75</th></tr>
<tr><td><0.3</td><td>≤91.5</td><td rowspan="5">96.0</td><td rowspan="5">≤98.0</td><td rowspan="5">13.0</td><td rowspan="5">14.0</td><td rowspan="5">15.0</td><td rowspan="5">16.0</td><td rowspan="5">16.0</td><td>70-80</td><td rowspan="5">0.6-1.2</td></tr>
<tr><td>0.3 to <3</td><td>≤90.5</td><td>65-80</td></tr>
<tr><td>3 to <10</td><td rowspan="3">≤89.0</td><td rowspan="3">65-80*</td></tr>
<tr><td>10 to <30</td></tr>
<tr><td>≥ 30</td></tr>
</table>

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

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

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

401.04 Temperature Requirements

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

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

The JMF and the mix subsequently produced shall meet the requirements of Table 1 and Subsection 703.07.

401.05 Performance Graded Asphalt Binder

Unless otherwise noted in Special Provision Section 403, Hot Bituminous Pavement, PGAB shall be 64-28, except that for mixtures containing greater than 15 percent but no more than 25 percent RAP the PGAB shall be PG 58-34. The PGAB shall meet the applicable requirements of AASHTO M320 - Standard Specification for PGAB. The Contractor shall request approval from the Authority 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 Authority shall make efforts to minimize the occurrence of PGAB co-mingling.

401.06 Weather and Seasonal Limitations

The state is divided into two paving zones as follows:

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

The Contractor may place Hot Mix Asphalt Pavement for use other than a traveled way wearing course in either Zone between the dates of April 15th and November 15th, provided that the air temperature as determined by an approved thermometer (placed in the shade at the paving location) is 4°C [40°F] or higher and the area to be paved is not frozen. The Contractor may place Hot Mix Asphalt Pavement as traveled way wearing course in Zone 1 between the dates of May 1st and the Saturday following October 1st, and in Zone 2 between the dates of April 15th and the Saturday following October 15th, provided the air temperature determined as above is 6.5°C [45°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 Subsection 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 one 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 Authority 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 Subsection 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 Subsection 108.1.3, Provisions Relating to Certain Measurements, Mass and Paragraphs a, b, and c of Subsection 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 Subsection 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 MaineDOT designation for the JMF.

401.074 Weight Checks on Automatic HMA Plant

At least twice during each five days of production either of the following checks will be performed:

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

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

b. Where platform scales are not readily available, a check will be made to verify the accuracy and sensitivity of each scale within the normal weighing range and to assure that the interlocking devices and automatic printer system are functioning properly.

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

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. Solvents 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 mainline, 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 mainline with a paver using an automatic grade and slope controlled screed, unless otherwise authorized by the Authority. 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 super elevated 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 mainline 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 Subsection 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 Authority. The Contractor shall repair or replace any paver found worn or defective, either before or during placement, to the satisfaction of the Authority. Pavers that produce an unevenly textured or non-uniform mat will be repaired or replaced before continuing to place HMA on MTA projects. On a daily basis, the Contractor shall perform nuclear density testing across the mat being placed, at 300 mm [12 in] intervals. If the values vary by more than 2.0 percent from the mean, the Contractor shall make adjustments 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 Authority. Rollers that produce grooved, unevenly textured or non-uniform mat will be repaired or replaced before continuing to place HMA on MTA projects.

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

a. On variable-depth courses, the first lift of pavement over gravel, reclaimed pavement, an irregular or milled surfaces, or on bridges, at least one roller shall be 14.5 Mg [16 ton] pneumatic-tired. Unless otherwise allowed by the Resident, pneumatic-tired rollers shall be equipped with skirting to minimize the pickup of HMA materials from the paved surface. When required by the Resident, the roller shall be ballasted to 18.1 Mg [20 ton].

b. Compaction with a vibratory or steel wheel roller shall precede pneumatic-tired rolling, unless otherwise authorized by the Authority.

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 Authority 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 [1/4 in] by removing defective work and replacing it with new material as directed by the Authority. The Contractor shall furnish a 10 foot straightedge for the Authority's 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 Authority 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 (Pascal-second).

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 roads opened to two-way 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 Authority 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 Authority. 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 Authority.

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 Authority.

401.162 Voids

Percent air voids will be determined in accordance with AASHTO T 312. Point of sampling will be from the truck at the plant. One sample shall be taken and tested for each 500 tons of production or portions thereof. Full payment will be made for each 500 tons of production that meets the specified void range of 2.5 to 5.5 percent.

Payment reduction will be applied to each sublot (500 tons) that falls outside of this range. See Subsection 401.21.

401.163 Asphalt Content

Asphalt content will be determined in accordance with AASHTO T 308. Point of sampling will be from the truck at the plant. One sample shall be taken and tested for each 500 tons of production or portions thereof. Full payment will be made for each 500 tons of production that meets the specified asphalt content.

Payment reduction will be applied to each sublot (500 tons) that falls outside the allowable limits. Note minimum asphalt content specified in Special Provision Section 403. See Subsection 401.21.

401.164 Density

Pavement density will be determined by comparing the density of six inch diameter full depth cores (for the course being laid) taken from the compacted pavement to the Theoretical Maximum Density of that core. Core locations shall be by random samples in conformance with ASTM-D979 & D3665. The Contractor shall supply a masonry saw with a 12 inch deep diamond wet cutting saw blade capable of cutting the six inch diameter cores.

For determination of pavement density, core samples six inches in diameter, for the full depth of the course being laid, shall be taken by the Contractor from the mixture incorporated in the work after finishing operations have been completed and the pavement has cooled to 70°F. Ice or dry ice shall be used to reduce temperature as necessary.

Vertical surface of the core area shall be coated with rubberized joint sealer prior to refilling with bituminous mixture. Cores will not be cut for shim pavement. Shim pavement will be tested for compaction and specification requirements using the nuclear gage.

The joint sealer, bituminous mixture and the labor for obtaining these samples in the field and restoring the surface shall be furnished without charge by the Contractor. The joint sealant shall conform to Federal Specification SS-S-1401C and shall be incidental to the pavement items. Care must be exercised to avoid excess joint material on top of the finish matt and at the bottom of the joint.

No additional course shall be constructed on a course until the density of the sample has been established and approved.

The densities of the completed pavement shall be 92.5 to 97.0 percent of the theoretical maximum density obtained.

The pavement will be accepted for density on a lot basis. A lot will consist of one day's production. The number of cores per lot will be computed as one for every 500 tons plus one for any portion that does not equal 500 tons or as directed by the Resident. The tonnage to be represented per core will then be computed by dividing the day’s production by the number of required cores. A minimum of four cores shall be taken for each day’s production.

Each sublot will be evaluated separately and full or partial payment will be made based on the results of tests performed on the cores.

Payment reduction will be applied to each core that has a density outside of the allowable range (92.5 to 97.0). See Subsection 401.21.

401.17 Joints

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

The paver shall always maintain a uniform head of HMA during the joint construction.

The HMA shall be free of segregation and meet temperature requirements outlined in Subsection 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 Authority 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 will best ensure joint integrity. Methods or activities that prove detrimental to the construction of straight, sound longitudinal joints will be discontinued.

Extra care shall be taken to insure satisfactory vertical joints in the pavements. The Contractor shall apply a coating of joint sealant immediately before paving all cold joints (temperatures less than 120°F) to the vertical face of the wearing surface unless otherwise directed by the Resident. A heavy application of tack coat shall be applied to the vertical face of all cold joints on lower lifts. The Contractor shall use an approved spray apparatus designed for covering a narrow surface. The Authority 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 (1) working day. Joint sealer shall conform to Federal Specification SS-S-1401C. The Contractor shall submit to the Resident a manufacturer's certification for the joint sealant (SS-S-1401C).

Where pavement under this Contract joins an existing pavement or when the Authority directs, the Contractor shall cut the existing pavement along a smooth line, producing a neat, even, vertical joint. The Authority 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

The Contractor shall submit for approval and 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 Authority approves the QCP in writing. Prior to placing any mix, the Authority 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 by the Resident.
The Authority's 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 Technician(s) and certification number(s)
i. Mixing and 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 Maine DOT 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 Authority 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 property 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 on 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 the QCP, and the responsibilities for successful implementation of the QCP shall be outlined

401.191 Inspection/Testing

All quality control testing at the plant and paving site for bituminous concrete paving shall be provided by the Contractor and will be incidental to the various items of the Contract. Quality control testing to verify the job mix formula at the plant shall be comprised of a sample taken and tested for each 500 tons of production. The plant will be shut down for two consecutive out of Specification test results for PGAB content, gradation, and/or voids. Prior to resuming paving operations, the plant quality control unit shall satisfy the Authority that the plant production is in compliance with the Specifications. The plant, at no additional cost to the Authority, shall assign qualified quality control staff personnel and have an on-site laboratory equipped to perform all tests.

The Contractor's quality control unit shall calibrate the nuclear gauge used for checking compaction daily against the bulk specific gravity of the cores removed from the pavement. The Contractor shall submit to the Resident, for review and approval, a list of quality control personnel assigned to the Project. All Quality Control plant and paving inspectors personnel shall be NETTCP certified (New England Transportation Technician Certification Program) for their specified job.

The Contractor shall submit a list of on-site laboratory and sampling facilities, including available equipment.

Adequate and convenient sampling facilities shall be provided, allowing the Resident and the Authority's designated quality assurance personnel to obtain representative samples from the full width and depth of the discharge area of each aggregate bin. The sampling tray shall be structurally supported during the sampling operation. Access to the sampling facilities shall be provided. The use of such access shall not be more difficult than climbing a ladder leading to a secure platform with railings.

Final acceptance shall be based on quality assurance tests to assure compliance with the job mix formula as established. Samples and certified quality control reports shall be available to the Resident and the Authority's designated quality assurance personnel as often as requested. Sample locations will be random in compliance with ASTM D3665 or as directed by the Resident.

When plant inspection is maintained, the material will be considered acceptable for use when the specified tests from samples obtained at the production plant indicate conformance to the approved job mix formula.

Quality assurance testing services for bituminous concrete pavement shall be provided by the Authority. The Contractor shall provide adequate space and all lab equipment, materials and chemicals at the bituminous plant necessary to verify job mix formula (asphalt content (AASHTO T 164 or T 308) and gradations). Upon completion, the Contractor shall be responsible for the proper disposal of all materials and chemicals. This work will not be measured separately for payment, but shall be incidental to the various items of the Contract.

A. Inspection. The Resident, or his authorized representative, shall have access and use of the laboratory facilities at any time and access to all parts of the plant for:

1. Inspection of the condition and operations of the plant.
2. Confirmation of the adequacy of equipment in use.
3. Verification of the character and proportions of the mixture.
4. Determination of temperatures being maintained in the preparation of the mixtures.
5. Inspection of incidental related procedures.
6. Performing quality assurance testing.

B. Plant Testing Laboratory. The Contractor shall provide a plant testing laboratory for use by the Authority's quality assurance personnel for acceptance testing functions.

The plant laboratory shall be available at the following times for use by the Authority's quality assurance personnel:

1. During periods of pavement production;
2. During periods of sampling and testing; and,
3. Whenever materials subject to the provisions of these Specifications are being supplied or tested.

The Authority's quality assurance personnel will always have priority in use of the laboratory. The laboratory shall have sufficient equipment in order for both (Authority’s and Contractor’s) testing representatives to operate efficiently.

The plant testing laboratory shall have a floor space area of not less than 150 square feet, with a ceiling height of not less than 7-1/2 feet. The laboratory shall be weather tight, sufficiently heated in cold weather and air-conditioned in hot weather, to maintain temperatures for testing purposes of 70°F ± 5°F. The plant testing laboratory shall be located on the plant site to provide an unobstructed view, from one of its windows, of the truck being loaded with the plant mixed materials.

As a minimum the plant testing laboratory shall have:

1. Adequate artificial lighting.

2. Electrical outlets sufficient in number and capacity for operating the required testing equipment and drying samples.

3. Two fire extinguishers, Underwriter's Laboratory approved.

4. Work benches for testing, minimum 2-1/2 feet by 10 feet.

5. Desk with two chairs.

6. Sanitary facilities convenient to testing laboratory.

7. Exhaust fan to outside air, minimum 12 inch blade diameter.

8. A direct telephone line and telephone including answering machine and FAX machine, operating 24-hours per day, seven days a week.

9. File cabinet with lock for Resident.

10. Sink with running water, attached drain board and drain.

11. Metal stand for holding washing sieves.

12. A Two element hot plate or other comparable heating device, with dial type thermostatic controls for drying aggregates.

13. Mechanical shaker and appropriate sieves (listed in 639.06) meeting the requirements of ASTM E11.

14. Superpave gyratory compactor.

15. Oven, thermostatically controlled, inside minimum one cubic foot.

16. Two volumetric specific gravity flasks, 500 CC.

17. Other necessary hand tools required for sampling and testing.

18. Library containing Contract Specification, latest ASTM Volumes 4.03 and 4.04, AASHTO Materials Parts I and II, and Asphalt Institute Publications MS-2 and SS-1.

19. Equipment for Maximum Theoretical Density meeting the requirements of AASHTO T209 and equipment for Bulk Spec. Gravity meeting the requirements of AASHTO T166.

20. Infra-red temperature measuring device for use at both plant and Project site.

21. Necessary equipment for extraction (wet sample) testing.

22. Diamond blade saw for trimming pavement cores.

23. Two ovens.

24. All equipment (scales, Superpave gyratory compactor, etc.) to have current calibrations and certifications.

Approval of the plant and testing laboratory by the Resident requires all the above facilities and equipment to be in good working order during pavement production, sampling and testing. Failure to provide any of the above shall be sufficient cause for disapproving the bituminous plant operations.

401.21 Method of Measurement

The Authority will measure Hot Mix Asphalt Pavement by the Mg [ton] in accordance with Subsection 108.1, Measurement of Quantities for Payment.

This Subsection is amended by the following:

A reduction in payment will occur when the voids, asphalt content, and density are other than the limits specified below for 100 percent payment. The payment reduction for voids and asphalt content will be based upon each sublot (500 tons) of production as specified in Subsections 401.162 and 401.163. The payment reduction for density will be based upon the number of cores per lot as specified in Subsection 401.164. The Contractor may request one retest for each failing sublot for core density only. No retest will be allowed for voids or asphalt content. The Contractor shall pay $50.00 for each additional core tested. Pavement restoration will not be measured separately for payment, but shall be incidental to the respective pay item.

Any lot resulting in zero payment shall be removed, disposed of and replaced at no additional cost to the Authority. Replacement pavement will be paid for based on the accepted and payment criteria specified herein.

CORE DENSITY VS. CORE THEORETICAL MAXIMUM DENSITY COMPACTION (SURFACE) 92.5-97 PERCENT	
PERCENT COMPACTION	**PERCENT PAYMENT**
92.5 - 97.0	100
91.5 - 92.4, 97.1 - 97.9	95
90.5 - 91.4, 98.0 - 98.9	90
89.5 - 90.4, 99.0 - 99.9	75
<89.5, > 99.9	0
Note: Percent compaction is the percentage of the field core density as compared to the Theoretical Maximum Density (TMD) of that core.	

AIR VOIDS – 2.5 – 5.5 PERCENT	
VOIDS	**PAYMENT PERCENT**
2.5 to 5.5	100
2.0 - 2.4, 5.6 - 6.1	95
1.5 – 1.9, 6.2 – 6.6	90
1.0 - 1.4, 6.7-7.1	75
<1.0, >7.1	0
Note: Voids are based on the average of the test specimens fabricated at the plant for each sublot (500 tons).	

9.5MM ASPHALT BINDER CONTENT	
BINDER CONTENT %	**PAYMENT PERCENT**
5.70 – 7.50	100
5.45 – 5.69	95
5.20 – 5.44	90
4.70 – 5.19	80
< 4.69, >7.50	50
Note: Binder content is based on test specimens fabricated at the plant for each sublot (500 tons).	

12.5MM ASPHALT BINDER CONTENT	
BINDER CONTENT %	**PAYMENT PERCENT**
5.20 – 6.40	100
5.05 – 5.19	95
4.90 – 5.04	90
4.60 – 4.89	80
< 4.60, >6.40	50
Note: Binder content is based on test specimens fabricated at the plant for each sublot (500 tons).	

19MM ASPHALT BINDER CONTENT	
BINDER CONTENT %	**PAYMENT PERCENT**
4.70 – 6.10	100
4.55 – 4.69	95
4.40 – 4.54	90
4.10 – 4.39	80
< 4.10, >6.10	50
Note: Binder content is based on test specimens fabricated at the plant for each sublot (500 tons).	

As an example of payment reduction, if a sublot of 500 tons was tested and found to have 96 percent TMD compaction, 5.8 percent air voids and asphalt content of 5.58 percent, the payment reduction would be as follows:

500 tons x 1.00	= 500 tons payment	=	0 tons reduction (compaction)
500 tons x 0.95	= 475 tons payment	=	25 tons reduction (voids)
500 tons x 0.95	= 475 tons payment	=	25 tons reduction (asphalt content)

Payment = 500 tons - (0 + 25 + 25) = 450 tons

401.22 Basis of Payment

The Authority 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 Authority will pay for the work specified in Subsection 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 specified material to joints, and providing testing facilities and equipment.

SPECIAL PROVISION

SECTION 403

HOT BITUMINOUS PAVEMENTS

Desc. of Course	Grad. Design	Item Number	Bit Cont. % of Mix	Total Thick	No. Of Layers	Comp. Notes
			Bridge Decks Stroudwater NB / MCRR NB			
Wearing	12.5 mm	403.2081	5.2 min to 6.40	1-1/8 in.	1	A, C, E, G, H & I
Repair	12.5 mm	403.208	5.2 min to 6.40	1-1/2 in.	1	A, C, E, G & H
			Stroudwater SB			
Wearing	12.5 mm	403.2081	5.2 min to 6.40	2-1/2 in.	2	A, C, E, G, H & I
			Mainline Mill, Shim and Overlay - All			
Wearing	12.5 mm	403.2081	5.2 min to 6.40	1-1/2 in.	1	A, B, C, E G, H, & I
Shim	12.5 mm	403.211	5.2 min to 6.40	varies		A, B, C, E, F, & G
			Mainline Shoulder Repair - NB			
Wearing	12.5 mm	403.213	5.2 min to 6.40	2 in.	1	A, B, C, E, G & H
Base	12.5 mm	403.213	5.2 min to 6.40	4 in.	2	A, B, C, E, & G
			Mainline Approach / Departure Structural Excavation - NB			
Base	12.5 mm	403.213	5.2 min to 6.40	8.5 in.	4	A, B, C, E, F & G

COMPLEMENTARY NOTES

A. The required minimum PGAB for Items 403.208, 403.2081, 403.211 and 403.213 shall be a **PG 64-28** grading.

B. A maximum of 15 percent RAP shall be used in the Hot Mix Asphalt.

C. The MaineDOT will conduct the job mix verification. The aggregate qualities shall meet the design traffic level of 3 to < 10 million ESAL for mix placed under this Contract. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **75 gyrations**.

D. A material transfer vehicle (transfer box) shall be used for the placement of Hot Mix Asphalt, 12.5 mm Nominal Maximum size, wearing surface, on both the northbound and southbound roadways including acceleration and deceleration lanes and all ramps.

E. No vehicular traffic or loads shall be permitted on newly completed pavement until adequate stability has been attained and the material has cooled sufficiently to prevent distortion or loss of fines. The newly paved area may be opened to traffic after the internal temperature of the pavement has cooled to 120°F. The Resident will test the internal temperature of the pavement and shall be the sole judge as to the opening to traffic. The period of time before opening to traffic may be extended at the discretion of the Resident. The lane closure may not be removed until the internal temperature has cooled to 120°F.

F. Tack coat shall be applied to all milled pavement at a rate of 0.03 G/SY prior to placing the surface course.

G. Joints shall conform to Subsection 401.17.

H. Tack coat shall be applied to the pavement at a rate of 0.03G/SY prior to placing the surface course. Tack coat is required between all lifts of pavement, or as directed by the Resident.

I. Asphalt cement shall conform to the provisions of 403.02 – Polymer or Liquid Latex Modified PGAB for HMA.

SPECIAL PROVISION

SECTION 409

BITUMINOUS TACK COAT

409.02 Bituminous Material

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

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

409.05 Equipment

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

The following paragraph is added:

All existing pavement and shoulder areas on which bituminous concrete 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

The following paragraphs are added:

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.

409.09 Basis of Payment

The following pay items are added:

Pay Item		Pay Unit
409.15	Bituminous Tack Coat – Applied	Gallon
409.151	Bituminous Tack Coat – Applied, Bridge	Gallon

SPECIAL PROVISION

SECTION 419

SAWING AND SEALING JOINTS IN BITUMINOUS PAVEMENT

(Sawing 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.

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	Sawing Bituminous Pavement	Linear Foot

SPECIAL PROVISION

SECTION 502

STRUCTURAL CONCRETE

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

502.01 Description

This work shall consist of furnishing and placing Portland Cement Concrete for structures and incidental construction in accordance with these Specifications and in conformity with the lines, grades and dimensions shown on the Plans or established, or for placing concrete fill or underwater seals for foundations where called for on the Plans.

502.02 Classification

The Portland Cement Concrete shall be the class indicated on the Plans.

502.03 Materials

Materials shall meet the requirements specified in the following Subsections of Division 700, Materials:

Portland cement and Portland-pozzolan cement	701.01
Water	701.02
Air-Entraining Admixtures	701.03
Water Reducing Admixtures	701.04
High Range, Water Reducing, Admixture	701.0401
Set-retarding Admixtures	701.05
Curing Materials	701.06
Waterstops	701.07
Smoothed Surfaced Asphalt Roll Roofing (formerly heavy roofing felt)	701.08
Fly Ash	701.10
Calcium Nitrite Solution	701.11
Silica Fume	701.12
Ground Granulated Blast Furnace Slag	701.13
Fine Aggregate for Concrete	703.01
Coarse Aggregate for Concrete	703.02
Alkali Silica Reactive Aggregates	703.0201
Preformed Expansion Joint Filler	705.01
Bridge Drains	711.04

In Subsection 701.10, Fly Ash, the "Loss on Ignition (LOI)" paragraph is deleted and replaced with the following:

Loss on Ignition (LOI) - Shall be 6.0 percent maximum per AASHTO T105 (ASTM C311) provided the Fly Ash has a documented history of not adversely effecting the concrete air content, otherwise the LOI shall be 3.0 percent maximum per AASHTO T105 (ASTM C311).

502.04 Shipping and Storage

Cement may be shipped in bags or in bulk from pre-tested and approved silos at the cement mill. The cement shall be completely protected from rain and moisture. Any cement damaged by moisture or which fails to meet any of the specified requirements shall be rejected and removed from the site. If requested by the Resident, cement stored for a period longer than 60 days shall be retested before being used in the work.

Bags of cement in shipment or storage shall not be piled more than eight (8) bags high. Bags of cement which for any reason have become partially set or which contain lumps of caked cement shall be rejected. Shipments of cement in bags shall be separately stored in a manner as to provide easy access for identification and inspection of each shipment.

Fly ash and slag shall be stored in weather tight silos approved by the Resident. All silos shall be completely empty and clean before material is deposited therein, unless the silo already contains material of the same type and properties.

Fly ash or slag remaining in bulk storage for a period greater than one (1) year after completion of tests will be resampled and retested by the supplier before shipment or use.

Handling, shipping and stockpiling of aggregates shall be done in such a way as to minimize segregation and breakage.

Fine aggregate and each size of coarse aggregate shall be stored in completely separate stockpiles on prepared bases constructed of the same material as that to be stockpiled, with a minimum thickness of 300 mm [1 ft.]. The ground under the prepared bases shall be reasonably graded to drain away from the stockpile and shall be free of brush or other harmful vegetation. The base shall be left in place, undisturbed for the duration of the use of the stockpile. Prepared bases can be salvaged for reuse provided this material is reprocessed. Barge floors, wood, metal or other approved hard surfaces shall be considered acceptable alternates for the prepared bases described above.

502.041 Testing Equipment

The Contractor shall provide testing equipment and materials as specified below for use by the Resident or their representative exclusively. The equipment shall be available and acceptable to the Resident one (1) week prior to placing any concrete. All costs associated with providing and maintaining testing equipment shall be incidental to the work and no additional payment will be made.

The Resident will maintain the test equipment in reasonable condition. However, the Contractor shall replace any equipment that becomes unusable due to normal wear and tear or which is stolen or damaged from other than the Resident's neglect or mistreatment. All such replacement costs shall be incidental to the work and no additional payment will be made.

A. Pressure air meter meeting requirements of AASHTO T152 (Type B) and all accessory pay items required for use with the particular design of apparatus. This shall include one nine inch mason trowel, one metal scoop nine inches long *x* five inches wide, one tamping rod conforming to AASHTO T119, one rubber mallet as

described in AASHTO T152, one strike off bar (flat straight bar of steel). The air meter shall be functional and shall bear a current calibration certificate issued by a recognized testing laboratory. Current shall mean within the calendar year.

B. Two pocket dial thermometers 0˚F to 200˚F, one inch diameter dial, five inch pointed stem, unbreakable poly carbonate crystal, stainless steel case, stem and bezel. Accuracy required is one percent over entire range.

C. "Contractors" rubber tired wheelbarrow.

D. Two D-handle square end shovels 9-1/2 inches wide.

E. Two pair heavy duty, long cuff, rubber gloves.

F. Miscellaneous equipment: 16 oz. plastic squeeze bottle, five gallon bucket, scrub brush, paper towels, folding rule, and rubber syringe.

G. Small rod – one tamping rod conforming to AASHTO T277.

H. 10 foot straightedge as required by Resident.

502.05 Composition and Proportioning

Concrete shall be composed of a homogenous mixture Portland Cement, fly ash, or ground granulated blast furnace slag, fine aggregate, coarse aggregate, water and admixtures proportioned according to these Specifications and shall conform to the requirements of Table 1.

At least 45 days prior to placement of any concrete to be incorporated in the bridge or other concrete structure, the Contractor shall submit mix designs that meet the requirements of Table 1 along with the proposed sources of aggregates, cement, water and admixtures for each class of cement concrete specified. Sufficient material shall be obtained by the Authority's designated testing personnel at the proposed sources for verification of acceptability by test and for mix design. Materials failing to meet the specified requirements shall be rejected and new materials shall be resubmitted to the laboratory. The Authority's testing laboratory will determine the proportions of cement, aggregate, water, air entraining agents, and other admixtures of all specified and proposed concrete mixtures by means of trial design batches and tests using the consistencies, air content and other properties suitable for the work and in accordance with the latest applicable AASHTO or ASTM Standards and designations.

TABLE 1
MASTER LIMITS TABLE

Class of Concrete	Minimum Compressive Strength at 28 Days	Minimum Cementitious Content	Water Cement Ratio	Slump	Air Content	Maximum Coarse Aggregate Size (703.02)	Notes
	PSI	LB/CY		INCHES	%	INCHES	
A	4000	611	0.38±0.02	6 ± 2	6 ± 1	1	3, 4
AA	4000	658	0.38±0.02	3.5	5 to 7	3/4	1, 3
AAA	4500	658	0.38±0.02	6 ± 2	6 ± 1	3/4	3, 4
AAA – Deck	4500	658	0.42±0.02	6 ± 2	7.5 ± 1.5	3/4	3,4,6
AAA-Modified	4500	752	0.38±0.02	6 ± 2	6 ± 1.5	3/8	3, 4
B	3000	517	0.40±0.02	6 ± 2	5 ± 1	1-1/2	1, 3
S	3500	635	0.38±0.02	6 ± 2	6 ± 1	1-1/2	1, 3
P	SEE PLANS	658	0.38±0.02	6 ± 2	5 ± 1	3/4	3, 4, 5
IS	3000	470	0.58	5 ± 1	3.0% Max	1-1/2	2, 3

NOTES:

1. All concrete shall contain either a normal water reducing admixture (Type A) or a high range water reducing admixture (HRWR) meeting the requirements of Subsection 701.0401. When a HRWR is used, a maximum of an 8.0" slump is allowed.

2. All concrete shall contain a non-chloride based, mid-range water reducing admixture (MRWR) meeting the requirements of ASTM C494.

3. All concrete shall contain a Portland Cement replacement. Portland Cement pre-blended with either fly ash or ground granulated blast-furnace slag may be used when accepted by the Resident.

   Due to the lower heat of hydration effect of high cement replacements, the Contractor is responsible for selecting a replacement level which is appropriate for the time of year if cold weather conditions are anticipated.

4. All concrete shall contain a high range water reducing admixture (HRWR) meeting the requirements of Subsection 701.0401. A minimum of one-half the design dosage of the HRWR should be added at the plant to insure thorough mixing. The HRWR should be added in strict accordance with the manufacturer's guidelines and limitations. The HRWR Guidelines need to be submitted to the Resident for review and approval. The concrete will not be slump tested by the Authority prior to the addition of the HRWR. The supplier shall provide the aggregate moisture adjustment and plant-added water on the delivery tickets. If additional slump is required in the field, it will be achieved with

additional HRWR (in accordance with the manufacturer's recommendations and limitations).

5. A calcium nitrate corrosion inhibitor meeting the requirements of ASTM 494 Type C shall be added at a rate of not less than three gallons per cubic yard.

6. Deck concrete (Class AAA – Deck) is a new mix design and trial batching will be required per specifications. The mix design may gain strength slower than other MTA mix designs, and the contractor shall plan construction operation accordingly.

The mix design submitted by the Contractor shall include the following information:

A. Description of individual coarse aggregate stockpiles, original source, bulk specific gravity, absorption, gradation and alkali silica reactivity test results. A combined coarse aggregate blended gradation shall be provided.

B. Description of fine aggregate, original source, bulk specific gravity, absorption, colorimetric, gradation and Fineness Modulus (F.M.).

C. Description and amount of cement and cement replacement material.

D. Target water cement ratio.

E. Target water content by volume.

F. Target strength.

G. Target air content, slump, and concrete temperature.

H. Target concrete unit weight.

I. Type and dosages of air entraining and chemical admixtures.

Approval by the Authority will be contingent upon the ability of the mix design proportions to meet the concrete strength requirement and other factors that affect durability. Cement replacements are included in the cementitious material.

Concrete mix designs shall contain 15 to 30 percent fly ash replacement by weight, or 25 to 50 percent slag cement replacement by weight. Deck concrete mix designs shall have a maximum of 30% slag cement replacement by weight.

Cast-in-place concrete shall contain not more than 660 lb/cy of cementitious material, except for Class AAA-Modified which shall contain no more than 760 lb/cy of cementitious material.

All concrete mixes must be designed in accordance with the criteria of this Section. The design proportions with the fine aggregates designated as a percent of the total aggregate must be stated in terms of aggregate in a saturated, surface dry condition and the batch weights will be adjusted by the Contractor for the actual moisture of the aggregate at the time of use.

Based on the design parameters, including minimum cement factor and maximum water cement ratio, a curve representing the relation between the water/cement ratio and the average seven day and 28 day compressive, or earlier strength at which the concrete is to receive its full working load, will be established by the Authority's laboratory for a range of values including all of the compressive strengths required. The curves shall be established by at least three points, each point representing average values from at least three test specimens. Amount of water used in the concrete, as determined from the curve, shall correspond to the required average strength called for in the Specifications in accordance with the ACI 301-89, Table for Laboratory Mix Design Data – Required Average Compressive Strength below. When required, the consistency of the basic mix selected shall be adjusted by the use of high range water reducers.

LABORATORY MIX DESIGN DATA
REQUIRED AVERAGE COMPRESSIVE STRENGTH

SPECIFIED f'_c	REQUIRED f'_{cr}
LESS THAN 3000 PSI	f'_c + 1,000 PSI
3000 PSI TO 5000 PSI	f'_c + 1,200 PSI
OVER 5000 PSI	f'_c + 1,400 PSI
The curves shall be established by at least three (3) points, each point representing the average values from at least three (3) test specimens for each age of seven (7) and twenty-eight (28) days. Laboratory tests are valid for ninety (90) days.	

The laboratory adjusted mix design will then be forwarded to the Contractor for his use. No change in the source or character of the mix ingredients may be made without notice to the Resident, and no new mix ingredients shall be used until the Resident has approved such ingredients and new mix proportions, if they change. Additional testing, if required, shall be paid for by the Contractor.

502.0501 Quality Control

The Contactor shall control the quality of the concrete through testing, inspection and quality control practices which shall be sufficient to assure a product meeting the Contract requirements.

Concrete sampling for QC shall be taken at the discharge point with pumped concrete sampling taken at the discharge end of the pump line.

For each truckload of concrete, the Contractor shall provide a Certificate of Compliance to the Authority at the time of the load placement. The Certificate of Compliance shall be a form acceptable to the Authority and shall include the following:

- Contract Name & Number
- Bridge Name
- Manufacturing Plant (Batching Facility)
- Name of Contractor (Prime Contractor)
- Date

- Time Batched/Time Discharged
- Truck No.
- Quantity (Quantity Batched this Load)
- Type of Concrete by Class and Producer Design Mix No.
- Cement Brand or Type, and Shipment Certification No.
- Temperature of Concrete at Discharge
- Target Weights per Cubic Yard and Actual Batched Weights for:
    1. Cement
    2. Pozzolanic additives, including fly ash, slag cement, and microsilica
    3. Coarse concrete aggregate
    4. Fine concrete aggregate
    5. Water (including free moisture in aggregates and water added at the Project)
    6. Admixtures brand and quantity (fl. oz./cubic yard)
        - Air-entraining admixture
        - Water reducing admixture
        - Other admixtures
- Placement Location

<u>502.0501 Quality Control</u>

The Contactor shall control the quality of the concrete through testing, inspection and quality control practices which shall be sufficient to assure a product meeting the Contract requirements.

Concrete sampling for QC shall be taken at the discharge point with pumped concrete sampling taken at the discharge end of the pump line.

For each truckload of concrete, the Contractor shall provide a Certificate of Compliance to the Authority at the time of the load placement. The Certificate of Compliance shall be a form acceptable to the Authority and shall include the following:

- Contract Name & Number
- Bridge Name
- Manufacturing Plant (Batching Facility)
- Name of Contractor (Prime Contractor)
- Date
- Time Batched/Time Discharged
- Truck No.
- Quantity (Quantity Batched this Load)
- Type of Concrete by Class and Producer Design Mix No.
- Cement Brand or Type, and Shipment Certification No.
- Temperature of Concrete at Discharge
- Target Weights per Cubic Yard and Actual Batched Weights for:

    1. Cement
    2. Pozzolanic additives, including fly ash, slag cement, and microsilica
    3. Coarse concrete aggregate
    4. Fine concrete aggregate
    5. Water (including free moisture in aggregates and water added at the Project)

6. Admixtures brand and quantity (fl. oz./cubic yard)

    - Air-entraining admixture
    - Water reducing admixture
    - Other admixtures

- Placement Location

502.0502 Quality Assurance

The Authority will determine the acceptability of the concrete through a quality assurance program and field measurement of surface tolerance, alignment and trueness, plumb and batter, and finish.

The Authority will take verification tests at times deemed appropriate by the Resident. Verification tests will include compressive strength, air content and permeability.

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

Compressive strength test will be completed by the Authority in accordance with AASHTO T22 at 28 days except that no slump will be taken. The average of two cylinders will be used to determine compressive strength.

Testing for entrained air in concrete, at the rate of one test per load, shall be in accordance with AASHTO T152.

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 CRSI 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 Concrete Reinforcing Steel Institute (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 Authority 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.

Rejection by Resident - For material not meeting Project Specifications, the Authority at its sole discretion will:

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

B. Accept the material at a reduced payment as determined by the Authority.

Surface Tolerance, Alignment and Trueness, Plumb and Batter, and Finish - The Resident will measure each of these properties as follows:

A. Surface Tolerance - Exposed horizontal and sloping portions of the substructure, superstructure slabs, wearing surface, sidewalks, parapets, barriers, and wingwalls will be measured at randomly generated locations with a 10 foot straightedge once per 100 ft^2. Measurements beyond tolerances given in Table 5, Subsection 502.14(E) will be cause for removal or pay adjustment and potential corrective action as determined by the Resident. The Contractor shall furnish the 10 foot straightedge. At the Resident's discretion, measurements may be taken with a lightweight profiler. When the Resident uses the lightweight profiler to measure tolerance, and the International Ride Index (IRI) is between 250 and 300 in./mile for any one placement, a pay adjustment will be made. When tolerances exceed 300 in./mile, there will be cause for removal or a pay adjustment and potential corrective action.

B. Alignment and Trueness - Alignment and trueness may be measured by the Resident longitudinally along any vertical surface of any portion of the structure and shall not exceed a deviation of 1/4 inch in three feet for structures up to 30 feet in length. Structures in excess of 30 feet in length will be subject to a maximum tolerance of two inches. Measurements exceeding these tolerances will be cause for removal or pay adjustment and potential corrective action as determined by the Resident.

C. Plumb and Batter - The Resident will measure all columns and other vertical surfaces that will remain exposed to determine actual plumbness and batter. Measurements will be taken subsequent to every placement. Vertical faces of columns will be measured at a minimum of two faces at right angles to each other. Other vertical surfaces will be measured once every 15 feet along the face of longitudinal wall. All measurements will be made on a per placement basis and will be subject to a tolerance of 1/4 inch in 10 feet. Measurements between 1/4 inch and 1/2 inch in 10 feet will result in pay adjustments. Measurements beyond 1/2 inch in 10 feet will be cause for removal or pay adjustment and potential corrective action as determined by the Resident.

D. Finish - The Resident will measure and determine the areas to be repaired in accordance with Subsections 502.10(d), 502.13, and 502.14(e) for each placement. Areas to be repaired will be measured as a percentage of the total surface area of the placement. Those areas to be repaired that are between zero and five percent of the total surface area of the placement will result in no pay adjustments. Areas to be repaired that are between five percent and 10 percent will result in pay adjustments. Areas greater than 10 percent of the total surface area of the placement will be cause for removal or pay adjustment and corrective action as determined by the Resident.

Appropriate pay adjustments, as described in Subsection 502.194, will be made for any or all of the properties described above that do not meet Specification requirements.

502.0505 Resolution of Disputed Acceptance Test Results

The Contractor shall work cooperatively with the Resident in maintaining Control Charts in order to identify potential issues with any test results and take appropriate actions to address these issues before they become disputed issues. Circumstances may arise where the Authority's test results indicate that a material is unacceptable and removal is warranted. If the material is

marginally acceptable, it may remain in place and be paid for at a reduced rate determined by the Authority. This Subsection provides recourse for the Contractor to contest the Authority's QA test results as follows, at no additional cost to the Authority:

A. Compressive Strength - The Contractor shall take appropriate corrective measures when the Resident advises the Contractor that the average of three consecutive compressive strength test results fall to less than 150 psi above the specified strength, or any single test falls more than 200 psi below the specified strength. The Contractor shall make corrective changes in materials, mix proportions, or in the concrete manufacturing procedure before additional concrete of the same class is placed.

There may be situations where there is the possibility that an underlying structural element could be built-upon before test results for the underlying element have been reported, based upon the normal frequency of testing. In these instances, it is in the Contractor's best interest to perform additional testing that will provide indications that the concrete will meet the requirements of the applicable Specifications, prior to continuing to build upon this underlying element. In the extreme case where an underlying structural element has been built-upon before test results for the underlying element have been reported, the above mentioned safeguards of tracking and additional testing have failed and the final test results for the concrete of the underlying element indicate that removal is warranted and the Contractor's QC results do not confirm the Authority's test results, the following procedure concerning compressive strength may be undertaken by the Contractor and witnessed by the Authority, within 36 days of the placement date:

1. Drilled core specimens shall be retrieved from the concrete in question in accordance with the requirements of ASTM C42/C42M, Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete. The core strength acceptance and evaluation criteria included in ACI 318 shall not apply.

2. Three drilled core specimens shall be taken from each sublot in question, from randomly selected locations to be representative to the entire volume of the sublot. The Resident and the Contractor's representative shall agree on the sample locations prior to drilling. The specimens shall have a minimum diameter of four inches and a minimum length of eight inches.

3. The concrete cores shall be taken directly from the Project to the Authority's designated independent testing laboratory where they will be tested. The cores shall be protected from drying and damage during transport. The Contractor shall make arrangements with the Authority's designated independent testing laboratory for testing prior to beginning the coring process.

4. Core test results will be evaluated by the Authority with the understanding that the strength of drilled cores is, in general, 85 percent of that of corresponding standard-cured molded cylinders. Therefore, the test results of the three cored cylinders shall be averaged, and then divided by a factor of 0.85. The resulting compressive strength shall be used by the Authority in the final determination of the acceptability of the material in question and shall replace the contested test result in computing pay adjustments for the sublot in question. If coring is not done with the 36 day time limit, the Authority will not allow dispute testing of the sublot.

5. If the Authority concludes that the strength of the structural element in question is adequate as a result of the above procedure, then the concrete shall remain in place and will be paid for at a reduced rate, as determined by the Authority. If the Authority concludes that the strength of the structural element in question is unsatisfactory as a result of the above procedure, then the Authority will direct the Contractor to take appropriate actions, as determined by the Authority, and at no additional cost to the Authority.

B. Entrained Air – In order to dispute the Authority's test results, the Contractor must test material from the same sample as the Authority. If the difference between the Authority's and the Contractor's air tests is equal to or greater than 0.8 percent, then the material shall be retested by both parties. If the difference between the retests is equal to or greater than 0.8 percent, the concrete placement will be suspended immediately, and 1) both air meters shall be calibrated immediately, or 2) the Contractor shall immediately replace both air meters. Once it is demonstrated the QC and Acceptance air meters are in agreement with 0.8 percent, the concrete placement may resume.

502.06 Batching

Measuring and batching shall be performed at an approved batching plant, unless otherwise approved by the Resident. The batching plant shall meet the requirements of AASHTO M-157.

502.0701 Delivery

A. Delivery and discharge of the concrete from the mixer shall be completed within a maximum of 1-1/2-hours from the time the cement is added to the aggregate, except that in hot weather when the concrete mix temperature exceeds 70˚F or under other conditions contributing to quick stiffening of the concrete, delivery and discharge from the mixer shall be completed within one hour. When approved by the Resident, the use of a retarding admixture (Type D) may be used for increasing the one hour discharge time to 1-1/2-hours, provided concrete temperatures are kept below 80˚F and conditions contributing to quick stiffening of the concrete are not present.

B. Concrete, which has been condemned for any reason, shall be removed immediately from the jobsite and disposed of properly.

C. Concrete temperature before placement shall not exceed 85˚F.

D. All concrete trucks must have working revolution counters, and be set to zero at the start of mixing. Any truck without a counter will be rejected from the job unless the Contractor can assure the Resident that adequate mixing has been achieved.

502.08 Cold Weather Concrete

All frost, ice, and snow shall be removed from all material that will be in contact with fresh concrete.

Unless authorized by the Resident, the mixing and placing of concrete shall be discontinued when the atmospheric temperature is below 40˚F in the shade and dropping and shall not be resumed until the atmospheric temperature is as high as 35˚F in the shade and rising. If authorization is granted for the mixing and placing of concrete under atmospheric conditions different from those specified above, the water shall be heated to a temperature not exceeding 180˚F. When either the aggregate or water is heated to above 120˚F, they are to be combined first in the mixer before the cement is added. If the atmospheric temperature is below 25˚F, the aggregate shall also be heated when approved by the Resident. Materials containing frost or lumps of frozen material shall not be used. Stockpiled aggregates may be heated by the use of dry heat or steam. Aggregates shall not be heated directly by gas or oil flame or on sheet metal over a fire. When aggregates are heated in bins, steam coil or water coil heating or other methods that will not be detrimental to the aggregates may be used. The heating apparatus shall be capable of heating the mass uniformly and preventing the occurrence of spots of overheated material. The temperature of the mixed concrete shall be between the minimum values shown in Table 4 and 70˚F when it is placed in the forms. Salt or other chemicals shall not be added to the concrete for any reason whatsoever, except by written permission of the Resident.

TABLE 4
COLD WEATHER TEMPERATURE TABLE

MINIMUM FORM DIMENSION SIZE

Less than 300 mm (12 in.)	300 – 900 mm (12 - 36 in.)	900 – 1800 mm (36 - 72 in.)	Greater than 1800 mm (72 in.)
13˚C (55˚F)	10˚C (50˚F)	7˚C (45˚F)	5˚C (40˚F)
MINIMUM CONCRETE TEMPERATURE AS PLACED			

When permitted by the Resident, footings may be protected by completely submerging them by admitting water inside the cofferdam. Until submersion takes place, the temperature of the concrete and its surface shall be controlled as specified above. Submersion shall proceed slowly and the temperature of the air or water shall be maintained sufficient to prevent ice from forming within the cofferdam for a period of seven (7) days after the placing of the concrete.

When depositing concrete under water, there shall be no ice inside the cofferdam.

Permission given to place concrete under the conditions mentioned above shall not relieve the Contractor of responsibility for obtaining satisfactory results. The Contractor shall be wholly responsible for the protection of concrete during cold weather operations and any concrete injured by frost action or overheating shall be removed and replaced at the Contractor's expense.

502.10 Forms and False Work

A. Construction of Forms - All forms shall be well built, substantial and unyielding, securely braced, strutted and tied to present motion and distortion while concrete is being placed in them. The forms shall be strong enough to safely support the weight of the concrete and all superimposed loads (such as runways, concrete buggy loads, workers, scaffolding, etc.) placed upon them.

Forms shall be built to conform to the dimensions, location, contours and details shown on the Plans. The faces of forms against which the concrete is to be placed shall be dressed smooth and uniform and shall be free from winds, twists, buckles and other irregularities.

Stay-in-place forms of any type will not be permitted for any part of the slab structures, unless otherwise indicated on the Plans.

The placing of concrete in excavated pits and trenches without forms will be permitted only in exceptional cases and then at the discretion of the Resident.

All corners within the forms shall be fitted with chamfer strips mitered at their intersections, except that chamfer strips will not be required as follows: (1) on corners of slab blocking of interior steel beams and the inside of exterior steel beams; (2) on corners constructed transversely at the underside of the slab of superstructures which consist of a concrete slab on steel beams; (3) on footings not exposed to view; and (4) on all structures when more than two feet below the final finished ground line.

Chamfer strips shall have a width across the diagonal face between 1/2 inch and 3/4 inch. The size to be adopted for a given portion of the work shall depend upon the general dimensions. Except where special size chamfer strips are shown on the Plans, the size of chamfer strips shall be uniform on individual projects. Provisions shall be made for the chamfering of the top edges of abutment bridge seats and wing walls, tops of piers and retaining walls, tops of through girders, roadway curbs, etc., by nailing chamfer strips inside the forms. Unless otherwise provided, all chamfer strips shall produce plain flat surfaces on the concrete.

The forms for beams, girders and spandrel arches shall be so constructed as to permit the sides to be removed without disturbing the supports.

All foreign matter within the forms shall be removed before depositing concrete in them.

In all cases where metal anchorages or ties within or through the face forms are required to hold the forms in their correct position, such anchorages or ties shall be of ample strength and shall be constructed so that the metal work can be removed to a depth of not less than one inch from the face and back surfaces of the concrete without damaging such surfaces.

Elevations will be taken on the top flanges of structural steel beams and girders for the purpose of determining the depth of blocking necessary for the construction of the forms for the concrete slab, after the following conditions have been satisfied:

1. The satisfactory erection of the superstructure structural steel beams or girders, including any required flooring beams and stringers, unless an alternative plan is submitted by the Contractor and approved by the Authority.

2. All bolt tightening operations must be complete.

3. No foreign loads supported by the beams or girders are present.

The Contractor shall submit working drawings for approval of the proposed forms supporting the superstructure slabs, and of the proposed forms and false work supporting the

overhanging portion of the superstructure slab in accordance with Subsection 105.7. The working drawings shall show the size, spacing and location of the supporting members, and the proposed loads and weight of the concrete forms to be carried by the members. The proposed superstructure slab form and false work systems' computations, plans, and working drawings shall be designed and sealed by the Contractor's Professional Engineer, who must be registered in the State of Maine. This Professional Engineer may be directly employed or otherwise retained by the Contractor.

In the construction of forms and false work for the portion of superstructure slabs overhanging the exterior members of beam and girder spans, forms and supporting devices resulting in point loadings on the exterior members shall not be used. Loads resulting from supporting devices shall be distributed directly to the flanges by means of brackets or braces.

All forms shall be inspected and approved by the Professional Engineer responsible for the design of the form and false work systems before the placing of any concrete within them. The Professional Engineer shall, after inspection, provide a sealed certification to the Resident that the systems were erected in conformance with the Professional Engineer's plans and design details.

B. Surface Treatment of Forms - The inside surfaces of forms shall be uniformly coated with form oil or other approved surface treatment.

Form surfaces shall be treated before placing the reinforcing steel.

C. Construction of False Work - All false work used for supporting reinforced concrete superstructures shall be composed of members having ample structural sections to resist all loads imposed upon them, with deformations less than span length / 360.

When the vertical members of false work consist of piles or when framed or other false work is supported upon piles, the piles shall be driven to secure a safe load resistance.

When false work is supported upon mud sills, the foundation pressures resulting from the imposed loads upon the mud sills (false work, forms, fresh concrete, scaffolding, etc.) shall not exceed the capacity of the on-site soils.

All false work systems shall be designed to support all vertical loading and any differential settlement forces, all horizontal and longitudinal forces, and shall account for any temporary unbalanced loading due to the placement sequence of the concrete. Sufficient redundancy shall be designed into centering or false work systems so that the failure of any member shall not cause a collapse. Design computations, layout drawings, and details of materials for the centering or false work systems shall be submitted to the Authority for its records. The erection of centering or false work systems shall be accomplished in strict conformance with the design and details. No concrete shall be placed without prior approval of the Resident.

False work systems adjacent to and/or over traveled ways shall additionally be designed to resist any vibration forces due to traffic and shall incorporate sufficient protection against impact by errant vehicles.

All false work system computations, plans and working drawings shall be designed and sealed by the Contractor's Professional Engineer, who must be registered in the State of Maine. This Professional Engineer may be directly employed or otherwise retained, by the Contractor. Prior to concrete placement, the Professional Engineer responsible for the design of the false work system shall, after false work inspection, provide a sealed certification to the Resident that the system was erected in conformance with the Professional Engineer's plans and design details.

False work shall be so constructed that the forms will have a camber, the amount depending upon the deflection anticipated in the design.

Forms supported upon false work shall be provided with a satisfactory means for their adjustment in the event of settlement or deformation of the false work due to overloading or other causes.

Provisions shall be made for the gradual lowering of false work and rendering the supported structure self-supporting.

D. Removal of Forms and False Work

1. Location, weather conditions, cementitious materials used and the character of the structure involved shall be considered in determining the time for the removal of forms and false work. Forms and false work shall not be removed until concrete cylinders cured with the structure establish that the concrete has developed 80 percent of design strength. The Contractor shall cast and break two cylinders per sublot and furnish the Resident with these test reports before removal of the forms and false work.

   When approved by the Resident, the vertical forms of footings, walls, columns and sides of beams and slabs may be removed 48-hours after completion of placement of concrete, exclusive of the time the ambient air temperature is below 45˚F and provided the following conditions are met:

   Immediately after the forms are removed, defects in the concrete surface shall be repaired in accordance with Subsection 502.13 and the repaired area thoroughly dampened with water. The surfaces of exposed concrete shall be cured for the remainder of the seven day curing period by the application of a product listed on the Maine Department of Transportation Prequalified list of curing compounds. The curing compound shall be applied continuously by an approved pressure spraying or distributing equipment at a rate necessary to obtain an even, continuous membrane, meeting the manufacturer's recommendation but at a rate of not less than 1 gal/200 ft^2 of surface. Other methods of curing concrete may be used with the prior approval of the Resident.

2. Forms and false work, including blocks and bracing, shall not be removed without the consent of the Resident. The Resident's consent shall not relieve the Contractor of responsibility for the safety of the work. In no case shall any portion of the wood forms be left in the concrete. As the forms are removed, all projecting metal devices that have been used for holding the forms in place shall be removed in

accordance with Subsection 502.10. The holes shall be filled as required in Subsection 502.13.

502.11 Placing Concrete

A. General – Concrete shall not be placed until forms and reinforcing steel have been checked and approved by the Resident. The forms shall be clean of all debris. The method and sequence of placing the concrete shall be approved before any concrete is placed.

All concrete shall be placed before it has taken its initial set and, in any case, as specified in Subsection 502.0701. Concrete shall be placed in horizontal layers in such a manner as to avoid separation and segregation. A sufficient number of workers for the proper handling, tamping and operation of vibrators shall be provided to compact each layer before the succeeding layer is placed and to prevent the formation of cold joints between layers. Care shall be taken to prevent mortar from spattering on structural steel, reinforcing steel and forms. Any concrete or mortar that becomes dried on the structural steel, reinforcing steel or forms shall be thoroughly cleaned off before the final covering with concrete. Following the placing of the concrete, all exposed surfaces shall be thoroughly cleaned as required, with care not to injure any surfaces.

Concrete shall not come in direct contact with seawater during placing and for a period of 72- hours thereafter, except as follows:

1. Concrete seals that are located entirely below low tide.

2. Concrete footings constructed in the dry and located entirely below low tide or final ground elevation.

3. Concrete Fill placed under water.

Concrete in any section of a structure shall be placed in approximately horizontal layers of such thickness that the entire surface shall be covered by a succeeding layer before the underlying layer has taken its initial set. Layers shall not exceed 18 inches in thickness and be compacted to become an integral part of the layer below. Should the placement be unavoidably delayed long enough to allow the underlying layer to take initial set or produce a so-called "cold joint", the following steps shall be taken:

- An incomplete horizontal layer shall be bulk headed-off to produce a vertical joint.

- Horizontal joints shall be treated as required in this Subsection 502.11(F).

- Portland Cement concrete with a high range, water reducing admixture shall not be placed when the concrete mix temperature is below 40˚F or above 85˚F.

The concrete in superstructures shall be placed monolithically except when construction joints are shown on the Plans or are authorized in accordance with approved details submitted by the Contractor. If the concrete in the stems of T-beams is to be placed independent of the slab section, the construction joint shall be located at the under side of the slab and the bond between stem and slab shall be a mechanical one. The bond shall be produced by embedding two *x* four, four inch wooden blocks having a length approximately four inches less than the width of the

stem and placed horizontally at right angles to the centerline of the beam in the top surface of the concrete immediately following the completion of the concrete placement. To provide for the uniform spacing of the blocks and their ready removal when the concrete has taken a set sufficient to hold its form, the blocks shall be firmly nailed upon a board at a distance of one foot center to center. The blocks shall be thoroughly oiled to facilitate their ready removal from the concrete.

In arch spans, the order of construction or sequence of the work, as shown on the Plans shall be followed in the placing of concrete.

In no case shall the work on any section or layer be stopped or temporarily discontinued within 18 inches below the top of any face, unless the Plans provide for a coping having a thickness less than 18 inches in which case, at the option of the Resident, the construction joint may be made at the under side of the coping. Concrete in columns shall be placed in one continuous operation, unless otherwise directed.

Fresh concrete, threatened with rain damage shall be protected by approved means. Sufficient material for covering the work expected to be done in one day shall be on hand at all times for emergency use. The covering shall be supported above the surface of the concrete.

Concrete Fill shall be placed at least to the pay limits shown on the Plans. Forms may be omitted at the Contractor's option. Vibration of concrete will not be required. The Contractor has the option of placing concrete fill under water or in the dry.

B. Chutes, Troughs, Pipes and Buckets - Sectional drop chutes or short chutes, troughs, pipes and buckets when used as aids in placing concrete, shall be arranged and used in such a manner that the ingredients of the concrete do not become separated or segregated. Wood and aluminum chutes, troughs, pipes or buckets shall not be used.

Dropping the concrete a distance of more than six feet, unless confined by closed chutes or pipe will not be permitted. The concrete shall be deposited at or as near as possible to its final position.

C. Vibrating - Mechanical, high frequency internal vibrators shall be used, operating within the concrete, for compacting the concrete in all structures and precast and cast-in-place piles, with the exception of concrete placed under water. The vibrators shall be an approved type with a frequency of 5,000 to 10,000 cycles per minute and shall be visibly capable of properly consolidating the designed mixture. A spare vibrator shall be available on the Project at all times during the placing of concrete.

Sufficient vibrators shall be used to consolidate the incoming concrete within five (5) minutes after placing. Vibrators shall neither be held against forms or reinforcing steel, nor shall they be used for flowing the concrete or spreading it into place. Over-vibrating shall not be allowed.

D. Dewatering Forms - All forms shall be dewatered before concrete is placed in them. Pumping will not be permitted from the inside of forms while concrete is being placed. Moving water shall not be permitted to be exposed to fresh concrete.

E. Depositing Concrete Under Water - No concrete shall be deposited under water except for cofferdam seals. Pumping will not be allowed within the cofferdam while concrete is being placed.

Seal concrete shall be placed carefully in a compact mass in its final position by means of a tremie or by other approved means and shall not be disturbed after being deposited. Bottom dump buckets will not be permitted. Special care must be exercised to maintain still water at the point of deposit. Seal concrete shall not be placed in running water. The method of depositing concrete shall be so regulated as to produce approximate horizontal surfaces. Each seal shall be placed in one continuous operation.

When a tremie is used, it shall consist of a tube not less than 10 inches in diameter. The means of supporting the tremie shall be such as to permit free movement of the discharge end over the entire seal and to permit its being lowered rapidly, when necessary to choke-off or retard flow. The tremie shall be filled by a method that will prevent washing of the concrete. The discharge end shall be completely submerged in concrete at all times and the tremie tube shall be kept full to the bottom of the hopper. The flow shall be regulated by raising or lowering the tremie.

When the horizontal area of the tremie seal is large, several tremie hoppers shall be provided and positioned strategically to allow easy deposit of concrete near the point where it is needed to avoid moving concrete horizontally through the water. The number of tremie hoppers and the work plan shall be approved by the Resident.

All laitance or other unsatisfactory material shall be removed from the surface of the seal before placing additional concrete. The surface shall be cleaned by scraping, chipping or other means that will not injure the concrete.

The placing and dewatering of seal concrete within cofferdams shall be in accordance with Section 511, Cofferdams.

F. Construction Joints - Construction joints shall be located where shown on the Plans or permitted by the Resident. When the concrete is in seawater, except concrete cores for stone masonry, no horizontal construction joint will be permitted between extreme low tide and extreme high tide elevations.

At horizontal construction joints, temporary gage strips having a minimum thickness of 1-1/2 inches shall be placed horizontally inside the forms along all exposed faces to give the joints straight lines. The joint shall be so constructed that the surface of the concrete will not be less than 1/4 inch above the bottom of the gage strip. Before placing fresh concrete, the temporary gage strip shall be removed, the surfaces of construction joints shall be thoroughly cleaned, drenched with water until saturated and kept saturated until the new concrete is placed. Immediately prior to placing new concrete, the forms shall be drawn tight against the concrete already in place. Concrete in substructures shall be placed in such a manner that all horizontal joints will be horizontal and if possible, in locations such that they will not be exposed to view in the finished structure.

Where vertical construction joints are necessary, reinforcing bars shall extend across the joint in such a manner as to make the structure monolithic. Construction joints through paneled

wing walls or other large surfaces which are to be treated architecturally will not be allowed except as shown on the Plans. All vertical construction joints in abutments and retaining walls shall contain water stops as shown on the Plans. The water stops shall be one continuous piece at each location.

All horizontal construction joints in abutments and retaining walls shall be constructed using a joint cover, as shown on the Plans.

Construction joints in the wearing surface shall be located where called for on the Plans. No other construction joints will be allowed.

All joints shall be formed in the manner detailed on the Plans. The forms shall not be treated with oil or any other bond breaking material that will adhere to the concrete.

Sealing slots shall be provided at all joints in the wearing surface that are located directly over a slab construction joint.

Construction joints in the wearing surface not receiving a sealing slot shall be brushed with a neat cement paste immediately prior to making the adjacent concrete placement.

After the concrete has been cured, sealing slots, when required, shall be sandblasted with approved equipment to remove all laitance and foreign material on the surfaces of the slots. The bottom of the sealing slots shall receive an approved bond breaker. The joint shall then be filled within 1/8 inch of the surface with a poured sealant conforming to the following requirements and in accordance with the manufacturer's recommendations. The joint sealant supplied shall be an approved two component, elastomeric sealant capable of 50 percent joint movement. Both components shall be in liquid form and the combining ratio of components by volume shall be as recommended by the manufacturer.

G. Concrete Wearing Surface and Structural Concrete Slabs on Precast Superstructures When called for on the Plans, a separate concrete wearing surface or structural concrete slabs on precast superstructures shall be bonded to the supporting slab. No surface preparation of a new structural concrete slab shall begin before completion of the specified curing period.

When the supporting slab is composed of cast-in-place concrete, the Contractor shall scabble the entire surface of the structural concrete slab and then sandblast the entire structural concrete slab surface. When the supporting slab is comprised of precast units, the Contractor shall sandblast the entire deck surface.

The entire area of the deck surface and the faces of curb and barrier walls or other median devices, up to a height of one inch above the top elevation of the wearing surface or slab, shall be cleaned to a bright, clean appearance which is free from curing compound, laitance, dust, dirt, oil, grease, bituminous material, paint and all other foreign matter. Air lines shall be equipped with effective oil traps. The cleaning of an area of the deck shall be performed within the 24-hour period preceding placement of the wearing surface. The cleaning shall be performed by dry sand blasting or other methods approved by the Resident. All debris from the cleaning operation shall be thoroughly removed by compressed dry air from the cleaned surfaces and adjacent areas. The cleaned areas shall be protected against contamination before placement of the wearing

surface. Contaminated areas shall be recleaned by dry sand blasting. Prepared, areas that have not received the wearing surface within 36-hours shall be recleaned.

All horizontal surfaces in contact with the wearing surface shall receive a coating of bonding grout or bonding agent listed on Maine Department of Transportation Prequalified List of Bonding Agents. The vertical faces in contact with the wearing surface shall be broomed-up to the elevation of the top of the wearing surface with bonding grout or an approved bonding agent.

Stiff bristled street brooms shall be used to brush the grout onto the surface. The coating shall not exceed 1/8 inch in thickness. The rate of progress in applying grout shall be limited so that the grout does not become dry before it is covered with new concrete. During delays in the surfacing operations, should the surface of the grout indicate an extensive amount of drying, the grout shall be removed by methods approved by the Resident and the area should be regrouted.

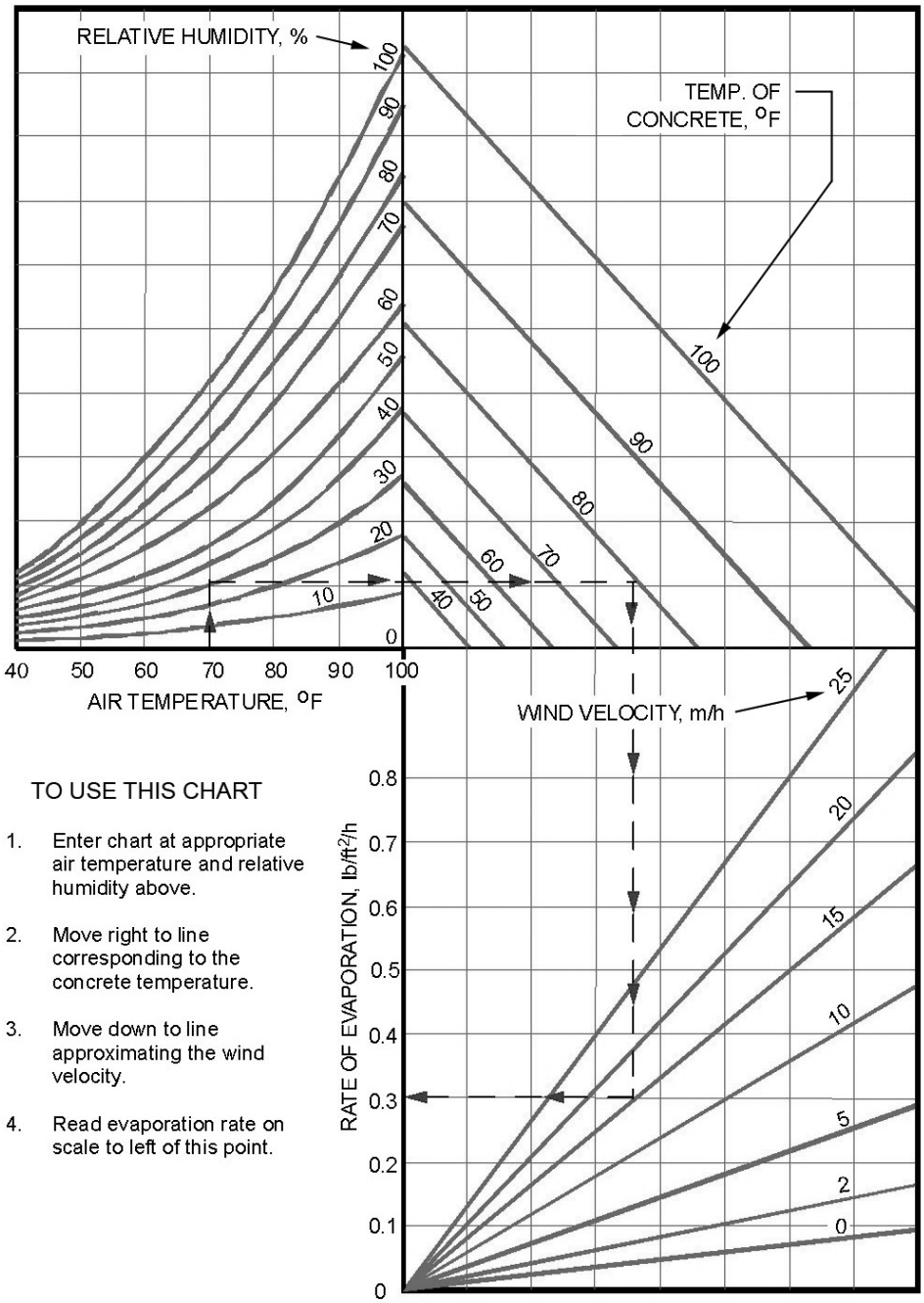
The bonding grout shall have Portland Cement and fine aggregate proportioned 2 to 1 by volume. The fine aggregate from which the material larger than 1/8 inch has been removed shall be the same source as used in the concrete. The cement and fine aggregate shall be measured separately in appropriately sized containers. The fine aggregate shall be deposited in an approved mechanical mortar mixer before adding cement. Water shall be added in sufficient quantity to allow flow of the grout without segregation of the grout ingredients.

No water shall be added after initial mixing. The grout shall not be allowed to separate before placement. The cement to water contact time of the grout shall not exceed 30 minutes before it is placed. Any grout that has dried or become unworkable before application, as determined by the Resident, shall not be incorporated into the work. The use of retarding admixtures for increasing the discharge time limits will be allowed.

The Resident may approve the batching of bonding grout at an approved commercial concrete batch plant. In this case, mixing and delivery shall be in transit truck mixers. The bonding agent shall be one of the products listed on the Maine Department of Transportation's List of Prequalified Bonding Agents and shall be applied in accordance with the manufacturer's recommendations.

No structural concrete slab structure, including but not necessarily limited to, concrete deck slabs, wearing surfaces, simple slab spans and slabs on precast superstructures, shall be commenced if the combination of ambient air temperature, relative humidity, wind speed, and plastic concrete temperature result in a surface moisture evaporation rate theoretically equal to or greater than 0.1 $lb/ft^2/hr.$ of exposed surface (refer to the Rate of Evaporation from Concrete Surface Chart). If the surface moisture evaporation rate rises to 0.15 $lb/ft^2/hr.$ of exposed surface, the Contractor shall immediately implement remedial actions to reduce the surface moisture evaporation rate. The temperature of the concrete shall not exceed 75˚F at the time the concrete is placed in its final position. The maximum temperature of the surface on which concrete will be placed shall be 90˚F. The Contractor shall provide all equipment and perform all measurements and calculations in the presence of the Resident to determine the rate of evaporation.

RATE OF EVAPORATION FROM CONCRETE SURFACE NOMOGRAPH



TO USE THIS CHART

1. Enter chart at appropriate air temperature and relative humidity above.
2. Move right to line corresponding to the concrete temperature.
3. Move down to line approximating the wind velocity.
4. Read evaporation rate on scale to left of this point.

502.12 Expansion and Contraction Joints

Expansion and contraction joints shall be located and constructed as shown on the Plans. Water stops shall be one continuous piece at each location. Joint cover, as shown on the Plans, shall be applied to all joints where water stops cannot physically be installed, as determined by the Resident.

502.13 Repairing Defects and Filling Form Tie Holes in Concrete Surfaces

After the forms are removed, all surface defects and holes left by the form ties shall be repaired.

All fins and irregular projections shall be removed from the following: Surfaces which are visible in the completed work; surfaces to be waterproofed; and the portion of vertical surfaces of substructure units which is below the final ground surface to a depth of 12 inches, not including underwater surfaces.

In patching surface defects, all coarse or fractured material shall be chipped away until a dense uniform surface, exposing solid coarse aggregate is obtained. Feathered edges shall be sawcut away to form faces having a minimum depth of one inch perpendicular to the surface. All surfaces of the cavity shall be saturated thoroughly with water, after which a thin layer of neat cement paste shall be applied. The cavity shall then be filled with thick, reasonably stiff mortar, not more than 30 minutes old, composed of material of the same type and quality and of the same proportions as that used in the concrete being repaired. The surface of this mortar shall be floated before initial set takes place and shall be neat in appearance. The patch shall be water cured for a period of five days.

If the removal of defective concrete materially impairs the soundness or strength of the structure, as determined by the Resident, the affected unit shall be removed and replaced by the Contractor at their expense.

The holes left by form ties, on the portions of substructure concrete that are to be permanently covered in the finished work, may be filled with an acceptable grade of plastic roofing cement. Holes in the bottom of slabs caused by supporting hangers need not be filled with the exception of voids that expose the top side of a girder top flange. Where holes in the deck or haunch are required to be filled, this work shall be completed using an approved high performance elastomeric sealant.

502.14 Finishing Concrete Surfaces

Neat cement paste, dry cement powder or the use of mortar for topping or plastering of concrete surfaces will not be permitted.

A. Float Finish - A float finish for horizontal surfaces shall be achieved by placing an excess of concrete in the form and removing or striking-off the excess with a template or screed, forcing the coarse aggregate below the surface. Creation of concave surfaces shall be avoided. After the concrete has been struck-off, the surface shall be thoroughly floated to the finished grade with a suitable floating tool. Aluminum and steel floats are not allowed.

Float finish, unless otherwise required, shall be given to all horizontal surfaces except those intended to carry vehicular traffic and those of curbs and sidewalks.

B. Structural Concrete Slab Structures – Include, but not limited to, structural concrete deck slabs, wearing surfaces, slabs on precast superstructures, top and bottom slabs of box culverts, approach slabs, rigid frame structures and simple slab spans, as applicable. Screed rails shall be set entirely above the finished surface of the concrete and shall be supported in a manner approved by the Resident. Where shear connector studs are available, welding to the studs will be permitted. No welding will be permitted directly on the stringer flanges to attach either screed rail supports or form supports of any type.

Screed rail supports set in the concrete shall be so designed that they may be removed to at least 50 mm [2 in.] below the surface of the concrete. Voids created by removal of the upper part of the screed rail supports shall be filled with mortar having the same proportions of sand and cement as that of the slab or wearing surface. The mortar shall contain an approved additive in sufficient proportions to produce non-shrink or slightly expansive characteristics.

The rate of placing concrete shall be limited to that which can be finished without undue delay and shall not be placed more than 10 feet ahead of strike-off.

The Contractor shall furnish a minimum of two work bridges behind the finishing operation, capable of spanning the entire width of the deck and supporting at least a 500 lb. load without deflection to the concrete surface, to be supported on the screed rails. These working bridges shall be used by the Contractor for touch-up and curing cover application and shall be available for inspection purposes. When the overall length of the structure is 60 feet or less only one working bridge will be required.

An approved bridge deck finishing machine complying with the following requirements shall be used, except as otherwise specified, for finishing structural concrete slab structures. The finishing machine shall have the necessary adjustments, built in by the manufacturer, to produce the required cross section, line and grade. The supporting frame shall span the section being cast in a transverse direction without intermediate support. The finishing machine shall be self-propelled and capable of forward and reverse movement under positive control. Provisions shall be made for raising all screeds to clear the screeded surface for traveling in reverse. The screed device shall be provided with positive control of the vertical position.

The finishing machine shall be self-propelled with one or more oscillating screeds or one or more rotating cylinder screeds. An oscillating screed shall oscillate in a direction parallel to the centerline of the structure and travel in a transverse direction. A rotating cylinder screed shall rotate in a transverse direction while also traveling in the same direction. Either type of screed shall be operated transversely in overlapping strips in the longitudinal direction not to exceed six inches. One or more powered augers shall be operated in advance of the screed(s) and a drag (pan type) float shall follow the screed(s). For concrete placements less than six inches in depth, vibratory pan(s) having a minimum of 3000 vibrations/min shall be operated between the oscillating screed(s) or rotating cylinder screed(s) and the power auger(s). For concrete placed in excess of 3-1/2 inches but less than six inches thickness, hand- operated spud vibrators shall be used in addition to the machine vibratory pan(s).

The transversely operated rotating cylinder(s) of the bridge deck finishing machine shall be rotated such that the direction of the rotation of the cylinder(s) at the surface of the concrete is in accordance with the manufacturer's recommendations.

Concrete immediately in front of the power auger(s) of a bridge deck finishing machine shall be placed or cut to a depth no higher than the center of the rotating auger(s). The advance auger(s) shall strike-off the concrete to approximately 1/4 inch above the final grade. The concrete shall then be consolidated with the vibrating pan(s) and then finished to final grade.

A small handheld pan vibrator shall be required at edges and adjacent to joint bulkheads. In lieu of the handheld pan vibrator equipment, the Resident may approve small spud vibrator(s).

Lightweight, vibrating screeds may be used on slab structures which are more than 12 inches below the roadway finish grade or have a length of 30 feet or less, or where concrete placements are specified to be less than 16 feet in width and shall have the following features:

1. It shall be portable and easily moved, relocated, or adjusted by no more than four persons.
2. The power unit shall be operable without disturbing the screeded concrete.
3. It shall be self-propelled with controls that will allow a uniform rate of travel and by which the rate of travel can be increased, decreased or stopped.
4. It shall have controlled, uniform, variable frequency vibration, end to end.
5. It shall be fully adjustable for flats, crowns, or valleys.
6. The screed length shall be adjustable to accommodate the available work area.

When a lightweight vibrating screed is utilized, the concrete shall be placed or cut to no more than 1/2 inch above the finished grade in front of the front screed. The screed shall be operated such that at least three feet of concrete is in position in front of the screed.

Supporting slabs for bituminous wearing surfaces shall be finished in accordance with the recommendations of the waterproofing membrane manufacturer.

The texturing of concrete wearing surfaces shall be applied as approved by the Resident. The surface tolerance and texture shall be acceptable to the Resident, or the placement may be suspended until remedial action has been taken. The Resident may order the removal and replacement of material damaged by rainfall.

On all concrete wearing surfaces, a one feet wide margin shall be finished adjacent to curbs and permanent barriers with a magnesium float.

Immediately after screeding, floating and texturing, the surface of the concrete shall be tested for trueness, by the Contractor, with a 10 feet straightedge and all irregularities corrected at once in order to provide a final surface within the tolerance required in Table 5. The surface shall be checked both transversely and longitudinally. Any area that requires finishing to correct surface irregularities shall be retextured.

The straightedges shall be furnished and maintained by the Contractor. They shall be fitted with a handle and all parts shall be made of aluminum or other lightweight metal. The straightedges shall be made available for use by the Resident when requested.

In the event of a delay during a concrete placement, all concrete that cannot receive the final curing cover shall be covered with wet burlap.

No vehicles will be allowed, either directly or indirectly, on reinforcing steel before concrete placement.

C. Curb and Sidewalk Finish on Bridges - Curb and sidewalk finish is a float finish produced by using a short float moved in small circles to produce a shell-like pattern on the surface of the concrete. Alternately, sidewalks may receive a light broom finish perpendicular to the sidewalk.

When a concrete curb is monolithic with a sidewalk, a six inches wide smooth margin shall be made along the top of the curb with a magnesium float.

Unless shown on the Plans, the sidewalk area shall not be divided into sections by transverse grooves.

At all transverse construction and expansion joints, except where steel expansion dams are used, the edges of the joints, on the surface of the sidewalk, shall be finished with a sidewalk edging tool two inches in width with a 1/4 inch radius lip.

D. Form Surface Finish - The character of the materials used and the care with which forms are constructed and concrete placed shall be considered in determining the amount of rubbing required. If using first class form material, well-constructed forms and the exercise of special care, concrete surfaces are obtained that are satisfactory to the Resident, the Contractor may be relieved in part from the requirement of rubbing.

1. Ordinary Finish - An Ordinary Finish is defined as the finish left on a surface after the removal of the forms, the filling of all holes and the repairing of all defects. The surface shall be true and even, free from stone pockets and depressions or projections and of uniform texture. All formed concrete surfaces shall be given an ordinary finish unless otherwise specified.

   Repaired areas that do not meet the above requirements or areas that cannot be satisfactorily repaired to meet the requirements for ordinary finish shall be given a rubbed finish. When a rubbed finish is required on any part of a surface, the entire surface shall be given a rubbed finish.

2. Rubbed Finish - Rubbing of the concrete shall occur within seven (7) days of the concrete placement. If rubbing of the concrete is not complete within seven days, the Contractor must apply a latex bonding agent to the concrete as submitted and approved by the Resident.

   The concrete shall be thoroughly saturated with water immediately before starting this work. Sufficient time shall have elapsed before wetting-down to allow the mortar used in ordinary finish to become thoroughly set. Surfaces to be finished shall be rubbed with a medium coarse carborundum stone, using a small amount of mortar on its face. The mortar shall be composed of cement and fine sand mixed in proportions as used in the concrete being finished. Rubbing shall be continued until

all form marks, projections and irregularities have been removed, all voids filled and a uniform surface has been obtained. A thin layer of paste produced by this rubbing shall be left on the surfaces.

After all concrete above the surface being treated has been cast, the final finish shall be obtained by a second rubbing with a fine carborundum stone using only water. This rubbing shall be continued until the entire surface is of a smooth texture and uniform color.

After the final rubbing is completed and the surface has dried, it shall be rubbed lightly with clean and dry burlap to remove excess loose powder and shall be left free from all unsound patches, paste, powder and objectionable marks. This finish shall result in a surface of smooth texture and uniform color.

No surface finishing shall be done in freezing weather or when the concrete contains frost. In cold weather the preliminary rubbing necessary to remove the inert sand and cement materials and the surface irregularities may be done without the application of water to the concrete surfaces.

The following portions of concrete roadway grade separation structures shall be given a rubbed finish unless otherwise indicated in the Contract:

(a) Retaining walls and the breast and wing walls of abutments - face surfaces to 12 inches below the finished ground line.
(b) Piers - all vertical surfaces and the underside of overhanging portions of caps, except that for overpass structures, the piers beyond the outside limits of the roadway pavement, the vertical surfaces on the back which are not visible from the roadway or sidewalk will not require a rubbed finish.
(c) Parapets and end posts – all horizontal and face surfaces, excluding overhead surfaces, to 12 inches below the finish ground.

If, in the opinion of the Resident, the general appearance of a concrete structure, due to the excellence of workmanship, cannot be improved by a rubbed finish, this requirement may be waived.

E. Surface Finish - After the concrete has cured, the surface shall be tested with a 10 feet straightedge or a lightweight profiler.

The straightedge shall be furnished and maintained by the Contractor. It shall be fitted with a handle and all parts shall be made of aluminum or other lightweight metal. The straightedges shall be made available for use by the Resident when requested. The lightweight profiler will be furnished by the Authority.

Areas found to not comply with the tolerance of Table 5 shall be brought into conformity by methods proposed by the Contractor and approved by the Resident at no additional cost to the Authority.

TABLE 5
SURFACE TOLERANCE LIMITS

Type of Surface:	* Maximum deviation of surface in millimeters [in.] below 3 m [10 ft.] straightedge
Concrete Wearing Surface, Curbs, Sidewalks, and Barriers	3 mm [1/8 in.]
Concrete Slab Surfaces to be Covered by Membrane Waterproofing or Concrete Wearing Surfaces	6 mm [1/4 in]
Concrete Slab Surfaces with Integral Concrete Wearing Surface	6 mm [1/4 in.]
Concrete Slab Surfaces to be Covered By Earth or Gravel	10 mm [3/8 in.]
Concrete Surface of Box Culvert Bottom Slab	10 mm [3/8 in.]
Concrete Surface of Abutments, Piers, Pier Shafts, Footings, and Walls	10 mm [3/8 in.]

* Allowance shall be made for crown, camber and vertical curve.

502.15 Curing Concrete

All concrete surfaces shall be kept wet with clean, fresh water for a curing period of at least seven (7) days after concrete placing, with the exception of vertical surfaces as provided for in Subsection 501.10(D), Removal of Forms and False Work.

For concrete wearing surfaces and all concrete containing fly ash or slag, the temperature of the concrete shall be kept above 50˚F for the entire seven day period. All other concrete and its surfaces shall be kept above 50˚F for the first four days of the curing period and above 32˚F for the remainder of the period.

In the 24-hours following the end of the curing period, the temperature of the concrete shall be decreased on a gradual basis, not to exceed a total change of 40˚F for moderate sections, such as abutments and pier bents, and 30˚F for mass sections such as massive piers.

All slabs and wearing surfaces shall be water cured only and kept continuously wet for the entire curing period by covering with one of the following systems:

A. Two (2) layers of wet burlap;

B. Two (2) layers of wet cotton mats;

C. One (1) layer of wet burlap and either a polyethylene sheet or a polyethylene coated burlap blanket; or,

D. One (1) layer of wet cotton mats and either a polyethylene sheet or a polyethylene coated burlap blanket.

Except as otherwise specified, curing protection for slabs and wearing surfaces shall be applied within 30 minutes after the concrete is screeded and before the surface of the concrete

has lost its surface "wetness" or "sheen" appearance. The first layer of either the burlap or the cotton mats shall be wet and shall be applied as soon as it is possible. Polyethylene sheets shall not be placed directly on the concrete, but may be placed over the fabric cover to prevent drying.

The covering of concrete wearing surfaces, decks, curbs and sidewalks shall be kept continuously wet for the entire curing period by the use of a continuous wetting system and shall be located to insure a completely wet concrete surface for the entire curing period.

All other surfaces, if not protected by forms, shall be kept thoroughly wet either by sprinkling or by the use of wet burlap, cotton mats or other suitable fabric until the end of the curing period, except as provided for in 502.10(D), Removal of Forms and False Work. Polyethylene sheets shall not be placed directly on the concrete, but may be placed over the fabric cover to prevent drying.

Surfaces of all concrete placements containing silica fume additive shall be coated with an approved evaporation retardant immediately after finishing and texturing the concrete surface. The application of wet burlap or wet cotton mats shall be made within 15 minutes after the finishing of the concrete surface.

The application rate, the desired equipment, and the mixing and application procedures for an approved evaporation retardant shall be as designated by the manufacturer. Successive applications or heavier applications of this evaporation retardant shall be applied as necessary to retain the required surface "wetness" appearance.

502.16 Loading Structures and Opening to Traffic

No superstructure concentrated loads such as structural steel beams, girders and trusses shall be placed upon finished concrete substructures until the concrete has reached its design strength.

No load or work will be permitted on concrete superstructure slabs or rigid frame structures until concrete cylinders cured with the slab establish that design strength has been reached. However, after a shorter period of time, the Resident may permit handwork for form construction and setting stone bridge curb. No curbing or other materials shall be stored on the bridge during the seven day curing period, except that if handwork is permitted, curb stones may be stored in a line near to their final location until ready to be set.

Neither traffic nor fill material shall be allowed on superstructures of concrete bridges or culverts until concrete cylinders cured with the slab establish that design strength has been reached, dependent upon conditions as specified in Subsection 502.10 and with the approval of the Resident.

No traffic will be allowed on the cured concrete of a concrete wearing surface until 24-hours after the completion of the application of protective coating for concrete surfaces.

Concrete approach slabs at the end of structures may be opened to traffic or backfilled if buried when the design strength has been reached.

502.17 Bridge Drains and Incidental Drainage

All drains shall be accurately placed at the locations shown on the Plans or as approved by the Resident, and an adequate means provided for securely holding them in the required positions during the placing of concrete.

Bridge drains shall be galvanized in accordance with Subsection 711.04, Bridge Drains. The Contractor shall furnish an insulator between surfaces of galvanized and weathering steels when erecting the bridge drain support assembly. Epoxy-coated washers shall be used when the support assembly attaches to weathering steel beam webs.

Drains or weep holes through abutments and retaining walls shall be pipe of the size and shape shown on the Plans and shall be of Schedule 40 PVC pipe.

For the purpose of providing drainage for any moisture that may collect between the floor slab and the bituminous concrete roadway surface, approved one inch inside diameter plastic tube drains shall be installed at the low points of the slab surface, adjacent to the end dam or dams. The exact location will be determined in the field by the Resident and the discharge from them shall be such as to clear the bridge seats and any other portion of the structure in their proximity. The tops of the drains shall be depressed 3/8 inch below the surface of the slab and the outlets shall project two inches below the underside of the slab. Care shall be exercised such that the drains are open after the installation of the membrane waterproofing, when it is installed.

502.18 Method of Measurement

A. Structural concrete satisfactorily placed and accepted will be measured by the cubic yard, in accordance with the dimensions shown on the Plans or authorized changes in the Plans, or as one lump sum unit as indicated in the Schedule of Items.

Structural Concrete for any irregular shapes may be measured by the cubic yard as determined from the theoretical yield of the design mix or in the case of transit mixed concrete, by delivery ticket as approved by the Resident.

B. The limits to be used in determining the quantities of the aforementioned structural concrete items for arriving at a lump sum price will be as follows:

1. Structural Concrete Superstructure Slabs, Structural Concrete Roadway and Sidewalk Slabs on Steel Bridges, Structural Concrete Roadway and Sidewalk Slabs on Concrete Bridges and Structural Concrete Superstructure T-Beam Type. The limits will be the entire concrete superstructure, outside to outside, both transversely and longitudinally, exclusive of concrete curbs, sidewalks, permanent transition barrier and concrete transition barriers.

2. Structural Concrete Wearing Surfaces. The limits will be the entire concrete wearing surface bounded transversely by the roadway curbs and longitudinally by the extreme ends.

3. Structural Concrete Box Culverts. The limits will be the entire structure, meaning the bottom floor slab, abutments, wings, superstructure floor slab and headwalls or curbs.

4. Structural Concrete, Approach Slabs. The limit will be the entire approach slab or slabs, as shown on the Plans.

5. Structural Concrete, Abutments and Retaining Walls Structural Concrete, Abutments and Retaining Walls (placed under water), Structural Concrete Piers, and Structural Concrete Piers (placed under water). The limits will be the entire concrete substructure unit or units, from the bottom of the footing to the top of the unit, and outside to outside, both transversely and longitudinally, except for the portion to be placed under water, as indicated on the Plans, which will be the limits of the concrete unit or units, outside to outside, transversely, longitudinally, and vertically.

6. Structural Concrete Rigid Frame Structures. The limits will be the entire concrete structure, meaning the frame walls and top slab. Included within the limits for payment, unless otherwise shown on the Plans, are bottom slab, wing walls and headwalls.

7. Structural Concrete Culvert End Walls. The limit will be the entire concrete end wall or end walls, as shown on the Plans.

8. Structural Concrete Curb and Sidewalks. The limit will be the entire concrete curb or sidewalk, as shown on the Plans.

9. Concrete Fill. Will be measured for payment by the number of cubic yards of concrete, in place, to the vertical pay limits shown on the Plans. If the Contractor elects to omit forms, then any excavation or concrete placed beyond the pay limits indicated on the Plans shall not be paid for, but shall be at the Contractor's expense.

10. Structural Concrete Parapets. The limit will be the entire concrete portion of the parapets and bridge transition barriers measured longitudinally, from end to end on both sides of the structure, as shown on the Plans.

C. No deduction will be made for the volume of concrete displaced by structural steel, reinforcing steel, pile heads, expansion joint material, drains, chamfers on corners, inset panels of 1-1/2 inches or less in depth, pipes, weep holes and authorized openings for utilities of 1/4 yd^3 or less in volume, when any of these items occur in structural concrete which is to be paid for on a cubic yard basis.

D. When the bottom of foundations for concrete structures is required to be at a definite elevation within rock excavation, as shown on the Plans or otherwise designated, the quantity to be measured will be the number of cubic yards of concrete actually and satisfactorily placed above a plane at one foot below the above specified plan elevation and within the neat lines of the structure as shown on the Plans or on authorized changes in the Plans. If the ledge rock is excavated below the plane at one foot below the plan elevation, without authorization,

then this space shall be replaced with concrete of the same composition as required for the structure foundation but will not be measured for payment.

502.19 Basis of Payment

The accepted work done under structural concrete, of the classes and for the types of work required, will be paid for at the Contract unit price per cubic yard, or at the Contract lump sum price, for the respective Contract items involved. Payment for both the unit price and the lump sum price items will be full compensation for furnishing and installing bridge drains, pier nose armor, water stops, expansion joint filler, PVC or plastic tube drains, asphalt roll roofing (roofing felt), asphalt for painting or covering various type of joints, all required sandblasting, bonding, curing and joint sealing and all incidentals necessary to complete the work satisfactorily. No direct payment will be made for concrete admixtures.

No price adjustments will be made to the lump sum bid for the respective items that are bid lump sum, except when quantity changes are directed by the Authority. It will be the responsibility of the Contractor to verify the estimated quantities prior to submitting bid documents.

Payment for structural concrete culvert connection shall include drilling and grouting the dowels into the existing headwall and excavation. Reinforcing will be paid for under Item 503.12, Reinforcing Steel, Fabricated and Delivered, and Item 503.13, Reinforcing Steel, Placing.

Reinforcing steel, railings, stone curbing and any material that may be required for bridge lighting systems, will be measured and paid for separately as provided in the appropriate sections.

Implementation of the Quality Control Requirements and costs associated with acceptance test sampling shall be incidental.

All work required to construct and remove the bulkheads will not be measured separately for payment, but shall be incidental to Item 502.264.

All costs associated with obtaining, testing and evaluating drilled core specimens for dispute resolution will not be measured separately for payment, but shall be incidental to related items.

Payment will be made under:

Pay Item		Pay Unit
502.21	Structural Concrete, Abutments and Retaining Walls	Cubic Yard

SPECIAL PROVISION

SECTION 502

STRUCTURAL CONCRETE

(Structural Concrete, Abutments and Retaining Walls)

502.01 Description

This work shall consist of furnishing and placing Portland Cement Concrete to secure the new locking compression seal joints at Stroudwater River Bridge northbound and Maine Central Railroad Bridge northbound in accordance with these Specifications and in conformity with the lines, grades and dimensions shown on the Plans or established, or for placing concrete fill or underwater seals for foundations where called for on the Plans.

502.18 Method of Measurement

The following paragraphs are added:

All Portland Cement Concrete to secure the new locking compression seal joints at Stroudwater River Bridge northbound and Maine Central Railroad Bridge northbound, including backwalls, end post curbs, bridge decks and bridge curbs will be measured by the cubic yard in place and paid under Item 502.21 - Structural Concrete, Abutments and Retaining Walls.

SPECIAL PROVISION

SECTION 502

STRUCTURAL CONCRETE

(Bridge Drain Grate Modification)

502.01 Description

The following sentences are added:

The work also consists of removing existing bridge drain grates, and fabricating, galvanizing, and installing replacement bridge drain grates where noted and as detailed on the Plans.

The work also consists of removing and patching deck concrete adjacent to the bridge drain grates being modified where noted and as detailed on the Plans.

502.03 Materials

The following sentences are added:

Bridge drain materials shall meet the requirements specified in, and shall be galvanized in accordance with, Division 700, Subsection 711.04, Bridge Drains.

All structural concrete removed shall be replaced with a Maine Turnpike Authority's approved concrete patching material list. See Section 518 – Structural Concrete Repair.

502.17 Bridge Drains and Incidental Drainage

The following sentences are added:

Prior to beginning the work, the Contractor shall make provisions to ensure that concrete debris or portions of the existing bridge drains do not drop into the water body, or onto the street, shoulder or railroad area below.

The existing bridge drain grates shall be removed by grinder, cut off wheel or other mechanical means which minimize damage to the adjacent grate to remain. After removal of the existing bridge drain grate and adjacent concrete the replacement grate shall be fitted and welded to the existing bridge drain body.

All bridge drains grates shall be accurately placed at the locations shown on the Plans or as approved by the Resident. The Contactor shall provide an adequate means for securely holding them in the required positions during welding.

Touch-up the damaged galvanizing with two coats of zinc-rich chromate paint after wire brushing and solvent cleaning the damaged area.

Patch concrete with a concrete repair material from the Maine Turnpike Authority's approved concrete patching material list.

502.53 Method of Measurement

Bridge Drain Grate Modification will be measured per each by the actual number of bridge drain grates modified per the Plans, complete in place and accepted.

504.54 Basis of Payment

Bridge Drain Grate Modification will be paid for at the Contract unit price per each, which price shall be full compensation for removing and disposing of the existing bridge drain grate; fabrication, galvanizing and installation of the replacement bridge drain grate, galvanizing touchup, and deck removal and repair including all materials, labor, tools, equipment and incidentals necessary for furnishing and installing the Bridge Drain Grate Modification with the Plans and Specifications.

Payment will be made under:

Pay Item		Pay Unit
502.701	Bridge Drain Grate Modification	Each

SPECIAL PROVISION

SECTION 502

STRUCTURAL CONCRETE

(Installation of Plastic Deck Drains)

502.01 Description

The following sentence is added:

This work consists of furnishing and installing 1 inch inside diameter plastic deck drains along the shoulders and end dams of the Stroudwater River bridge southbound as detailed in the Plans.

This work does not include furnishing and installing 1 inch inside diameter plastic deck drains along the end dams of the Stroudwater River bridge northbound north abutment and Maine Central Railroad bridge northbound south abutment as detailed in the Plans. The 1 inch inside diameter plastic deck drains set into the formwork prior to casting the joint repair is incidental to the structural concrete pay item.

This work does not include extending existing deck drains that drain onto existing concrete and steel members at either the Stroudwater River or Maine Central Railroad bridges. Extending existing deck drains that drain onto existing concrete and steel members, as requested by the Resident, will be paid under the Hand Labor pay item.

502.17 Bridge Drains and Incidental Drainage

The fourth paragraph is deleted and the following sentences are added:

Holes for the proposed drains shall be cored to minimize the spalling of the deck/ fascia overhang concrete.

Prior to beginning the work, the Contractor shall make provisions to ensure the coring saw slurry and concrete debris does not drop in the Saco River or onto the embankment areas below the deck. Coring saw slurry shall be contained and legally disposed of. It shall not be discharged on the Stroudwater River bridge embankment..

Also prior to beginning the work, the Contractor shall locate the top mat longitudinal and transverse reinforcing steel with a pachometer to minimize damage to the deck reinforcing steel. The plastic drain layout shall be adjusted as required to avoid coring into or through the deck reinforcing steel.

Install the top of the new 1 inch inside diameter plastic deck drains depressed 3/8 inch below the proposed deck pavement elevation. Epoxy bond the drain perimeter to the side of the core hole. The drains shall extend a minimum of 6 inches below the deck/ fascia overhang and shall not drain onto the bridge girders, abutments or piers.

502.18 Method of Measurement

The following sentences are added:

Installation of Plastic Deck Drains will be measured per each by the actual number of 1 inch inside diameter plastic deck drains furnished and installed, complete in place and accepted.

Containing and legally disposing of the coring saw slurry will not be measured separately but shall be incidental to the Installation of Plastic Deck Drains pay item.

Locating the top mat longitudinal and transverse reinforcing steel with a pachometer and adjusting the Plastic drain layout to minimize damage to the deck reinforcing steel will not be measured separately but shall be incidental to the Installation of Plastic Deck Drains pay item.

502.19 Basis of Payment

The following sentences are added:

Installation of Plastic Deck Drains will be paid for at the Contract unit price each, which price shall be full compensation for coring the existing bridge deck and for fabrication, delivery and installation including all materials, labor, tools, equipment and incidentals necessary for furnishing and installing the plastic deck drains in accordance with the Plans and Specifications.

Payment will be made under:

Pay Item		Pay Unit
502.81	Installation of Plastic Deck Drains	Each

SPECIAL PROVISION

SECTION 503

REINFORCING STEEL

(Measurement and Payment)

503.10 Method of Measurement

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

Epoxy Coated Reinforcing Steel, Fabricated and Delivered will not be measured separately for payment but shall be incidental to the Structural Concrete, Abutments and Retaining Walls pay item.

Epoxy Coated Reinforcing Steel, Placing will not be measured separately for payment but shall be incidental to the Structural Concrete, Abutments and Retaining Walls pay item.

503.11 Basis of Payment

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

Epoxy Coated Reinforcing Steel, Fabricated and Delivered will not be paid separately but shall be incidental to the Structural Concrete, Abutments and Retaining Walls pay item.

Epoxy Coated Reinforcing Steel, Placing will not be paid separately but shall be incidental to the Structural Concrete, Abutments and Retaining Walls pay item.

SPECIAL PROVISION

SECTION 504

STRUCTURAL STEEL

504.04 Facility Requirements

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

Steel shall be fabricated in a facility holding a current AISC shop certification as follows:

Type of Product	Certification Required[1,2,3,4]
• Plate girder bridges • Spliced rolled beam bridges • Complex bridge or truss-type highway sign structures • All structures including the use of HPS 50W or HPS 70W steel	AISC Cbr
• Unspliced rolled beam bridges • Non truss-type highway sign supports • Misc. bridge components such as cross frames	AISC Cbr or Sbr
• Non-vehicular bridges • High mast poles and light poles • Other Steel Products	AISC Cbr, Sbr, Cbd, or Sbd

1. Application of protective coatings requires a "P" endorsement or SSPC QP3 Certification.
2. Fabrication of fracture critical members, and of structures utilizing HPS70W steel, requires an "F" endorsement.
3. All materials fabricated in non-certified shop will be rejected.
4. Work shall not be subcontracted to a non-certified facility without approval of the Fabrication Engineer.

504.10 Mill Orders and Mill Test Reports

The following paragraph is added:

In addition, the Contractor shall provide the Manufacturer's Certified Test Report and the Distributor Certified Test Report (if applicable) for all high strength bolts used in structural connections. See related Subsection 504.45 for Rotational Capacity Test requirements.

504.12 Protective Coating

The following paragraphs are added:

Diaphragms, cross frames, and all portions of bearings not welded to the beam or girder shall be galvanized.

Galvanized nuts shall be overtapped to the minimum required for the fastener assembly, and shall meet the requirements of Supplementary Requirement Sl of ASTM A563, Lubricant and Test for Coated Nuts. Overtapping shall not exceed 0.015 inch diametrically for nuts one inch diameter and smaller and 0.025 inch for nuts larger than one inch diameter. Excess hot-dip galvanizing on threaded portions of bolts shall be removed by centrifuging or air blasting immediately upon withdrawal. Flame chasing is prohibited.

504.15 Design

The first sentence is deleted and replaced with the following:

Bridge design, detail and load requirements shall conform to the most current edition of the AASHTO LRFD Bridge Design Specifications, applicable Interim Specifications and these Specifications, unless otherwise noted on the Plans.

504.18 Plates for Fabricated Members

The first sentence in the second paragraph is changed from "...ASTM A 898/A 898 M..." to "...ASTM A 898/A 898 M or ASTM A 435/A 435 M as applicable and...".

504.21 Thermal Cutting

The following sentence is added to the end of the second paragraph:

For painted structures, edge preparation shall be in conformance with Section 506, Painting Structural Steel.

504.25 Die Stamping

The following sentence is added to the end of the paragraph:

Any die stamping in unauthorized locations will be removed at the Contractor's own expense.

504.30 Welded Fabrication

The following sentence is added:

Mill scale shall be removed from the surfaces on which flange-to-web, cover plate-to-flange, bearing stiffener-to-web, and connection plate-to-web welds are to be made.

504.41 Methods and Equipment

The following paragraph is added:

When structural steel erection is to take place over travel ways, the Contractor shall submit a structural steel erection plan stamped by a Professional Engineer. The erection plan shall include the number and location of crane(s), the weight of the pick, crane capacities and all other pertinent information.

504.44 Connections Using High Strength Bolts

The following is added to the end of the second paragraph:

Each wrench shall be accompanied with the necessary sockets, extension handles, and other related equipment and shall be acceptable to the Fabrication Engineer. No separate payments will be made for said testing. Any costs will be incidental to the bid items.

504.45 Bolts, Nuts, Washers and Direct Tension Indicators

This Subsection is amended by the addition of the following:

Should it prove to be impractical to obtain all nuts, bolts and washers for a Project from a single source, the Contractor shall submit a work plan for the Fabrication Engineer's approval that will ensure that all nut, bolts and washers in each individual main structural connection or group of such connections (i.e., beam and girder splices, floor beam end connections, truss members end connections, etc.) will be from a single source. All DTI's will be from one manufacturer and one supplier.

504.50 Calibration, Installation and Tensioning of High Strength Bolts

This Subsection is amended by the addition of the following:

Bolts that are too short for calibration in the tension measuring device may be tightened in a steel joint, using direct tension indicating washers (DTI's). The DTI's shall first be calibrated in a tension measuring device using longer bolts.

504.51 Installation

This Subsection is amended by the addition of the following:

Where an outer face of the bolted parts has a slope of more than one to 20 with respect to a plane normal to the bolt axis, a smooth beveled washer will be used to compensate for the lack of parallelism.

Connections using DTI's shall be brought to a "Snug Tight" condition as above except that, following snugging, no gap on any DTI in a connection shall exceed 0.040 inch, and no DTI shall have a gap less than 0.015 inch. Any DTI having a gap less than 0.015 inch following snugging of a connection shall be removed and the fastener assembly shall be re-snugged using a new DTI.

504.52 Tightening

Item 1 is amended by the addition of the following:

Wrenches shall be recalibrated at any time significant changes are noted in the condition of bolt threads, nuts, washers, lubrication, hose length, environmental conditions, etc., which may affect calibration.

504.54 Reuse of Bolts

This Subsection is amended by the addition of the following:

Reuse of bolts will be allowed only with the approval of the Fabrication Engineer. Galvanized bolts may not be reused.

504.641 Method of Measurement

Unless otherwise specified, structural steel will be measured as one lump sum complete and accepted, consisting of all metal and related materials in the fabricated and erected structure as show on the Plans, excluding railings and drains. Related materials shall include, but not necessarily be limited to, preformed pads placed under the bearings, and when required, self lubricating bronze or copper-alloy bearing and expansion plates.

There will be no additional payment for the required erection plan, but the cost shall be incidental to the Structural Steel Erection item.

SPECIAL PROVISION

SECTION 507

RAILINGS

(Aluminum Bridge Railing – Splice Modification)

507.01 Description

The following sentence is added:

This work consists of re-centering the existing 3'-0" cast aluminum splice bar in the center of the bridge rail splice joint, and mechanically fastening the splice bar to the aluminum bridge rail on one side of the bridge rail splice joint per the details on the Plans.

Replacement bridge rail components, if required, will be furnished by the Authority.

507.06 Method of Measurement

Aluminum Bridge Railing – Splice Modification will be measured for payment by each, satisfactorily modified and accepted.

507.07 Basis of Payment

Aluminum Bridge Railing – Splice Modification will be paid at the Contract unit price per each which price shall be full compensation for all labor, materials, equipment and incidentals required for re-centering and mechanically fastening the splice bar as shown on the Plans, in accordance with these Specifications or as approved by the Resident.

Payment will be made under:

Pay Item		Pay Unit
507.095	Aluminum Bridge Railing – Splice Modification	Each

SPECIAL PROVISION

SECTION 508

MEMBRANE WATERPROOFING

508.01 Description

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

When high performance waterproofing membrane is specified, the Contractor shall furnish and install an approved high performance waterproofing membrane to the concrete deck with a heat welded membrane system applied in accordance with the Plans, Specifications and the manufacturer's published recommendations.

508.02 Materials

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

When high performance waterproofing membrane is specified, the materials shall meet the requirements of the manufacturer and shall be one of the approved heat welded products on the MaineDOT's Prequalified List of Approved Materials for High Performance Waterproofing Membrane.

SPECIAL PROVISION

SECTION 510

SPECIAL DETOURS

(Temporary Steel Plate Special Detour)

510.01 Description

The following paragraph is added:

The Contractor shall furnish and maintain a Temporary Steel Plate Special Detour at each of the four complete bridge joint replacements. This system shall be as shown on the Plans, or as submitted by the Contractor and approved by the Engineer. The Temporary Steel Plate Special Detour includes the temporary bituminous pavement ramps, and shall be installed full width across the travel lanes for the entire period the Temporary Steel Plate Special Detour is in place and the roadway is open to traffic.

510.03 Vehicular and Pedestrian Traffic Not Separated

The second paragraph is deleted and replaced with the following:

If the Contractor proposes to furnish and maintain a Temporary Steel Plate Special Detour that differs from the design shown on the Plans, the Contractor shall submit design calculations and shop drawings for the proposed system. The proposed system shall be designed in accordance with current AASHTO LRFD Bridge Design Specifications, except as noted herein, to meet live load requirements HL-93. All computations, shop drawings, plans and other criteria submitted for review and approval shall be stamped by a Professional Engineer licensed in the State of Maine.

The third and fourth paragraphs are deleted in their entirety.

The following paragraph is added:

The Contractor shall inspect the Temporary Steel Plate Special Detour daily to ensure that no component of the system shows signs of distress or has become loose or dislodged. Any evidence that the system is not performing as intended shall be brought to the immediate attention of the Resident.

The following sentence is added to the end of paragraph eleven which begins with “The geometric design ...”:

The slope on the approach and departure pavement ramps shall be no steeper than 140H:1V.

Subsection 510.03.e. Approach Road Surface is revised to read:

The approach surface shall be 9.5 mm Hot Mix Asphalt meeting the requirements of Special Provisions 400 and 403, and shall be maintained in a compacted and smooth condition.

510.08 Method of Measurement

The following paragraphs are added:

The Temporary Steel Plate Special Detour will be measured by the lump sum for the project. The lump sum price shall include design (if the design on the plans not used); furnishing, installing, maintaining and removing the steel plates, supports, anchor bolts, temporary ramp pavements; daily inspection; excavation beyond the pay limits; and all tools, equipment and labor; etc. necessary to construct, maintain and remove the work at the four replacement bridge joint locations in accordance with the Plans or as called for in the Contract.

The Temporary Earth Support Systems required to support the earth adjacent to the back walls during bridge joint replacement will not be measured for payment under this item but shall be measured under item 511.091 - Temporary Earth Support Systems.

The installation and removal of the temporary bituminous pavement ramps will not be measured separately for payment but shall be incidental to the Temporary Steel Plate Special Detour pay item.

510.10 Basis of Payment

The following paragraphs are added:

The Temporary Steel Plate Special Detour will be paid for at the contract lump sum price, which price shall be full compensation for design (if the design on the plans not used); furnishing, installing, maintaining and removing the steel plates, supports, anchor bolts, temporary ramp pavements; daily inspection; excavation beyond the pay limits; and all tools, equipment and labor; etc. necessary to construct, maintain and remove the work at the four replacement bridge joint locations in accordance with the Plans or as called for in the Contract.

Pay Item		Pay Unit
510.13	Temporary Steel Plate Special Detour	Lump Sum

SPECIAL PROVISION

SECTION 511

COFFERDAMS

(Temporary Earth Support Systems)

Section 511, Cofferdams, is deleted in its entirety and replaced with the following:

511.01 Description

This work shall consist of the complete design, construction, maintenance and removal of all temporary earth support systems including, but not necessarily limited to, cofferdams, caissons, cribs and sheeting, and other related work, including dewatering, required to allow for the excavation of foundation pits; to permit and protect the construction of structural units; to allow for the demolition and/or construction of the concrete abutments, piers, foundations, wingwalls, headwalls, and culverts; removal and/or construction and maintenance of approach roadways; and any other work requiring temporary earth support mandated by OSHA, Subpart P, Excavation Requirements, or required for the maintenance of traffic. The temporary earth support systems shall meet all of the applicable requirements of the standard Specifications.

Temporary earth support structures shall be specified as Cofferdam(s) when it is determined a temporary earth support structure will be required to keep high ground water, stream, river, pond, lake or ocean tidal waters out of the excavation so the identified substructure unit can be constructed in the dry. The locations of Cofferdam(s) will be shown on the Plans. Cofferdam(s) may or may not require seal concrete.

All other temporary earth support structures shall be specified as Temporary Earth Support Structures. Temporary earth support structures may require pumping or dewatering to complete the Project work. The locations of temporary earth support structures may, or may not, be shown on the Plans whether required for the completion of the Contract or not. Temporary earth support structures do not require seal concrete.

511.02 Materials

A minimum of three (3) weeks prior to the start of work, the Contractor shall submit the proposed method of temporary earth support systems for review and approval. The submission shall include working drawings and list the type and size of the proposed support, details of construction, calculations and a sequence of operations all of which shall be designed and sealed by a Professional Engineer licensed in the State of Maine. This Professional Engineer may be directly employed or otherwise retained by the Contractor. Working drawings shall consist of plan views and cross sections to illustrate clearances, limits, and retainment heights as applicable at roadway cuts, cofferdams, abutment footings, and phased construction areas. Construction shall not be started on temporary earth support systems until such submittals are approved. Approval of the submittals shall not relieve the Contractor of the responsibility for the satisfactory functioning of the temporary earth support systems.

The temporary earth retaining structures shall be designed to support all appropriate combinations of earth, water, and surcharge loads (from traffic, construction equipment, material stockpiles, and other sources) imposed on the systems during all phases of construction. The Contractor's design shall consider the means and methods and construction sequencing proposed by the Contractor. The Contractor is responsible for selecting an appropriate factor of safety for the Temporary Earth Retaining Structures. The factor of safety and maximum applied loads are resistances used for the design shall be clearly stated on the submitted calculations.

Cofferdams shall be designed by the Contractor's licensed engineer to resist hydrostatic and lateral pressures and prevent water infiltration. The height of the cofferdam and the depth of the seal concrete shall be determined by the Contractor based upon the hydrological data shown on Sheet N/A of the Contract Drawings. Detailed information from the hydrological report is presented in **Appendix** (not applicable) of these Specifications. The Contractor shall take note of the sensitivity of the river to heavy rain fall. The design shall include calculations for sheet piles and internal bracing, and shall be submitted for review and approval. Where cofferdams are to be left in place as a permanent countermeasure against scour, the minimum sheet pile tip elevations will be shown on the Contract Drawings.

Prior to excavating or loading the temporary earth support systems, the Professional Engineer responsible for the design of the temporary earth support systems shall provide after inspection of the systems a sealed certification to the Resident that the systems were erected in conformance with the Professional Engineer's plans and design details.

The submission shall also show the Contractor's proposed method of excavation, water diversion and dewatering methods (sumps, wells, seal concrete, or well points) to minimize the flow of groundwater into the excavation. Such methods should preserve the undisturbed condition of the subgrade and permit foundation construction in-the-dry.

Seal concrete shall conform to the requirements of Class S Concrete. Where seal concrete is required to have a steel reinforcing mat, the steel reinforcement shall conform to ASTM A615, Grade 60.

511.03 Temporary Earth Support System Construction

Temporary earth support systems shall, in general, be carried well below the elevation of the bottom of footings or approach slabs, and shall be well braced and watertight. In cases where pile foundations contain batter piles, the temporary earth support system shall be installed to accommodate without obstruction the proper placement and alignment of the batter piles, either by staggering the depth of the support system or by increasing the annulus between the foundation and the support system. Unless it is contemplated that a concrete foundation seal will be placed under water, the interior dimensions of temporary earth support systems shall be such as to give sufficient clearance for the construction and inspection of forms and to permit pumping outside of forms. Exterior dimensions of the temporary earth support system shall be limited to the size shown on the Plans or those illustrated in the Project permits, whichever is more stringent.

During the placing of seal concrete, the elevation of the water inside the temporary earth support systems shall be controlled to prevent any flow through the concrete.

Temporary earth support systems shall be constructed to protect fresh concrete against damage from the sudden rising of the water body and to prevent damage by erosion.

Temporary earth support systems, including all sheeting and bracing involved, shall be removed after the completion of the substructure unless otherwise noted on the Contract Drawings; care being taken not to disturb or otherwise injure the finished masonry. No timber or bracing shall be used in temporary earth support systems in such a way as to remain in the substructure masonry.

At bridge approaches where phased construction results in close confinement of the temporary earth support systems to the existing and new roadways, a lateral support device shall be designed and installed atop the concrete approach slab for the purpose of preventing undermining and/or settlement of the newly constructed roadway. Lateral support systems shall be designed and positioned so as to provide lateral rigidity to the completed roadway during Phase II construction, while preventing any reflection of the device through the pavement above. The design, details, and sketches of the permanent lateral support device shall be presented as part of the Contractor's submissions for Temporary Earth Support Systems. Removal of the lateral support device shall not require additional phases of construction nor compromise the integrity of the roadway. At the Contractor's option, the lateral support device may be left in place with the approval of the Resident.

511.04 Pumping

Pumping from the interior of any foundation enclosure shall be done in such a manner as to prevent any current of water that would carry away or segregate the concrete.

Pumping to dewater a sealed temporary earth support system shall not commence until the seal concrete has set sufficiently to withstand the hydrostatic pressure. In no case will pumping be permitted until a minimum of five (5) days has elapsed since the completion of the installation of the seal concrete, when the temperature of the water body outside the temporary earth support system is greater than 4°C [40°F], or a minimum of seven (7) days has elapsed since the completion of the installation of the seal concrete, when the temperature of the water body outside the temporary earth support systems is less than 4°C [40°F].

Sediment laden water will not be allowed to leave the Project area. The Contractor shall be required to install appropriate erosion and sedimentation control devices as approved by the Resident. Erosion and sedimentation control devices may include plain riprap, haybales, silt fence and sedimentation basins.

All water and materials pumped from excavation shall be pumped into a sedimentation basin which is of sufficient volume to detain the pumped water and materials. The water and materials removed from the excavation shall be pumped at a rate that permits infiltration of the water into the earth, preventing any overland flow or direct discharge into a stream or other waterbody.

511.05 Method of Measurement

Temporary Earth Support Systems, with the exception of Cofferdams, shall be measured for payment as one lump sum per Contract, regardless of the number of Temporary Earth

Support structures required at the Project site or sites, which price shall include full compensation for design, furnishing materials, excavation beyond the pay limits, installation, removal, tools, equipment and labor necessary to construct, maintain and remove the work in accordance with the Plans or as called for in the Contract.

If Temporary Earth Support Systems is not required due to the acceptance of a Value Engineering Proposal in accordance with Subsection 109.6, the cost of the deleted Temporary Earth Support Systems shall be included as part of the Value Engineering Proposal.

Cofferdam shall be measured for payment as one lump sum per location identified on the Plans, which price shall include full compensation for design, furnishing materials, excavation beyond the pay limits, installation, removal, tools, equipment and labor necessary to construct, maintain and remove the work in accordance with the Plans or as called for in the Contract. When cofferdams remain as permanent countermeasures against scour, removal of the unused section of sheet pile above the cut-off line shall be included in the lump sum payment.

If Cofferdam is not required due to the acceptance of a Value Engineering Proposal in accordance with Subsection 109.6, the cost of the deleted Cofferdam shall be included as part of the Value Engineering Proposal.

511.06 Basis of Payment

The accepted quantity of Temporary Earth Support Systems, other than Cofferdam (see below), will be paid for at the Contract lump sum price, per Contract, for the respective Temporary Earth Support Systems.

When required, the elevation of the bottom of footing of any substructure unit may be lowered, without change in the price to be paid for Temporary Earth Support Systems. However, if the average elevation of more than 25 percent of the area of the excavation is more than three feet below the elevation shown on the Plans, and if requested by the Contractor, then the entire cost of the Temporary Earth Support Systems will be paid in accordance with Subsection 109.7, Equitable Adjustments to Compensation, instead of the Contract lump sum price.

All costs of constructing, maintaining and removing sedimentation basins; water testing; and pumping or transporting water and other materials to the sedimentation basin will not be measured separately for payment, but shall be incidental to the Temporary Earth Support Systems item.

All costs of related temporary soil erosion and water pollution controls, including inspection and maintenance, will not be measured separately for payment, but shall be incidental to the Temporary Earth Support Systems item.

All costs of lateral support devices installed in support of phased construction at the bridge approaches, will not be measured separately for payment, but shall be incidental to the Temporary Earth Support Systems item.

The accepted quantity of Cofferdam will be paid for at the Contract lump sum price, per location identified on the Plans.

When required, the elevation of the bottom of footing of any substructure unit may be lowered, without change in the price to be paid for Cofferdam. However, if the average elevation of more than 25 percent of the area of the excavation is more than three feet below the elevation shown on the Plans, and if requested by the Contractor, then the entire cost of the Cofferdam will be paid in accordance with Subsection 109.7, Equitable Adjustments to Compensation, instead of the Contract lump sum price.

All costs relating to the furnishing and placing of seal concrete will be paid under Pay Item 502.249, Structural Concrete Piers – Seal Concrete (placed under water), pay unit lump sum.

All costs relating to the excavation of earth material to facilitate construction of Temporary Earth Support Systems and Cofferdams, and placement of structural concrete will be paid under Pay Item 206.08, Structural Earth Excavation – Major Structures, pay unit cubic yard; or Pay Item 206.10, Structural Earth Excavation – Piers, pay unit cubic yard, as applicable.

All cost of constructing, maintaining and removing sedimentation basins; water testing; and pumping or transporting water and other materials to the sedimentation basin will not be measured separately for payment, but shall be incidental to the Cofferdam item(s).

All costs of related temporary soil erosion and water pollution controls, including inspection and maintenance, will not be measured separately for payment, but shall be incidental to the Cofferdam item(s).

Payment will be made under:

Pay Item		Pay Unit
511.091	Temporary Earth Support Systems	Lump Sum

SPECIAL PROVISION

SECTION 515

PROTECTIVE COATING FOR CONCRETE SURFACES

(Pigmented Concrete Protective Coating)

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

515.01 Description

The work shall include the surface preparation and application of a pigmented concrete protective coating system to protect new and existing concrete and masonry structures. The coating system shall be applied to non-roadside portions of the endposts, and wingwalls on the Stroudwater River Bridges northbound and southbound in accordance with the Plans, Specifications and the manufacturer's published recommendations.

515.02 Materials

The pigmented penetrating sealer system shall be a two coat system consisting of Certi-Vex Guard and Certi-Vex Envio Smooth VOC, as manufactured by Vexcon Chemicals, Inc., or an approved equal, consisting of the following two parts:

- The primer shall be a vinyl toulene acrylic silane polymer blend or an approved equal. This primer shall provide the main protection against the ingress of water borne chlorides and sulfates.

- The top coat shall be solvent borne modified acrylic resins with selected pigments and fillers. The Envio Smooth top coat color shall be Concrete Gray. If an equal is submitted for approval include color samples.

The product shall comply with regulations limiting the Volatile Organic Compound (VOC) content of architectural and industrial maintenance coatings.

The Contractor shall submit the Vexcon Chemical's product data sheets, material safety data sheets and recommended instructions for application of the Certi-Vex Guard and Certi-Vex Envio Smooth VOC.

Materials shall be delivered to the site in original packages or containers bearing the manufacturer's labels and identification.

515.021 Substitute Materials

The Contractor shall submit a written request for approval of proposed substitute material naming the proposed manufacturer and product. This request shall be accompanied by:

1. Test data from an independent testing laboratory stating that the proposed substitute meets or exceeds the specified requirements as listed and has been tested in accordance with the specified test standards.

2. Documentation that the proposed material has a proven record of performance when used in the intended application as confirmed by actual field tests and successful installations in place on at least five similar projects.

3. Certification that if two or more types of products are intended to be used as part of a system they will be supplied by the same manufacturer to ensure compatibility of materials, and to maintain single source manufacturer responsibility.

The Resident reserves the right to require additional testing to evaluate any proposed substitute product at no additional cost to the Authority. The Resident's decision as to the acceptability or non-acceptability of the proposed product shall be final.

515.03 Surface Preparation

All caulking, patching, and joint sealant shall be installed prior to application of the sealer. The surface shall be prepared in strict accordance with the instructions of the approved manufacturer. Surface shall be fully cured, dry, and free from contamination such as asphalt coatings, oil, grease, loose particles, decaying matter, moss, algae growth, and curing compounds. For maximum penetration of the primer, the Contractor shall lightly sandblast the surface.

Existing form tie hole plugs which are loose or deteriorated shall be completely removed. The holes shall be reamed to sound concrete. All open form tie holes, new and existing shall be filled with an approved non-shrinking mortar, and after setting, rubbed level to the adjacent surface. Filled holes shall be cured for at least two (2) days prior to the application of the concrete protective coating.

The Contractor may use, when required, appropriate cleaning materials recommended by the sealer manufacturer in conjunction with high pressure water for cleaning the concrete or masonry.

Grass and vegetation adjacent to surfaces to be coated shall be removed or trimmed closely to permit proper preparation and application of the coating.

515.04 Application

The materials shall be mixed and applied in strict accordance with the instructions of the approved manufacturer. Spray or roll the primer at the recommended application rate. If the surface is very absorbent, the primer should be applied until surface is saturated per the manufacturer’s written instructions. All areas not to receive coating shall be marked with straight, even lines as the limit lines.

The Contractor shall, in the presence of the Resident, apply the materials on a sample area which is representative of a jobsite application. When color and application methods are approved, the sample area shall serve as a standard of acceptance for all further work.

The primer shall not be applied in direct sunlight when the air or surface temperature is greater than 90°F, or when air or surface temperature is below 35°F. The top coat shall not be applied when air or surface temperature is below 40°F or as approved by the Resident.

The primer shall be allowed to dry for a minimum of two-hours before applying pigmented top coat. Under poor drying conditions this time shall be extended. The primer shall not be coated with top coat until the surface is dry. The top coat should be applied by brush, roller or suitable airless spray.

Top coat material shall be applied per the manufacturer's recommended application rate and in strict accordance with the manufacturer's written instructions. The top coat shall provide consistent color without light spots or shadows. The Resident reserves the right to have the Contractor recoat the top coat if the dried top coat(s) lack consistent color or show light spots or shadows.

Protect plants, grass, sealant, asphalt, traffic, etc. during application from spray.

515.05 Method of Measurement

Pigmented Concrete Protective Coating will be measured for payment by the square yard, satisfactorily applied and accepted.

515.06 Basis of Payment

Pigmented Concrete Protective Coating will be paid at the Contract unit price per square yard which price shall be full compensation for all labor, materials, equipment and incidentals required for furnishing and applying the pigmented concrete protective coating as shown on the Plans, in accordance with these Specifications or as approved by the Resident.

Surface preparation, vegetation removal, and protection of surfaces not designated for treatment will not be paid for separately, but shall be incidental to the Pigmented Concrete Protective Coating item.

Payment will be made under:

Pay Item		Pay Unit
515.201	Pigmented Protective Coating for Concrete Surfaces	Square Yard

SPECIAL PROVISION

SECTION 515

PROTECTIVE COATING FOR CONCRETE SURFACES

(Clear Concrete Protective Coating)

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

515.01 Description

The work shall include the surface preparation and application of a clear protective coating on concrete surfaces to protect new cast-in-place concrete, precast concrete and masonry structures. The coating system shall be applied to the entire roadside portion of the end posts and curb on the bridge approaches, the abutments (back walls, breast walls and bridge seats) and the first five feet of deck curb and fascia adjacent to the joint replacements on the deck side on the Stroudwater River and Maine Central Railroad northbound bridge decks in accordance with the Plans, Specifications and the manufacturer's published recommendations.

515.02 Materials

The penetrating sealer shall be Stand Off SLX100 Water & Oil Repellent, as manufactured by ProSoCo, Inc., or an approved equal. The sealer shall have the following properties:

Active Substance:	modified alkyl alkoxy silane
Active Content:	> 90%
Form:	clear liquid
VOC:	< 3.5 pounds per gallon

The product shall comply with regulations limiting the Volatile Organic Compound (VOC) content of architectural and industrial maintenance coatings.

The Contractor shall submit the ProSoCo's product data sheets, material safety data sheets and recommended instructions for application of the Stand Off SLX100.

Materials shall be delivered to the site in original packages or containers bearing the manufacturer's labels and identification.

515.021 Substitute Materials

The Contractor shall submit a written request for approval of proposed substitute material naming the proposed manufacturer and product. This request shall be accompanied by:

1. Test data from an independent testing laboratory stating that the proposed substitute meets or exceeds the specified requirements as listed and has been tested in accordance with the specified test standards.

2. Documentation that the proposed material has a proven record of performance when used in the intended application as confirmed by actual field tests and successful installations in place on at least five similar projects.

3. Certification that if two or more types of products are intended to be used as part of a system, they will be supplied by the same manufacturer to ensure compatibility of materials, and to maintain single source manufacturer responsibility.

The Resident reserves the right to require additional testing to evaluate any proposed substitute product at no additional cost to the Authority. The Resident's decision as to the acceptability or non-acceptability of the proposed product shall be final.

515.03 Surface Preparation

All caulking, patching, and joint sealant shall be installed prior to application of the sealer. On new surfaces to be treated, all voids shall be dressed by dry rubbing to remove form marks and blemishes to present a neat appearance. Concrete and masonry surfaces shall be cleaned free of dust, surface dirt, oil, efflorescence and contaminants to ensure penetration of the sealer. The surface may be slightly damp at the time of treatment.

The Contractor may use, when required, appropriate cleaning materials recommended by the sealer manufacturer in conjunction with high pressure water for cleaning the concrete or masonry.

515.04 Application

The Contractor shall apply the clear concrete protective coating in strict accordance with the manufacturer’s published recommendations.

The application shall not be conducted when surface and air temperatures are below 40°F or above 100°F. The work shall not be conducted when there is a chance of the surface temperature falling below 40°F in the 24-hours following application.

The treatment shall not be applied during rain to wet surfaces or when there is a chance of rain within 24-hours after application. After treatment, surfaces should be protected from rain for not less than 48-hours. It shall not be applied when winds are sufficient to carry airborne chemicals to unprotected surfaces.

Prior to applying the sealer, the Contractor shall protect all surrounding non-masonry/non-concrete surfaces, landscape and lawn areas, and surfaces not designated for treatment, from contact with the penetrating sealer, and prevent overspray of the penetrating sealer caused by wind drift.

The Contractor shall ensure that all safety equipment, facilities and precautions recommended by the product manufacturer are furnished and/or strictly adhered to.

The sealer material shall be applied in the manner and with the equipment recommended by the product manufacturer. Coverage will vary depending on condition, texture and porosity of the surfaces. Pre-testing is required.

Sealer shall be applied as packaged without dilution or alteration. The sealer shall be applied with low pressure (20 psi) airless spray equipment or with a heavily saturated brush or roller unless otherwise permitted by the Resident. Sufficient material shall be applied to thoroughly saturate the surface making sure to brush out excess material that does not penetrate.

When the sealer is applied to horizontal surfaces, it shall be applied in a single saturating application with sufficient material and applied so the surface remains wet for one to two minutes before penetration into the concrete. Surface residues, pools and puddles shall be broomed-out thoroughly until they completely penetrate into the surface.

When the sealer is applied to vertical and sloped surfaces, it shall be applied in a "wet-on-wet" application for best results on most porous materials. In the case of extremely dense concrete, it may be necessary to restrict the amount of material applied to one saturating application in order to prevent surface darkening. Apply from the bottom up with sufficient material to thoroughly coat the surface and create a slight rundown below the spray pattern. Allow the first application to penetrate the concrete surface, and within a few minutes after the first coat appears dry, reapply in the same saturating manner.

When the sealer is applied to vertical and sloped surfaces, it shall be applied in two applications, 10 minutes apart, with a low pressure (20 psi) airless sprayer.

515.05 Method of Measurement

Clear Protective Coating for Concrete Surfaces will be measured for payment by the square yard, satisfactorily applied and accepted.

515.06 Basis of Payment

Clear Protective Coating for Concrete Surfaces will be paid at the Contract unit price per square yard which price shall be full compensation for all labor, materials, equipment and incidentals required for furnishing and applying the clear concrete protective coating as shown on the Plans, in accordance with these Specifications or as approved by the Resident.

Surface preparation, vegetation removal, and protection of surfaces not designated for treatment will not be measured separately for payment, but shall be incidental to the Clear Concrete Protective Coating item.

Payment will be made under:

Pay Item		Pay Unit
515.202	Clear Protective Coating for Concrete Surfaces	Square Yard

SPECIAL PROVISION

SECTION 518

STRUCTURAL CONCRETE REPAIR

(Granite Curb Joint Mortar and Bedding Mortar Repair)

518.01 Description

The following sentence is added:

This work shall consist of the removal and replacement of existing deteriorated granite curb joint mortar and granite curb bedding mortar as shown on the plans and as approved by the Resident.

Areas of existing deteriorated granite curb bedding mortar, less than ½ inch in depth, will not be repaired under this pay item but shall be repaired as requested by the Resident using hand tools and equipment unit prices. Materials required shall be receipted costs plus 15%. Small tools, defined as those costing less than $600, shall be incidental to the hand labor item.

518.03 Repair Materials is re-designated as Subsection 518.02 Repair Materials.

518.02 Repair Materials

The following sentence is added:

Mortar shall be an approved epoxy resin mortar or an approved polymer modified cementitious repair mortar.

The following Subsection is added:

518.031 Construction Requirements

After the existing wearing surface is removed, the Resident will designate areas where the existing granite curb joint mortar and the existing granite curb bedding mortar is to be repaired.

In areas designated for Granite Curb Joint Mortar Repair, the existing granite curb joint mortar shall be removed between curb sections to a minimum depth of 1 in. from the face of curb. Any loose mortar shall also be removed. The repair area shall be repointed with new mortar and tooled concave at the face of curb. The mortar shall be proportioned, mixed, and applied in accordance with the Manufacturer's recommendations.

In areas designated for Granite Curb Bedding Mortar Repair, the existing granite bedding mortar shall be removed under the curb to a minimum depth of 1 in. from the face of curb. Any loose or deteriorated mortar shall also be removed. The mortar shall be replaced with new mortar and finished with a 45° bevel at the face of curb. The mortar shall be proportioned, mixed, and applied in accordance with the Manufacturer's recommendations.

518.10 Method of Measurement

The following sentence is added:

Granite Curb Joint Mortar and Bedding Mortar Repair will be measured for payment by the linear foot along the face of the curb, horizontally and vertically, complete and accepted.

518.11 Basis of Payment

The following sentence is added:

Granite Curb Joint Mortar and Bedding Mortar Repair will be paid for at the contract unit price per linear foot, which will include all materials, labor, equipment, and incidentals necessary to complete the work including removal of existing mortar.

Payment will be made under:

Pay Item		Pay Unit
518.39	Granite Curb Joint Mortar and Bedding Mortar Repair	Linear Foot

SPECIAL PROVISION

SECTION 518

STRUCTURAL CONCRETE REPAIR

(Abutment Repairs)
(Partial Depth Concrete Deck Repairs)
(Full Depth Concrete Deck Repairs)

518.01 Description

The following paragraphs are added:

The work includes abutment repairs, and partial and full depth concrete deck repairs as described below.

- Abutment repairs include concrete surface repairs on all deteriorated horizontal, vertical and overhead abutment and wingwall surfaces as shown on the Plans or identified by the Resident.

- Partial depth concrete deck repairs are repairs on all deteriorated horizontal deck surfaces less than 4.9 inches in depth as shown on the Plans or identified by the Resident.

- Full depth concrete deck repairs are repairs on deteriorated deck surfaces greater than 4.9 inches in depth as shown on the Plans or identified by the Resident. Full depth concrete deck repairs shall be scheduled and coordinated with the Authority.

The work shall also include the removal of all tectyl (bituminous) coating on the backwalls, bridge seats and breastwalls of the existing bridge structures. This work shall occur prior to the start of the abutment concrete repairs so the Resident may identify additional areas requiring repair.

The work shall also include furnishing and installing extensions on all deck drain weepers that drain on or adjacent to structural concrete or steel elements on the Stroudwater River and Maine Central Railroad northbound bridges. Weepers requiring extension will be identified by the Resident and shall be paid time and material.

518.03 Repair Materials is re-designated as Subsection 518.02 Repair Materials.

Paragraphs 1-3 and the Coarse Aggregate Gradation Designation/ Thickness of Placement Table of Section 518.03 Repair Materials are deleted and replaced with the following:

A patching material from the appropriate list provided below may be used instead of concrete for concrete patching at the Contractor's option, provided the manufacturer's published recommendations are met (Note: Not all products are suitable for all depth of placements.). All materials used for repair of concrete or reinforcing steel shall meet the applicable requirements of Division 700 as specified in the Standard Specification Sections 502 and 503 respectively. When concrete is used as the repair material, it shall conform to the requirements of Table 1 of

Subsection 502.05 for Class AAA Concrete except that the minimum cement factor shall be **750 pounds** per cubic yard. Concrete mix shall be selected at 1,200 psi above design strength of 4,500 psi. The coarse aggregate size shall conform to ASTM C33 Grading 7.

Materials for non-emergency deck patching, and formed vertical and overhead deck repairs, shall be one of the following:

MTA - AAA modified concrete – transit mixed or mixed on site,
Sikacrete 211, as manufactured by Sika Corporation, 201 Polito Avenue, Lakehurst, NJ 07011
SikaRepair 222 extended with aggregate, as manufactured by Sika Corporation, 201 Polito Avenue, Lakehurst, NJ 07011
BASF LA40 Repair Mortar, as manufactured by BASF Corporation, 889 Valley Park Drive, Shakopee, MN 55379
Civil Structural FPX, as manufactured by Dayton Superior Corporation, 1125 Byers Road, Miamisburg, OH 45342

or an approved proprietary, non-fast setting, shrinkage compensated patching material, manufactured or extended with stone, with the following published properties:

Compressive strength @ 24 hours – less than 3500 psi
Compressive strength @ 28 days – less than 7500 psi
Minimum bond strength @ 28 days – 1500 psi

Note: Rapid-setting high early strength materials are not permitted.

Materials for non-emergency, un-formed vertical and overhead deck repairs shall be one of the following:

SikaTop 123 Plus as manufactured by Sika Corporation, 201 Polito Avenue, Lakehurst, NJ 07011.
SikaRepair 223, as manufactured by Sika Corporation, 201 Polito Avenue, Lakehurst, NJ 07011
Zero-C Vertical Overhead Mortar, as manufactured by BASF Corporation Systems, 889 Valley Park Drive, Shakopee, MN, 55379.
Verticoat Supreme as manufactured by The Euclid Chemical Company, 19218 Redwood Rd., Cleveland, OH, 44110

Materials for emergency deck patching (non-overhead only) may be selected from the Maine Department of Transportation's Qualified Products List for concrete patching materials.

The second sentence in subsection 518.03.1 is revised to read:

"The bonding material shall consist of the following, except that, in the case where an approved proprietary material is used in the repair areas, the manufacturer's published recommendations regarding application and use of bonding materials shall take precedence:"

518.03 Removal of Unsound Concrete

Paragraph 4 item b) is revised to read:
"b) To the minimum depth required per the manufacturer's recommendation, but not less than 1 inch behind the top mat of reinforcing steel, when an approved proprietary material is used."

Paragraph 4 item c) is deleted and not replaced.

Paragraph 4 item d) is revised to read:
"d) To a minimum depth of 1 inch behind the top mat of reinforcing steel."

The following paragraphs are added:

Care shall be taken during the demolition process to ensure the integrity of the surrounding concrete is maintained. The Contractor shall use great care to avoid damaging the existing reinforcing steel during the demolition process. Existing reinforcing steel damaged during the demolition process shall be repaired or replaced by a method approved by the Resident, at no additional cost to the Authority.

All unsound concrete and other material removed shall be disposed of outside the limits of the turnpike right-of-way. The Contractor shall provide the Resident with an affidavit stating the final location of all disposed material and that the material was disposed of in accordance with Chapter 404 of the Maine Department of Environmental Protection Solid Waste Regulations.

The following Subsection is added:

518.031 Bearing Areas for Superstructure Metal

The Contractor's attention is directed to the fact that the removal of unsound concrete may be immediately adjacent to the structural bearing parts of the steel stringers and may involve removal of unsound concrete under the existing masonry plate.

The Contractor shall submit, a minimum of two (2) weeks prior to the start of work, his proposed method of temporary support which will list the type and size of the proposed members, details of construction, load capacity calculations, and a sequence of operations, all to be made and stamped by a Professional Engineer registered in the State of Maine. Temporary structural supports may bear on the adjacent bridge seat area, backwall or ground.

518.04 Reinforcing Steel

The first paragraph is deleted in it entirety and replaced with the following:

All existing reinforcing steel exposed by concrete removal which is to remain in the structure, shall be thoroughly cleaned by sandblasting to an SSPC-SP-6, supplemented by chipping hammers or other means as necessary so that the surfaces are free of rust, scale, mortar and other foreign material, and reasonably free of shadows. The sandblast shall be applied at an angle to the bars so that the embedded steel shall be free of rust and other foreign material to 100 percent of its circumferences. Once the existing reinforcement is cleaned, and prior to casting the repair, all new and existing reinforcing steel shall be coated with an approved epoxy bonding agent. The elapsed

time between sandblasting application of the approved epoxy bonding agent shall be a reasonable minimum.

The following paragraph is added to the end of this Subsection:

Where approved by the Resident, exposed reinforcement shall be depressed to provide 1-1/2 inch clear cover of concrete over the top bars. Minimum clear distance under the bottom of reinforcement bars for horizontal repairs, behind reinforcement bars on vertical repairs, and over the top of reinforcement bars on overhead surfaces shall meet the requirements of Subsection 518.03. Epoxy coated reinforcing support chairs shall be provided by the Contractor to support the bars in their specified location. Bars protruding from sound concrete adjacent to a repair area shall be bent up or down within the repair area to obtain the required minimum clear cover.

518.07 Placing Repair Materials

The following is added after the first paragraph:

All vertical and overhead repair areas shall be formed over the entire surface with quick erecting forms approved by the Resident. The forms shall be held securely in place and be able to withstand the hydrostatic pressure of the fluid concrete of the height to which it is to be placed. Forms shall be built such that the resulting repair will duplicate the original lines of the concrete removed. Form faces shall be of new finished plywood or steel, or other smooth surface as approved by the Resident prior to use. Forms will be provided with a top chute, at a maximum spacing of four feet, for providing a compression head of concrete in the form. The overfilled area shall be struck-off flush when forms are removed. Forms shall be placed snugly against the surface of the old concrete at the edges of the patch and shall extend beyond the edges at least three inches. They shall not deflect under the placement of the fresh concrete. Vertical surface repair forms shall remain in place a minimum of 48-hours.

All proposed bearing pads and bearing pad repairs shall be cast monolithically with the abutment repair concrete.

The following paragraphs are added to the end of this Subsection:

Modified Class AAA Concrete may be transit mixed or mixed on-site. The concrete shall be placed in accordance with the provisions of Section 502 except that the pre-plasticized slump shall not exceed three inches. Materials shall be batched by weight. The concrete shall be pumped or hand shoveled into the forms. Internal mechanical vibrators shall be of an approved design and of a size suitable to the work at hand. External vibrators attached to the forms will be permitted if requested, subject to the results obtained. The amount of vibration shall be guided by results obtained from previous placements.

If the concrete cannot be placed satisfactorily, as determined by the Resident, superplasticizers shall be added to the mix as approved by the Resident and at no additional cost to the Authority. After removal of the forms, the concrete shall be smooth rubbed and wet cured and given a smooth rubbed finish.

518.10 Method of Measurement

The sixth paragraph is deleted and not replaced.

The following paragraphs are added:

The quantity of Abutment Repairs, Partial Depth Concrete Deck Repairs, and Full Depth Concrete Deck Repairs will be measured by the square foot and shall be computed as the sum of the products of the average length and width of each area repaired.

Removal of all tectyl (bituminous) coating from existing abutments will not be measured separately for payment, but shall be incidental to the Repair items.

Fabrication and placement of reinforcing steel for concrete repairs will not be measured for payment separately, but shall be considered incidental to the related contract items.

Temporary supports for supporting steel girders for concrete repairs will not be paid separately, but shall be incidental to the Repair item.

Furnishing and installing extensions on deck drain weepers that drain on or adjacent to structural concrete or steel elements on the Stroudwater River and Maine Central Railroad bridges will paid time and materials.

Earth excavation required to expose repair areas will be paid for under Structural Earth Excavation, Item 206.081. Backfill of the repair areas will not be measured separately for payment, but shall be incidental to the Structural Earth Excavation item.

518.11 Basis of Payment

The following paragraphs are added:

Abutment Repairs, Partial Depth Concrete Deck Repairs, and Full Depth Concrete Deck Repairs will be paid for at the Contract unit bid price per square foot for each type of repair; which price shall include, but not necessarily be limited to, removal and disposal of materials; cleaning existing concrete and reinforcing steel; furnishing and placing new reinforcing steel where required; furnishing, placing and removal of forms, staging, temporary supports where required; placing, curing and finishing new concrete; and, all materials, labor, equipment, tools and incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
518.10	Abutment Repairs	Square Foot
518.80	Partial Depth Concrete Deck Repairs	Square Foot
518.81	Full Depth Concrete Deck Repairs	Square Foot

SPECIAL PROVISION

SECTION 520

EXPANSION DEVICES – NON MODULAR

(Install Complete New Locking Compression Seal Joints)
(Install New Locking Compression Seals)

520.01 Description

The following sentences are added:

The work includes installing complete new locking compression seal joints at Stroudwater River Bridge northbound and Maine Central Railroad bridge northbound; and new locking compression seals at Stroudwater River Bridge southbound and Maine Central Railroad bridge southbound.

Seals for locking compression seal expansion devices shall be Watson Bowman Acme "D" Series.

520.02 Materials

The following sentence is added:

Materials for locking compression seals shall meet the material requirements of Expansion Device - Compression Seal specified in this Subsection except the joint shall be a Watson Bowman Acme "D" Series Locking Compression Seal (locking compression seals are not covered on the Maine Department of Transportation Qualified Products List).

Grouting between the joint armor and deck surface \ top of backwall, when specified, shall be completed using elastomeric concrete. The elastomeric concrete selected by the Contractor shall be listed on the MaineDOT Qualified Products List. The elastomeric concrete manufacturer's onsite representative will not be required for this installation.

520.06 Installation

The following paragraphs are added after the first paragraph:

The contractor shall "pothole" and survey the existing top of deck concrete elevations, and adjacent deck curb elevations and submit a proposed top of joint elevations for the four Stroudwater River and Maine Central Railroad replacement joints prior to installing any components. The proposed joints are nominally 1¼ inches higher than the existing expansion joints. "Potholes" shall be patched with bagged QPR mix upon completion of the survey, and prior to opening the lane(s) to traffic.

Replacement joints shall be set at the roadway profile.

On phased construction projects, the locking compression seals shall be installed in one piece after the joint armor is installed for all construction phases. The Contractor shall schedule the installation of the work when the ambient temperature allows the bridge steel to contract sufficiently so the locking compression seal may be installed without damage.

After the joint armor is installed the Contractor shall grout between the joint armor and deck surface \ top of backwall with elastomeric concrete per the Plan details, when specified.

Once the compression seals are permanently installed, the Contractor shall thoroughly clean the abutment concrete, bearings, and girder ends by pressure washing to remove any debris, salt, or other foreign contaminants.

Method of Measurement

Install Complete New Locking Compression Seal Joints will be measured by the linear foot along the top surface of installed joints to the limits as shown on the Plan. Preparation of surfaces for the proposed joint system including cutting, grinding and cleaning, will not be measured separately for payment, but shall be incidental to the Install Complete New Locking Compression Seal Joints item.

Removing, stacking and resetting existing bridge rail and bridge rail posts that interfere with the installation of the specified joint modifications or replacements, and providing anchor bolts, and bridge rail hardware components will not be measured separately but shall be incidental to the various Install Complete New Locking Compression Seal Joints pay items.

Removing existing structural concrete, structural concrete

520.08 Basis of Payment

The following paragraphs are added:

Install Complete New Locking Compression Seal Joints will be paid for at the Contract unit price per linear foot which price shall be full compensation for all labor, materials, equipment and incidentals required for furnishing and installing the new locking compression seal joints as shown on the Plans, in accordance with these Specifications or as approved by the Resident.

Payment for pressure washing the abutment seats after seal installation will not be made directly, but shall be incidental to the Expansion Joint pay item.

Payment for grouting between the joint armor and deck surface \ top of backwall with elastomeric concrete per the Plan details will not be made directly, but shall be incidental to the Expansion Joint pay item.

Payment will be made under:

Pay Item		Pay Unit
520.2225	Stroudwater River NB – Install Complete New Locking Compression Seal Joints	Linear Foot
520.2226	Stroudwater River SB – Install New Locking Compression Seals	Linear Foot
520.2227	Maine Central Railroad NB – Install Complete New Locking Compression Seal Joints	Linear Foot
520.2228	Stroudwater River SB – Install New Locking Compression Seals	Linear Foot

SPECIAL PROVISION

SECTION 520

EXPANSION DEVICES – NON-MODULAR

(Modify Joint Armor)

520.01 Description

The following paragraph is added:

The work shall also include modifying the existing locking compression seal bridge joints on both ends of the Stroudwater River southbound bridge structure to permit the installation of 2 ½ inches of pavement on the bridge structure.

520.06 Installation

The following paragraphs are added:

For Modify Joint Armor two 1 inch by 4 ½ inch by full bridge roadway width plates shall be furnished and installed on the 4 inch by 8 inch by ½ inch angles on each side of the existing locking compression seal joint assembly. The plates shall be installed in phases.

The replacement locking compression seals shall not be installed until the installation of the two 1 inch by 4 ½ inch by full bridge roadway width plates has been completed.

520.07 Method of Measurement

The following paragraphs are added:

Modify Joint Armor will be paid at the Contract unit price per linear foot of bridge roadway width. The linear foot price includes furnishing and installing the two 1 inch by 4 ½ inch by full bridge roadway width plates specified.

Installation of the replacement locking compression seals will be measured for payment separately.

520.08 Basis of Payment

Modify Joint Armor will be paid for at the Contract unit price which price shall be full compensation for furnishing and installing the two 1 inch by 4 ½ inch by full bridge roadway width plates specified, including all materials, labor, tools, equipment and incidentals necessary to complete the work with the Plans and Specifications.

Payment will be made under:

Pay Item		Pay Unit
520.2234	Stroudwater River SB - Modify Joint Armor	Linear Foot

SPECIAL PROVISION

SECTION 523

BEARINGS

(Bearing Removal and Reinstallation)
(Bearing Replacement)

523.01 Description

The following paragraphs are added:

This work shall also consist of removing specified abutment steel rocker bearing assemblies (masonry plates, rocker bearings and sole plates); and cleaning, coating, and reinstalling specified abutment steel rocker bearing assemblies to remove rust wedged steel between the bearing sole plate and the bottom flange of the beams, and resetting the bearing assembly for proper expansion and contraction. The work may also include replacement of existing anchor bolts with new anchor bolts depending on the position of the masonry plate in relation to the bearing stiffener.

This work shall also consist of removing existing identified abutment steel rocker bearing assemblies (masonry plates, rocker bearings; sole plates; and anchor bolts); and furnishing and installing new steel rocker bearing assemblies between the bearing sole plate and the bottom flange of the beams, and setting the bearing assembly for proper expansion and contraction.

This work shall also consist of removing rust, debris and other foreign materials from the top face of masonry plates, and the bottom face of the existing rocker bearings which are removed as part of the work. These bearing surfaces shall be cleaned to an SSPC-SP3 surface finish.

This work shall also consist of removing all lead based paint from the existing rocker bearing assemblies (masonry plates, bearings, sole plates and anchor bolts) to be reset; and the installation of two coats of zinc rich cold galvanizing paint after the lead paint has been removed.

This work shall also consist of the selective removal of all lead based paint from the existing rocker bearing assemblies (masonry plates, bearings, sole plates and anchor bolts), as required, to remove the existing bearing assemblies being replaced.

523.02 Materials

The following sentences are added:

Steel for new bearings shall conform to AASHTO M270 Grade 50 or 50W. Steel reinforcement plates for elastomeric bearings shall conform to ASTM A36. All anchor rods shall conform to ASTM F1554, GR 55 and shall be swedged or threaded on the embedded portion. All exposed steel surfaces shall be galvanized in accordance with ASTM A123 and A153 as applicable.

523.09 Installation of Bearings

The following paragraphs are added:

Removal of lead based paint shall be in accordance with Subsection 105.2.4.2, Lead Paint. The Contractor shall submit a lead based paint removal plan to the Resident for approval prior to the start of the work.

All surfaces of the existing steel girders, where paint is removed for welding and bearing installation, shall be repaired in accordance with ASTM A780.

Touch up any damaged cold galvanizing after the steel bearings and steel shim plates are installed and bolted or welded into final position.

523.50 Method of Measurement

The following paragraphs are added:

Bearing Removal and Reinstallation will be measured for payment per each based on the actual number of bearing assemblies removed, cleaned, cold galvanized painted, and reinstalled with new anchor bolts.

Steel Bearing Replacement, Expansion, Rocker will be measured for payment per each based on the actual number of bearing assemblies removed and replaced with new steel rocker bearing assemblies (fabreeka pads, masonry plates, rocker bearings and sole plates), and reinstalled with new anchor bolts.

523.51 Basis of Payment

The following paragraphs are added:

Bearing Removal and Reinstallation will be paid for at the Contract unit price per each which price shall be full compensation for all labor, materials, equipment and incidentals required to remove the existing bearing assemblies; prepare the existing steel girders to receive the re-set bearing, debris removal and cold galvanizing the bearing assemblies; and reinstall the existing bearing assemblies with new anchor bolts.

Steel Bearing Replacement, Expansion, Rocker will be paid for at the Contract unit price per each which price shall be full compensation for all labor, materials, equipment and incidentals required to remove the existing bearing assemblies; furnish and install new rocker bearing assemblies (fabreeka pads, masonry plates, rocker bearings and sole plates) with new anchor bolts.

Payment will be made under:

Pay Item		Pay Unit
523.521	Bearing Removal and Reinstallation	Each
523.5304	Steel Bearing Replacement, Expansion, Rocker	Each

SPECIAL PROVISION

SECTION 524

TEMPORARY STRUCTURAL SUPPORTS

(Jacking Existing Superstructure)

524.01 Description

The following paragraphs are added:

This work shall consist of the jacking and temporary structural support of the existing superstructure at Stroudwater River and Maine Central Railroad abutment locations to allow for the removal, cleaning and reinstallation of existing bearing assemblies; and for the removal of existing bearing assemblies and installation of replacement bearing assemblies. All girders at all supports must be jacked and temporarily supported simultaneously while the bridge is open to traffic.

This work shall also consist of designing, fabricating, erecting, operating, maintaining, and dismantling the temporary structural supports and jacking systems required to perform the work. The calculated unfactored jacking and temporary support loads are as follows:

Stroudwater River

Abutment Interior Girders:	28.6 kips Dead Load, per bearing
	65.9 kips Live Load & IM, per bearing
Abutment Exterior Girders:	28.8 kips Dead Load, per bearing
	61.3 kips Live Load & IM, per bearing

Maine Central Railroad

Abutment Interior Girders:	30.9 kips Dead Load, per bearing
	64.4 kips Live Load & IM, per bearing
Abutment Exterior Girders:	33.3kips Dead Load, per bearing
	72.1 kips Live Load & IM, per bearing

The Contractor shall provide a jacking system and a temporary support system with the capacity of at least 150% of the loads stated.

The work may also include removing, stacking and reinstalling precast drainage troughs. See SP 202 If the condition of any drain trough components is significantly deteriorated, and not suitable for re-installation, a replacement component will be provided by the Authority. The replacement component shall be available at the Crosby Maintenance Area at Mile 46 Southbound.

The Contractor will not be permitted to operate equipment weighing more than 5,000 pounds on the bridge while the bridge is temporarily supported. The above temporary support loads include a temporary construction load of 50 psf.

The Contractor shall make provisions to prevent longitudinal and transverse movement of the superstructure and twisting of the stringers during the jacking operations, and while the deck is temporarily supported. These provisions shall be submitted to the Resident for approval.

524.02 Materials

The following sentence is added:

All structural steel shall have a minimum yield strength of 36,000 psi.

524.03 Design

The following sentence is added to the end of the first paragraph:

All design, detail and load requirements shall conform to the most current edition of the AASHTO LRFD Bridge Design Specifications, applicable Interim Specifications, and these Specifications, unless otherwise noted on the Plans. The design computations shall verify the proposed jacking scheme does not introduce unacceptable stresses in the existing bridge components including steel girders, diaphragms and connections. All design computations submitted for approval shall be reviewed, checked and initialed accordingly. Any support systems requiring attachment to existing concrete shall be subject to approval by the engineer. Systems requiring extensive drilling and anchoring into existing concrete will not be accepted.

The following paragraphs are added:

Removal of lead based paint shall be in accordance with Subsection 105.2.4.2, Lead Paint. The Contractor shall submit a lead based paint removal plan to the Resident for approval prior to the start of the work.

All surfaces of the existing steel members where paint is removed for welding prior to jacking shall be repaired in accordance with ASTM A780.

524.04 Erection and Removal

The following paragraphs are added:

The existing superstructure shall be raised by jacking at each pier and abutment. A minimum of four jacking points shall be used at each pier and abutment location. The jacking shall be synchronized so that all portions of the girders are raised by approximately equal amounts simultaneously. A maximum of 1/8 inch differential movement between adjacent girders will be allowed during the jacking operation. A maximum of 2 inches of differential movement will be permitted between adjacent substructure locations (e.g. between Pier 1 and Pier 2) during jacking operations.

The Contractor may support the jacking systems and temporary structural support systems off of the top of abutment seats, top of pier caps, footings, or Contractor-furnished blocking systems. The proposed anchorage system shall not be supported primarily from the face of abutment or face of pier. Bracing shall be provided to maintain the superstructure in a stable condition during the jacking operations.

Drawings showing the method the Contractor chooses to raise, temporarily support, and brace the superstructures shall be stamped by a Professional Engineer registered in the State of Maine, and shall be submitted to the Resident for approval.

The following Subsection is added:

524.641 Method of Measurement

The first sentence of the first paragraph is removed and replaced with the following:

Jacking Existing Superstructure will be measured as one lump sum for the satisfactory design, erection and removal of all required temporary jacking and support systems; and satisfactory jacking and lowering of the superstructure on the project.

Removing Existing Drain Troughs abutments at the Stroudwater River and Maine Central Railroad bridge structures to install temporary structural supports to jack the existing superstructure for rocker bearing resets and rocker bearing replacements will not be measured separately for payment but shall be incidental to the Jacking Existing Superstructure pay item.

524.65 Basis of Payment

This section is removed and replaced with the following:

Jacking Existing Superstructure will be paid for at the contract lump sum price which price shall be full compensation for all materials, equipment, labor and incidentals necessary for the design, erection, maintenance and dismantling of the jacking and temporary support systems; and the satisfactory jacking and lowering of the superstructure required on the project in accordance with these specifications.

Payment will be made under:

Pay Item		Pay Unit
524.7211	Jacking Existing Superstructure	Lump Sum

SPECIAL PROVISION

SECTION 524

TEMPORARY STRUCTURAL SUPPORTS

(Protective Shielding - Steel Girders)

524.01 Description

The following paragraph is added:

This work shall also consist of furnishing all labor, equipment and materials required to provide protection for the public during demolition and construction. This protection shall include, but not necessarily be limited to, protective shielding of existing structures during demolition work, concrete removal, and installation of temporary deck support over roadway lanes and shoulders on all existing and new bridge structures.

After removal of the existing bituminous overlay and membrane the Resident will determine the area(s) of full depth deck repair which will require temporary shielding. The shielding shall be installed 10 feet each side of the full depth deck repair area between the steel girders under the repair areas.

No protective shielding will be required for the full depth concrete repair area(s) that are outside of the roadway beyond 10 feet of the edge of mainline pavement.

At the Contractor's option, in lieu of protective shielding, he may close the travel lane and shift traffic away from the full depth concrete repair area and demolish concrete inside the enclosed platform of a manlift. The manlift and repair area shall be at least six feet away from an active travel lane.

The following Subsections are added:

524.031 Protective Shielding Design

Prior to the start of work, the Contractor shall submit plans for review and comment indicating the sizes and dimensions of protective shield. The proposed methods of protective shielding, including connections and fasteners, shall be in accordance with the following criteria:

The protective shield shall be designed for safely supporting all construction and dead loads, but not less than 100 pounds per square foot with a load duration of seven (7) days. Protective shield shall be stiff enough to limit deflection to 1/2 inch under maximum loads and to be tightly sealed at all joints. The protective shield shall be placed on the tops of the bottom flanges of the steel girders with edges and laps made tight to protect the turnpike motorists from dust, debris and falling objects.

524.041 Protective Shielding Erection and Removal

No portion of the protective shield installed over a roadway shall project below a plane connecting the bottoms of the bottom flanges of the steel girders. During demolition operations, the protective shield shall be covered with sheet plastic made tight at edges and laps to prevent water used in the sawcutting operation from falling onto the facilities under the bridge.

Shielding shall be approved and installed prior to the start of any demolition work and shall remain in position during all demolition work. Shielding shall also be approved and installed prior to the start of any deck forming and shall remain in position during all deck work. The shielding shall be relocated or removed only as approved by the Resident.

524.28 Method of Measurement

Protective Shielding will not be measured separately for payment, but shall be incidental to Item 518.81, Full Depth Concrete Deck Repair.

SPECIAL PROVISION

SECTION 526

CONCRETE BARRIER

(Temporary Concrete Barrier Type I - Supplied by Authority)

526.01 Description

The following paragraphs are added:

This work shall consist of loading, transporting, setting, resetting, removing, transporting and stacking temporary concrete barrier Type I – supplied by Authority of a shape designated on the Plans. The barrier shall have attachments allowing individual sections to be connected into a continuous barrier.

The work also includes supplying connecting pins and furnishing and mounting retro-reflective delineators, per Subsection 526.03, on both Contractor-supplied and Authority-supplied temporary concrete barriers.

Concrete barriers supplied by Authority shall be available at the following location(s):

Maintenance Area	Linear Feet of Barrier
Crosby Maintenance Area - Mile 46 Southbound	1000

Upon substantial completion of work, the Contractor shall remove and transport the concrete barrier - supplied by Authority to back to the Crosby Maintenance Area.

526.02 Materials

The following paragraphs are added:

e. Delineators shall be bi-directional with a minimum effective reflective area of eight square inches as approved by the Resident. The reflectors shall be methyl methacrylate and the housing of acrylonitrile butadiene styrene. Color shall be in accordance with the MUTCD.

f. Connecting pins shall be a one inch diameter A36 steel hot rolled round rod that has a 4” long 180 degree bend at the top (“J” shaped). The rod shall be 2’-11” long pre-bend and 2’-7” long post bend.

526.021 Acceptance

The Resident shall have the authority to accept or reject all temporary concrete barrier Type I and temporary concrete barrier Type I – supplied by Authority used on the Project.

526.03 Construction Requirements

The following paragraphs are added:

The Contractor shall notify the Resident prior to the scheduled pick-up and delivery of concrete barrier. No barrier shall be removed from or stacked at the Turnpike Maintenance Area without approval of the Resident.

The Contractor shall move and place barrier-utilizing methods that will not damage the barrier. Barrier that is damaged by the Contractor by failing to use proper methods shall be replaced by the Contractor at no additional cost to the Maine Turnpike Authority.

Concrete barrier supplied by the Authority consists of several different styles. Not all barriers may be compatible. The Contractor shall utilize caution when setting barrier to use identical barrier types as adjacent barrier. Non-compatible barrier that cannot be attached together shall be overlapped by a minimum of 10 feet with the blunt end on the non-traffic side of the barrier. This work will not be measured separately for payment, but shall be incidental to the concrete barrier.

Concrete barrier placed at roadway low points shall be shimmed on 1" by 2" by 2' long wood planks to allow drainage to pass under the barrier. In addition, the Resident may direct the Contractor to shim the concrete barrier at other locations to provide for proper roadway drainage. All labor, material, and equipment necessary to shim the barrier will not be measured separately for payment, but shall be incidental to the Concrete Barrier.

Pins connecting the barrier shall be set flush with the top of the barrier.

The removal of concrete barrier from adjacent to the travel lane may be conducted without a lane closure if it is accomplished in accordance with the following requirements:

- Barrier is removed from the trailing end and the workmen and equipment involved in the operation are always behind the barrier. No workmen or equipment shall enter the travel lane.
- Barrier shall be dragged away from the travel lane to at least a 30-degree angle by the use of a cable.
- Barrier shall be lifted no more than six inches while within 10 feet of the travel lane.

Retro-Reflective Delineators shall be mounted as follows:

- One on top of each barrier.
- One on the traffic side of every barrier used in a taper.
- One on the traffic side of every other barrier at regularly spaced intervals and locations.
- Delineators shall be installed on both sides of the barrier if barrier is used to separate opposing traffic.
- Delineators shall be physically adhered so as to withstand the force of throw from a snow plow.

- If more than 25% of delineators in any 50 foot section of barrier fall off for any reason, the Contractor will be responsible for reinstalling all the delineators in that run at that their own cost.
- Contractor is required to submit the installation method for review and approval to the Resident.

526.04 Method of Measurement

The following paragraphs are added:

Temporary Concrete Barrier Type I – Supplied by Authority shall be measured for payment by the lump sum.

The loading, transporting, setting, resetting, removing, transporting and stacking of the barrier, the furnishing, installation and maintenance of the barrier delineators, and furnishing and installing connector pins will not be measured separately for payment, but shall be incidental to the cost of the Barrier. Temporary storage of Concrete Barrier between construction phases, if required, will not be measured separately for payment, but shall be incidental to the cost of the Barrier. All equipment required to load, unload, transport and stack Concrete Barrier shall be supplied by the Contractor.

Any Barrier lost or damaged by the Contractor shall be replaced by the Contractor at no additional cost to the Authority.

526.05 Basis of Payment

The fifth paragraph is deleted and not replaced.

The following paragraphs are added:

Temporary Concrete Barrier Type I – Supplied by Authority will be paid for at the Contract lump sum price, complete in place. Such payment shall be full compensation for loading, transporting, setting, resetting, temporary storage, removing, transporting and stacking at the area designated, furnishing all materials, and all other incidentals necessary to complete the work. Temporary Concrete Barrier Type I – Supplied by Authority and all connecting pins shall remain the property of the Authority, and shall be returned to the Turnpike Maintenance Area as designated in Subsection 526.01.

Payment of Concrete Barrier shall be based on a percentage of the work accomplished during that pay period.

Payment will be made under:

Pay Item		Pay Unit
526.306	Temporary Concrete Barrier, Type I – Supplied by Authority	Lump Sum

SPECIAL PROVISION

SECTION 527

ENERGY ABSORBING UNIT

(Work Zone Crash Cushion)

527.01 Description

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

The Contractor shall furnish and install work zone crash cushions where shown on the Plans, as specified herein, in Special Provision 652, or as approved by the Resident. Work zone crash cushions are required at each exposed end of temporary concrete barrier or guardrail.

The exposed end of the concrete barrier within 30 feet of the mainline travel lane shall be protected at all times. Barrier shall not be reset until after the work zone crash cushion(s) has been set to protect the exposed end of the barrier.

527.02 Materials

The following paragraph is added:

Only work zone crash cushions meeting the NCHRP Report 350 TL-3 crash test requirements may be used on the turnpike and local roadways with posted speeds of 45 MPH or greater. Work zone crash cushions meeting the NCHRP Report 350 TL-2 crash test requirements may be used on local roadways with posted speeds of 40 MPH or less. The Contractor shall provide the Resident with documentation of the proposed work zone crash cushion's NCHRP Report 350 Crash Test Results prior to installation at the jobsite.

527.03 Construction Requirements

The following is added to the end of the first paragraph:

The design speeds for work zone crash cushions shall be 35 mph for local roads and 65 mph for turnpike roadways unless otherwise noted on the Plans.

527.05 Basis of Payment

Payment will be made under:

Pay Item		Pay Unit
527.341	Work Zone Crash Cushions – TL-3	Unit

SPECIAL PROVISION

SECTION 604

MANHOLES, INLETS, AND CATCH BASINS

(Secure Catch Basin Grate)

604.01 Description

This work shall consist of removing existing catch basin grates in the existing four foot paved shoulder, cleaning existing frames, furnishing and applying elastomeric sealer to frame seats, and furnishing and installing new grates. This work shall be completed prior to opening paved shoulders to traffic.

604.02 Materials

The following sentences are added:

New grate shall be a Type A/B catch basin grate per MaineDOT Standard Detail 605(05).

Elastomeric sealer shall be Sikaflex 1a as manufactured by Sika or an approved equal.

604.03 Construction Requirements

The following paragraphs are added:

After removal of an existing grate, the frame shall be cleaned to accept elastomeric sealer. Sealer shall be placed in a continuous bead over horizontal and vertical surfaces in accordance with the manufacturer's recommendations. Installed grates shall be preloaded and allowed to set for a minimum of 1.5-hours before receiving traffic loads to assure adequate adhesion of the sealer. The old grates shall be transported to the Crosby Maintenance Area Mile 46 Southbound and stacked at a location designated by the Resident. Old grates shall remain the property of the Authority.

New grates shall remain in place at the completion of construction and shall become the property of the Maine Turnpike Authority.

The Contractor is required to have two additional grates on-site at all times for use as backup devices. Unused grates shall become the property of the Authority and shall be stacked at Crosby Maintenance Area Mile 46 Southbound.

604.05 Method of Measurement

The following sentence is added:

Secure Catch Basin Grate will be measured for payment by each unit secured and accepted.

604.06 Basis of Payment

The following paragraphs are added:

The accepted quantity of Secure Catch Basin Grate will be paid for at the Contract unit price each. This price shall be full compensation for removing the existing grate, cleaning the horizontal and vertical surfaces, applying the elastomeric sealer, furnishing and installing the new grate, transporting and stacking the old grate, and all other labor, equipment, and materials required to complete the work.

Unused backup grates stacked at Crosby Maintenance Area will be paid for at the Contract unit price each under the Secure Catch Basin Grate item.

Payment will be made under:

Pay Item		Pay Unit
604.40	Secure Catch Basin Grate	Each

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Reflectorized Beam Guardrail Delineator)

606.01 Description

The following paragraphs are added:

Reflectorized beam guardrail delineators shall be installed on existing guardrail to remain in place, guardrail noted to be removed, modified and reset (single and/or double rail) or new guardrail, at the locations noted on Maintenance of Traffic plans or as approved by the Resident. The delineators shall be installed prior to traffic being shifted closer to the identified guardrail run. The color for the reflective sheeting shall be silver (white) when installed on the outside shoulder and yellow when installed on the inside shoulder.

Reflectorized beam guardrail delineators shall be mounted as follows:

1. Delineators on guardrail adjacent to a shifted detour should be spaced every other guardrail post and located at the bolt in the valley of the guardrail beam.

2. On existing steel bridge rail, the delineators shall be mechanically attached towards the top, every 10 feet, and bottom, every 20 feet. Delineators shall also be mechanically attached in a similar pattern to concrete endposts that are 10 feet or longer.

3. If more than 25% of delineators in any 50 feet of guardrail, bridge rail, or endposts fall off for any reason, the Contractor will be responsible for reinstalling all delineators in that run at that their own cost.

4. In no instance shall delineators be installed on guardrail which deviates substantially from the alignment (horizontal or vertical) of the roadway or which is located more than eight feet from the edge of pavement.

Exceptions and/or modifications will only be made with the approval of the Resident.

Contractor is required to submit installation method for review and approval to the Resident.

606.02 Materials

The reflectorized beam guardrail delineators shall be steel and meet the requirements of paragraph 4 of MaineDOT Standard Specification 606.02 - Materials.

606.08 Method of Measurement

The following paragraph is added:

Reflectorized Beam Guardrail Delineators will be measured by each unit of the kind specified and installed. Maintenance and replacement of delineators will not be measured separately for payment unless otherwise approved by the Resident.

606.09 Basis of Payment

The second and third sentences in the first paragraph are deleted and replaced with the following:

Reflectorized Beam Guardrail Delineators will be paid for at the Contract unit price each, complete in place, which price shall be full payment for furnishing and installing all components and for all incidentals necessary to complete the installation.

Payment will be made under:

Pay Item		Pay Unit
606.352	Reflectorized Beam Guardrail Delineator	Each

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Guardrail – Remove, Modify and Reset)

606.01 Description

The following paragraphs are added:

This work shall consist of removing existing guardrail elements, component parts and hardware modifying and resetting.

New non-wood offset blocks conforming to NCHRP 350 Test Level 3 shall be installed on all guardrail being reset. The existing steel offset brackets and backup plates shall become the property of the Contractor.

The following Subsection is added:

606.021 General

The modified guardrail shall be installed in accordance with the applicable provisions of the Standard Specifications.

The materials removed shall be utilized in the reset guardrail locations with the following exceptions:

- Existing guardrail posts found to be unfit for reuse, in the opinion of the Resident, prior to or upon pulling;
- Existing steel backup plates when present;
- Existing steel offset brackets shall be replaced with non-wood offset blocks; and,
- Existing W-beam rail elements damaged by traffic and unfit for reuse, in the opinion of the Resident.

This work shall include all modifications to the existing guardrail system that may be necessary to install new non-wood offset blocks including, but not necessarily limited to, the drilling of new holes in the existing posts and cleaning and painting holes with a cold-applied zinc-rich paint. The completed guardrail assembly shall conform to NCHRP 350 Test Level 3.

Existing guardrail components removed, but not reset because of damage, shall become the property of the Contractor. Any materials lost or damaged by the Contractor's operations shall be replaced at no additional cost to the Authority.

Earth around each reset post shall be raked and compacted with a minimum 8 pound hand tamper or an approved device. Holes created due to resetting a post shall be filled with a similar surrounding material and compacted.

606.08 Method of Measurement

The following paragraphs are added:

Guardrail – Remove, Modify and Reset will be measured on a linear foot basis, from center-of-post to center-of-post, for the amount of rail satisfactorily reset.

Steel posts to replace damaged posts shall come from the stockpile of guardrail components to be disposed of, from this Contract and will not be measured separately for payment. If, in the opinion of the Resident, there are no suitable steel posts in the stockpile then steel posts will be measured for payment.

W-beam rail elements to replace damaged rail elements shall come from the stockpile of guardrail to be disposed from this Contract and will not be measured separately for payment. If, in the opinion of the Resident, there are no suitable W-beam rail elements in the stockpile then W-beam rail elements will be measured for payment.

606.09 Basis of Payment

The following paragraphs are added:

The accepted quantity of Guardrail - Remove, Modify and Reset will be paid for at the Contract unit price bid per linear foot. Such payment shall be full compensation for removing, modifying, and resetting guardrail, drilling holes in existing posts, and all equipment, labor and incidentals necessary to complete the work including any necessary modifications to the existing posts.

Furnishing and installing non-wood offset blocks will not be measured separately for payment, but shall be incidental to Item 606.3605, Guardrail - Remove, Modify and Reset, Single Rail.

New steel posts, when measured for payment, will be paid for under Item 606.48, Single Galvanized Steel Post.

New W-beam rail components, when measured for payment, will be paid for under Item 606.178, Guardrail Beam.

Payment will be made under:

Pay Item		Pay Unit
606.3605	Guardrail - Remove, Modify and Reset, Single Rail	Linear Foot

SPECIAL PROVISION

SECTION 619

MULCH

619.01 Description

The first paragraph is modified by the addition of the following:

"as a temporary or permanent erosion control measure" after the word "mulch".

619.03 General

The first paragraph is deleted and replaced with the following:

Cellulose fiber mulch shall not be used within 200 feet of a wetland or stream. The limits shall be 200 feet upstation and downstation of the wetland or streams as well as the slopes adjacent to the stream. The application of hay or straw mulch with an approved binder shall be used at these locations to prevent erosion.

The use of cellulose fiber mulch will only be allowed at other areas with the approval of the Resident. The Contractor may be required to demonstrate that the material may be applied in a manner that will prevent erosion and will aid in the establishment of permanent vegetation. The Resident reserves the right to require the use of hay or straw mulch at all locations if he determines that the cellulose mulch is ineffective. Cellulose fiber mulch is not acceptable for winter stabilization.

619.04 Applying Mulch

The third paragraph is deleted and replaced with the following:

Newly disturbed earth and ditches shall be mulched or otherwise stabilized by the end of each work day and maintained on a daily basis as described in Subsection 105.8.1.11 (b) in the Special Provisions. The Contractor is responsible for applying temporary mulch as necessary, in accordance with the latest edition of the BMP's, to minimize soil erosion prior to the application of the final slope treatment.

Temporary mulch applied during the winter months of November 1st through April 15th shall be applied at twice the standard temporary stabilization rate or 150 lbs. per 1,000 square feet or three tons/acre. Mulch shall not be spread on top of snow and shall be anchored with mulch netting on slopes steeper than eight percent unless erosion control blankets or erosion control mix is being used on the slopes.

The Contractor shall review his construction operations and staging to determine how much temporary mulching is required.

619.06 Method of Measurement

The following sentence is added:

Temporary Mulch will be paid for by the lump sum.

619.07 Basis of Payment

The following paragraphs are added:

Temporary Mulch will be paid for at the Contract price per lump sum which shall be full compensation for furnishing and spreading the Temporary Mulch as many times as necessary as determined by the Contractor's operations and staging. The price shall also include the additional mulch netting and snow removal necessary during the winter months.

Payment will be made under:

Pay Item		Pay Unit
619.1202	Temporary Mulch	Lump Sum

SPECIAL PROVISION

SECTION 626

FOUNDATIONS, CONDUIT AND JUNCTION BOXES
FOR HIGHWAY SIGNING, LIGHTING AND SIGNALS

(Aluminum Junction Box)
(Metallic Conduit)

626.01 Description

The following paragraph is added:

This work shall consist of furnishing and installing two 2 inch galvanized rigid metal conduits under the southbound Stroudwater River bridge; and terminating the conduits in aluminum junction boxes at the end of the structure. The conduit shall be offset from the fascia girder web sufficiently to have conduits by pass all diaphragm connection plates and bridge bearing stiffeners. The work shall be completed in accordance with the Specifications, in reasonably close conformity with the lines and grades shown on the Plans or as approved by the Resident.

626.02 General

All equipment and materials covered by referenced Specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable Specification when so requested by the Resident.

All conduit, along with all fittings and connections, junction boxes, and offset brackets shall be provided by the Contractor. The materials will meet the following Specifications:

Steel Conduit and Couplings shall be two inch Hot Dip Galvanized Steel Schedule 40 conduit conforming to the requirements of ASTM A53.

Offset brackets shall be W6x9 hot dip galvanized guardrail steel offset blocks, or approved equal.

Threaded fasteners for attaching offset blocks shall be ½ diameter A325 hot dip galvanized nuts, bolts and washers.

Metal framing channel and channel pipe straps shall be 1 ¾ inch hot dip galvanized Unistrut, or approved equal.

Junction boxes shall be 10" x 12" x 5" Type 4X Aluminum Junction Boxes – 1414 N4 AL Series as furnished by Hammond Manufacturing Company Inc., or approved equal.

Miscellaneous fasteners shall stainless steel or be hot dip galvanized.

626.035 General

The Contractor shall furnish and install conduits on the inside web of the specified bridge fascia girder terminating the conduits in an aluminum junction box at each end of the structure.

Conduits between the south abutment and pier 1, piers 2 and 3, and pier 3 and the north abutment may be installed off ladders, manlifts, or similar equipment provided the installation does not impact wetlands or the Stroudwater River. Conduits between piers 1 and 2, and at any other location the installation would impact wetlands or the Stroudwater River, shall be installed off a bridge fascia overhang machine.

Pull wires shall be installed in the conduits, terminating in the junction boxes.

626.04 Method of Measurement

The following sentences are added:

Aluminum junction boxes shall be measured for payment by the each complete in place and accepted.

Metallic Conduit - 2 Inch Rigid Galvanized shall be measured for payment by the linear foot complete in place and accepted.

611.06 Basis of Payment

The following paragraphs are added:

The accepted quantity of Aluminum Junction Boxes shall be paid for at the Contract unit price per each. Payment shall include all materials, fittings and connections, labor, equipment and incidentals necessary to complete the work as specified herein or as shown on the Plans.

The accepted quantity of Metallic Conduit - 2 Inch Rigid Galvanized shall be paid for at the Contract unit price per linear foot. Payment shall include all materials, fittings and connections, offset blocks, metal framing channel and channel pipe straps, pull wires, labor, equipment and incidentals necessary to complete the work as specified herein or as shown on the Plans.

Payment will be made under:

Pay Item		Pay Unit
626.112	Aluminum Junction Box	Each
626.212	Metallic Conduit – 2 Inch Rigid Galvanized	Linear Foot

SPECIAL PROVISION

SECTION 627

PAVEMENT MARKINGS

(Temporary Painted Pavement Markings)

627.01 Description

The following paragraphs are added:

This work shall consist of furnishing and placing temporary painted pavement markings at locations shown on the Plans or as approved by the Resident.

Temporary painted pavement markings are schedule for the areas 80 feet south of the south abutment to 80 feet north of the north abutment on the Stroudwater River and the Maine Central Railroad northbound bridges. Paint lines beyond these limits shall be temporary marking tape.

Temporary painted pavement markings are also schedule for the entire work zones at the Stroudwater River Bridges northbound and southbound, and the Maine Central Railroad Bridges northbound and southbound, upon completion of all surface paving.

Lines on the Turnpike and/or the Falmouth Spur shall be six inches wide. Lines on local roads shall be four inches wide.

Temporary raised pavement markers will not be allowed as a substitute for temporary painted pavement marking lines unless approved by the Resident for use as a transition between the existing pavement markings and the temporary painted pavement marking lines. Temporary raised pavement markings may be used as a substitute for temporary painted pavement markings when the markings are immediately adjacent to a concrete barrier or guardrail such that the markings will not be subject to traffic. The temporary raised pavement markers will be measured for payment as temporary painted pavement markings when their use has been approved by the Resident.

627.02 Materials

This Subsection is deleted and replaced with the following:

Temporary pavement marking paint shall be 100% acrylic, low VOC, fast drying, white and yellow 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.

627.04 General

The third paragraph is deleted and replaced with the following:

Broken lines shall consist of alternate 15 foot painted line segments and 25 foot gaps.

627.09 Method of Measurement

The second and third sentences in the second paragraph are deleted and replaced with the following:

The measurement of temporary broken white lines will include the gaps when painted. Temporary Painted Pavement Marking lines will be measured for payment by the linear foot.

Removal of the Temporary Painted Pavement Marking lines will be measured for payment as Removing Existing Pavement Markings.

627.10 Basis of Payment

The following paragraphs are added:

The accepted quantity of Temporary Painted Pavement Marking lines will be paid at the Contract price per linear foot. This price shall include all labor and materials to furnish, install and maintain the paint markings.

Payment will be made under:

Pay Item		Pay Unit
627.681	Temporary 6 Inch Painted Pavement Marking Line – Yellow or White	Linear Foot

SPECIAL PROVISION

SECTION 627

PAVEMENT MARKINGS

(Temporary Raised Pavement Markers)

627.01 Description

The following sentences are added:

This work shall consist of furnishing, placing and removing temporary raised pavement marking at locations as shown on the Plans or as approved by the Resident.

Temporary raised pavement markings may be used to delineate travel lanes after placement of pavement.

627.02 Materials

The second paragraph is deleted and replaced with the following:

The temporary raised pavement markers shall be white or yellow one way, or two way, markers (Type Tom W-1, Y-1, Y-2, Grade WZ) as distributed by Davidson Plastics Co. (DAPCO), Kent, WA, or an approved equal. Colors shall conform to MUTCD requirements.

627.04 General

The following sentence is added:

Temporary raised pavement marker that lose reflectivity, becomes broken, dislodged or missing during the life of the Contract shall be replaced by the Contractor at no additional cost to the Authority.

627.09 Method of Measurement

The following sentence is added:

Temporary Raised Pavement Markers will be measured by each unit, complete in place, maintained and accepted.

627.10 Basis of Payment

The following paragraphs are added:

The accepted quantity of Temporary Raised Pavement Markers will be paid for at the Contract price each. This price shall include all labor and materials to furnish, install, maintain, and remove the markers.

Payment will be made under:

Pay Item		Pay Unit
627.812	Temporary Raised Pavement Markers	Each

SPECIAL PROVISION

SECTION 627

PAVEMENT MARKINGS

(Temporary Pavement Markings - Tape)

627.01 Description

The following sentence is added:

This work shall also consist of furnishing, placing, maintaining and removing temporary pavement marking tape at the Stroudwater River and the Maine Central Railroad northbound bridges as shown on the Plans or as directed by the Resident.

Temporary pavement marking tape is scheduled for the areas beyond 80 feet south of the south abutments, and 80 feet north of the north abutments, on the Stroudwater River and the Maine Central Railroad northbound bridges. Marking lines between 80 feet south of the south abutments to 80 feet north of the north abutments shall be Temporary Painted Pavement Markings.

627.02 Materials

The following paragraph is added:

Temporary pavement marking tape shall be Stamark Wet Reflective Removable Pavement Marking Tape Series 780 as manufactured by 3M of St. Paul, Minnesota.

627.04 General

The following paragraphs are added:

Work under this item shall be in accordance with the manufacturer's recommendations. A factory representative from 3M shall be present for the first application of all temporary pavement marking tape to insure proper application and product performance.

The pavement markings shall be applied mechanically to clean dry pavement as recommended by the manufacturer and approved by the Resident.

Temporary pavement markings shall consist of applying six inch solid white, six inch broken white, and six inch yellow reflectorized pavement marking tape for traffic maintenance during construction as shown on the Plans or as directed by the Resident.

Temporary pavement marking tape that loses reflectivity, becomes broken, dislodged or missing during the life of the Contract shall be replaced by the Contractor at no additional cost to the Authority.

627.06 Application

The following paragraphs are added:

For application of the tape, when the pavement temperature is below 50°F, heat shall be applied to the pavement surface, if deemed necessary by the factory representative or as directed by the Resident, at no additional cost to the Authority. Proper primer for the temperatures shall be used as directed by the manufacture.

The pavement mark tape shall be rolled over with a vehicle once application is complete and then scored every 20 feet when placed in long runs to prevent full length unraveling.

627.08 Removing Lines and Markings

The following sentence is added:

Removal of temporary pavement marking tape shall be accomplished without the use of heat, solvents, grinding or sandblasting and in such a manner that no damage to the pavement results.

627.09 Method of Measurement

The following paragraph is added:

Temporary Pavement Markings - Tape will be measured for payment by the linear foot. The measurement of broken lines will not include the gaps.

627.10 Basis of Payment

The following paragraphs are added:

Payment for the Temporary Pavement Markings - Tape will be made at the Contract bid price per linear foot, which price shall include furnishing, installing, maintaining and removing the temporary tape and all materials, labor, equipment and incidentals necessary to accomplish the work. Replacement of Temporary Pavement Markings - Tape, as described above, will be incidental and no separate payment will be made.

Payment will be made under:

Pay Item		Pay Unit
627.73	Temporary 6 Inch Pavement Marking Tape	Linear Foot

SPECIAL PROVISION

SECTION 627

PAVEMENT MARKINGS

(Temporary Pavement Markings – Black Tape)

627.01 Description

The following sentence is added:

This work shall also consist of furnishing, placing, maintaining and removing temporary black pavement marking tape at locations shown on the Plans or as directed by the Resident.

Temporary 6 Inch Black Pavement Marking Tape are scheduled to cover conflicting existing pavement marking paint the areas beyond 80 feet south of the south abutments, and 80 feet north of the north abutments, on the Stroudwater River and the Maine Central Railroad northbound bridges. Removal of marking lines between 80 feet south of the south abutments to 80 feet north of the north abutments shall be measured and paved under the Removing Pavement Markings pay item.

.

627.02 Materials

The following paragraph is added:

Temporary pavement marking tape shall be Stamark Removable Black Line Mask Tape Series 715 as manufactured by 3M of St. Paul, Minnesota.

627.04 General

The following paragraphs are added:

Work under this item shall be in accordance with the manufacturer's recommendations. A factory representative from 3M shall be present for the first application of all temporary pavement marking tape to insure proper application and product performance.

The pavement markings shall be applied mechanically to clean dry pavement as recommended by the manufacturer and approved by the Resident.

Temporary pavement markings shall consist of applying six inch solid black pavement marking tape for traffic maintenance during construction as shown on the Plans or as directed by the Resident. The tape shall be cut to the varying lengths necessary to cover the conflicting painted pavement marking.

Temporary pavement marking tape that becomes broken, dislodged or missing during the life of the Contract shall be replaced by the Contractor at no additional cost to the Authority.

627.06 Application

The following paragraphs are added:

For application of the tape, when the pavement temperature is below 50°F, heat shall be applied to the pavement surface, if deemed necessary by the factory representative or as directed by the Resident, at no additional cost to the Authority. Proper primer for the temperatures shall be used as directed by the manufacture.

The pavement mark tape shall be rolled over with a vehicle once application is complete and then scored every 20 feet to prevent full length unraveling.

627.08 Removing Lines and Markings

The following sentence is added:

Removal of temporary pavement marking tape shall be accomplished without the use of heat, solvents, grinding or sandblasting and in such a manner that no damage to the pavement results.

627.09 Method of Measurement

The following paragraph is added:

Temporary Pavement Markings - Tape will be measured for payment by the linear foot placed. The measurement of broken lines will not include the gaps.

627.10 Basis of Payment

The following paragraphs are added:

Payment for the Temporary Pavement Markings - Tape will be made at the Contract bid price per linear foot installed, which price shall include furnishing, installing, maintaining and removing the temporary tape and all materials, labor, equipment and incidentals necessary to accomplish the work. Replacement of Temporary Pavement Markings - Tape, as described above, will be incidental and no separate payment will be made.

Payment will be made under:

Pay Item		Pay Unit
627.731	Temporary 6 Inch Black Pavement Marking Tape	Linear Foot

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(General)

652.2 Materials

Delete the first sentence in the second paragraph and replace with the following:

Super high intensity fluorescent retro reflective sheeting, ASTM 4956 – Type VII, Type VIII, or Type IX (Prismatic), is required on all construction signs.

652.2.3 Flashing Arrow Board

This subsection is deleted and replaced 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

The eighth paragraph is deleted and replaced with Special Provision Section 652, Maintenance of Traffic (Portable Changeable Message Sign).

652.2.5 Safety Vests

This Subsection is amended by the addition of the following:

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

652.2.6 Signs

The use of temporary plaques to cover text or to change text will not be allowed. All signs shall have a uniform face.

652.4 Flaggers

The first paragraph shall be deleted and replaced 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 MaineDOT and administered by a MaineDOT-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 3 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. 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,…"

Delete the fourth paragraph and replace with the following: Flaggers shall be provided as a minimum, a 10 minute break, every two hours and a 30 minute or longer lunch period away from the work station. Flaggers may only receive one 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 one breaker per six flaggers will be paid. (one breaker flagger for two to six flaggers, two breaker flaggers for seven to 12 flaggers, etc)"

652.6 Night Work

This Subsection shall be deleted and replaced 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."

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(Specific Project Traffic Control)

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

Two lanes of traffic shall be maintained on the Turnpike mainline in each direction (northbound and southbound) except when Appendix A permits the roadway(s) to be reduced to one lane.

The minimum width required to maintain one lane of traffic during the following operations is shown on the Traffic Control Plans.

- Bridge Repairs
- Milling, Shimming and Paving Operations
- Pavement Markings Layout and Placement

All Locations

Two lanes of mainline traffic are required in each direction 24/7 for weekends and the Easter Sunday, Memorial Day, and Labor Day holiday periods; and during the months of July and August.

The Contractor may submit modifications to the traffic control plans/ phasing for approval. Approval will be contingent upon the roadway having the specified number of lanes available for traffic as required in Appendix A. The Authority reserves the right to accept, modify or reject the Contractor's proposed changes.

Lane closures will only be allowed between the hours as shown in **Appendix A**.

Temporary left and right shoulder closures will be permitted at all times when weather permits, the scheduled work can be safely performed in or from the closed shoulder, two lanes of traffic can safely pass the shoulder work area without the flow of traffic being impeded, and weekend or Holiday restrictions are not in force. Left shoulder closures are only permitted in non-guardrail areas.

Contractor vehicles stopping or parking in the shoulder closures shall be a minimum of 1.5 feet from the solid white or solid yellow lane line. Contractor vehicles are not allowed in shoulder closures adjacent to the guardrail areas.

Permanent right shoulder closures shall be installed at all times when the traffic control plans reduce the right shoulder to less than eight (8) feet.

All temporary lane closures shall be made utilizing drums.

The Contractor will not be permitted to store drums on the traffic side of the guardrail (face of guardrail) during non-work hours or when drums are not required for a lane closure. All drums shall be placed behind guardrail, concrete barrier, or removed from the roadway.

Portable light towers will be required to illuminate the night construction work area.

Travel lanes may not be impeded by traffic control devices until the time frames specified for each activity.

652.7 Method of Measurement

The following paragraph is added:

Traffic control devices required to complete the work will be measured for payment under their respective pay items. Installation, maintenance, and removal of traffic setups and the Contractor's dedicated traffic employee will not be measured separately for payment, but shall be incidental to Item 652.361, Maintenance of Traffic Control Devices.

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(Temporary Mainline Lane Closures)
(Lane Closure Installation and Removal Procedures)
(Temporary Mainline Shoulder Closures)
(Work Requiring Complete Stoppages of Traffic)
(Short-Term or Work Hour Speed)

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

General

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

Temporary Mainline Lane Closures

A minimum width of 14 feet is required for all lane closures.

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

A lane closure will be required whenever men or equipment will be present within four feet of a travel lane. Dump trucks shall be parked at least six (6) feet from the travel lane when being loaded. Temporary lane closures will only be allowed at the times outlined in Special Provision Section 652, Specific Project Maintenance of Traffic Requirements. These hours may be adjusted based on the traffic volume each day by the Resident.

The lane closure setup may not begin until the beginning time specified. Lane closures that are setup early or that remain in place outside of the approved period shall be subject to a lane rental fee of $500 per five minutes for every five minutes outside of the approved time. The actual restriction of a travel lane by an arrow board or other traffic control device shall be a lane closure. Construction signs shall be installed immediately prior to the start of the lane closure and shall be promptly removed when no longer required. The installation and removal of a lane closure including signs, channelizing devices and arrow boards shall be a continuous operation. The Authority reserves the right to order removal of an approved lane closure.

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

The following is a partial list of activities requiring lane closures. Lane closures may be required for other activities as well:

- Removal of trees and chips from the cleared area.
- Construction of stabilized construction entrances prior to the construction of the lane shifts toward the median.
- Installation of stone check dams in existing ditches.
- Full depth sawcut at 37 or 43 feet offset line.
- Paving new travel lane adjacent to active travel lane.
- Loading of trucks within four feet of a travel lane.
- Bridge construction activities adjacent to a travel lane
- Bridge work directly over traffic or within six feet of a travel lane as measured from the painted pavement marking line or traffic control device:

    1. Installing and removing shielding
    2. Superstructure demolition
    3. Unbolting structural steel
    4. Removing structural steel
    5. Erecting structural steel or concrete beams
    6. Installing and removing deck and diaphragm forms
    7. Erecting or moving sign panels on bridges
    8. Bolting structural steel
    9. Painting structural steel

When approved by the Resident, Items 3, 6 and 8 may be performed over traffic if a temporary floor is provided between the bottom flanges of the beams.

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

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

Temporary lane closures and stoppages for blasting may be allowed on the same day if provided for in Special Provision Section 652, Specific Project Maintenance of Traffic Requirements.

The Resident is required to receive approval from the Maine Turnpike Authority for all lane closures. The request shall be submitted to the Authority by the Resident at least two (2) working days prior to the day of the requested lane closure. All requests must be received by

12:00 p.m. to be considered as received on that day. Requests received after 12:00 p.m. shall be considered as received the following day. The Contractor shall plan the work accordingly.

Lane Closure Installation and Removal Procedure

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

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

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

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

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

Temporary Mainline Shoulder Closures

Temporary mainline shoulder closures will only be allowed as outlined in Special Provision Section 652, Specific Project Maintenance of Traffic Requirements. Temporary shoulder closures are anticipated at locations where Contractor access to the mainline is required.

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

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

Work Requiring Complete Stoppages of Traffic

Complete stoppages of traffic will only be allowed outlined in Special Provision Section 652, Specific Project Maintenance of Traffic Requirements, or as approved by the Resident.

The following is a partial list of activities requiring complete stoppages of traffic. Complete stoppages of traffic may be required for other activities as well:

- Blasting of ledge.
- Erection or removal of structural steel or bridge beams.
- Moving of heavy or slow equipment across or on the travel lanes (stoppage less than five minutes).
- Erection or removal of overhead signs or sign bridges.

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

Blasting of Ledge

The maximum time for which traffic may be stopped for blasting at any single time shall be eight (8) minutes. The duration shall be measured as the time between the time the last car passes the Resident until the time the Resident determines that all travel lanes are cleared of blast debris. If, due to the throw of rock onto the highway or other blasting related activities, traffic is stopped for more than eight minutes, the Contractor shall pay a penalty of $500.00 per minute for every minute traffic is stopped in each roadway (northbound or southbound), in excess of the eight minute limit. Total penalty shall be deducted from the next pay estimate.

The **Erection or** Removal of Structural Steel

The **erection or** removal of structural steel will only be allowed at times outlined in Section 652, Specific Project Maintenance or Traffic Requirements. Traffic shall be stopped and may be held for periods of up to 25 minutes during these operations. Before the roadway is reopened, all materials shall be secured so they will not endanger traffic passing underneath.

The Contractor will reimburse the Authority at the rate of $2,500.00 per five-minute period for each roadway (northbound and southbound), in excess of the 25 minutes limit. Total penalty shall be deducted from the next pay estimate.

Equipment Moves

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

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

Unapproved movement of heavy equipment across the travel lanes shall be considered a violation of the Maintenance of Traffic Requirements and is subject to the fines of $500 per minute or portion thereof.

Request for Complete Stoppage of Traffic

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

Short-Term or Work Hour Speed

A short-term or work hour speed (Fines Doubled) is a regulatory speed limit that indicates the maximum legal speed through a work zone which is lower than the normal posted speed. The speed limit shall be displayed by black on white speed limit signs in conjunction with a black on orange "Work Zone" plate. Speed limit signs shall be installed at each mile within the work zone. The reduced speed zone shall be at least 1,500 feet long. Any existing regulatory speed limit signs within the reduced speed zone shall be covered once the reduced speed signs have been erected.

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

The reduced speed limit signs shall only be used during the following circumstances unless approved by the Resident:

- Workers are adjacent to traffic
- Travel lane is closed
- Outside shoulder is closed for 3,000 feet with concrete barrier

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

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(Portable-Changeable Message Sign)

652.2.4 Other Devices

The eighth paragraph is deleted and replaced with the following:

Portable-Changeable Message Signs (PCMS) will be furnished by the Contractor and shall be Ver-Mac PCMS-1210 or an approved equal. PCMS's shall be located and relocated to locations approved by the Resident within the Project limits for the duration of the Project.

Features to the Ver-Mac PCMS shall include:

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

The Contractor shall complete and/or provide the following:

- Submit a catalog cut shop drawing to the Resident of all proposed equipment for review and approval.
- Establish and pay for a data cellular account so that PCMS may be remotely programmed and operated from the MTA Communications' Center.
- Provide to the Authority technical support from the PCMS manufacturer that may be necessary to integrate the PCMS into the MTA software platform (Vanguard Software by Daktronics).
- Provide the manufacturer's software necessary to change the PCMS messages remotely from the MTA Communications' Center and the Resident's computer if necessary or requested.
- Provide training on the operation of the PCMS to the Resident and the MTA Communications' Center representative.
- Make all PCMS on the Project work site available to the MTA for any/all emergency situations as defined by the MTA. This shall include the preemption of any messages running at the time of need as approved by the MTA and the Resident.

The Contractor shall also:

- Furnish, operate, relocate and maintain the PCMS as approved by the Resident.
- Be responsible for the day to day programming and operation of the PCMS for Project purposes.

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

652.7 Method of Measurement

The following sentence is added:

Portable-Changeable Message Sign(s) will be measured for payment by each unit furnished, installed and maintained.

652.8 Basis of Payment

The following paragraphs are added:

The accepted quantity of PCMS will be paid for at the Contract unit price each. This price shall be full compensation for furnishing, relocating, maintaining and removing the PCMS. The price also includes all costs associated with setting-up and paying for a data cellular account, technical support, training and any costs associated with the GPS location device.

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

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

Payment will be made under:

Pay Item		Pay Unit
652.41	Portable-Changeable Message Sign	Each

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(Truck Mounted Attenuator)

652.1 Description

The following sentence is added:

The Contractor shall furnish, operate and maintain a truck and truck mounted attenuator.

652.2.1 Truck Mounted Attenuator

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

- Truck and attached attenuator shall conform to the NCHRP Report 350, Test Level 3 criteria.
- A mounted revolving amber light or amber strobe light with 360-degree visibility.
- An arrow light bar fixed to the vehicle.
- The attenuator shall be mounted to a vehicle with a minimum weight of 10,000 lbs.

652.3.7 Operations

The Contractor shall manage the operation of the truck mounted attenuator. The truck mounted attenuator should be utilized in lane closures and other construction operations where workers are exposed to traffic and not protected by positive means. The operation of the vehicle shall be in accordance with the Manual of Uniform Traffic Control Devices and the manufacturer's recommendation.

652.7 Method of Measurement

The following sentences are added:

Truck mounted attenuator shall be measured for payment by the calendar day for each calendar day that the unit is used on the project.

652.8.2 Basis of Payment

The following paragraphs are added:

The Truck Mounted Attenuator(s) will be paid for at the Contract unit price per calendar day. This price shall include all costs associated with the use of the vehicle. Payment shall include operator, fuel, truck, maintenance, flashing lights, arrow board and all other incidentals necessary to operate the vehicle.

The unit price noted in the proposal sheet is fixed by the Maine Turnpike Authority and may not be altered. Altering of the unit price will be a non-curable bid defect.

Payment will be made under:

Pay Item		Pay Unit
652.45	Truck Mounted Attenuator	Calendar Day

SPECIAL PROVISION

SECTION 656

TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL

Section 656 of the Standard Specifications and the General Provisions is deleted in its entirety and replaced with the following:

656.01 Description

This work shall consist of providing temporary erosion and water pollution control during construction in accordance with these Specifications, standard details, Best Management Practices, or as otherwise directed.

All temporary erosion control devices shall be in place and approved by the Resident prior to any operations resulting in disturbed area. The Contractor is responsible for maintaining all erosion control measures in effective operating condition, including repairing and replacing damaged or missing erosion control material until areas are permanently stablized. The Contractor shall maintain these devices in a clean and properly operating condition as described herein.

Prior to construction, the Contractor shall properly install sediment barriers (e.g., silt fence) at the edge of any downgradient disturbed area and adjacent to any drainage channels within the distrubed area. The Contractor shall maintain the sediment barriers until the disturbed area is permanently stabilized.

The Contractor is responsible for all temporary drainage and erosion control measures. The Contractor shall review his construction operations and staging to determine if additional erosion control measures are required. The Resident may also request additional erosion control measures. The cost for all erosion control devices necessary, due solely to the Contractor's construction operations and not shown on the Plans, shall be borne solely by the Contractor. The frequency of inspection of these devices by the Contractor and the Erosion Control Compliance Officer (ECCO) shall be weekly and before, during and immediately following a rainfall of greater than 1/2 inch in a 24-hour period.

656.02 Temporary Erosion and Sedimentation Control Devices - Materials

The Contractor shall install and maintain all temporary erosion and sedimentation control materials in accordance with the manufacturer's recommendations or the latest BMP's.

1. Baled hay shall be bales at approximately 14 by 18 by 30 inches, or an equivalent, securely tied to form a firm bale.
2. Flexible drainage pipe shall consist of collapsible neoprene pipe, a minimum of 12 inches in diameter or equal.
3. Silt Fence

    (a) Posts - Either hardwood posts or steel posts shall be used. Hardwood posts shall be straight, at least 18 inches longer than the height of the silt fence

and at least one inch by one inch.

Staples shall be of No. 9 wire.

Steel posts shall be at least 18 inches longer than the height of the silt fence and have the means provided for fastening wire to the fence.

(b) Wire Support Fence - If required, wire support fence shall be at least two inches higher than the height of the silt fence. Horizontal and vertical wires shall be spaced no more than six inches apart. The top and bottom wires shall be at least 10 gauge; all other wires at least 12 gauge.

(c) Fabric - The woven geotextile fabric and components shall be made from polypropylene, polyester, polymide or other chemically stable material and be resistant to ultraviolet radiation degradation for at least 12 months of installation. Silt retention capacity shall be no less than 75 percent. The fabric shall have a Mullen burst test of no less than 260 pounds per square inch with a maximum average sieve opening size of No. 20 to No. 60. Roll width of the fabric shall be no less than six inches wider than the height of the fence, except fabric for boom supported floating silt fence which shall be no less than two feet wider than the design width.

(d) Flotation Devices – Boom supported floating silt fence shall consist of suitable, flexible plastic or synthetic rubber barrier supported on the top (or floated on the top using six inch "minimum" Styrofoam logs) and sides, and weighted or anchored on the bottom to form a continuous vertical barrier to contain within the designated area(s), silt and clay-size particles suspended or carried by water. The flotation boom and weighing devices for boom supported floating silt fence shall be sufficient to hold the fence in an approximately vertical position.

656.03 Temporary Erosion and Sedimentation Control Devices - General

Temporary Erosion Checks - Temporary erosion checks shall be constructed in ditches and at other locations designated. Checks shall be in accordance with the Standard Detail unless otherwise directed.

Baled hay shall be used in other areas as necessary to inhibit soil erosion.

During winter construction, November 1st through April 15th, all areas being constructed within 75 feet of a protected natural resource shall be protected with a double row of silt fence.

Sediment deposits behind haybales and silt fence shall be removed when the depth of sediment reaches 50 percent of the erosion control device height.

The Contractor is also required to have on-site, at all times, 25 percent additional Contract quantities of silt fence for use as backup devices.

656.04 Temporary Erosion and Sedimentation Control Devices – Construction Requirements

1. Erosion Control Filter Berm

The Contractor may opt to furnish and install an erosion control filter berm in lieu of silt fence. The erosion control filter berm shall be a water permeable windrow of a composted bark mix to remove suspended soil particles from water moving off the site. Erosion control filter berm shall be considered an erosion control device. The material and specific application shall be submitted to the Resident for approval.

The erosion control berm shall be placed uncompacted, in a windrow in locations approved by the Resident. The cross section of the berm shall be four feet wide at the base and 1-1/2 feet high at the center. The erosion control filter berm shall be removed when no longer required, as determined by the Resident, and shall be distributed over an adjacent area.

2. Temporary Berms

When designated, temporary barriers shall be constructed along the edge of the embankment. The barriers shall be of embankment earth material, gravel or sand as available and shaped approximately as shown in the Standard Details. The barriers shall be compacted with the wheels of construction equipment. When placed on pavement, the berms shall be constructed of asphalt grindings or other non-erodible soil material as approved by the Resident, and shaped as shown in the Standard Details.

At designated intervals, temporary slope drains shall be constructed with a crescent shaped barrier placed at each slope drain to direct the water into the inlet pipe.

3. Temporary Slope Drains

Collapsible pipe with corrugated metal pipe inlet shall be placed down the embankment slopes at designated locations and in accordance with the Best Management Practices.

At the outlet end of the drain, dumped stone shall be placed to prevent scoring unless otherwise directed.

4. Silt Fence

The silt fence shall be installed downhill of disturbed slopes as shown on the Plans or as approved. The Contractor shall have the option to provide a reinforced filter fabric or an un-reinforced filter fabric attached to a wire fence.

The fence posts shall be spaced as specified by the Resident, however, not to exceed a maximum of eight feet [2.5 m] apart when either type of silt fence is used and be driven a minimum of 18 inches [450 mm] into the ground.

The geotextile fabric shall be secured to the post or fence by suitable staples, tie wire or hog rings in such a manner as to prevent tearing and sagging of the fabric. The bottom flap of the geotextile fabric shall be entrenched into the ground a minimum depth of six inches [150 mm] to prevent water from flowing under the fence. The geotextile shall be spliced together only at support posts with a minimum six inches [150 mm] overlap and secure post connection which prevents leakage of silt. The top of the geotextile shall be installed with a reinforced top end section.

The Contractor shall maintain the silt fence in a functional condition at all times. All deficiencies shall be immediately corrected by the Contractor. The Contractor shall make a daily inspection of silt fences in areas where construction activity causes drainage runoff, to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist, additional silt fences shall be installed as approved or otherwise directed.

Sediment deposits shall be removed when sediments reach 50 percent of the height of the device. All sediment deposits remaining in place after the device is no longer required shall be graded to conform to the existing ground, seeded and mulched immediately.

Geotextile fabric which has decomposed or has become ineffective and is still needed shall be replaced with material equal to the original design.

656.05 Temporary Erosion and Sedimentation Control Devices - Maintenance

The erosion control devices will be cleaned, repaired or replaced as necessary. All deficiencies shall be corrected immediately by the Contractor.

656.06 Temporary Erosion and Sedimentation Control Devices - Removing and Disposing

When disturbed areas have been permanently stabilized, temporary erosion control devices, including stone check dams, shall be removed. However, erosion control mix filter berms may be spread out, seeded and left to decompose. Areas disturbed during the removal of the erosion control devices shall be repaired and properly stabilized.

When removed, such devices may be reused in other locations provided they are in good condition and suitable to perform the erosion control for which they are intended. Reused devices, if approved, will be measured for payment.

656.07 Erosion Control Compliance Officer

The Contractor shall designate an Erosion Control Compliance Officer (CECCO) on this Project who shall be a “DEP Certified Contractor” or have had equivalent training approved by the Authority. The Contractor shall provide the Resident with the name of the CECCO and any phone numbers or pager numbers that can be used to contact the person in case of emergency.

Before commencing any work that could disturb soils or impact water quality, the CECCO must field review the Project with the Resident’s ECCO (RECCO).

656.08 Inspection and Recordkeeping

The CECCO shall accompany the RECCO in the inspection of all erosion control devices. An inspection log shall be maintained by the Resident for the duration of the Project. The log will include daily on-site precipitation and air temperature as well as the performance, failure and/or any corrective action for all erosion and sedimentation controls in place. The log will be updated at least weekly and after all significant storm runoff or flood events. The log shall be signed by the RECCO and the CECCO after each inspection.

Failure to comply with the erosion and sedimentation control requirements herein or as directed by the RECCO within 24-hours after the violation is noted in the inspection log, will result in the $1,000 per day per violation penalty until the violation is corrected to the satisfaction of the Resident.

656.09 Method of Measurement

Baled hay will be measured for payment by the number of bales or bags satisfactorily placed.

Temporary berms and temporary slope drains will be measured for payment by the linear foot measured parallel with the flow line including the pipe inlet.

Temporary silt fence will be measured by the linear foot along the gradient of the fence, end post to end post.

Erosion control filter berm shall be measured by the linear foot.

The quantity of additional haybales and silt fence material required herein will be measured for payment only when and if they are actually put to use as additional measures on the Project as approved by the Resident. Haybales and silt fence material used for maintenance or replacement of existing devices will not be measured for payment.

The removal of silt and other material from behind the erosion control devices will not be measured separately for payment, but shall be incidental to the Erosion Control items.

656.10 Basis of Payment

The accepted quantity of baled hay or sandbags will be paid for at the Contract unit price each for each bale or bag which price shall be full compensation for furnishing and placing the bales or sandbags, for furnishing and driving the stakes for baled hay, for maintaining the bales, stakes or sandbags, and for the removing and disposing of the bales, stakes or sandbags when no longer needed.

The accepted quantity of temporary berms will be paid for at the Contract unit price per linear foot of berm which price shall be full compensation for furnishing, placing and compacting material, for maintaining and for removing the berm when no longer needed.

There will be no separate payment for excavation in the construction of temporary

erosion control items under this Section and all necessary excavation shall be incidental to the work.

The accepted quantity of dumped stone will be paid for at the Contract unit price per cubic yard which price shall be full compensation for furnishing the stone, transporting, placing and shaping. Payment for removal or for covering will be made under Item 629.05, Hand Labor, and the appropriate Equipment Rental items.

The accepted quantity of temporary silt fence and boom supported floating silt fence will be paid for at the Contract unit price per linear foot complete in place. Payment shall be full compensation for furnishing, installing, maintaining, anchoring, replacing deteriorated geotextile and clogged geotextile when required and for removing and disposing of the fence when no longer needed.

The accepted quantity of erosion control filter berm will be paid for at the Contract unit price per linear foot under Item 656.632, 30 Inch Temporary Silt Fence, which price shall be full compensation for furnishing, placing, maintaining, and removing the erosion control filter berm.

Cost of seeding and mulching the area after removal of the temporary silt fence will be paid for at the Contract unit prices for Item 618, Seeding, and Item 619, Mulch.

Payment will be made under:

Pay Item		Pay Unit
656.50	Baled Hay, in place	Each
656.60	Temporary Berms	Linear Foot
656.62	Temporary Slope Drains	Linear Foot
656.632	30 inch Temporary Silt Fence	Linear Foot

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART III – APPENDICES

APPENDIX A

Stroudwater River Bridge Lane Closure Guidance

Maine Turnpike, between Exit 46 (Jetport) & Exit 47 (Rand Rd.)

Month	Northbound				Southbound			
	Weekday		Thursday	Sunday	Weekday		Thursday	Sunday
	Day (Mon-Thur)(7)	Night	(Night Only)	(Night Only)	Day (Mon-Thur)(7)	Night	(Night Only)	(Night Only)
Jan	9:00am-2pm	6pm-7am	6pm-7am	5pm-7am	10am-2pm	6pm-6am	6pm-6am	6pm-6am
Feb (1)	9:00am-2pm	6pm-7am	6pm-7am	5pm-7am	10am-2pm	6pm-6am	6pm-6am	6pm-6am
Mar	9:00am-2pm	6pm-7am	6pm-7am	5pm-7am	n/a	6pm-6am	6pm-6am	6pm-6am
Apr (1)	9:00am-2pm (6)	6pm-7am	6pm-7am	5pm-7am	n/a	6pm-6am	6pm-6am	6pm-6am
May	n/a	7pm-7am	7pm-7am	5pm-7am	n/a	6pm-6am	6pm-6am	6pm-6am
Jun	n/a	7pm-7am	7pm-7am	6pm-7am	n/a	6pm-6am	6pm-6am	6pm-6am
Jul	n/a	7pm-7am	9pm-7am	7pm-7am	n/a	7pm-6am	7pm-6am	9pm-6am
Aug	n/a	7pm-7am	9pm-7am	7pm-7am	n/a	7pm-6am	7pm-6am	8pm-6am
Sep	n/a	7pm-7am	7pm-7am	5pm-7am	n/a	6pm-6am	6pm-6am	7pm-6am
Oct	n/a	7pm-7am	7pm-7am	5pm-7am	n/a	6pm-6am	6pm-6am	7pm-6am
Nov	9am-2pm	6pm-7am	6pm-7am	5pm-7am	n/a	6pm-6am	6pm-6am	6pm-6am
Dec	9am-2pm	6pm-7am	6pm-7am	5pm-7am	n/a	6pm-6am	6pm-6am	6pm-6am

Maine Central Railroad Bridge Lane Closure Guidance

Maine Turnpike, between Exit 47 (Rand Rd.) & Exit 48 (Riverside)

Month	Northbound				Southbound			
	Weekday		Thursday	Sunday	Weekday		Thursday	Sunday
	Day (Mon-Thur)(7)	Night	(Night Only)	(Night Only)	Day (Mon-Thur)(7)	Night	(Night Only)	(Night Only)
Jan	9am-2pm	6pm-7am	6pm-7am	5pm-7am	9am-3pm	6pm-7am	6pm-7am	6pm-7am
Feb (1)	9am-2pm	6pm-7am	6pm-7am	5pm-7am	9am-3pm	6pm-7am	6pm-7am	5pm-7am
Mar	9am-2pm	6pm-7am	6pm-7am	5pm-7am	9am-2pm	6pm-6am	6pm-6am	6pm-6am
Apr (1)	9am-2pm	6pm-7am	6pm-7am	5pm-7am	9am-2pm (6)	6pm-6am	6pm-6am	6pm-6am
May	9am-2pm (6)	6pm-7am	6pm-7am	5pm-7am	10am-2pm (4)	6pm-6am	6pm-6am	6pm-6am
Jun	9am-1pm (3)	6pm-7am	6pm-7am	6pm-7am	n/a	6pm-6am	6pm-6am	6pm-6am
Jul	n/a	7pm-7am	7pm-7am	6pm-7am	n/a	6pm-6am	7pm-6am	8pm-6am
Aug	n/a	7pm-7am	7pm-7am	6pm-7am	n/a	7pm-6am	7pm-6am	8pm-6am
Sep	9am-2pm	7pm-7am	7pm-7am	6pm-7am	n/a	6pm-6am	6pm-6am	7pm-6am
Oct	9am-2pm	7pm-7am	7pm-7am	6pm-7am	n/a	6pm-6am	6pm-6am	6pm-6am
Nov	9am-2pm	6pm-7am	6pm-7am	5pm-7am	10am-2pm (5)	6pm-6am	6pm-6am	5pm-6am
Dec	9am-2pm (2)	6pm-7am	6pm-7am	5pm-7am	10am-2pm (2)	6pm-6am	6pm-6am	5pm-6am

(1) No daytime lane closures permitted school vacation week
(2) First 2 weeks of month only; daytime lane closures not permitted after 2nd Thursday
(3) Through 2nd Friday, no daytime lane closures permitted after
(4) Tuesday, Wednesday first 3 weeks; Tuesday, Wednesday, Thursday after 3rd Friday
(5) Excluding week of Thanksgiving
(6) Monday, Tuesday, Wednesday only
(7) There are no Friday daytime lane closures allowed