

CONTRACT DOCUMENTS

CONTRACT 2014.10

INTERCHANGE IMPROVEMENTS
LEWISTON (EXIT 80)
PHASE 2 (BRIDGE AND MAINLINE)
Mile 80.3

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

	<u>PAGE</u>
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
 <u>ARRANGEMENT OF SPECIFICATIONS</u>	
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

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
<u>100</u>	<u>GENERAL PROVISIONS</u>	
100.1	REPLACEMENT OF FORMER STANDARD SPECIFICATIONS AND DETAILS	GP-1
<u>101</u>	<u>CONTRACT INTERPRETATION</u>	
101.2	DEFINITIONS	GP-1
<u>102</u>	<u>BIDDING</u>	
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

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
<u>103</u>	<u>AWARD AND CONTRACTING</u>	
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
<u>104</u>	<u>GENERAL RIGHTS AND RESPONSIBILITIES</u>	
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
<u>105</u>	<u>GENERAL SCOPE OF WORK</u>	
105.1	INTENT OF THE CONTRACT	GP-9

PART I - GENERAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
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
<u>106</u>	<u>QUALITY</u>	
106.3.3	SOURCES	GP-18
106.3.4	STORAGE	GP-18

PART I - GENERAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
106.3.7	SAMPLING AND TESTING	GP-18
106.6	ACCEPTANCE	GP-18
106.8.3	UNAUTHORIZED WORK	GP-18
<u>107</u>	<u>TIME</u>	
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
<u>108</u>	<u>PAYMENT</u>	
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

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
108.6	TAXES, FEES, ALLOWANCES, AND NOTICES	GP-24
108.8	FINAL PAYMENT	GP-24
<u>109</u>	<u>CHANGES</u>	
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
<u>110</u>	<u>INDEMNIFICATIONS, BONDING AND INSURANCE</u>	
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

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
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
<u>111</u>	<u>RESOLUTION OF DISPUTES</u>	
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
<u>112</u>	<u>DEFAULT AND TERMINATION</u>	
112.2	TERMINATION	GP-31
<u>203</u>	<u>EXCAVATION AND EMBANKMENT</u>	
203.01	DESCRIPTION	GP-32
203.18	METHOD OF MEASUREMENT	GP-32
<u>502</u>	<u>STRUCTURAL CONCRETE</u>	
502.10	FORMS AND FALSE WORK	GP-32
502.11	PLACING CONCRETE	GP-32
502.15	CURING CONCRETE	GP-32
<u>503</u>	<u>REINFORCING STEEL</u>	
503.06	PLACING AND FASTENING	GP-33

PART I - GENERAL PROVISIONS - Continued

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

PART I - GENERAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
618.15	TEMPORARY SEEDING	GP-36
<u>620</u>	<u>GEOTEXTILES</u>	
620.03	PLACEMENT	GP-36
620.07	SHIPMENT, STORAGE, PROTECTION AND REPAIR OF FABRIC	GP-36
620.09	BASIS OF PAYMENT	GP-36
<u>621</u>	<u>LANDSCAPING</u>	
621.0036	ESTABLISHMENT PERIOD	GP-37
<u>626</u>	<u>HIGHWAY SIGNING</u>	
626.034	CONCRETE FOUNDATIONS	GP-37
<u>639</u>	<u>ENGINEERING FACILITIES</u>	
639.04	FIELD OFFICES	GP-37
639.09	TELEPHONE	GP-37
639.11	BASIS OF PAYMENT	GP-38
<u>652</u>	<u>MAINTENANCE OF TRAFFIC</u>	
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

PART I - GENERAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
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
<u>653</u>	<u>POLYSTYRENE PLASTIC INSULATION</u>	
653.05	PLACING BACKFILL	GP-43
653.06	COMPACTION	GP-43
<u>656</u>	<u>TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL</u>	
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

PART I - GENERAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
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
<u>701</u>	<u>STRUCTURAL CONCRETE RELATED MATERIALS</u>	
701.10	FLY ASH – CHEMICAL REQUIREMENTS	GP-48
<u>703</u>	<u>AGGREGATES</u>	
703.06	AGGREGATE FOR BASE AND SUBBASE	GP-48
703.22	UNDERDRAIN BACKFILL MATERIAL	GP-49
<u>706</u>	<u>NON-METALLIC PIPE</u>	
706.06	CORRUGATED POLYETHYLENE PIPE FOR UNDERDRAIN, OPTION I AND OPTION II IN CULVERT PIPE	GP-49
<u>709</u>	<u>REINFORCING STEEL AND WELDED STEEL WIRE FABRIC</u>	
709.03	STEEL STRAND	GP-49
<u>712</u>	<u>MISCELLANEOUS HIGHWAY MATERIALS</u>	
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

PART I - GENERAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
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
<u>717</u>	<u>ROADSIDE IMPROVEMENT MATERIAL</u>	
717.03	C. METHOD #3 – ROADSIDE MIXTURE #3	GP-52
717.05	MULCH BINDER	GP-53

PART II - SPECIAL PROVISIONS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
—	GENERAL DESCRIPTION OF WORK	SP-1
—	PLANS	SP-1
101.2	DEFINITION	SP-1
102.1.1	BASIC REQUIREMENTS	SP-2
103.4	NOTICE OF AWARD	SP-2
104.3.8	WAGE RATES AND LABOR LAWS	SP-2
104.4.4	REQUEST FOR INFORMATION (RFI)	SP-5
104.4.6	UTILITY COORDINATION	SP-5
104.4.7	COOPERATION WITH OTHER CONTRACTORS	SP-7
105.2.4.2	LEAD PAINT	SP-7
105.2.4.3	ASBESTOS (ASBESTOS PRESENT)	SP-10
105.2.6	USE OF EXPLOSIVES	SP-10
105.3	TRAFFIC CONTROL AND MANAGEMENT	SP-18
105.4.1	MAINTENANCE DURING CONSTRUCTION	SP-19
105.4.3	MAINTENANCE DURING WINTER CONSTRUCTION	SP-19
105.5	HAULING OF MATERIALS AND EQUIPMENT	SP-19
105.5.1	GENERAL REQUIREMENTS	SP-19
105.7.4	SUBMITTAL REQUIREMENTS	SP-20
105.8.1	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	SP-20
105.8.1.1	ENVIRONMENTAL STANDARDS	SP-21
105.8.1.1.1	WATER POLLUTION CONTROL REQUIREMENTS	SP-22
105.8.1.1.2	CONSTRUCTION REQUIREMENTS	SP-23

PART II – SPECIAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
105.8.2	PERMIT REQUIREMENTS	SP-24
105.8.3	WETLAND AND WATER BODY IMPACTS	SP-26
107.1	CONTRACT TIME AND CONTRACT COMPLETION DATE	SP-26
107.1.1	SUBSTANTIAL COMPLETION	SP-26
107.4.2	SCHEDULE OF WORK REQUIRED	SP-27
107.4.7	LIMITATIONS OF OPERATIONS	SP-27
107.4.9	FAILURE TO STOP WORK WHEN DIRECTED	SP-29
107.7.2	SCHEDULE OF LIQUIDATED DAMAGES	SP-29
107.8.1	FABRICATION TIME	SP-29
108.4	PAYMENT FOR MATERIALS OBTAINED AND STORED	SP-30
108.4.1	PRICE ADJUSTMENT FOR HOT MIX ASPHALT	SP-31
109.7.3	COMPENSABLE ITEMS	SP-32
202.	REMOVING STRUCTURES AND OBSTRUCTIONS (Removing Asbestos Containing Material)	SP-33
202.	REMOVING STRUCTURES AND OBSTRUCTIONS (Removing Existing Bridge)	SP-35
202.	REMOVING STRUCTURES AND OBSTRUCTIONS (Removing Pavement Surface)	SP-37
202.	REMOVING STRUCTURES AND OBSTRUCTIONS (Rumble Strips)	SP-39
203.	EXCAVATION AND EMBANKMENT	SP-41
203.	EXCAVATION AND EMBANKMENT (Rock Excavation)	SP-45
203.	EXCAVATION AND EMBANKMENT (Crushed Stone)	SP-46
206.	STRUCTURAL EXCAVATION	SP-47

PART II – SPECIAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
401.	HOT MIX ASPHALT PAVEMENTS	SP-48
401.	PLANT MIX PAVEMENTS - GENERAL (Material Transfer Vehicle)	SP-68
403.	HOT BITUMINOUS PAVEMENT	SP-69
403.	HOT BITUMINOUS PAVEMENT (HMA – Polymer Modified)	SP-71
409.	BITUMINOUS TACK COAT	SP-73
419.	SAWING AND SEALING JOINTS IN BITUMINOUS PAVEMENT (Sawing Bituminous Pavement)	SP-74
459.	BITUMINOUS CONCRETE WATERWAY	SP-75
501.	FOUNDATION PILES	SP-77
502.	STRUCTURAL CONCRETE	SP-81
503.	REINFORCING STEEL (ZBar Reinforcing Steel)	SP-112
504.	STRUCTURAL STEEL	SP-117
505.	STUD WELDED SHEAR CONNECTORS, ANCHORS AND FASTENERS (Shear Connectors)	SP-121
506.	PAINTING STRUCTURAL STEEL	SP-122
507.	RAILINGS	SP-129
508.	MEMBRANE WATERPROOFING	SP-130
511.	COFFERDAMS (Temporary Earth Support Systems)	SP-131
513.	SLOPE PROTECTION	SP-135
515.	PROTECTIVE COATING FOR CONCRETE SURFACES (Clear Concrete Protective Coating)	SP-136

PART II – SPECIAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
515.	PROTECTIVE COATING FOR CONCRETE SURFACES (Anti-Graffiti Coating)	SP-139
518.	STRUCTURAL CONCRETE REPAIR (Temporary Bridge Repairs – Deck Patching)	SP-142
520.	EXPANSION DEVICES – NON MODULAR (Compression Seal)	SP-143
524.	TEMPORARY STRUCTURAL SUPPORTS (Protective Shield – Steel Girders)	SP-145
526.	CONCRETE BARRIER (Temporary Concrete Barrier Type I - Supplied by Authority)	SP-147
527.	ENERGY ABSORBING UNIT (Work Zone Crash Cushion)	SP-151
535.	PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE (Precast Concrete Deck Panels)	SP-152
602.	PIPE LINING (Flowable Concrete Fill)	SP-156
603.	PIPE CULVERTS AND STORM DRAINS (Reinforced Concrete Pipe) (Concrete Collar)	SP-159
603.	PIPE CULVERTS AND STORM DRAINS (Reinforced Concrete Pipe - Remove and Stack)	SP-160
604.	MANHOLES, INLETS, AND CATCH BASINS (Maine Turnpike Catch Basin and Manhole)	SP-161
604.	MANHOLES, INLETS, AND CATCH BASINS (Altering Catch Basin)	SP-163
604.	MANHOLES, INLETS, AND CATCH BASINS (Cap Catch Basin)	SP-164
604.	MANHOLES, INLETS, AND CATCH BASINS (Rebuild Catch Basin to Grade Type IV)	SP-166
604.	MANHOLES, INLETS, AND CATCH BASINS (Catch Basin Remove and Stack)	SP-169

PART II – SPECIAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
606.	GUARDRAIL (Bridge Transition – Type III) (Bridge Transition – Type III, Modified)	SP-170
606.	GUARDRAIL (Terminal End – Trailing End) (Terminal End – Trailing End, Double Face)	SP-172
606.	GUARDRAIL (Reflectorized Beam Guardrail Delineator)	SP-174
606.	GUARDRAIL (Delineator Post) (Remove and Reset Delineator Post)	SP-176
606.	GUARDRAIL (Guardrail Adjust)	SP-179
606.	GUARDRAIL (Guardrail – Remove, Stack and Dispose)	SP-181
606.	GUARDRAIL (Asymmetrical Thrie Beam Transition)	SP-182
606.	GUARDRAIL (Guardrail 350 FLEAT Terminal)	SP-183
609.	CURBING (Sloped Curb Type 1)	SP-185
610.	STONE FILL, RIPRAP, STONE BLANKET AND STONE DITCH PROTECTION (Stone Check Dams)	SP-186
618.	SEEDING (Seeding Method Number 2 Modified)	SP-188
619.	MULCH	SP-189
626.	FOUNDATIONS, CONDUIT AND JUNCTION BOXES FOR HIGHWAY SIGNING, LIGHTING AND SIGNALS (Quazite Junction Box)	SP-191
627.	PAVEMENT MARKINGS (Temporary Painted Pavement Markings)	SP-192

PART II – SPECIAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
627.	PAVEMENT MARKINGS	SP-194
627.	PAVEMENT MARKINGS (Temporary Pavement Markings - Tape)	SP-195
627.	PAVEMENT MARKINGS (Temporary Raised Pavement Markers)	SP-197
627.	PAVEMENT MARKINGS (Recessed Pavement Marking Tape)	SP-199
634.	HIGHWAY LIGHTING (Remove and Reset Light Standard) (Conventional Light Standard with LED Fixture)	SP-202
636.	MECHANICALLY STABILIZED EARTH RETAINING WALL	SP-205
643.	TRAFFIC SIGNALS	SP-221
643.	TRAFFIC SIGNALS (Signal and Sign Support Assembly)	SP-235
644.	GLARE BARRIER (Glare Screen – Supplied by Authority)	SP-237
645.	HIGHWAY SIGNING (Remove and Reset Sign) (Remove and Stack Sign)	SP-239
645.	HIGHWAY SIGNING (Installation of Type 1 Regulatory Sign – Bridge Mounted)	SP-241
645.	HIGHWAY SIGNING (Installation of Type II Signs)	SP-242
645.	HIGHWAY SIGNING (Radar Activated Flashing LED Wrong Way Warning Sign)	SP-243
652.	MAINTENANCE OF TRAFFIC (General)	SP-245
652.	MAINTENANCE OF TRAFFIC (Specific Project Maintenance of Traffic Requirements)	SP-250

PART II – SPECIAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
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-252
652.	MAINTENANCE OF TRAFFIC (Truck Mounted Attenuator)	SP-257
652.	MAINTENANCE OF TRAFFIC (Type III Barricades – Supplied by Authority) (Drums – Supplied by Authority) (Construction Signs – Supplied by Authority)	SP-259
652.	MAINTENANCE OF TRAFFIC (Flashing Arrow Boards – Owned by Others)	SP-260
655.	ELECTRICAL WORK	SP-261
655.	ELECTRICAL WORK (AWG Wire)	SP-266
655.	ELECTRICAL WORK (Shielded Category 5e Cable)	SP-267
655.	ELECTRICAL WORK (Fiber Optic Cable)	SP-268
655.	ELECTRICAL WORK (Fiber Optic Splice Panel)	SP-271
655.	ELECTRICAL WORK (Stainless Steel Flush Mounted Junction Box)	SP-272
655.	ELECTRICAL WORK (3 Inch Schedule 80 PVC Conduit)	SP-273
655.	ELECTRICAL WORK (2 Inch Rigid Metal Conduit)	SP-274
655.	ELECTRICAL WORK (Under Bridge Lighting Fixture)	SP-275

PART II – SPECIAL PROVISIONS - Continued

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
656.	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	SP-276
830.	HORIZONTAL DIRECTIONAL DRILLING (Sleeve and Conduit Installation)	SP-282

PART III – APPENDICES

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
APPENDIX A -	PERMITS	A - A1
APPENDIX B -	BUCKEYE PARTNERS, L.P. AND AFFILIATES RIGHT OF WAY USE RESTRICTIONS SPECIFICATIONS	B - B1

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

CONTRACT DOCUMENTS

CONTRACT 2014.10

INTERCHANGE IMPROVEMENTS
LEWISTON (EXIT 80)
PHASE 2 (BRIDGE AND MAINLINE)
Mile 80.3

NOTICE TO CONTACTORS

PROPOSAL

CONTRACT AGREEMENT

CONTRACT BOND

FINAL LIEN AND CLAIM WAIVER AND AFFIDAVIT

SPECIFICATIONS

MAINE TURNPIKE AUTHORITY

NOTICE TO CONTRACTORS

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

CONTRACT 2014.10

INTERCHANGE IMPROVEMENTS
LEWISTON (EXIT 80)
PHASE 2 (BRIDGE AND MAINLINE)
Mile 80.3

at the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, ME, until **11:00 a.m., prevailing time as determined by the Authority on November 13, 2014** at which time and place the Proposals will be publicly opened and read. Bids will be accepted from Contractors pre-qualified by the Maine DOT for Bridge Construction Projects or Contractors pre-qualified by MaineDOT for Highway Construction Projects utilizing a Subcontractor pre-qualified in Bridge Construction Projects to construct the mainline bridge. 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 removing and replacing the existing Turnpike mainline bridges, northbound and southbound, over Alfred Plourde Parkway in the City of Lewiston as well as reconstructing both northbound and southbound mainlines approaching and departing these bridges. The work includes pavement overlay, full depth pavement, gravel, guardrail, structural concrete, concrete deck and parapets, fabrication and erection of steel beams, concrete and pile foundations, mechanically stabilized earth retaining walls, ramp construction, traffic signal installation, roadway lighting, and all other work incidental thereto in accordance with the Plans and Specifications.

The general limits of work are Maine Turnpike from Mile 79.9 (Station 4036+00) to Mile 80.8 (Station 4085+60) and Alfred Plourde Parkway from Station 521+19 to Station 535+42 in Lewiston, 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 Two Hundred (\$200.00) 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 one hundred thirty five (\$135.00) 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 a sealed special addressed envelope 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 **October 28, 2014 at 11:00 a.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 2014.10

INTERCHANGE IMPROVEMENTS
LEWISTON (EXIT 80)
PHASE 2 (BRIDGE AND MAINLINE)
Mile 80.3

MAINE TURNPIKE AUTHORITY

PROPOSAL

CONTRACT 2014.10

INTERCHANGE IMPROVEMENTS

LEWISTON (EXIT 80)

PHASE 2 (BRIDGE AND MAINLINE)

Mile 80.3

TO MAINE TURNPIKE AUTHORITY:

The work consists of removing and replacing the existing Turnpike mainline bridges, northbound and southbound, over Alfred Plourde Parkway in the City of Lewiston as well as reconstructing both northbound and southbound mainlines approaching and departing these bridges. The work includes pavement overlay, full depth pavement, gravel, guardrail, structural concrete, concrete deck and parapets, fabrication and erection of steel beams, concrete and pile foundations, mechanically stabilized earth retaining walls, ramp construction, traffic signal installation, roadway lighting, and all other work incidental thereto in accordance with the Plans and Specifications.

The general limits of work are Maine Turnpike from Mile 79.9 (Station 4036+00) to Mile 80.8 (Station 4085+60) and Alfred Plourde Parkway from Station 521+19 to Station 535+42 in Lewiston, Maine.

This Work will be done under a Contract known as Contract 2014.10 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. 2014.10
INTERCHANGE IMPROVEMENTS, LEWISTON (EXIT 80)
PHASE 2 (BRIDGE AND MAINLINE)
MILE 80.3**

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
202.071	Removing Asbestos Containing Materials, Electrical Conduit	Linear Foot	200				
202.191	Removing Existing Bridge – Exit 80 Southbound	Lump Sum	1				
202.192	Removing Existing Bridge – Exit 80 Northbound	Lump Sum	1				
202.15	Removing Existing Manhole or Catch Basin	Each	3				
202.202	Removing Pavement Surface	Square Yard	23,000				
202.203	Pavement Butt Joints	Square Yard	1,500				
202.205	Rumble Strips	Each	12,500				
203.20	Common Excavation	Cubic Yard	25,700				
203.21	Rock Excavation	Cubic Yard	50				
203.25	Granular Borrow	Cubic Yard	6,550				
203.26	Gravel Borrow	Cubic Yard	50				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
203.35	Crushed Stone	Cubic Yard	150				
206.061	Structural Earth Excavation - Drainage & Minor Structures Below Grade	Cubic Yard	30				
206.07	Structural Rock Excavation - Drainage & Minor Structures	Cubic Yard	50				
304.09	Aggregate Base Course - Crushed	Cubic Yard	2,700				
304.1	Aggregate Subbase Course - Gravel	Cubic Yard	8,000				
403.207	Hot Mix Asphalt, 19.0 mm Nominal Maximum Size	Ton	4,750				
403.2083	Hot Mix Asphalt, 12.5 mm (Polymer Modified), Surface	Ton	4,570				
403.209	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals)	Ton	31				
403.211	Hot Mix Asphalt, Shimming	Ton	850				
403.213	Hot Mix Asphalt, 12.5mm Nominal Maximum Size, Base	Ton	1,600				
409.15	Bituminous Tack Coat, Applied	Gallon	2,600				
419.30	Sawing Bituminous Pavement	Linear Foot	2,650				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
459.06	Bituminous Concrete Waterway, Type I	Each	1				
459.061	Bituminous Concrete Waterway, Type II	Each	4				
501.231	Dynamic Loading Test	Each	3				
501.542	Steel H-Beam Piles 117 lb/ft, delivered	Linear Foot	690				
501.543	Steel H-Beam Piles 117 lb/ft, in place	Linear Foot	690				
501.903	Pile Tips – Rock Injector Point	Each	18				
501.911	Pile Splices	Each	5				
501.92	Pile Driving Equipment Mobilization	Lump Sum	1				
502.219	Structural Concrete, Abutments and Retaining Walls (335 CY)	Lump Sum	1				
502.26	Structural Concrete Roadway and Sidewalk Slab on Steel Bridges (420 CY)	Lump Sum	1				
502.264	Structural Concrete Parapets (120 CY)	Lump Sum	1				
502.265	Structural Concrete Overturning Slab (93 CY)	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:							
502.266	Structural Concrete Single Slope Barrier (45 CY)	Lump Sum	1				
502.31	Structural Concrete Approach Slab (177 CY)	Lump Sum	1				
503.14	Epoxy-Coated Reinforcing Steel, Fabricated and Delivered	Pound	201,400				
503.15	Epoxy-Coated Reinforcing Steel, Placing	Pound	201,400				
503.18	ZBar Reinforcing Steel, Fabricated and Delivered	Pound	46,300				
503.19	ZBar Reinforcing Steel, Placing	Pound	46,300				
504.703	Structural Steel Fabricated and Delivered, Welded (1,079,500 LB)	Lump Sum	1				
504.71	Structural Steel Erection (1,079,500 LB)	Lump Sum	1				
505.09	Stud Welded Shear Connectors (4,395 EA)	Lump Sum	1				
506.9102	Zinc-Rich Coating System (Shop Applied)	Lump Sum	1				
506.9103	Zinc-Rich Coating System (Field Touch-Up)	Lump Sum	1				
507.091	Aluminum Bridge Railing, 1 Bar (1,098 LF)	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:							
508.141	High Performance Waterproofing Membrane (2,200 SY)	Lump Sum	1				
511.091	Temporary Earth Support Systems	Lump Sum	1				
513.221	Crushed Stone Slope Protection	Cubic Yard	340				
515.202	Clear Protective Coating for Concrete Surfaces	Square Yard	1,500				
515.23	Anti-Graffiti Coating	Square Yard	760				
518.64	THOROC 10-60 – Rapid Set Mortar (50 lb. Bag)	Each	10				
520.221	Expansion Device - Compression Seal	Each	3				
523.52	Bearing Installation	Each	5				
523.5401	Laminated Elastomeric Bearings, Fixed	Each	5				
524.40	Protective Shielding - Steel Girders	Square Yard	1,150				
526.306	Temporary Concrete Barrier, Type I - Supplied by Authority (7,250 LF)	Lump Sum	1				
527.341	Work Zone Crash Cushions TL-3	Unit	1				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
602.30	Flowable Concrete Fill (65 CY)	Lump Sum	1				
603.155	12 inch Reinforced Concrete Pipe - Class III	Linear Foot	28				
603.175	18 inch Reinforced Concrete Pipe - Class III	Linear Foot	500				
603.225	42 inch Reinforced Concrete Pipe - Class III	Linear Foot	340				
603.28	Concrete Collar for Reinforced Concrete Pipe	Each	5				
603.741	Reinforced Concrete Pipe Remove and Stack	Linear Foot	230				
604.09	Catch Basin Type B1	Each	3				
604.111	72 inch Catch Basin Type C1	Each	2				
604.112	96 inch Catch Basin Type C1	Each	1				
604.154	72 inch Manhole	Each	1				
604.16	Altering Catch Basin to Manhole	Each	1				
604.161	Altering Catch Basin	Each	1				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
604.162	Cap Catch Basin	Each	2				
604.17	Altering Manhole to Catch Basin	Each	1				
604.186	Rebuild Catch Basin to Grade - Type IV	Each	3				
604.242	Catch Basin Type F3	Each	1				
604.244	Catch Basin Type F4	Each	4				
604.248	Catch Basin Type F6	Each	3				
604.271	Catch Basin Remove and Stack	Each	4				
605.11	12 inch Underdrain Type C	Linear Foot	150				
606.1723	Bridge Transition - Type III	Each	4				
606.1724	Bridge Transition - Type III, Modified	Each	2				
606.24	Guardrail Type 3d - Single Rail	Linear Foot	950				
606.2401	Guardrail Type 3d - Double Rail	Linear Foot	100				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
606.277	Terminal End - Trailing End	Each	1				
606.278	Terminal End - Trailing End, Double Face	Each	1				
606.352	Reflectorized Beam Guardrail Delineator	Each	120				
606.353	Delineator Post	Each	64				
606.354	Delineator Post - Remove and Reset	Each	11				
606.3621	Guardrail Adjust, Single Rail	Linear Foot	200				
606.3622	Guardrail Adjust, Double Rail	Linear Foot	500				
606.3631	Guardrail - Remove, Stack and Dispose	Linear Foot	4,600				
606.64	Guardrail Thrie Beam - Double Rail	Linear Foot	3,250				
606.701	Asymmetrical Thrie Beam Transition	Each	4				
606.80	Guardrail 350 FLEAT Terminal	Each	2				
609.15	Sloped Curb Type 1	Linear Foot	1,160				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
610.08	Plain Riprap	Cubic Yard	14				
610.18	Stone Ditch Protection	Cubic Yard	105				
610.181	Temporary Stone Check Dam	Cubic Yard	105				
613.319	Erosion Control Blanket	Square Yard	4,150				
615.07	Loam	Cubic Yard	2,710				
618.1402	Seeding Method Number 2 Modified, Plan Quantity	Unit	221				
619.1201	Mulch, Plan Quantity	Unit	221				
619.1202	Temporary Mulch	Lump Sum	1				
620.58	Erosion Control Geotextile	Square Yard	1,170				
626.11	Precast Concrete Junction Box	Each	6				
626.12	Quazite Junction Box	Each	8				
626.32	24 inch Foundation	Each	11				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
627.681	Temporary 6 Inch Painted Pavement Marking Line - Yellow or White	Linear Foot	7,500				
627.712	4 inch White or Yellow Pavement Marking Line	Linear Foot	3,750				
627.73	Temporary 6 Inch Pavement Marking Tape	Linear Foot	11,000				
627.77	Removing Existing Pavement Marking	Square Foot	7,400				
627.812	Temporary Raised Pavement Markers	Each	800				
627.94	Pavement Marking Line - Recessed Tape, Broken White Lane Line, 6 inch width	Linear Foot	380				
627.941	Pavement Marking Line - Recessed Tape - Dotted White Lane Line, 4 inch width	Linear Foot	500				
627.942	Pavement Marking Line - Recessed Tape, 4 inch width	Linear Foot	1,450				
627.943	Pavement Marking Line - Recessed Tape, 6 inch width	Linear Foot	2,680				
627.944	Pavement Markings - Recessed Tape - Words, Arrows and Stop Bars	Square Foot	370				
629.05	Hand Labor, Straight Time	Hour	100				
631.12	All Purpose Excavator (including operator)	Hour	75				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
631.172	Truck - large (including operator)	Hour	75				
631.22	Front End Loader (including operator)	Hour	75				
631.32	Culvert Cleaner (including operators)	Hour	50				
631.36	Foreman	Hour	100				
634.208	Remove and Reset Light Standard	Each	4				
634.23	Conventional Light Standard with LED Fixture	Each	5				
636.40	Mechanically Stabilized Earth Retaining Wall	Square Foot	11,500				
643.80	Traffic Signal at Alfred Plourde Parkway and SPUI Ramps	Lump Sum	1				
643.90	Video Detection System relocation and Modification	Lump Sum	1				
643.92	Pedestal Pole - 12 foot	Each	2				
643.95	Signal and Sign Support Assembly	Lump Sum	1				
645.105	Remove and Stack Sign	Each	14				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
645.109	Remove and Reset Sign	Each	10				
645.2711	Installation of Type I Regulatory Sign - Bridge Mounted	Square Foot	45				
645.401	Installation of Type II Signs - Single Post	Each	18				
645.511	Radar Activated Flashing LED Wrong Way Warning Sign	Each	4				
652.30	Flashing Arrow	Each	2				
652.33	Drum	Each	50				
652.34	Cone	Each	300				
652.35	Construction Signs	Square Foot	860				
652.361	Maintenance of Traffic Control Devices	Lump Sum	1				
652.38	Flaggers	Hour	5,000				
652.45	Truck Mounted Attenuator	Each	1				
655.02	#2 AWG Wire	Linear Foot	3,300				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
655.04	#4 AWG Wire	Linear Foot	4,500				
655.10	#10 AWG Wire	Linear Foot	2,600				
655.13	Shielded Category 5e Cable	Linear Foot	1,000				
655.16	Fiber Optic Cable	Linear Foot	3,000				
655.165	Fiber Optic Splice Panel	Each	2				
655.21	Stainless Steel Flush Mounted Junction Box	Each	2				
655.204	3 inch Schedule 80 PVC Conduit	Linear Foot	4,000				
655.42	2 inch Schedule 80 Rigid Metal Conduit	Linear Foot	1,600				
655.90	Under Bridge Lighting Fixtures	Each	8				
656.50	Baled Hay, in place	Each	180				
656.60	Temporary Berms	Linear Foot	2,100				
656.62	Temporary Slope Drains	Linear Foot	360				

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	1,170				
659.10	Mobilization	Lump Sum	1				
830.25	Horizontal Directional Drilling, 3 inch PVC Conduit Installation	Linear Foot	200				
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)

SURETY

_____ (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)

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.

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

<u>HOLIDAY</u>	<u>HOLIDAY PERIOD</u>
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".

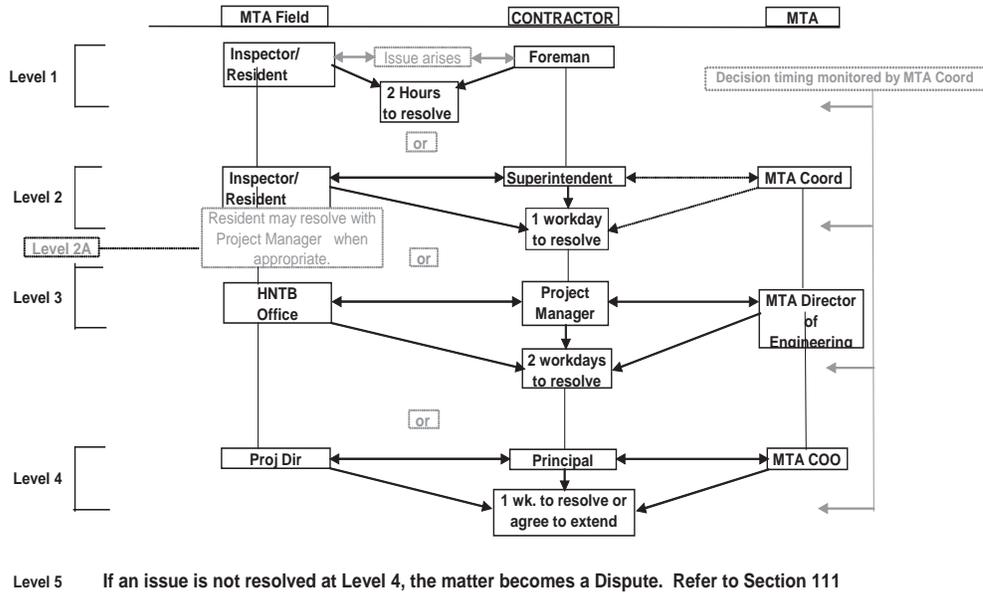
104.4.2 Preconstruction Conference

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:



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:

<u>NUMBER OF OCCURRENCES</u>	<u>FINE</u>
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.

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.

<u>Organic Content</u>	<u>Percent by Volume</u>
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 greater 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:

NCHRP 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/m² [80 lb/ft²] ground contact pressure..." is changed to "...crawler type bulldozer of not more than 4875 kg/m² [2000 lb/ft²] ground contact pressure..."

653.06 Compaction

In the final sentence "...crawler type bulldozer of not more than 390 kg/m² [80 lb/ft²] ground contact pressure..." is change to "...crawler type bulldozer of not more than 4875 kg/m² [2000 lb/ft²] 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, polyamide 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 µm to 250 µm [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 unreinforced 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:

<u>Pay Item</u>	<u>Pay Unit</u>
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 the second phase of interchange modifications at Exit 80 in Lewiston, Maine, Mile 80.3 on the Maine Turnpike. This phase entails removing and replacing the existing Turnpike mainline bridges, northbound and southbound, over Alfred Plourde Parkway as well as reconstructing both northbound and southbound mainlines approaching and departing these bridges, and constructing the final phase of a single point intersection on Alfred Plourde Parkway. The work includes pavement overlay, full depth pavement, gravel, guardrail, structural concrete, concrete deck and parapets, fabrication and erection of steel beams, concrete and pile foundations, mechanically stabilized earth retaining walls, ramp construction, traffic signal installation, roadway lighting, and all other work incidental thereto in accordance with the Plans and Specifications.

The general limits of work are Maine Turnpike from Mile 79.9 (Station 4036+00) to Mile 80.8 (Station 4085+60) and Alfred Plourde Parkway from Station 521+19 to Station 535+42 in Lewiston, 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 Authority – Contract 2014.10 – Interchange Improvements – Lewiston Exit 80 – Phase 2 Bridge and Mainline – Mile 80.3. 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:

Christmas Day 2014	6:00 p.m. preceding Tuesday to 6:00 a.m. the following Monday.
New Year's Day 2015	12:01 p.m. preceding Wednesday to 6:00 a.m. the following Friday.

Independence Day 2015 (Fourth of July)	6:00 a.m. preceding Friday to 6:00 a.m. the following Monday.
Christmas Day 2015	6:00 p.m. preceding Wednesday to 6:00 a.m. the following Monday.
New Year's Day 2016	12:01 p.m. preceding Thursday to 6:00 a.m. the following Monday.
Independence Day 2016 (Fourth of July)	6:00 a.m. preceding Friday to 6:00 a.m. the following Tuesday.
Christmas Day 2016	6:00 p.m. preceding Friday to 6:00 a.m. the following Tuesday.
New Year's Day 2017	6:00 p.m. preceding Friday to 6:00 a.m. the following Tuesday.

102.1.1 Basic Requirements

The following paragraph is added:

To be eligible to bid, Contractor must be pre-qualified by the MaineDOT for Bridge Construction Projects or the Contractor must be pre-qualified by MaineDOT for Highway Construction Projects utilizing a Subcontractor pre-qualified in Bridge Construction Projects. The prospective Highway prequalified bidder must submit the name of their Subcontractor pre-qualified for Bridge Construction with the Bid. Substitution or removal of the Bridge subcontractor will not be allowed unless approved in writing by the Maine Turnpike Authority.

103.4 Notice of Award

The following sentence is added:

The Maine Turnpike Authority Board is scheduled to consider the Contract Award on November 20, 2014.

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:

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 -----MTA Interchange Reconstruction Exit 80 2014.10

Location of Project -Lewiston, Androscoggin County

**2014 Fair Minimum Wage Rates
 Heavy & Bridge Androscoggin County**

Occupation Title	Minimum			Occupation Title	Minimum		
	Wage	Benefit	Total		Wage	Benefit	Total
Backhoe Loader Operator	\$18.79	\$2.64	\$21.43	Ironworker - Structural	\$22.75	\$7.35	\$30.10
Boom Truck (Truck Crane) Operator	\$25.00	\$15.46	\$40.46	Laborers (Incl.Helpers & Tenders)	\$16.10	\$5.10	\$21.20
Bricklayer	\$28.01	\$17.04	\$45.05	Laborer - Skilled	\$17.00	\$4.87	\$21.87
Bulldozer Operator	\$17.98	\$2.55	\$20.53	Line Erector - Power/Cable Splicer	\$26.50	\$9.34	\$35.84
Carpenter	\$19.25	\$5.52	\$24.77	Loader Operator - Front-End	\$22.15	\$4.49	\$26.64
Carpenter - Rough	\$18.00	\$5.05	\$23.05	Mechanic- Maintenance	\$19.00	\$4.31	\$23.31
Communication Equip Installer	\$16.75	\$1.39	\$18.14	Mechanic- Refrigeration	\$23.22	\$3.27	\$26.49
Comm Trans Erector-Microwave & Cell	\$20.14	\$4.24	\$24.38	Millwright	\$21.50	\$0.00	\$21.50
Concrete Pump Operator	\$20.50	\$3.53	\$24.03	Oil/Fuel Burner Serv & 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)	\$24.00	\$6.98	\$30.98	Paver Operator	\$17.25	\$1.63	\$18.88
Crusher Plant Operator	\$17.00	\$4.06	\$21.06	Pile Driver Operator	\$22.32	\$6.49	\$28.81
Diver	\$25.00	\$16.38	\$41.38	Pipe/Steam/Sprinkler Fitter	\$22.00	\$5.49	\$27.49
Driller - Rock	\$18.00	\$3.53	\$21.53	Pipelayer	\$17.05	\$15.07	\$32.12
Dry-Wall Taper & Finisher	\$20.00	\$1.04	\$21.04	Propane & Natural Gas Servicer & Inst	\$23.00	\$3.44	\$26.44
Electrician - Licensed	\$26.50	\$8.33	\$34.83	Pump Installer	\$21.00	\$2.77	\$23.77
Electrician Helper/Cable Puller (Licensed)	\$17.00	\$5.82	\$22.82	Rigger	\$20.50	\$5.32	\$25.82
Excavator Operator	\$21.37	\$3.27	\$24.64	Roller Operator - Earth	\$19.36	\$22.45	\$41.81
Flagger	\$16.17	\$15.65	\$31.82	Roller Operator - Pavement	\$17.25	\$5.41	\$22.66
Grader/Scraper Operator	\$16.73	\$2.98	\$19.71	Truck Driver - Light	\$21.54	\$9.12	\$30.66
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	\$15.81	\$14.40	\$30.21
Insulation Installer	\$22.00	\$9.75	\$31.75	Truck Driver - Tractor Trailer	\$18.00	\$2.47	\$20.47
Ironworker - Reinforcing	\$20.00	\$0.50	\$20.50				

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.

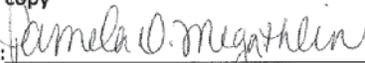
Welders are classified in the trade to which the welding is incidental.

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-030-2014
 Filing Date: October 2, 2014
 Expiration Date: 12-31-2014

A true copy
 Attest: 
 Pamela D Megathlin
 Director
 Bureau of Labor Standards

**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 -----MTA Interchange Reconstruction Exit 80 2014.10

Location of Project --Lewiston, Androscoggin County

**2014 Fair Minimum Wage Rates
Highway & Earthwork Androscoggin County**

Occupation Title	Minimum			Occupation Title	Minimum		
	Wage	Benefit	Total		Wage	Benefit	Total
Asphalt Raker	\$14.00	\$0.60	\$14.60	Ironworker - Structural	\$22.57	\$5.88	\$28.45
Backhoe Loader Operator	\$17.00	\$1.68	\$18.68	Laborers (Incl. Helpers & Tenders)	\$13.15	\$1.29	\$14.44
Boom Truck (Truck Crane) Operator	\$25.00	\$15.46	\$40.46	Laborer - Skilled	\$16.50	\$2.55	\$19.05
Bulldozer Operator	\$18.00	\$2.95	\$20.95	Loader Operator - Front-End	\$16.38	\$2.63	\$19.01
Carpenter	\$18.50	\$1.49	\$19.99	Mechanic- Maintenance	\$19.75	\$2.89	\$22.64
Carpenter - Rough	\$17.00	\$1.85	\$18.85	Painter	\$14.50	\$0.00	\$14.50
Cement Mason/Finisher	\$17.05	\$0.43	\$17.48	Paver Operator	\$17.63	\$2.99	\$20.62
Concrete Pump Operator	\$20.50	\$3.53	\$24.03	Pipelayer	\$35.72	\$21.35	\$57.07
Crane Operator =>15 Tons)	\$23.25	\$6.45	\$29.70	Pump Installer	\$21.00	\$2.77	\$23.77
Crusher Plant Operator	\$17.95	\$2.76	\$20.71	Reclaimer Operator	\$20.00	\$10.84	\$30.84
Diver	\$25.00	\$3.07	\$28.07	Roller Operator - Earth	\$19.36	\$22.45	\$41.81
Driller - Rock	\$18.00	\$5.01	\$23.01	Roller Operator - Pavement	\$17.00	\$2.35	\$19.35
Driller - Well	\$14.00	\$3.20	\$17.20	Roofer	\$16.00	\$1.40	\$17.40
Electrician - Licensed	\$24.50	\$5.86	\$30.36	Screed/Wheelman	\$18.20	\$2.49	\$20.69
Excavator Operator	\$18.00	\$1.97	\$19.97	Truck Driver - Light	\$15.75	\$3.03	\$18.78
Fence Setter	\$12.00	\$0.00	\$12.00	Truck Driver - Medium	\$14.00	\$0.57	\$14.57
Flagger	\$10.00	\$0.00	\$10.00	Truck Driver - Heavy	\$15.00	\$1.72	\$16.72
Grader/Scraper Operator	\$16.25	\$2.60	\$18.85	Truck Driver - Tractor Trailer	\$16.88	\$4.96	\$21.84
Highway Worker/Guardrail Installer	\$16.40	\$0.41	\$16.81	Truck Driver - Mixer (Cement)	\$11.42	\$2.90	\$14.32
Hot Top Plant Operator	\$21.75	\$10.34	\$32.09				

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: HI-106-2014
Filing Date: October 2, 2014
Expiration Date: 12-31-2014

A true copy
Attest: Pamela D. Megathlin
Pamela D Megathlin
Director
Bureau of Labor Standards

BLS 424HI (R2014) (Highway & Earthwork Androscoggin)

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:

These Special Provisions outline the arrangements which have been established by the Authority for coordination of the work to be accomplished by the utilities during both Contracts 2013.07 – Phase I Ramps Construction and this Contract. The scope and schedule of utility relocation work is noted herein. The Contractor shall plan and conduct his work accordingly.

General

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

The Contractor shall plan and conduct his operations in accordance with the following utility schedule. The Contractor must comply with all OSHA regulations pertaining to work adjacent to utility wires. The Contractor shall plan and conduct his work accordingly.

The majority of utility coordination involving work directly over and under existing utilities was completed during Contract 2013.07 – Phase I Ramps Construction. However, there remains, as part of this contract, utility, roadway and bridge construction within close proximity to existing utilities.

The following utilities are located within the Project limits. The Contractor shall ascertain the location of the existing utilities and any other necessary information by direct inquiry at the office of the following utility owners:

AERIAL AND UNDERGROUND UTILITIES

OIL PIPELINE:

Buckeye Partners, LP
170 Lincoln Street
South Portland, ME 04106
ATTN: Mr. Gary Lieberman (207) 767-2672
Cell: (207) 400-9962
email: glieberman@buckeye.com

LIGHTING - Alfred Plourde Parkway:

City of Lewiston Public Works
103 Adams Avenue
Lewiston, ME 04240
ATTN: Denis Caron (207) 513-3003 x3425
email: dcaron@lewistonmaine.gov

LIGHTING - Ramps:

Maine Turnpike Authority
2360 Congress Street
Portland, ME 04101
(207) 871-7771

ELECTRIC:

Central Maine Power
83 Edison Drive
Augusta, ME 04336
(800) 750-4000
ATTN: to be determined

BUCKEYE PARTNERS, LP (BUCKEYE)

BUCKEYE has a six inch cathodically protected coated oil pipeline crossing under the Maine Turnpike and the existing southbound deceleration lane at approximately Station 4070+50. The oil pipeline also crosses under the proposed Ramp B at approximately Station 212+80.

BUCKEYE does not propose any relocation in order to facilitate the Project. The proposed design has greater than the 36" minimum cover required by BUCKEYE. BUCKEYE has certain restrictions that need to be followed when blasting within 300 feet or 500 feet of their pipeline. BUCKEYE PARTNERS, LP AND AFFILIATES Right-of-Way Use Restrictions Specification, Revision 2 is included as Appendix B.

The Contractor shall notify BUCKEYE two (2) weeks in advance of any work taking place over their oil pipeline outside of the existing pavement limits. This includes earthwork, ditching and guardrail.

CITY OF LEWISTON PUBLIC WORKS (LEW)

LEW has light poles near the limits of work on Alfred Plourde Parkway.

Contractor shall notify LEW two (2) weeks in advance of any work impacting these light poles.

CENTRAL MAINE POWER (CMP)

CMP has service along Alfred Plourde Parkway, originating from the East, to a new transformer at approximately Sta 520+90 LT. CMP does not have any utilities within the project limits that will require modification however CMP does supply power to the East and West project limits via Alfred Plourde Parkway.

Contractor shall notify CMP two (2) weeks in advance of any work impacting these services.

MAINE TURNPIKE AUTHORITY (AUTHORITY)

Underground electrical and communication conduit, operated by the Maine Turnpike Authority, does exist on site along Alfred Plourde Parkway and the existing interchange ramps. These utilities are live and the contractor shall coordinate construction activity with the Authority per the Plans. This will involve, as part of this contract, the contractor utilizing existing infrastructure, removing existing infrastructure, and installing new infrastructure.

104.4.7 Cooperation With Other Contractors

This Subsection is amended by the addition of the following:

Multiple Maine Turnpike bridges (No Name River, Androscoggin River, Lisbon Street, Goddard Road, Lewiston Interchange Phase II – 2014.10), between Mile 53 and 102, are scheduled for various repairs as part of the Bridge Repair contract in 2014. The Maine Turnpike fore and back slopes are scheduled for a Clearing contract in 2015 and 2016 in this area. Androscoggin River Bridge Repairs are anticipated in 2016 and in 2017 there will be bridge repairs and mainline paving at Exit 75, Goddard Road and River Road. All construction Contracts associated with this work shall be considered adjacent Contracts. These and the following projects are known projects as of the advertisement of this project.

The MaineDOT is planning the following construction projects which should be considered adjacent contracts.

- A bridge construction project in 2014-2015 on Washington Street/Route 100 northbound between the Auburn interchange and Minot Avenue in Auburn; project WIN18335.
- A bridge construction project in 2014-2015 on Washington Street/Route 100 southbound between the Auburn interchange and Minot Avenue in Auburn; project WIN18336.
- A highway resurfacing project in 2014-2015 on Washington Street/Route 100 between the Little Androscoggin River and the New Gloucester Town Line; project WIN20274.
- An intersection construction project in 2014 on Route 126 at the intersection with Pleasant Hill Road and Jordan Bridge Road; project WIN19008.
- A paving project currently schedule for March 2015 on Route 196 in Lewiston between Westminster Street and Adams Avenue; project WIN20285.
- A safety project currently scheduled for March 2015 on Route 196 and the ramps to Alfred Plourde Parkway; project WIN8850.31

The following Subsection is added:

105.2.4.2 Lead Paint

The Contractor shall note that the existing bridge structure contains lead based paint. The Contractor shall institute every precaution when working with materials coated with lead based paints.

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.

105.2.4.3 Asbestos (Asbestos is Present)

The Contractor shall note the presence of underground electrical conduit for lighting located within the Project limits containing asbestos materials. Known locations of this conduit are delineated as existing electrical conduits on the site plans. All conduit associated with lighting shall be assumed to contain asbestos. The removal and disposal of the asbestos containing materials is specified in Special Provision 202, Removing Structure and Obstructions (Removing Asbestos Containing Materials).

105.2.6 Use of Explosives

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

The use of explosives is permitted, however, prior to any blasting, the Contractor must submit a detailed blasting plan to the Resident at least three (3) weeks prior to commencing drilling and blasting operations. The blasting plan shall contain the following information:

- a. Written evidence of licensing, experience and qualifications of the blasters who will be directly responsible for the blasting operations;
- b. Name and qualifications of the person(s) responsible for design and directing the blasting. The submittal shall document by project lists that the person has the required experience in controlling blast vibrations in blasting rounds of the type required on this Project;
- c. Site plan with location of nearest structures and abutters. Plan shall also show the location of all private wells;
- d. Sequence and schedule of blasting rounds;
- e. Plan of each blast showing hole-spacing and delay pattern;
- f. Diameter and depth of each hole;
- g. Amount of explosive per hole;

- h. Total pounds of explosives per delay;
- i. Total amount of explosives per blast;
- j. Type of non-electric delays to be used;
- k. Amount of stemming in each hole;
- l. Type of explosive to be used;
- m. Type and location of seismograph(s) to be used. A listing of instrumentation for the purpose of monitoring vibrations and airblast over pressure levels complete with performance specifications and user manuals supplied by the manufacturer;
- n. Recent calibration certificate(s) (within previous six months) for the proposed blast monitoring instrumentation;
- o. Soil and rock profile in blast zone;
- p. Scale distance to the nearest abutting structure;
- q. Size of blasting mats and cover to be used; and,
- r. Safety precautions to be followed.

After submission of the blasting plan, but prior to the start of the blasting program, the blasting Contractor shall meet with the Resident, Maine Turnpike Authority officials, State Police (turnpike barracks), City of Lewiston Fire officials, and affected utility representatives. The purpose of the meeting is to advise them of their blasting plan and schedule, accept feedback on the proposed plan, and coordinate the blasting effort.

Should field conditions warrant a change in the general blasting plan, the blasting Contractor shall provide a sketch and blasting plan details based on the actual field conditions prior to the blast for inclusion in the Project records.

The following general requirements are to be adhered to:

- A. Blasting permits shall be obtained by the Contractor from all local, State and Federal agencies having jurisdictions. Blasting will not be authorized by the Resident without proper permits.

The Contractor shall comply with all applicable laws, rules, ordinances, and regulations of the Federal Government, the State of Maine, and the city or town governing the transportation, storage, handling, and the use of explosives. All labor, materials, equipment, and services necessary to make the blasting operations comply with such requirements shall be provided at no additional costs to the Authority.

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

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

Blasting agents shall comply with appropriate regulatory environmental requirements. Explosives containing perchlorates should not be used.

- B. Obtain the services of a qualified vibration and blasting expert to monitor the blasting. All seismographic instruments shall be capable of producing a permanent record of the information required to determine the particle velocity at any time during all phases of the blasting operation. A copy of all recording shall be furnished to the Authority within two (2) working days after a blast. Seismographic recordings shall be taken at the critical locations and additional instruments shall be furnished, located and operated as deemed necessary by the Resident.

Persons responsible for blasting shall be Licensed Blasters in the State of Maine and shall have had acceptable experience in similar excavations in rock and controlled blasting techniques.

- C. Non-electric detonation systems shall be used. Electric blasting caps will not be permitted.
- D. The Contractor shall conduct all blasting activity in such a manner that the peak particle velocity of ground vibration, measured at the locations of the nearest structures to the blast, does not exceed the “safe limits” recommended by the U.S. Bureau of Mines in FIGURE B of BUMINES RI 8507, as follows:

FIGURE B

BUMINES RI 8507

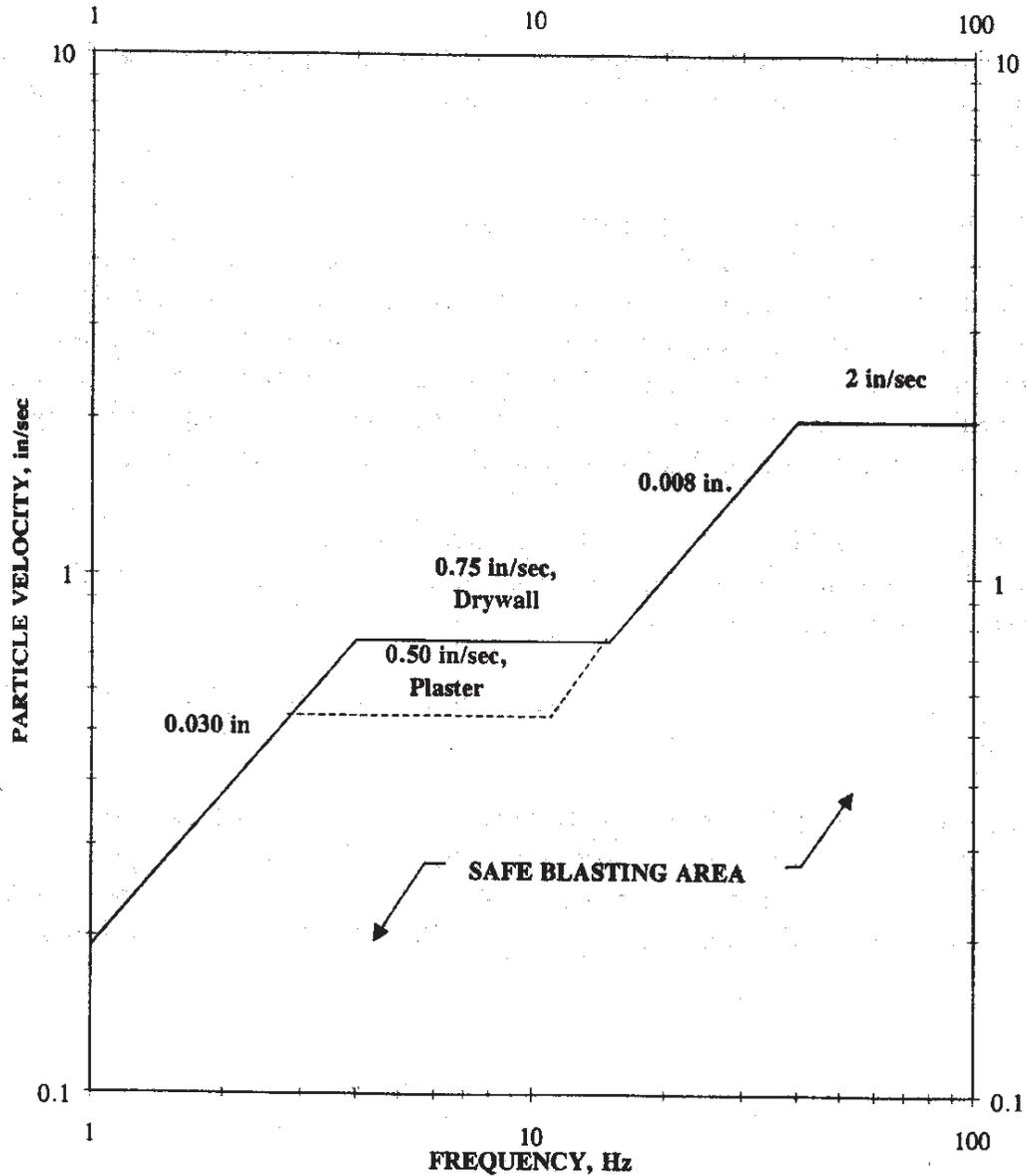


Figure B-1 - Safe levels of blasting vibration for houses using a combination of velocity and displacement

ALTERNATIVE BLASTING LEVEL CRITERIA

- E. The Contractor shall conduct all blasting activity in such a manner that the peak airblast overpressure measured at the locations of the nearest above ground occupied structures to the blast (considering wind direction) does not exceed 0.014 psi.

F. Scaled distance factors permitted for various distances from blast:

<u>Distance from blast site (ft)</u>	<u>Scaled distance factor to be used without seismic monitoring (ft)</u>
0* to 300	50
300 to 5000	55
5000 and beyond	65

*Except that seismic monitoring will be required for any blast within 50 feet of a structure regardless of charge size or arrangement.

G. The Contractor shall advise the Resident at least five (5) working days in advance of the dates on which he proposes to perform blasting operations, providing an approximate hour for the Resident's approval. The Authority will provide police at the turnpike site, who will stop traffic in both directions while the blast is detonated. The Contractor will be responsible for obtaining the necessary permits and police or flaggers required to close local streets during periods of blasting.

H. Safety Precautions

1. Clearing Danger Area Before Blasting - no blasting shall be permitted until *all* personnel in the danger area have been removed to a place of safety. A loud, audible warning system, devised and implemented by the Contractor, shall be sounded before each blast. The Contractor shall familiarize all personnel on the Project, Authority, Police Officers, Residents, and the general public with the implemented system. The danger area shall be patrolled before each blast to make certain that it has been completely cleared, and guards shall be stationed to prevent entry until the area has been cleared by the blaster following the blast.
2. Explosives shall be stored, handled and employed in accordance with Federal, State and local regulations.
3. No explosives, caps, detonators or fuses shall be stored on-site during non-working-hours.
4. Blasting mats may be used to cover the top and vertical face of all blasts in order to minimize the possibility of excessive throw of rock. The use of blasting mats is not required.
5. The Contractor is advised that the Authority's Maintenance Forces and State Police use two-way radios in the vicinity of the Project. These radios cannot be turned off during loading operations. Therefore, non-electric detonation systems shall be used. Electric blasting caps will *not* be permitted.
6. The Contractor shall be responsible for determining any other safety requirements unique to blasting operations at these particular sites so as not to endanger life, property, utility services, any existing or new construction, or any property adjacent to the site.

- a. Vibration monitoring should be conducted at nearby sensitive utilities and structures, including bridges, during blasting. Utility operators should be contacted to obtain vibration criteria to limit the potential for damage to existing utilities. Vibration monitoring should be conducted to confirm the vibration criteria are not exceeded.
7. No requirements of, or omissions to, require any precautions under this Contract shall be deemed to limit or impair any responsibility or obligations assumed by the Contractor under or in connection with this Contract; and the Contractor shall at all times maintain adequate protection to safeguard the public and all persons engaged in the work, and shall take such precautions as will accomplish such end, without undue interference to the public. The Contractor shall be responsible for and pay for any damage to adjacent roadways or structures resulting from work executed under this Section.
8. The Contractor is required to secure all travelways, entrances and exits within 300 feet of the blast zone. No vehicles or pedestrians will be allowed within the 300-foot-zone until the blast is complete, all debris is cleaned from the roadways, and the site is deemed safe by the Resident.

I. Pre-Production Test Blast

1. The Contractor shall conduct a test blast prior to production blasting. The test blast shall include the same perimeter control (presplit or cushion blasting) and production blast hole diameter, spacing, loading, and delays as proposed in the blast plan and shall be conducted over a minimum 25 foot long section of the rock cut. The rock slope created by the test blast shall be exposed for review by the Resident. Production blasting shall not continue without approval of the test blast results by the Resident.
2. If the test blast does not show an acceptable slope condition, a revised Blast Plan shall be provided by the Contractor with modifications to the hole spacing, loading and/or delay, and another test blast shall be conducted.
3. Test blasts shall be conducted at any time during the project in which changes to the blast design are proposed.

J. General Blasting Procedures

1. The time during which explosives may be restricted to non-peak travel periods. Blasting is permitted Monday through Thursday 9:00 a.m. – 3:00 p.m. and Friday 9:00 a.m. – 2:00 p.m. The use of explosives is not permitted on weekends (Saturday and Sunday), holidays, on the eve of a holiday, or during non-daylight-hours unless approved in writing by the Resident. In order to minimize traffic disruptions, the Contractor shall schedule blasting such that all disrupted traffic shall be cleared between any two successive blasts detonated anywhere on the Project. The Contractor will be allowed as many traffic stoppages as can be cleared in the designated blasting window, provided the blast schedule can be safely coordinated. The Contractor will be required to stop traffic on the mainline and all ramps for all blasts. The Authority may withhold permission to blast if, in the opinion of the Authority,

actual or anticipated traffic volumes will produce mainline or local road congestion that cannot be cleared in a reasonable amount of time. The Contractor's blasting operations shall be performed using extreme care to minimize the inconvenience and interruption to traffic and damage to the existing pavement, structures and surrounding areas.

2. The Contractor shall have sufficient equipment available on-site to clear the pavement of blast rock, if it is necessary. At a minimum, the Contractor shall have a vehicle to sweep the pavement and a half-ton pickup equipped with a plow. The blast will not be allowed to occur if this equipment is not present.
3. The Contractor shall coordinate all blasting with the Resident on-site who shall determine in advance when the charges may be set.
4. Blast hole diameter shall not be greater than four inches.
5. No free flowing, pourable or pumpable explosives shall be used unless approved by the Resident. All explosives shall be in cartridges or other semi-rigid containers.
6. Mainline traffic control during blasting periods shall be in accordance with the Plans and Specifications. All temporary signage shall be removed when the daily blasting period is over. Traffic control signs shall meet the requirements of Section 652 and will be paid for under Item 652.35, Construction Signs. The setup and removal of signs and the coordination with State Police and local Municipalities for mainline blasting will be included for payment under Item 652.361, Maintenance of Traffic Control Devices.
7. Local traffic control during blasting periods shall be in accordance with MUTCD and local requirements. All temporary signage shall be removed when the daily blasting period is over. Local traffic control signs shall meet MUTCD requirements and will be measured for payment as construction signs. Providing flaggers, or local police officers if required, on local roads for mainline and ramp blasting, will be measured for payment. The payment for local police will be paid as a direct cost with no markup allowed by the Contractor. Coordination with the local officials for mainline or ramp blasting will not be paid for separately, but shall be incidental to the Rock Excavation item.
8. The Contractor shall report to the Resident, in writing, all blasting complaints received by the Contractor within 24-hours of receipt. Each blast complaint report shall include the name and address of the complainant, time received, date and time of blast complained about, and a description of the circumstances which led to the complaint. Upon receipt of a written complaint alleging damage from the blasting, the Contractor's vibration and blasting consultant and/or a representative of the blaster's insurance company shall investigate the claim and a written report shall be issued to the complainant, with a copy to the Resident, of the results of the investigation and the response of the Contractor. This written report shall be received by

the complainant and Resident within 15 work days of receipt of the written complaint.

9. The maximum time for which traffic may be stopped at any single time shall be eight (8) minutes. This duration shall be measured as the time between the time that the last car passes the Resident, until the time the Resident determines that all travel lanes are cleared of blast debris. The Contractor shall reduce the size of the blast, change the design and method of the blast, use more mats, or otherwise alter the blasting so that the traffic is not stopped for more than eight minutes. If, due to the throw of rock onto the highway or ramps 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 excess of the eight minute limit. The penalty shall be measured separately on the ramps and the northbound and southbound roadway. Total liquidated damage shall be deducted from the next pay estimate. Whenever the volume of traffic is excessive such that an eight minute interruption would cause objectionable congestion, in the opinion of the Resident, the hours during which blasting may occur may be further restricted.

J. Pre-Blast Condition Survey

The Contractor shall provide a pre-blast survey as described below:

Prior to start of excavation (earth/rock) or blasting work, the Contractor shall conduct a pre-blast condition survey of all existing structures, including bridges, and conditions on the site, adjacent to the site, or in the vicinity of the site. This survey shall extend to such structures or conditions as may be affected by the Contractor's construction operations. As a minimum, condition surveys shall be performed on all structures within 500 feet of anticipated blasting areas. The Contractor is responsible for the following:

1. Coordinate activities, issue notices, obtain clearances and provide whatever photographic and secretarial assistance is necessary to accomplish the survey.
2. Give notice, in writing, to the owner of the property concerned and tenants of the property. Advise in notice, the dates on which surveys are to be made so that they may have representatives present during the examination. Provide copies of all notices to the Resident.
3. The survey shall consist of a description of the interior and exterior conditions of the various structures examined. Descriptions shall locate any existing cracks, damage or other defects existing, and shall include such information so as to make it possible to determine the effect, if any, of the construction operations on the defect. Where significant cracks or damage exist, or for defects too complicated to describe in words, photographs shall be taken and made part of the record.

4. The survey shall include a test of all private wells in the area. Water quality tests shall be obtained so that a baseline condition may be developed. Contractor's record of the pre-blast condition survey shall consist of written documentation and photographs of the conditions identified, or a good quality videotape survey with appropriate audio description of conditions and defects. Prior to start of work, one copy of the Contractor's record of conditions survey shall be submitted to the Resident for review and retention.

Upon completion of all excavation (earth/rock) and blasting work, the Contractor shall make an examination similar to the pre-construction survey of any properties, structures, and conditions where complaints of damage have been received or damage claims have been filed. Notice shall be given to all interested parties so that they may be present during the final examination. Records of the final examination shall be distributed the same as the original preconstruction survey.

K. Payment

No separate measurement or payment will be made for the work outlined in this Section including the detailed blasting program, pre-blast and post-blast surveys, blasting and permit acquisitions. All cost associated with this work shall be incidental to the Rock Excavation item(s).

L. Indemnity

Notwithstanding full compliance with these Specifications, approval of blasting plan, and successful limitation to maximum peak particle velocity noted above, the Contractor shall be solely responsible for any damage, direct or indirect, arising from blasting and shall hold the Authority and Resident harmless from any costs, liens, charges, claims or suits, including the costs of defense, arising from such damage, real or alleged. The Authority and Resident shall be additionally-named insured on any insurance policy covering blasting carried by the Contractor, and this requirement shall also be enforced on any subcontractor.

The Contractor shall provide a pre-blast and post-blast survey including photographs. An inspection of all facilities within and adjacent to the Contract limits shall be made to determine any changes that may occur due to the blasting operations.

The Resident's approval shall not relieve the Contractor of any responsibility for any hazards or damages related to this work. The use of explosives shall conform to all Federal and State laws and regulations. Explosives must not be stored within the turnpike right-of-way. Explosives shall be in the care of competent watchmen at all times, and placement and detonation shall be performed under the direction of a qualified blaster licensed in the State of Maine.

105.3 Traffic Control and Management

See Special Provision Section 526, Concrete Barrier.

See Special Provision Section 652, Maintenance of Traffic.

105.4.1 Maintenance During Construction

This Subsection is amended by the addition of the following:

Once paid for mobilization, the Contractor is responsible for maintenance of the road that is open to local traffic within the Project limits. This does not include winter maintenance of deicing and snow removal.

Mobilization payment is defined as the Pay Requisition being submitted by the Resident to the Authority for payment.

105.4.3 Maintenance During Winter Construction

This Subsection is amended by the addition of the following:

The Contractor is responsible for the maintenance of erosion control and traffic control devices. The Authority will be responsible for winter road maintenance for lanes open to traffic.

The Contractor is also responsible for snow and ice removal from all drainage paths and catch basins located behind traffic control devices, in order to maintain drainage away from the paved travel way.

105.5 Hauling of Materials and Equipment

The Contractor may propose use of an existing access point to the Turnpike including northbound shoulder between the access and Exit 80 northbound exit. The proposal must be accompanied by proposed duration of use, traffic control, access control and safety measures to be implemented. The Contractor shall not use access point or this haul route without written permission from the Maine Turnpike Authority through its Resident. Turnpike lane closures will not be allowed for use of this access point and haul route. The Contractor will be responsible for a locking gate at the access point, which shall be locked during non-working-hours. The gate shall be staffed by a flagger to prevent unauthorized access when it is not locked. The Contractor shall be subject to a daily fine of \$400 for failure to have a locked or staffed gate. All costs associated with this access and haul route will not be measured for payment and shall be incidental to the Contract.

105.5.1 General Requirements

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

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 being permitted through Section 404 of the Clean Water Act, through the US Army Corps of Engineers Programmatic General Permit, Category 2. The Permit was issued for the complete Interchange construction which included both the now complete Phase 1 Ramps construction as well as this Phase 2 Bridges and Mainline contract. The Project is subject to the General Conditions of the Category 2 Authorization dated October 12, 2010 through October 12, 2015. A copy of the General Permit is attached in **Appendix A**, along with a copy of the signed permit for the project. A signed copy of the Category 2 Work Start Notification Form must be delivered to the MTA Resident for immediate coordination with the Army Corps Maine Project Office at least two (2) weeks before work commences. The Contractor must abide by all of the conditions of the permit.

The permit expands the in-water work window for all project site streams by allowing in-water work within an April 1 to October 1 timeframe.

The Project is being permitted through the Maine Department of Environmental Protection (DEP), Natural Resources Protection Act Permit by Rule Regulations Section 11 – State Transportation Facilities, updated June 8, 2012. A copy of the Section 11 – State Transportation Facilities Permit by Rule regulations are attached in **Appendix A**. The Contractor must abide by all of the conditions of the permit.

The Project is being permitted through the Maine Department of Environmental Protection (DEP) Individual Stream Permit. A signed copy of the permit, dated November 26, 2013, is included in **Appendix A**.

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 2010 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.

A Notice of Intent (NOI), accompanied by a preliminary Limit of Disturbance (LOD) plan was submitted by the Authority to the DEP for coverage under the Maine Construction General Permit (MCGP). Compliance with the erosion and sedimentation control requirements outlined in this Contract is required by the Contractor.

The Contractor shall prepare a LOD plan 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 Item 659.10, Mobilization.

The LOD for this Contract, which was submitted as part of the NOI, has been estimated to be 12.1 acres with an additional 2.3 acres for contractor access and storage.

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

Compliance with the erosion and sedimentation control requirements outlined in this Contract is required by the Contractor.

The Contractor shall comply with the conditions outlined in the Army Corps General Permit, Maine Department of Environmental Protection NRPA Permit by Rule, Individual Stream Permit, and the Maine Pollutant Discharge Elimination System General Permit for stormwater discharge associated with construction activity. The Contractor shall indemnify and hold harmless the Maine Turnpike Authority or its agents, representatives and employees against any and all claims, liabilities or fines arising from or based on the violation of the above noted permits.

105.8.3 Wetland and Water Body Impacts

The following locations are classified as streams:

Tributary to Hart Brook	Ramp A-1
Tributary to Hart Brook	Ramp C-1
Tributary to Hart Brook	4058+00 Maine Turnpike
Tributary to Hart Brook	528+00 Alfred Plourde Parkway
Tributary to Hart Brook	4401+00, 4402+00 Ramp D-1
Unnamed Stream	4078+60 Maine Turnpike

Prior to starting work, the Contractor shall submit for approval a detailed construction plan for each stream crossing and/or tie-in. The plan shall outline the schedule, equipment, and materials the Contractor will utilize to construct the culvert extensions/constructions in accordance with the Plans. Work in these areas will not be allowed to start until after the Contractor has demonstrated that he has the necessary equipment, material, and manpower to complete the crossing in a logical and timely manner. The Resident will review the plan to assure that the Contractor is constructing the crossing in accordance with the Contract Documents and permit requirements. The Contractor shall complete the stream crossing in a timely manner.

107.1 Contract Time and Contract Completion Date

This Subsection is amended by the addition of the following:

The contract start date shall be December 1, 2014 at the discretion of the Authority, and all work shall be completed on or before June 30, 2017. The project shall meet the requirements of Substantial Completion by October 15, 2016.

107.1.1 Substantial Completion

This Subsection is amended by the addition of the following:

Substantially complete shall be defined by the Authority as the following:

- Northbound and southbound bridges and mainlines final paved and open to two lanes of traffic in each direction,
- Single point ramps A-1, B-1, C-1, and D-1 final paved and open to traffic,
- Alfred Plourde Parkway final paved and open to traffic,
- Final pavement stripes and markings on all Ramps and Alfred Plourde Parkway,
- All side slopes and infield areas stabilized with loam, seed and mulch (or as shown on the plans).
- Long-term mainline lane closures have been removed and MTA owned temporary concrete barrier stacked at the location designated in Section 526.
- Existing signal system disassembled and permanent signal system installation complete and operational.
- Tolling and ITS infrastructure operational.
- Highway lighting operational.
- All culverts and closed drainage system modifications installed complete with permanent erosion control measures and BMPs.

Liquidated damages on a calendar day basis in accordance with Subsection 107.7.2 shall be assessed for each calendar day that substantial completion is not achieved. Liquidated damages for substantial completion will end when substantial completion is accepted by the Resident or at the Contract Completion Date. If the work remains incomplete at the Contract Completion Date, liquidated damages on a calendar day basis in accordance with Subsection 107.7.2 shall be assessed for each calendar day that Contract completion is not achieved.

107.4.2 Schedule of Work Required

This Subsection is amended as follows:

In the second line of the second paragraph, replace the word “week” with “two weeks”, to read, “...a detailed plan of his operations for the following two weeks.” This schedule is still to be prepared and submitted weekly as noted in the General Provisions.

The following Subsection is added:

107.4.7 Limitations of Operations

All ramps carrying traffic must have either temporary or permanent highway lighting in place and operational at the merge areas.

All ramps and mainline must have either temporary or permanent pavement constructed prior to carrying traffic; aggregate or other surfaces will not be allowed to carry traffic.

All temporary ramps, including shoulders carrying traffic during construction staging, shall be constructed with a minimum of 2 ½ inches of pavement and 20 inches of Type D gravel or as shown on the plans and directed by the Resident.

Any time the existing signal system at the intersection of the northbound ramps and Alfred Plourde Parkway is not operational; a police officer shall be on-site to direct traffic. The Contractor is responsible for the payment of the officer.

Care shall be taken when working near catch basins and pipe inlets to ensure foreign material and contaminants do not enter them. If foreign material and/or contaminants enter the basin or pipe, it shall be removed prior to the material exiting into a waterway. Removal shall be completed to the satisfaction of the Resident and payment shall be incidental to the Contract.

The existing 42" diameter RCP culvert located beneath the highway embankment at approximate Station 4058+02 shall remain in place and in service until the new 42" culvert is installed and operational. Any proposed temporary earth support systems shall be located and designed to accommodate the existing and proposed culverts.

Replacement of the existing 42" concrete pipe under the mainline at approximate Station 4058+00 will require temporary bypass flow of the perennial stream during the final stage of pipe replacement. The replacement work can be completed in two phases starting with the southbound side in 2015 and then the northbound side in 2016 and all work will occur within the permitted in-stream work window of April 1 to October 1. The duration of each replacement phase is estimated to take approximately 5-days with only the second phase requiring a short term bypass flow.

42" RCP replacement Construction Sequence

1. Southbound mainline – 2015
 - i. Excavate for MSE wall construction;
 - ii. Remove existing headwall at 42" under Alfred Plourde, connect new 42" pipe and run to new 8' diameter CB at Ramp C to vicinity of mainline 42" outlet, in stream work will be required. Stream flows shall be intercepted and redirected into new pipe until the next phase of work;
 - iii. Continue installation of 42" pipe under Ramp C to temporary sheet piles located at median and temporarily seal pipe inlet for future extension in subsequent phase.
2. Northbound mainline – 2016
 - i. Excavate for MSE wall construction;
 - ii. Install remaining section of pipe from temporary sheet piles to vicinity of Ramp A catch basin located at approximate station 1120+00 left;
 - iii. Temporarily block flow of stream at Ramp A catch basin at approximate station 1119+25 right;
 - iv. Place pump with screen inlet in catch basin sump, size screen to prevent collection of fish and sticks;
 1. Operate pump at a rate to mimic normal stream flow;
 2. By-pass stream to 8' diameter Ramp A catch basin;
 - v. Make final connection of pipe at both ends;
 - vi. Continue by-pass pumping to allow for concrete collars to properly set.
 - vii. Remove pump;
 - viii. Plug and fill the abandoned section of pipe.

The existing temporary concrete barrier located on the northbound and southbound bridges shall not be removed until after traffic has been removed from the structure.

The pile installation sequence shall follow the procedure shown on the Contract plans.

There shall be no H-pile or sheet pile driving during non-daylight hours. Pile driving will not be allowed within 10 feet of traffic.

Care shall be taken when working near existing 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.

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

107.8.1 Fabrication Time.

The Authority has budgeted for the following amounts of continuous full time fabrication/shop inspection for certain Work components:

<u>Element</u>	<u>Time</u>	<u>Supplemental LD</u>
1) Structural Steel	45 calendar days	\$500 per calendar day
2) MSE Wall Panels	22 calendar days	\$500 per calendar day
3) Precast Deck Panels (if used)	20 calendar days	\$500 per calendar day

The Contractor is responsible for requiring their fabricators and suppliers to produce these products for the Work continuously until finished, including any needed actions to correct unacceptable workmanship or materials. If the Authority determines that shop inspection beyond these times is required, then the corresponding Supplemental Liquidated Damages will be

deducted as they occur from the amounts otherwise due the Contractor. The Contractor will be notified by the Department when these times begin and when the allotted time will expire.

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

Inspection is required for the following activities:

For metal fabrication work – welding, including tack welding, heat correcting, nondestructive examination, assembly verification.

For precast concrete fabrication work – batching and casting of concrete, breaking of test cylinders.

For prestressed concrete fabrication work – tensioning of strands, batching and casting of concrete, breaking of test cylinders, de-tensioning.

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 substantial completion date of October 15, 2016. The last price listed before October 15, 2016 will be used for pavement placed after the substantial completion date. The prices shall be determined by using the average New England Selling Price, as listed in the Asphalt Weekly Monitor.

Item 403.206	Hot Mix Asphalt - 25 mm	4.8%
Item 403.207	Hot Mix Asphalt - 19 mm	5.2%
Item 403.208	Hot Mix Asphalt - 12.5 mm	5.6%

Item 403.209	Hot Mix Asphalt - 9.5 mm (sidewalks, drives, & incidentals)	6.2%
Item 403.210	Hot Mix Asphalt - 9.5 mm	6.2%
Item 403.211	Hot Mix Asphalt - Shim	6.2%
Item 403.212	Hot Mix Asphalt - 4.75 mm	6.8%
Item 403.213	Hot Mix Asphalt - 12.5 mm (base and intermediate course)	5.6%

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 Asbestos Containing Materials)

202.01 Description

The following paragraphs are added:

The work shall also consist of removing and disposing of lighting electrical conduit containing asbestos.

All asbestos containing materials shall be removed by a licensed asbestos abatement contractor prior to the excavation of the conduit. All asbestos containing materials shall be disposed of at licensed asbestos containing material disposal sites in compliance with current EPA and Maine DEP regulations. The Contractor shall submit to the Resident the original disposal receipts acknowledging proper disposal of asbestos containing materials prior to the payment of Removing Asbestos Containing Material pay items. Due to the probable construction phasing of the different Ramps, disposal receipts for the completion of individual Ramps will be considered.

All non-asbestos containing materials shall become the property of the Contractor and shall be removed from the site prior to 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.

The following Subsection is added:

202.021 Removing Asbestos Containing Materials

All existing conduit associated with lighting is assumed to contain asbestos. Should additional suspect asbestos containing materials be observed during the demolition process, the provisions of Subsection 105.2 shall apply.

A licensed asbestos abatement contractor shall properly abate and dispose of all asbestos containing materials which require removal.

No asbestos containing materials may be removed without a Maine Turnpike Authority approved removal and disposal plan; and proper notifications and filings with the Maine Department of Environmental Protection.

The licensed asbestos abatement contractor shall restrict access around the trench perimeters by installing barrier tape at minimum 40 feet offsets to the excavation.

The General Contractor may sub-contract the removal of the Asbestos Containing Material (ACM) to a licensed asbestos abatement contractor or use his own trained and licensed personnel. The licensed asbestos abatement contractor must prepare a work plan for the removal of the ACM and submit a copy to the Resident for approval prior to commencing with the removal of ACM.

Disposal of all ACM shall comply with current EPA and Maine DEP regulations. The Contractor shall submit to the Resident the original disposal receipts acknowledging proper disposal of ACM prior to the payment of Removing Asbestos Containing Material pay items.

The licensed asbestos abatement contractor will be responsible for all work associated with the asbestos removal, including the Asbestos Removal Plan, Maine DEP Notification, demolition, final clearances, legal disposal, and Abatement Certification.

The licensed asbestos abatement contractor shall obtain any and all permits or licenses necessary for the performance of the work and shall familiarize themselves with, and conform to, all local, State and Federal laws, regulations or ordinances applicable to the work.

202.05 Method of Measurement

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

Removing Asbestos Containing Materials will be measured as one total linear foot.

202.06 Basis of Payment

This Subsection is amended by the addition of the following:

Removing Asbestos Containing Materials will be paid for at the Contract linear foot price. The Contract linear foot price shall be full compensation for the legal removal and disposal of all asbestos containing materials, and shall include all materials, labor, tools and equipment necessary to complete this work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
202.071 Removing Asbestos Containing Materials, Electrical Conduit	Linear Foot

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Existing Bridge)

202.01 Description

The following paragraphs are added:

The work shall include the submittal of a demolition plan. The Contractor shall submit a bridge demolition plan to the Resident at least 10 business days prior to the start of demolition work

The work shall include all labor, equipment, and materials required to remove the existing bridge.

The Contractor may request to dispose of demolition concrete, free of all rebar, within the Project limits. The request must be in writing to the Resident, and must show the approximate location of the proposed disposal area. Placement shall be in conformance to Subsection 203.15 of the Standard Specifications. The maximum size for any one piece of concrete demolition material shall be three (3) feet in its greatest dimension. No additional clearing will be permitted in order to accomplish this disposal. All other 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.

No demolition will be permitted until the approved method of shielding is completely installed. Traffic will not be permitted to use the travelway directly under the demolition work. A lane closure will be required.

This work shall also include removing, transporting, resetting and/or stacking approximately 1,440 linear feet of temporary concrete barrier currently in place on the existing bridge decks. Temporary barrier shall only be removed after the bridge has been closed to traffic. At the completion of the project the existing barrier shall be delivered to the Authority's Auburn Maintenance Area. See Special Provision 526 Temporary Concrete Barrier for details on method of measurement and payment for this item.

This work shall also consist of removing, transporting and stacking on pallets the 11 existing steel rocker bearings (bearings, sole plates and masonry plates) from the piers and the 14 existing steel rocker bearings at the abutments that support interior girder lines. The fixed pier bearings and the exterior rocker bearings at the abutments will not be salvaged. The bearings shall be delivered to the Authority's Auburn Maintenance Facility at Mile 76.9 NB. Removed bearings from the abutments which are not salvaged and delivered to the maintenance facility shall become the property of the Contractor and shall be removed from the site.

This work shall also consist of removing all lead based paint that will be disturbed by the removal of the existing steel rocker bearings.

202.03 Removing Existing Superstructure, Structural Concrete, Railings, Curbs, Sidewalks and Bridges

This Subsection is amended by the addition of the following:

The removal of the existing bridge shall include the removal and disposal of the reinforced concrete deck, structural steel beams and diaphragms, bridge bearings, parapets, curbing, abutments, wingwalls, piers, footings, and all other materials which are part of the bridge, to the limits shown on the plans. Temporary earth support systems required for bridge demolition shall be incidental to the work and will not be paid for separately.

202.07 Method of Measurement

This Subsection is amended by the addition of the following:

Removing, transporting and stacking the temporary concrete barrier currently in place on the existing bridges will not be measured for payment separately, but shall be incidental to the 526 – Temporary Concrete Barrier pay item.

Removing, transporting and stacking of existing rocker bearings will not be measured for payment separately, but shall be incidental to the bridge removal pay items.

202.08 Basis of Payment

This Subsection is amended by the addition of the following:

Removing Existing Bridge will be paid for at the Contract lump sum price which shall be full compensation for removing and disposing of the superstructure and substructure to the limits shown on the Plans, or as approved by the Resident. The lump sum price shall also be full compensation for removing, transporting and stacking steel rocker bearings as described in this specification.

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

Material for backfilling holes, resulting from removal of obstructions, will not be measured separately for payment, but shall be incidental to Removing Existing Bridge. Backfilling material shall conform to Section 304, Aggregate Base and Subbase Course.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
202.191	Removing Existing Bridge – Exit 80 Southbound	Lump Sum
202.192	Removing Existing Bridge – Exit 80 Northbound	Lump Sum

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Pavement Surface)

202.01 Description

The following paragraphs are added:

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

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 1/2 L.

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. Pavement grindings, solely obtained from the turnpike, may be allowed to be used as part of the Type A Aggregate Base course. The contractor must submit a request and receive approval from the Resident prior to this use.

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.

The following sentence is added:

The installation and 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.

Payment will be made under:

Pay Item

Pay Unit

202.202 Removing Pavement Surface

Square Yard

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Rumble Strips)

202.01 Description

The following sentences are added after the first paragraph:

This work shall consist of cutting a pattern of rumble strips on the outside and inside shoulders of the northbound and southbound roadways at the locations shown on the Plans. Rumble strips shall not be placed across ramp openings or on bridges.

The following Subsections are added:

202.065 Rumble Strips

The rumble strips shall not be cut until the Contractor has placed the permanent pavement markings at the required locations.

At proposed rumble strip locations, the bituminous concrete paved surface shall be removed by milling in strips as detailed on the Plans and as directed by the Resident. The pattern will be 80 feet of rumble strips followed by a 20 foot space repeated along the entire length on the outside shoulder. The inside shoulder shall be continuous. The rumble strips shall be normal to the baseline of the roadway on tangent sections and radial on curves. The Contractor shall be responsible for the layout of the rumble strips. The milling machines for this type of rumble strip are designed by:

Surface Preparation Technology
81 Texaco Road
Mechanicsburg, PA 17055
Tel. (717) 697-1450

L&C Flashing Barricades
60 Walpole Street
Canton, MA 02021
Tel. (508) 580-6700

Thomas Grinding
110 Fox Lane Southwest
Moore Haven, FL 33471
Tel. (863) 946-1461

The milling machine shall be equipped with a 20 foot pointer to provide longitudinal grade control.

202.07 Method of Measurement

The following paragraph is added:

Rumble Strips will be measured by the actual number cut, completed and accepted.

Layout of rumble strips, disposal of milled bituminous pavement and roadway cleanup will not be measured separately for payment, but shall be incidental to this item.

202.08 Basis of Payment

The following sentences are added:

Rumble Strips will be paid for at the Contract unit price per each, which price shall be full compensation for all labor, materials, equipment and incidental items of work for a complete installation.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
202.205 Rumble Strips	Each

SPECIAL PROVISION

SECTION 203

EXCAVATION AND EMBANKMENT

This Section is amended as follows:

All references to “waste storage areas” shall be deleted.

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.

The Authority has a pit available off of River Road via Razel Way in Lewiston that is available for the Contractor to waste excess excavated material that conforms to the MaineDOT Specification Section 203.02. This material will become the property of the MTA at substantial completion of this project. All material to be deposited in the MTA’s pit, including but not limited to common excavation and ledge/rock excavation shall be separated by type such that cross contamination is eliminated and the material is accessible for future use. Objectionable material including but not limited to: trees, slash, roots, stumps, hazardous materials, soils contaminated with hazardous materials, and others as directed by the Resident shall not be deposited in the MTA pit. Standard soil erosion and water pollution control BMPs for material stockpiling shall be required and applied to each stockpile of material deposited in the MTA pit. This work will not be measured for payment.

Space for a maximum volume of 2000 cubic yards of Resident approved roadway excavation is available.

A small amount of granular material exists in the pit that could be made available to the contractor upon request. Approximate quantities and initial sieve analysis results are available upon request; however it is the Contractor’s responsibility to verify material prior to use of any kind. All material used from the MTA pit must be used on this Lewiston Exit 80 project.



The Authority's pit (via Razel Way) is also available to the contractor for stockpiling material, processing material, and as a general lay-down area during this project. All material brought to the pit by the contractor shall be removed from the pit prior to substantial completion of this project. Following the Substantial Completion date, remaining material meeting MaineDOT Specification Section 203.02 shall become the property of the Authority. Costs associated with removing and disposing of all other objectionable material and waste excavation shall be deducted from the Contractor's Retainage and/or from money owed to the Contractor.

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.

The following Subsection is added:

203.043 Sampling and Testing

The Contractor is responsible for quality control. Quality assurance testing and sampling, to monitor the conformance of the embankment fill materials, placement, and compaction will be completed by the Resident. Particular emphasis will be placed on the gradation characteristics and the in-place density of the embankment fill.

203.10 Embankment Construction - General

The thirteenth and fourteenth paragraphs are deleted and replaced with the following:

All portions of the embankment shall be compacted in accordance with the designated embankment compaction requirements specified for the Project.

The existing slopes should be benched as shown on the drawings prior to placing additional fill. Embankment fill should be placed in lifts which extend laterally beyond the limits of the design side slopes such that the specified degree of compaction is achieved within the limits of the completed embankment. The slopes should then be trimmed back to design dimensions.

203.11 Construction of Earth Embankment - Layer Method

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

Layers shall be placed in lifts not to exceed 12 inches after compaction. Common borrow shall be compacted using vibratory compaction equipment to 92 percent of the material's maximum dry density as determined by ASTM D-1557. The compacted material shall appear firm and stable. Strict moisture control shall be utilized by the Contractor when using a cohesive fill material and the moisture content of the compacted material should not exceed four percent above the material's optimum moisture content.

The first sentence of the fourth paragraph is amended as follows:

Satisfactory compaction of granular borrow is defined as not less than 95 percent of the maximum density.

203.12 Construction of Earth Embankment with Moisture and Density Control

The last sentence of the second paragraph is amended as follows:

Each granular borrow layer placed with controlled moisture shall be compacted to not less than 95 percent of the maximum density.

The following paragraph is added:

Common borrow shall be placed in lifts not to exceed 12 inches after compaction. Common borrow shall be compacted using vibratory compaction equipment to 92 percent of the material's maximum dry density as determined by ASTM D-1557. The compacted material shall appear firm and stable. Strict moisture control shall be utilized by the Contractor when using a cohesive fill material and the moisture content of the compacted material should not exceed four percent above the material's optimum moisture content.

203.16 Winter Construction of Embankments

The word "core" is deleted from the first and second sentences in the first paragraph.

203.18 Method of Measurement

Any reference to borrow will be deleted from the first paragraph.

The pay quantity of common borrow and granular borrow shall be 115 percent of the compacted quantity measured in place.

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.

The quantity of rock excavation is approximate and is based on a subsurface exploration program. The actual limits of ledge shall be determined by probing prior to, or cross section after, the removal of the overburden. The Contractor shall be compensated for the actual quantity of rock excavated at the unit price submitted. No additional compensation will be considered if actual rock quantities differ from the estimated quantities, other than payment at the unit price for the actual quantities. See SP203 Rock Excavation

SPECIAL PROVISION

SECTION 203

EXCAVATION AND EMBANKMENT

(Rock Excavation)

203.04 General

The following paragraphs are added:

The quantity of rock excavation is approximate and based on a subsurface exploration program. The exploration locations are illustrated on the Plans. The actual limits of ledge shall be determined by probing without the removal of the overburden or by cross section after the removal of the overburden. The Contractor shall propose a method of verifying the quantities to the Resident for approval.

203.19 Basis of Payment

The following paragraphs are added:

The Contractor shall not be compensated for any additional costs associated with verifying quantities by the method approved by the Resident. The Contractor shall be compensated for the actual quantity of ledge excavated at the unit price submitted. No additional compensation will be considered if the actual ledge quantities differ from the estimated quantities.

SPECIAL PROVISION

SECTION 203

EXCAVATION AND EMBANKMENT

(Crushed Stone)

203.01 Description

This work shall consist of placing crushed stone in accordance with these specifications and in reasonably close conformity with the width, grade and thickness shown on the Plans or established by the Resident.

203.02 Materials

Crushed stone material shall meet the requirements of ASTM Standard Specification C33, Standard Specification for Concrete Aggregates. The aggregate shall meet the following gradation requirements:

Particle size	Percent by Weight Passing
1 inch	100
¾ inch	90 – 100
½ inch	20 – 55
⅜ inch	0 – 15
No. 4	0 – 5

203.10 Construction Requirements

The crushed stone shall be placed and graded as shown on the plans or as directed by the Resident. The crushed stone shall be compacted as required to ensure that all voids in the stone are filled, as approved by the Resident.

203.18 Method of Measurement

Aggregate for crushed stone will be measured by the cubic yard complete in place, unless noted otherwise in the Plans.

203.19 Basis of Payment

The accepted quantity of crushed stone will be paid for at the contract unit price per cubic yard of aggregate complete in place, unless noted otherwise in the Plans.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
202.35	Crushed Stone	Cubic Yard

SPECIAL PROVISION

SECTION 206

STRUCTURAL EXCAVATION

This Section is amended as follows:

All references to “waste storage areas” shall be deleted.

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.

206.05 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.

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 and from a MaineDOT designated Class I stockpile.

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, intermediate, or shim course provided that PG 58-34 asphalt binder is used in the mixture.

The MaineDOT (Department), or an independent consultant approved by the Authority, 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 150 ton for stone stockpiles, 75 ton for sand stockpiles, and 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. The Contractor shall be allowed to submit aim changes within 24 hours of receipt of the first Acceptance test result for an individual JMF. 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 reduced up to five percentage points from the amount listed on the JMF and shall not exceed the percentage of RAP approved in the JMF or for the specific application.

TABLE 1
VOLUMETRIC DESIGN CRITERIA

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

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

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

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

401.031 Warm Mix Technology

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

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 275° to 325°F.
- At the paver – allowable range 275° to 325°F.
- Or the recommendations, approved by the Authority, from the Asphalt Binder supplier.

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 Contractor shall make efforts to minimize the occurrence of PGAB co-mingling.

401.06 Weather and Seasonal Limitations

The Contractor may place Hot Mix Asphalt Pavement for use other than a traveled way wearing course, provided that the air temperature as determined by an approved thermometer (placed in the shade at the paving location) is 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, provided the air temperature determined as above is 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 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 40°F or higher.

On all sections of overlay with wearing courses one inch thick or less, the wearing course for the travelway and adjacent shoulders shall be placed provided the air temperature is determined as above 50°F or higher.

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 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 12 inches 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 10 feet 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 30 ft, a non-contact grade control with a minimum span of 24 ft, except that a 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 density testing across the uncompacted mat being placed, at 12 inch 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 a 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 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.
- e. The use of an oscillating steel roller shall be required to compact all mixtures placed on bridge decks.

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

401.101 Surface Tolerances

The Authority will check surface tolerance utilizing the following methods:

- a. A 16 ft straightedge or string line placed directly on the surface, parallel to the centerline of pavement.

- b. A 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. All delivery slips shall conform to the requirements of 401.073.

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 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 Mix Asphalt Pavement.

In addition, hot mix asphalt pavement placed on bridges shall also conform to Section 508.04 and the following requirements.

- a. The bottom course shall be placed with an approved rubber mounted paver of such type and operated in such a manner that the membrane waterproofing will not be damaged in any way.
- b. The top course shall not be placed until the bottom course has cooled sufficiently to provide stability.
- c. The Contractor will not be required to cut sample cores from the compacted pavement on the bridge deck, unless otherwise directed by Special Provisions.
- d. After the top course has been placed, the shoulder areas shall be sealed 3 ft wide with two applications of an emulsified bituminous sealer meeting the requirements of Section 612.03 – Sealing and Section 702.12 – Emulsified Bituminous Sealing Compound. The first application shall be pre-mixed with fine, sharp sand, similar to mortar sand, as needed to fill all voids in the mix in the area being sealed. The second application may be applied without sand. The sealer shall be carried to the curb at the gutter line in sufficient quantity to leave a bead or fillet of material at the face of curb. The area to be sealed shall be clean, dry and the surface shall be at ambient temperature.
- e. The furnishing and applying of the required quantity of sealer for the bridge shoulder areas shall be incidental to placing the hot mix asphalt pavement.
- f. The atmospheric temperature for all courses placed on bridge decks shall be 50°F or higher.

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

The HMA will be accepted for percent air voids on a subplot basis. Percent air voids will be determined in accordance with AASHTO T 312. Point of sampling will be from the truck at the plant. A subplot will consist of 500 tons. The number of samples per day will be computed as one for every 500 tons plus one for any additional fractional subplot that is equal to or greater than 100 tons or as directed by the Resident. There shall be a minimum of one subplot per day per JMF. 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 subplot (500 tons) that falls outside of this range. See Subsection 401.21.

401.163 PGAB Content

The HMA will be accepted for PGAB content on a subplot basis. PGAB content will be determined in accordance with AASHTO T 308. Point of sampling will be from the truck at the plant. A subplot will consist of 500 tons. The number of samples per day will be computed as one for every 500 tons plus one for any additional fractional subplot that is equal to or greater than 100 tons or as directed by the Resident. There shall be a minimum of one subplot per day per JMF.

Payment reduction will be applied to each subplot (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.

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 mat 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 subplot basis. A subplot will consist of 500 tons. The number of cores per day 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. There shall be a minimum of one subplot per day per JMF.

Each subplot 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 and longitudinal 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 106.4 – Quality Control 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 to the Resident. The Authority's random numbers for Acceptance testing shall be generated and on file with the Resident and the Project Manager. All personnel of the Authority and the Contractor who have significant information relevant to the paving items shall attend, including the responsible onsite paving supervisor for the Contractor. The Resident will prepare minutes of the conference and distribute them to all attendees. Any requests to revise the minutes must be made to the Resident within 7 days of receipt. These minutes will constitute the final record of the pre-paving conference.

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, daily paving report and delivery slip template for any plant to be utilized.
- 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 or production limitations. If a warm-mix technology is utilized, a proposed target production range(not to exceed 50 F) will be provided for each mix design.
- 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. 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, and that delivery slips and plant recordation accurately reflects the mix being produced with all required information. The QCP shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one PCT is required. The Plan shall include the criteria to be utilized by the PCT to correct or reject unsatisfactory materials. The PCT shall be certified as a Plant Technician by the NETTCP.
- c. Quality Control Technician(s) (QCT) shall perform and utilize quality control tests at the job site to assure that delivered materials meet the requirements of the JMF(s). The QCT shall inspect all equipment utilized in transporting, laydown, and compacting to assure it is operating 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 VMA, VFB, Fbe, 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 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.

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 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 PGAB content and density will be based upon each subplot (500 tons) of production as specified in Subsections 401.162, 401.163 and 401.164. The Contractor may request one retest for each failing subplot for core density only. The original core density and the recut core density shall be averaged together to determine payment for the subplot. No retest will be allowed for voids or asphalt content. The Contractor shall pay \$100.00 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.

<u>CORE DENSITY VS. CORE THEORETICAL MAXIMUM DENSITY</u>	
<u>COMPACTION (SURFACE) 92.5-97 PERCENT</u>	
<u>PERCENT COMPACTION</u>	<u>PERCENT PAYMENT</u>
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	
<u>VOIDS</u>	<u>PAYMENT PERCENT</u>
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
<u>Note:</u> Voids are based on the average of the test specimens fabricated at the plant for each subplot (500 tons).	
*Air voids payment does not apply for ARGG, but does for shut down criteria	

Payment for PGAB content shall be based on the JMF aim with an allowable production tolerance of 0.4% except that test results which fall outside of the following ranges shall not be permitted

9.5 mm	5.7 – 7.5
12.5 mm	5.2 – 6.4
12.5mm(ARGG)	7.6 min.
19.0 mm	4.7 – 6.1

9.5 mm PGAB CONTENT	
% PGAB	% PAYMENT
JMF Aim \pm 0.4	100
JMF Aim + 0.5 , - 0.5 , < 5.7	95
JMF Aim + 0.6 , - 0.6 , < 5.6	85
JMF Aim + 0.7 , - 0.7 , < 5.5	75
JMF Aim + 0.8 , - 0.8 , \leq 5.4, > 7.5	50
<u>Note:</u> PGAB content is based on samples tested at the plant for each 500 Ton subplot	

12.5 mm PGAB CONTENT	
% PGAB	% PAYMENT
JMF Aim \pm 0.4	100
JMF Aim + 0.5 , - 0.5 , < 5.1	95
JMF Aim + 0.6 , - 0.6 , < 5.0	85
JMF Aim + 0.7 , - 0.7 , < 4.9	75
JMF Aim + 0.8 , - 0.8 , \leq 4.8, > 6.4	50
<u>Note:</u> PGAB content is based on samples tested at the plant for each 500 Ton subplot	

12.5 mm PGAB CONTENT(ARGG)	
% PGAB	% PAYMENT
JMF Aim \pm 0.4	100
JMF Aim + 0.5 , - 0.5	95
JMF Aim + 0.6 , - 0.6	85
JMF Aim + 0.7 , - 0.7	75
JMF Aim + 0.8 , - 0.8	50
<u>Note:</u> PGAB content is based on samples tested at the plant for each 500 Ton subplot	

19.0 mm PGAB CONTENT	
% PGAB	% PAYMENT
JMF Aim \pm 0.4	100
JMF Aim + 0.5 , - 0.5 , < 4.6	95
JMF Aim + 0.6 , - 0.6 , < 4.5	85
JMF Aim + 0.7 , - 0.7 , < 4.4	75
JMF Aim + 0.8 , - 0.8 , \leq 4.3 , > 6.1	50
<u>Note:</u> PGAB content is based on samples tested at the plant for each 500 Ton subplot	

As an example of payment reduction, if a subplot 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:

$$\begin{array}{rcl}
 500 \text{ tons} \times 1.00 & = & 500 \text{ tons payment} = 0 \text{ tons reduction (compaction)} \\
 500 \text{ tons} \times 0.95 & = & 475 \text{ tons payment} = 25 \text{ tons reduction (voids)} \\
 500 \text{ tons} \times 0.95 & = & 475 \text{ tons payment} = 25 \text{ tons reduction (asphalt content)}
 \end{array}$$

$$\text{Payment} = 500 \text{ tons} - (0 + 25 + 25) = 450 \text{ tons}$$

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 401

PLANT MIX PAVEMENTS – GENERAL

(Material Transfer Vehicle)

401.091 Material Transfer Vehicle (MTV)

The pavers shall be supplied mixture by a material transfer vehicle (transfer box) capable of receiving and storing bituminous mixture from haul trucks, remixing, and delivering the mix to the paver hopper in a consistently uniform manner.

The MTV shall operate as an independent unit not attached to the paver. It shall be a commercially manufactured unit specifically designed to transfer the hot mix from haul trucks to the paver without depositing mix on the roadway.

Also required is a separate hopper with a capacity of 18 mg (20 Ton) that shall be inserted into the regular paving hopper.

The MTV or the hopper insert shall be designed so that the mix receives additional mixing action either in the MTV unit or the paver hopper.

The MTV and the hopper insert will not be measured separately for payment, but shall be incidental to the various Hot Mix Asphalt items.

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
<u>Bridge Decks</u>						
Wearing	12.5 mm	403.2083	5.2 min to 6.40	3 in.	2	A, C, E, G H, I & J
<u>Slope Pavement</u>						
Hand Work	9.5 mm	403.209	5.7 min to 7.50	2 in.	1	A, B, C, E, G
<u>Mainline Mill and Fill</u>						
Wearing	12.5 mm	403.2083	5.2 min. to 6.4	1-1/2 in.	1	A, B, C, D, E F, G, H, & I
Shim	4.75 mm	403.211	5.7 min to 7.50	½ in.	1	A, B, C, E, F, & G
<u>Mainline Full Depth Construction</u>						
Wearing	12.5 mm	403.2083	5.2 min. to 6.4	1-1/2 in.	1	A, B, C, D, E F, G, H & I
Binder	12.5 mm	403.213	5.2 min. to 6.4	1-1/2 in.	1	A, B, C, E G, & H
Base	19 mm	403.207	4.7 min to 6.10	7 in.	3	A, B, C, E G & H
<u>Ramps</u>						
Wearing	12.5 mm	403.2083	5.2 min. to 6.4	1-1/2 in.	1	A, B, C, E G, H & I
Binder	12.5 mm	403.213	5.2 min. to 6.4	1-1/2 in.	1	A, B, C, E G & H
Base	19 mm	403.207	4.7 min to 6.10	2-1/2 in.	1	A, B, C, E G & H
<u>Alfred Plourde Parkway</u>						
Wearing	12.5 mm	403.2083	5.2 min. to 6.4	1-1/2 in.	1	A, B, C, E F, G, H, & I
Shim	4.75 mm	403.211	5.7 min to 7.50	½ in.	1	A, B, C, E, F, & G

COMPLEMENTARY NOTES

- A. The required PGAB for Item 403.2083 and 403.2101 will meet a **PG 64E-28** grading. Refer to provisions of 403.02 – General for HMA, for additional testing and documentation requirements. The required minimum PGAB for Items 403.207, 403.209, 403.211 and 403.213 shall be a **PG 64-28** grading.
- B. A maximum of 15 percent RAP may 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 Modified PGAB for HMA.
- J. Bridge decks: No RAP is allowed in the bridge mix design. The use of an oscillating steel roller shall be used to compact all hot mix asphalts placed on bridge decks.

SPECIAL PROVISION

SECTION 403

HOT BITUMINOUS PAVEMENT

(HMA - Polymer Modified)

403.01 Description

This work shall also consist of the construction, maintenance and removal of all temporary bituminous ramps at locations as shown on the Plans or as directed by the Resident.

403.02 General

The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), and mineral filler if required. The Performance Graded Asphalt Binder (PGAB) shall be polymer modified as detailed in this special provision and shall conform to the requirements of AASHTO M 320. The required PGAB shall be a storage-stable, preblended, homogeneous, polymer modified asphalt binder that meets PG 64E-28 grading requirements in AASHTO MP-19.

Polymer-Modified

The RTFOT (AASHTO T 240) residue of the polymer modified PGAB shall be tested by the Contractor according to ASTM D 6084 and have a minimum elastic recovery value of 60% at a test temperature of 25 °C. The Contractor shall provide the Authority with documentation and test results from the asphalt binder provider showing that the polymer modified PGAB meets the requirements of this special provision. The base asphalt binder PGAB shall be unmodified and meet a PG 58-28 to PG 64-28 grading. The Authority may take informational samples of the polymer modified PGAB at any time to evaluate its elastic recovery value.

403.03 Construction

All areas which have been milled or overlaid shall have a minimum 29 foot temporary ramp constructed at the milled or overlaid limits prior to opening the roadway to traffic. Temporary ramps shall be constructed using the same material as being placed on that day or as directed by the Resident. All temporary ramps are to be constructed on a sand joint. The Contractor shall be responsible for all repairs and maintenance required for the temporary ramps.

The Contractor shall be responsible for the layout of the longitudinal centerline between the travel lanes. The control points to establish this line will be furnished by the Authority.

The sand and loose debris adjacent to the median guardrail shall be removed and disposed of by the Contractor off of Turnpike property.

403.04 Test Strip

A minimum test strip of 100 tons placed at a nominal depth of 1 ½ inches, full lane width, shall be required. It shall be evaluated under testing requirements for mix volumetric and density. The exact location will be identified by the Authority. A fog coat of Item 409.15, Bituminous Tack Coat, shall be applied to the level course prior to the placement of the HMA surface course, payment to be made under the 409.15 pay item. The test strip will be excluded from the remainder of the projects' QA analysis. The Contractor shall notify the Authority at least 48 hours in advance of placing the test strip. The test strip is intended to allow the Contractor to establish a method of compaction and adjust plant settings prior to mainline plant production.

403.05 Method of Measurement

The construction and removal of temporary ramps on sand joints, and maintaining the ramps will not be measured separately for payment, but shall be incidental to the 403 Items.

The removal of sand and loose debris will not be measured separately for payment, but shall be incidental to the paving items.

Hot Mix Asphalt will be measured as specified in Section 401.21 Method of Measurement.

403.06 Basis of Payment

Hot Mix Asphalt, 12.5 mm (Polymer Modified) pavement with (up to) 15% RAP, placed as a wearing surface will be paid under Item 403.2083 Hot Mix Asphalt, 12.5 mm (Polymer Modified) – RAP.

The following pay items are added:

<u>Pay Item</u>	<u>Pay Unit</u>
403.2083 Hot Mix Asphalt, 12.5 mm (Polymer Modified), Surface	Ton

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/yd²” 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.

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:

<u>Pay Item</u>	<u>Pay Unit</u>
419.30 Sawing Bituminous Pavement	Linear Foot

SPECIAL PROVISION

SECTION 459

BITUMINOUS CONCRETE WATERWAY

459.01 Description

This work shall consist of construction of two types of bituminous concrete waterways and aprons at median catch basins in accordance with these Specifications and in close conformity with the lines and grades as shown on the Plans.

This work shall also include any additional grading with gravel borrow and loam to the median swale and/or longitudinal flow line, to match the bituminous concrete waterway to the limits and width as directed by the Resident. The top four inches of the grading shall be loam.

The bituminous concrete waterway locations are listed on the Drainage Summary sheet in the Plans.

459.02 Materials

Materials shall meet the requirements specified in the following Subsections:

Bituminous concrete shall conform to Subsection 703.09 HMA Mixture Composition – Table 1 for Grading, Type 9.5 mm. The PGAB shall be PG 64-28.

Gravel borrow shall meet the requirements of Subsection 304.02 for Aggregate Subbase Course – Gravel.

Loam shall meet the requirements of Subsection 615.02.

Seeding shall meet the requirements of Section 618 Seeding, Method Number 2.

459.03 General

The bituminous concrete waterways, including aprons, shall be constructed to the median catch basin as shown on the Plans or as directed by the Resident. The Resident may adjust the two inch swale depth to meet existing field conditions.

Excavation shall be to the required depth and width. The foundation shall be shaped and compacted to a firm even surface conforming to the section as shown on the Plans. All soft and yielding material shall be removed and replaced with acceptable material. Unless otherwise designated, the excavated walls shall be as nearly vertical as possible and the trench width no greater than necessary for the placement of the bituminous material.

The bituminous material shall be placed on the compacted base course in one course to provide the required depth when compacted. Hand tamping will be permitted for compaction. The bituminous material shall be uniformly compacted.

459.04 Method of Measurement

Bituminous Concrete Waterways will be measured by the unit installed, complete in place and accepted.

Erosion Control Blanket will not be paid for under this Item, but shall be paid for under Item 613.319.

Hot mix asphalt, gravel borrow, loam, seed and mulch will not be paid for separately but shall be incidental to Item 459.

Hay bales will not be paid for under this Item, but shall be paid for under Item 656.50.

459.05 Basis of Payment

Bituminous Concrete Waterways will be paid for at the Contract unit price each, which price shall include all excavation, backfill, grading, bituminous material, gravel borrow, loam, seeding and all labor, equipment and materials required to complete the work.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
459.06	Bituminous Concrete Waterway, Type I	Each
459.061	Bituminous Concrete Waterway, Type II	Each

SPECIAL PROVISION

SECTION 501

FOUNDATION PILES

501.01 Description

The following is amended at the end of this section:

This work shall also consist of providing materials for, and construction of, pile sleeves at each pile location. The work includes casing installation and the temporary support of sleeves during construction of the MSE wall. The sleeved H-Pile foundations shall be constructed as specified herein and shown on the Plans, or as otherwise directed by the Resident. The sleeve shall remain empty/unfilled until after the H-piles are set in place.

501.02 Materials

The first sentence of the second paragraph is amended as follows:

H-pile shall be structural steel and shall meet the requirements of AASHTO M270 (ASTM A709).

The following is added at the end of this section:

Pile sleeves shall be 30 inch diameter corrugated polyethylene pipe meeting the requirements of AASHTO M294, Type D. Centralizers shall be used to center the H-piles within the sleeves.

Pea stone for filling the annular space between the H-pile and pile shall be uniformly graded 3/8" diameter stone consisting of clean, tough, durable fragments free from an excess of soft or disintegrated pieces and free from stone coated with dirt or other objectionable matter.

501.03 Equipment for Driving Piles

The last sentence of the fourth paragraph is amended as follows:

Also, the Contractor shall provide the Resident with a chart, calibrated within the 90 days prior to use of the actual hammer performance, equating bounce chamber pressure to either equivalent energy or stroke for the closed-end diesel hammer to be used.

The last sentence of the fifth paragraph is amended as follows:

In addition, the Contractor shall provide the Resident with a chart, calibrated within the 90 days prior to use, of the actual hammer performance.

The following is added at the end of this section:

Submittals. No later than 30 days prior to installing the sleeved H-Pile foundations, the Contractor shall submit an installation plan for review and approval by the Resident. This plan shall provide information on the following:

1. List of proposed equipment to be used in the installation, temporary support and backfilling around pile sleeves, equipment for H-pile installation, etc.
2. Details for properly locating and temporarily supporting pile sleeves during construction;
3. Details of overall construction operation sequence;
4. Details of corrugated polyethylene pipe;
5. Details of centralizers for HP section;
6. Proposed methods for pea stone placement.

The Resident will evaluate the sleeved H-Pile installation plans, and all procedural approvals given by the Resident shall be subject to trial in the field and shall not relieve the Contractor of the responsibility to satisfactorily complete the work as detailed in the Plans and Specifications. Failure by the Contractor to demonstrate adequate methods and equipment shall be reason for the Authority to require alterations in equipment and/or method by the Contractor to eliminate unsatisfactory results. Any altered methods or construction equipment shall be at the Contractors expense and incidental to related pay items.

501.04 Driving Procedures and Tolerances

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

Jetting - Jetting shall be done only with permission from the Resident. The Contractor shall submit a written Best Management Practices' Plan on how soil and water pollution from the cleaning operation will be controlled with the request for permission to jet the piles.

Add the following Section:

501.041 Alignment and Tolerances

The corrugated polyethylene pipe sleeve and H-Pile shall be within 2 inches of the plan position in the horizontal plane at the top and bottom of the pile sleeve. Pulling piles into position will not be permitted.

Add the following Section:

501.042 Sleeve and H-Pile Installation Sequence

The following pile installation sequence shall be followed:

1. Install and temporarily brace pile corrugated polyethylene pipe sleeve. Backfill around pile sleeve while maintaining alignment tolerances.

2. Install H-Pile in corrugated polyethylene pipe using centralizers.
3. At the Contractor's option the piles may be lightly driven. Lightly driven shall be defined as installation using a vibratory hammer. Alignment tolerances shall be maintained during light driving.
4. Fill annular space between the pile and casing to the elevation shown on the plans.
5. Only after the annular space has been filled: drive each pile to the specified nominal resistance. Additional pea stone shall be added to the casing during pile driving to compensate for consolidation and settlement during driving.

501.04 Prefabricated Pile Tips

This section is deleted and replaced with the following:

All pile tips shall be Rock Injector HP-80500 Pile Point, manufactured by Associated Pile and Fitting, or approved equal. Material specifications, attachment of pile tips, and seating of the piles shall be in accordance with Manufacturer's recommendations and in accordance with these Specifications.

501.11 Method of Measurement

c. Piles in Place - The third paragraph is deleted and replaced with the following:

Unused piles, or pile cutoffs 10 feet or more in length, will remain the property of the Authority and will be transported to a Turnpike Maintenance Facility. Hauling and unloading of piles will be done by the Contractor. The Resident will contact the Maintenance Foreman so that proper arrangements can be made for delivery.

The fifth and sixth paragraphs are deleted and not replaced.

e. Pile Splices – This paragraph is deleted and replaced with the following:

Pile splices will be measured by the actual number of splices authorized and satisfactorily completed.

The following is added at the end of this section:

Pile sleeves and pea stone will not be measured for payment separately, but shall be considered incidental to Pay Item 501.543, Steel H-Beam Piles 117 lb/ft, in place.

Payment for H-Piles in place shall also include providing, installing and temporarily supporting pile sleeves; placement of H-piles within the pile sleeves; appropriate centralizers to maintain proper alignment; and placement of pea stone.

501.12 Basis of Payment

The following sentence is added:

Written Best Management Practices' Plans and the installation and removal of BMPs for jetting and cleaning operations will not be measured separately for payment, but shall be incidental to the Contract pay item for Pile in Place.

Supplying, installing and temporarily supporting pile sleeves and centralizers will not be measured separately for payment, but shall be incidental to the Contract pay item for Pile in Place.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
501.542	Steel H-Beam Piles 117 lb/ft, delivered	Linear Foot
501.543	Steel H-Beam Piles 117 lb/ft, in place	Linear Foot
501.903	Pile Tips – Rock Injector Point	Each
501.911	Pile Splices	Each

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.

For all MSE wall panels and single slope barrier the work shall also include providing Class AAA concrete containing a calcium nitrate corrosion inhibitor meeting the requirements of ASTM 494 Type C. The dosage rate shall be a minimum of three gallons per cubic yard.

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 Nitrate 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 affecting 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, 5
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 for all concrete used for MSE wall panels and single slope barrier.
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 no more than 660 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 Contractor 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

502.0501 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

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 ft². 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 subplot in question, from randomly selected locations to be representative to the entire volume of the subplot. 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 subplot in question. If coring is not done with the 36 day time limit, the Authority will not allow dispute testing of the subplot.

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 prevent 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 subplot 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 ft² 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 splattering 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 underside 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 underside 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 regouted.

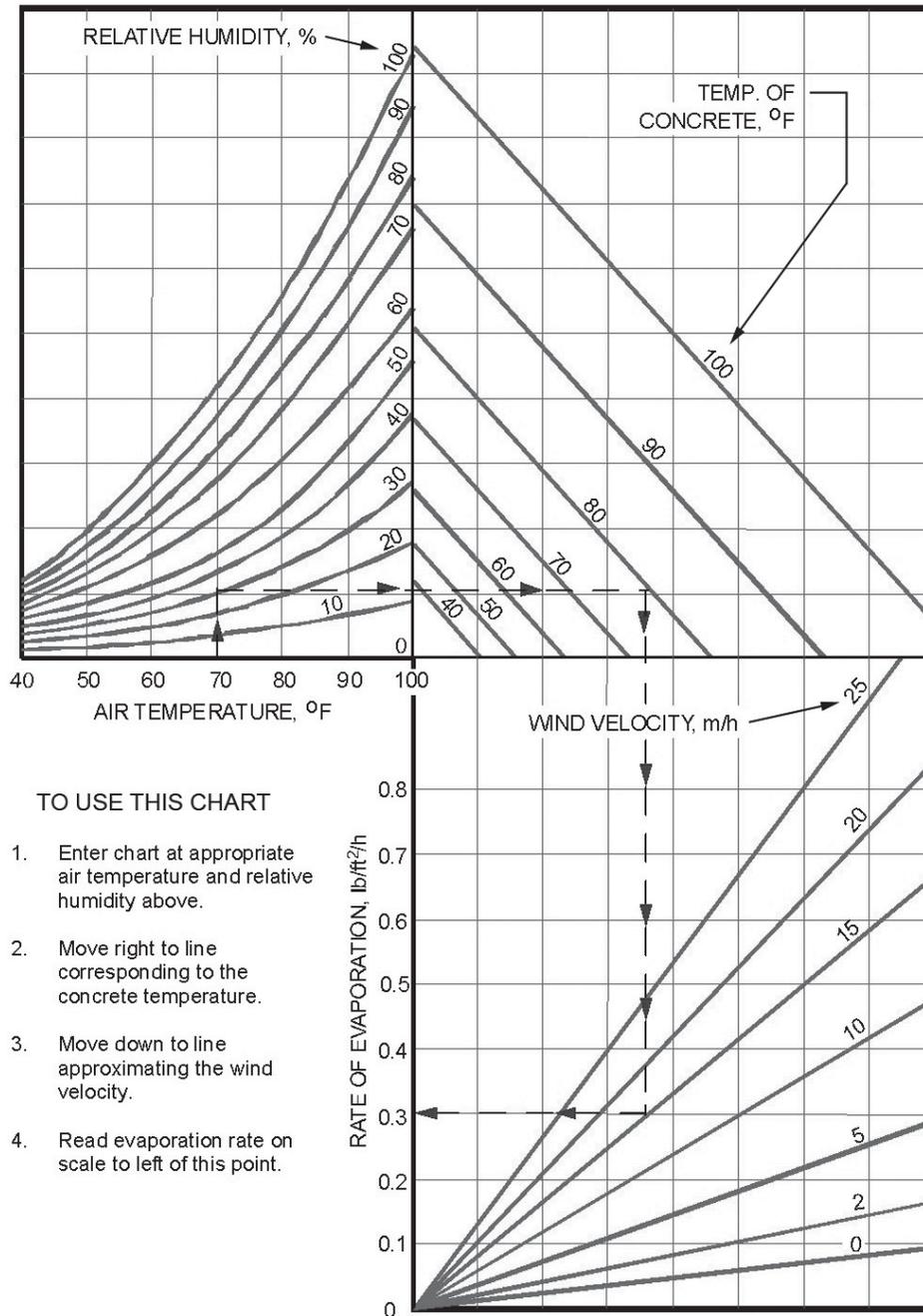
The bonding grout shall have Portland Cement and fine aggregate proportioned 2 to 1 by volume. The fine aggregate from which the material larger than 1/8 inch has been removed shall be the same source as used in the concrete. The cement and fine aggregate shall be measured separately in appropriately 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/ft²/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/ft²/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



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 foot 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, barrier 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

<u>Type of Surface:</u>	* <u>Maximum deviation of surface in millimeters [in.] below 3 m [10 ft.] straightedge</u>
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,
- E. 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, Abutments and Retaining Walls. 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, as indicated on the Plans, which will be the limits of the concrete unit or units, outside to outside, transversely, longitudinally, and vertically.
2. Structural Concrete Roadway and Sidewalk Slab on Steel Bridges. The limits will be the entire concrete deck slab, outside to outside transversely, longitudinally between faces of backwall/abutment, exclusive of parapets, concrete transition barriers, and approach slabs.

3. 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 and retaining walls, as shown on the Plans.
4. Structural Concrete Single Slope Barrier. The limit will be the entire concrete portion of the single slope barrier measured longitudinally, from end to end, as shown on the Plans.
5. Structural Concrete Overturning Slab. The limit will be the entire concrete portion of the overturning slab measured longitudinally and transversely from outside to outside as shown on the Plans, exclusive of concrete parapets, transition barriers and approach slabs.
6. Structural Concrete Approach Slab. The limit will be the entire approach slabs and sleeper slabs, as shown on the Plans, exclusive of concrete parapets.

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 yd³ 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.

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:

<u>Pay Item</u>		<u>Pay Unit</u>
502.219	Structural Concrete, Abutments and Retaining Walls	Lump Sum
502.26	Structural Concrete Roadway and Sidewalk Slab on Steel Bridges	Lump Sum
502.264	Structural Concrete Parapets	Lump Sum
502.265	Structural Concrete Overturning Slab	Lump Sum
502.266	Structural Concrete Single Slope Barrier	Lump Sum
502.31	Structural Concrete Approach Slab	Lump Sum

SPECIAL PROVISION

SECTION 503

REINFORCING STEEL

(ZBar Reinforcing Steel)

503.01 Description

This work shall consist of furnishing and placing zinc and epoxy dual-coated steel reinforcing bars (ZBar Reinforcing Steel) in selected areas within the MSE wall copings, overturning slab, approach slab and bridge parapet, in accordance with the Plans and these Specifications.

503.02 Materials

Materials shall meet the following requirements:

Dual-coated steel reinforcing bars shall conform to Section 709.01, Reinforcing Steel, of the Standard Specifications and the following ASTM Standards where applicable:

A 82	Specification for cold drawn steel wire for concrete reinforcement
A 185	Specification for welded steel wire for concrete reinforcement
A 496	Specification for deformed steel wire for concrete reinforcement
A 1055-10 ^{e1}	Specification for Zinc and Epoxy Dual-Coated Steel Reinforcing Bars

503.03 Schedule of Material

When the Authority does not furnish reinforcing schedules, the Contractor shall submit order lists, bending diagrams and bar layout drawings to the Resident for approval. The reinforcing shall not be ordered until these lists and drawings are approved. Approval shall not relieve the Contractor of full responsibility for the satisfactory completion of this item.

503.04 Protection of Material

Delivery, storage and handling of reinforcing bars shall be in accordance with these specifications and the manufacturer's instructions to prevent damage. For dual-coated reinforcement the provisions of ASTM A 1055, Appendix X1 – Guidelines for Job-Site Practices, shall apply. Prevent bending, coating with earth, oil, or other material, or otherwise damaging the reinforcement. When handling reinforcement, use equipment to avoid damaging or abrading the bar and coating. Do not drop or drag reinforcement.

Reinforcement shall be stored on skids or other supports a minimum of 12 inches above the ground surface and protected at all times from damage and surface contamination. The storage supports shall be constructed of wood, or other material that will not damage the surface of the reinforcement or epoxy coating. Bundles of bars shall be stored on supports in a single layer. Each bundle shall be placed on the supports out of contact with adjacent bundles. Reinforcing bars expected to be stored outdoors for a period in excess of two months, shall be

protected from sunlight and ultraviolet radiation. Prevent exposure of reinforcing to temperatures above 120 degrees Fahrenheit during storage.

All handling of reinforcing bars by mechanical means shall be done by equipment having padded contact areas, or by the use of nylon webbing slings. The use of chains or wire rope slings shall not be allowed, even when used with padding. All bundles of bars shall be lifted with a strong back, spreader bar, multiple supports or a platform bridge to prevent bar-to-bar abrasion from sags in the bundles. Support points during lifting or transporting of bundled reinforcing bars shall be spaced at a maximum of 15 ft, or as required by the manufacturer, whichever is more restrictive.

Bundled bars shall be strapped together with non-metallic or padded straps in a manner to prevent bar-to-bar abrasion due to relative movement between bars.

Bars loaded for transport shall be loaded and strapped down in a manner that will prevent damage from motion and vibration, to the greatest extent possible. Bundles of bent bars shall be transported strapped to wooden platforms or shall be crated. All individual bundles and layers of bundles shall be separated, and supported by dunnage.

Individual bars shall be handled in a manner that prevents damage to the coating due to abrasion or impact, and at no time shall any bar be moved by dragging over any surface, including other reinforcing bars. Sufficient personnel shall be assigned to assure compliance with the above.

For dual-coated steel reinforcing bars all damaged coating discernible to a person with normal or corrected vision shall be repaired with patching material. If the amount of damaged coating in any 1-ft length of a coated bar exceeds 2%, that section should be removed from the coated steel reinforcing bar and discarded. The depth of the permissible damage shall not exceed 0.04 inches. Repair methods shall be in accordance with the manufacturer's recommendations.

503.05 Fabrication

Forming or bending of reinforcing bars, and associated tolerances, shall be in conformance with the latest edition of the "Manual of Standard Practice of the Concrete Reinforcing Steel Institute" and the "Detailing Manual of the American Concrete Institute". Unless otherwise specifically authorized, steel bars shall be bent cold.

Reinforcing steel, specified on the design drawings to be zinc and epoxy dual-coated, shall meet the requirements of ASTM A 1055-10^{e1}, Zinc and Epoxy Dual-Coated Steel Reinforcing Bars, and the following requirements:

a. The Contractor shall furnish a written certification that, at the point of application of the coating and at the reinforcing bar shop, the coating, the coated bars, and the handling and packaging of the coated bars, meet all the requirements of ASTM A 1055-10^{e1} and Section 503.05 of these specifications.

b. Patching material as specified in Section 5.5 of ASTM A 1055-10^{e1}, shall be supplied for both shop and field patching of the coated reinforcing steel. The patching material shall be supplied as required, but at not less than the following rates:

- #3 to #5 bars: 1 quart/15,000 ft of bar, or fraction thereof
- #6 to #9 bars: 1 quart/8,000 ft of bar, or fraction thereof
- #10 and up: 1 quart/6,000 ft of bar, or fraction thereof

c. All testing shall be as specified in ASTM A 1055-10^{e1}, except that the frequency of testing for adhesion of the coating shall be two bars of each size out of all bars coated with each individual batch or lot of epoxy resin, or two bars of each size out of all bars coated in an eight hour period, whichever is greater.

d. If a reinforcing bar fabrication shop uses previously stockpiled bars to supply the requirements of this contract, the fabrication shop shall furnish copies of all certificates required to be furnished by the coating applicator under (a.), above. The certificates furnished shall be directly traceable to the actual bars used through batch numbers, order numbers or similar information. If such certification is not available, the Department reserves the right to perform the tests specified under ASTM A 1055-10^{e1}, at the expense of the fabrication shop. For bars supplied from stock, the fabrication shop shall supply all patching material specified under (b.), above.

503.051 Patching of Epoxy Coating

Patching required at the point of application of the epoxy coating shall be done in conformance with the requirements of ASTM A 1055-10^{e1}.

At the reinforcing steel fabrication shop and at the job site, all nicks, cuts, scratches, cracks, abrasions, sheared ends etc., visible to the naked eye, shall be repaired using patching material supplied as specified under Section 503.051 b. To the greatest extent possible, repairs to each day's production at the fabrication shop and each day's placement at the job site shall be done before the end of each working day. If damaged areas do become rusted or contaminated with foreign matter, then these areas shall be cleaned by sandblasting, or an equally effective method, such that all visible rust and/or foreign matter is removed prior to patching.

503.06 Placing and Fastening

All reinforcement shall be accurately placed in the positions shown on the plans and shall be firmly held there during the placing and setting of the concrete. Immediately before placing concrete the reinforcement shall be free from all foreign material which could decrease the bond between the reinforcing and concrete. Such foreign material shall include, but not be limited to: dirt, paint, oil, bitumen and dried concrete mortar.

Reinforcing bars within the formwork shall be secured to prevent movement during concrete placement. The bars must be adequately supported or tied to resist settlement, floating upward, or movement in any direction during concrete placement.

No welding will be permitted on any reinforcing steel.

Field bending or cutting of epoxy-coated reinforcing bars will not be allowed, unless otherwise indicated on the plans or permitted by the Resident. When field bending or cutting is allowed, all damaged coating areas shall be repaired in accordance with Section 503.052.

Proper distances from the forms shall be maintained by means of stays, blocks, ties, hangers or other approved means. Blocks used for this purpose shall be precast portland cement mortar blocks of approved shape and dimensions. Chairs may be used for this purpose and, when used, must be GFRP or plastic. The use of rocks, pieces of broken stone or brick, metal pipe or wooden blocks shall not be permitted. The placing of reinforcement as concrete placement progresses, without definite and secure means of holding the bar in its correct position, shall not be permitted. Reinforcing bars used as support bars and spreader bars shall be the same type used for the main reinforcing.

Ties for reinforcing bars shall be plastic ties or soft annealed wire that has been nylon, epoxy or plastic coated.

Bars shall be fastened together at all intersections except where spacing is less than 1 ft in either direction, in which case, fastening at alternate intersections of each bar with other bars will be permitted providing this will hold all the bars securely in position. This fastening may be tightly twisted polymer coated wire or plastic ties.

When specified on the contract plans, reinforcing bars shall be anchored into drilled holes. The anchoring material shall be one of the products listed on the Maine Department of Transportation's list of Prequalified Type 3 Anchoring Materials. Installation shall be in accordance with the manufacturer's published recommendations. Minimum embedment lengths of reinforcing bars shall comply with the manufacturer's published recommendations for the anchoring material selected. These embedment lengths shall be verified by the Resident before installation of the reinforcing bars. The reinforcing bar lengths indicated on the Plans may be reduced, at the Contractor's option, to the determined minimum embedment lengths.

Reinforcement shall be inspected and approved by the Resident before placing concrete is placed.

503.07 Splicing

Reinforcing bars shall be spliced in accordance with the requirements of this section, and in the locations shown on the plans. No modifications of, or additions to, the splice arrangements shown on the plans shall be made without the Resident's prior approval. Any additional splices authorized shall be staggered as much as possible. All splices shall be made in a manner that will ensure that not less than 75% of the clear concrete cover and not less than 75% of the minimum clear distance to other bars will be maintained, as compared to the cover and clear distance requirements for the unspliced bar.

Any additional splices authorized shall be staggered as much as possible. All splices shall be made in a manner that will ensure that not less than 75% of the clear concrete cover and not less than 75% of the minimum clear distance to other bars will be maintained, as compared to the cover and clear distance requirements for the unspliced bar.

Lapped splices shall be made by placing the bars in contact and wiring them together. Splice laps shall be made in accordance with the following table, unless otherwise noted on the plans:

Minimum Lap Splice Length (inches) ¹									
Bar Type	Bar Size								
	#3	#4	#5	#6	#7	#8	#9	#10	#11
Epoxy Coated	21	27	33	39	50	64	80	103	124

¹ Lap Splice lengths are based on the following parameters: Minimum center-to-center spacing between bars of 6 in; nominal yield strength of the reinforcing steel of 60 ksi; minimum 28-day compressive strength of concrete of 4350 psi. When any of the preceding parameters is altered, appropriate minimum lap splice lengths will be determined by the Resident. When lap splices are placed horizontally in an element where the concrete depth below the splice will be 12 in, or more, the indicated lap splice lengths shall be multiplied by a factor of 1.4.

503.08 Substitution

The Substitution of different size bars, bar shapes or bending patterns shall not be permitted except with the written authorization of the Resident.

503.09 Method of Measurement

Zinc and epoxy dual-coated steel reinforcing bars shall be measured for payment by the pound satisfactorily fabricated and delivered and by the pound satisfactorily placed. Weights will be computed in accordance with the following:

Pounds per Foot									
Bar Size	#3	#4	#5	#6	#7	#8	#9	#10	#11
Weight	0.376	0.668	1.043	1.502	2.044	2.67	3.40	4.303	5.313

503.10 Basis of Payment

The accepted quantity of reinforcing steel will be paid for at the contract unit price per pound for each item involved, completed and accepted. All additional expenses that may be incurred by the Contractor or their suppliers as a result of the requirements in these specifications will be considered incidental to, and included in, the contract unit price per pound.

When reinforcing steel is specified to be anchored into drilled holes, no additional payment will be made for drilling and anchoring reinforcing steel or cutting of reinforcing steel to embedment lengths.

Payment for additional material samples, as required for testing by the Authority, shall be considered incidental to related contract items.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
503.18	ZBar Reinforcing Steel, Fabricated and Delivered	Pound
503.19	ZBar Reinforcing Steel, Placing	Pound

SPECIAL PROVISION

SECTION 504

STRUCTURAL STEEL

504.04 Facility Requirements

This subsection is amended by the addition of the following:

The work shall also include the fabrication and installation of bridge lighting support assemblies as shown on the plans.

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}
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• Unspliced rolled beam bridges• Non truss-type highway sign supports• Misc. bridge components such as cross frames	AISC Cbr or Sbr
<ul style="list-style-type: none">• 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:

Galvanized nuts shall be overtapped to the minimum required for the fastener assembly, and shall meet the requirements of Supplementary Requirement S1 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.

There will be no additional payment for the fabrication and installation of the bridge lighting support assemblies. The cost of this work shall be incidental to the related structural steel pay items.

There will be no additional payment for the required erection plan, but the cost shall be incidental to the Structural Steel Erection item.

504.65 Basis of Payment

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
504.703 Structural Steel Fabricated and Delivered, Welded	Lump Sum

SPECIAL PROVISION

SECTION 505

STUD WELDED SHEAR CONNECTORS, ANCHORS AND FASTENERS

(Shear Connectors)

505.01 Description

The following sentence is added:

Stud welded shear connectors shall be the type, lengths, and diameter shown on the Plans.

505.07 Basis of Payment

Payment will be made under:

Pay Item

Pay Unit

505.09

Stud Welded Shear Connectors

Lump Sum

SPECIAL PROVISION

SECTION 506

PAINTING STRUCTURAL STEEL

506.01 Description

This work shall consist of applying a zinc-rich protective coating to portions of structural steel bridge girders in accordance with the Plans and Specifications. The coating limits shall be as described in the Plans.

506.02 Materials

Materials shall comply with the requirements in the respective subsections of this Specification.

506.03 Submittals

The Contractor shall submit for review by the Authority a materials' list, and other such details as described within the Plans and the respective subsections of this Specification.

506.04 General Requirements

Requirements for the type of protective coating to be furnished are as follows:

- Zinc-Rich Coating System Subsections 506.20 through 506.89

506.05 Inspection

Quality Control (QC) is the responsibility of the Contractor. The Quality Control Inspector (QCI) shall inspect all aspects of the work and shall supervise required testing. The QCI shall record measurements and test results in a Job Control Record (JCR). The QCI shall reject materials and workmanship that do not meet Contract requirements. The Contractor may perform testing in addition to the minimum required. The results of all testing shall be documented and made available to the Quality Assurance Inspector (QAI).

The JCR shall include the following, as applicable:

- Type of application equipment
- Surface preparation - cleanliness and anchor profile
- Environmental conditions - dew point, relative humidity and temperature
- Coating lot number, date of manufacture and shelf life
- Manufacturer's Certification of Conformance
- Name(s) of applicator(s)
- Dry Film Thickness (DFT)
- Cure data

Quality Assurance (QA) is the prerogative of the Authority. The QAI will ensure that the QC function is performing properly, verify documentation, periodically inspect workmanship and witness testing. QA testing deemed necessary by the Resident, in addition to the minimum testing requirements, shall be scheduled to minimize interference with the production schedule.

506.06 Inspector's Authority

The QAI will have the authority to reject material or workmanship that does not meet the Contract requirements. The acceptance of material or workmanship by the QAI will not prevent subsequent rejection, if found unacceptable.

506.07 Rejections

Rejected material and workmanship shall be corrected or replaced by the Contractor in accordance with Subsection 106.8.2 of the Standard Specifications.

506.08 Facilities for Inspection

The Contractor shall provide a private office at the coating site for inspection personnel authorized by the Authority. The office shall have an area not less than 100 feet and shall be in close proximity to the work. The office shall be climate controlled to maintain the temperature between 65°F and 85°F, lighted and have the exit(s) closed by a door(s) equipped with a lock and two keys which shall be furnished to the Inspector(s). The office shall be equipped with a desk or table having a minimum size of 48 inches by 30 inches, two chairs, a telephone, telephone answering machine, separate line data port, plan rack and two-drawer letter size file cabinet with a lock and two keys which shall be furnished to the Inspector(s).

The facilities and all furnishings shall remain the property of the Contractor upon completion of the work. Payment for the facilities, heating, lighting, telephone installation, basic monthly telephone charges and all furnishings shall be incidental to the Contract.

Failure to comply with the above requirements will be considered to be a denial to allow the Inspector access to the work by the Contractor. The Authority will reject any work when access for inspection is denied.

506.09 Qualification

Shop-applied zinc-rich coating systems shall be applied in facilities holding a current AISC Sophisticated Paint Endorsement (SPE) or has been qualified in accordance with SSPC QP3-Standard Procedure for Evaluating Qualifications of Shop Painting Applicators.

Field application and touch-up shall be performed by Contractors qualified in accordance with SSPC QP1-Standard Procedure for Evaluating Qualifications of Painting Contractors.

ZINC-RICH COATING SYSTEMS

506.20 Description

New steel work shall consist of application of a three-coat, zinc-rich coating system in accordance with the Plans and Specifications.

506.21 Materials

Coatings for new steel shall be selected from the Northeast Protective Coating Committee (NEPCOAT) Qualified Products List (QPL) A. The list may be found on the NEPCOAT web page (<http://www.nepcoat.org>).

The Contractor shall provide the batch description, lot number, date of manufacture, shelf life and the manufacturer's published storage requirements for each coating to the Resident. In addition, the Contractor shall provide the manufacturer's published instructions for application of each coat of the coating system including equipment, surface preparation, anchor profile, mixing, thinning, application, cure time for the entire range of allowable environmental conditions, dry film thickness (DFT), and recoat time.

The finish topcoat color shall be a lusterless brown conforming to the Federal Standard 595B, color number 30045.

The Contractor shall sample each batch of coating to be applied to new steel; sampling shall be witnessed by the QAI. Samples shall be sent to and tested by the lab that originally performed the NEPCOAT QPL qualification tests. Samples shall be tested for unit weight and infrared refractory (IR) results; the lab shall evaluate the sample(s) and render an opinion of relative comparison with the original NEPCOAT QPL test. Report(s) of the test results shall be furnished to the Resident. Material that does not compare favorably with the original tests is not acceptable for use. Sampling and testing costs will be borne by the Contractor. No sampling and testing is required for the coating used for field painting and touchup on existing girders.

506.22 Limits of Work

All new surfaces, excluding diaphragms and connection angles, exposed in the assembled product shall be coated with primer, intermediate and topcoat.

Faying surfaces of bolted connections, excluding diaphragms and connection angles, shall be primed only and develop a Class B slip coefficient in accordance with the "*Specification for Structural Joints Using ASTM A325 or A 490 Bolts*" by the Research Council of Structural Connections (RCSC). The Contractor shall provide documentation to demonstrate that the coating was tested and met the above requirements.

506.23 Surface Preparation

Prior to abrasive blast cleaning, all corners and edges of members and plates, whether rolled cut or sheared, exposed in the assembled product shall be rounded to approximately an 1/8 inch radius. A series of tangents to the approximate radius will be considered as a rounded. The Contractor shall prepare a plate approximately 2 inch x 12 inch with the appropriate rounded

corner and edge. The QCI and QAI shall agree upon the acceptability of the corner preparation and the plate shall become the Job Standard. The plate shall remain the property of the Contractor.

Surfaces to be coated shall be abrasive blast cleaned to meet the requirements of SSPC-SP 10/NACE No. 2 or the coating manufacturer's published recommendations, whichever is the more stringent. SSPC VIS 1 shall be used to determine acceptable cleanliness. The QCI and QAI shall evaluate the first piece using VIS 1 as a comparator. No further blast cleaning shall be done until the QCI and QAI agree upon the acceptable Job Standard for cleanliness. If more than one method of abrasive blast cleaning is used (e.g., centrifugal blast and compressed air), the acceptable Job Standard shall be established for each method. At the Contractor's option, a sample piece may be abrasive blast cleaned and sealed with a clear coating to preserve the surface preparation and the sample piece may be used as a comparator to establish the agreed upon Job Standard.

After abrasive blast cleaning, the surface shall be visually inspected for fins, tears, delaminations and other discontinuities. Fins, tears and other discontinuities shall be removed with a grinder or other suitable power tool and the area shall be blended at a slope of approximately 1:20. The affected area(s) shall be abrasive blast cleaned to develop an acceptable anchor profile.

The anchor profile shall meet the requirements of the coating manufacturer's published recommendations. The blast media shall contain enough grit to provide an angular anchor profile. The anchor profile shall be measured in accordance with ASTM D 4417 Method C. If the anchor profile fails to meet the minimum requirements, the Contractor shall re-blast the substrate until the minimum required anchor profile is achieved. If the anchor profile exceeds the maximum allowed in the manufacturer's published recommendations, the substrate shall be coated only with the approval of the Resident.

The QCI shall measure the anchor profile of the substrate on each plane of the first piece and each additional piece with a significant change in size or geometry. The QAI will witness the testing. After it has been established to the satisfaction of the Resident, that the abrasive blast equipment is capable of providing uniform, acceptable surface preparation, a diminished degree of testing may be agreed upon by the QCI and QAI. The Quality Assurance Inspector may require that the anchor profile be measured and recorded on any surface that is, in the judgment of the QAI, unacceptable. Failure to measure anchor profile as required will result in rejection of the surface preparation on the piece in question.

If there is a significant change in surface cleanliness or anchor profile due to blast media degradation or other reasons, the Contractor shall cease the blast operation until corrective action is taken.

If compressed air is used for abrasive blast cleaning, a blotter test shall be performed in accordance with ASTM D 4285 at the beginning of each shift and at any other time the QAI directs it. The QCI and QAI shall be present to witness the blotter test.

The allowable time between abrasive blast cleaning and primer application shall not exceed the manufacturer's published recommendations or eight-hours, whichever is less. If the

substrate develops flash rust (rust bloom) before the primer is applied or before the primer application is completed, the piece shall be re-blasted to bare substrate and re-coated.

506.24 Application

All protective coating shall be applied using either conventional or airless spray equipment meeting the manufacturer's published recommendations. Striping and touchup of areas less than 36 square inches may be applied by other methods with the approval of the Resident. Protective coating shall not be applied when the ambient temperature in the immediate vicinity of the piece(s) in question is above 90°F or below 40°F. Thinning and mixing of coatings shall be in conformance with the manufacturer's published instructions. Thinner shall be measured using a graduated cup or other container that clearly indicates the amount of thinner being added. Mixing shall be done using the method, equipment and for the amount of time recommended by the coating manufacturer.

Primer, intermediate coat and topcoat, shall be applied in accordance with the manufacturer's published recommendations. Environmental conditions in the immediate vicinity of the surfaces to be coated shall be within the range of the manufacturer's published requirements both during the coating operation and during the curing period. Primer shall not be force-cured.

Environmental conditions shall be measured by the QCI in the immediate vicinity of the surfaces to be coated. The QAI may perform environmental testing in addition to the testing performed by the QCI. If there are significant differences between the test results, the differences shall be resolved or explained to the satisfaction of the Resident prior to coating application. The results of the environmental testing shall be recorded in the JCR.

Corners, fasteners, welds and inaccessible locations shall be striped in accordance with SSPC PA 1. The striping shall extend a minimum of one inch from each edge. Striping will not be required on intermediate and topcoat; however, the Contractor shall meet the minimum DFT requirements on all surfaces.

Recoat time shall be in accordance with the manufacturer's published requirements for the environmental conditions at the time of application and cure. If the coating is contaminated with dust, debris, over spray or other deleterious material, the surface shall be cleaned in accordance with SSPC-SP 1 immediately prior to recoating. Other methods of cleaning may be used if approved by the Resident.

The QAI shall be given ample notice in order to inspect the product prior to coating, recoating or removal of paint from the area. "Ample notice" shall be defined at the Pre-Job meeting depending on shop or site conditions.

Substrates that are primed or surfaces that are recoated without notification of the QAI will be rejected and no further coating shall be done on the piece. Coating applied without notification of the QAI will be investigated by destructive and non-destructive testing as approved by the Resident and by a review of the JCR. The Resident may reject, conditionally accept, or accept the coating based on documentation and test results. Rejected coating shall be removed and re-applied. Conditionally accepted coatings shall be made acceptable as approved by the Resident. The cost of additional testing and repairs shall be borne by the Contractor.

At the completion of the shop coating, the completion date (month and year) and the number of the type of coating system used shall be stenciled on the inside of the fascia beams, at the locations designated by the Resident, in four inch numbers (for example: 6/05 IOZ-1). The paint used for this marking shall be black polyurethane or such other paint as may be approved by the Resident.

Erection marks, for the field identification of members, and weight marks shall be transferred or preserved.

506.25 Dry Film Thickness

Dry film thickness shall be measured in accordance with SSPC PA 2. The results shall be documented in the JCR. The JCR documentation shall include the actual measurements, spot average and the location(s). Each piece or area presented for acceptance, regardless of size shall be considered a separate structure for purposes of determining the number of readings to be taken except that large quantities of small parts and/or secondary framing members coated at the same time may be measured at a lesser frequency when approved by the Resident. When random DFT testing of a large quantity of small parts and/or secondary framing members results in unacceptable DFTs, the Contractor shall have the option of measuring and documenting the DFT of each piece or removing the coating and/or recoating all pieces represented in the production lot.

The Authority reserves the right to determine the acceptability of multiple-coat systems by destructive testing (Tooke Gauge) if the Resident believes there is cause to question the acceptability of the DFTs of individual coats. The Authority reserves the right to determine the acceptability of coatings by adhesion testing (ASTM D 4514) if the Resident believes that the coating was mixed, thinned, applied or cured improperly. The coating shall have a minimum tensile bond of 725 psi. Repairs to areas of destructive testing shall be as described in Subsection 506.26; payment will be in accordance with Subsection 106.8.4.

506.26 Repairs

Damaged or unacceptable coatings shall be repaired before the piece is removed from the paint area. Damaged areas shall be prepared in accordance with the manufacturer's published instructions or as approved by the Resident. Damaged or unacceptable coatings shall be repaired using the same coating removed and prepared for repair. Environmental conditions, cure times and DFTs shall be in accordance with manufacturer's published directions for the coating being applied. Repairs to topcoat shall result in a uniform gloss and color match. The Resident shall have final authority concerning acceptable appearance.

If repairs larger than 36 square inches are made on the top coat of fascia beam, the entire beam shall be re-coated after repairs are completed. The DFT of re-coated beams shall not exceed the published manufacturer's recommendations.

506.27 Handling and Storage

The coating shall be adequately cured before handling, but under no circumstances shall the product be handled before the coating has achieved the manufacturer's published minimum cure time. Coated steel members shall be handled in a manner to avoid damage to the coating.

Members shall be lifted and moved using non-metallic slings, padded chains and beam clamps, softeners or other non-injurious methods. Material shall be stored, both at the coating facility and in the field, in a manner that prevents damage to the coating.

Material shall not be loaded for shipment until the shop coating has adequately cured and been inspected. The components will be stamped "APPROVED" only after the loading has been completed and approved, and no material shall be shipped without the prior approval of the Resident.

Damage to the coating that is discovered after the product is loaded for shipment to the jobsite shall be documented by the QCI. Repairs shall not be made unless the damaged area is repaired in accordance with Subsection 506.26. Repairs that cannot be acceptably done on the truck shall be done in the shop or in the field at the Contractor's option.

506.28 thru 506.89 Vacant

506.90 Method of Measurement

Protective Coating shall be measured by the lump sum method, complete and accepted. The limits shall be as shown on the Plans or as described within the respective subsections.

506.91 Basis of Payment

All work for Protective Coating will be paid for at the lump sum price for the respective item. Payment will be full compensation for all work and materials needed to complete the item; coating and cleaning materials, testing, labor, surface preparation, cleaning, application, curing and repairs to coating.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
506.9102	Zinc-Rich Coating System (Shop Applied)	Lump Sum
506.9103	Zinc-Rich Coating System (Field Touch-Up)	Lump Sum

SPECIAL PROVISION

SECTION 507

RAILINGS

507.07 Basis of Payment

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
507.091	Aluminum Bridge Railing, 1 Bar	Lump Sum

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 and approach slabs 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.

All membrane joints along curbs, scuppers and bridge joints shall be sealed using one of the following materials:

Monolithic Membrane 6125
American Hydrotech, Inc.
Chicago, Illinois
Phone: 800-877-6125
www.hydrotechusa.com

Aslan Flashing
Soprema, Inc.
Wadsworth, Ohio
1-800-356-3521
www.soprema.us

508.07 Basis of Payment

The following is added:

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
508.141	High Performance Waterproofing Membrane	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, 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 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.

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.

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.

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 such as steel sheeting or a wire-faced MSE wall, shall be designed and installed for the purpose of preventing undermining, settlement and/or lateral movement of the embankment and roadways. 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. At the Contractor's option, the lateral support device may be left in place with the approval of the Resident.

At all existing pier locations any required temporary earth support systems shall be designed and installed in a manner that prevents undermining and/or settlement of new or existing roadways. Temporary Earth Support Systems shall be designed and positioned so as to provide lateral rigidity to the proposed or existing roadways during all phases of construction. Removal of the Temporary Earth Support System shall not compromise the integrity of the roadway.

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 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.

511.06 Basis of Payment

The accepted quantity of Temporary Earth Support Systems 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.

Payment will be made under:

Pay Item

Pay Unit

511.091 Temporary Earth Support Systems

Lump Sum

SPECIAL PROVISION

SECTION 513

SLOPE PROTECTION

513.02 Materials

The following sentences are added:

Crushed stone material requirements listed under MaineDOT Specification 703.31 are deleted and replaced with the following:

<u>Sieve Designation</u>	<u>Percent Passing</u>
3 inch	100%
2 inch	90-100%
1 ½ inch	35-70%
1 inch	0-15%
¾ inch	0-5%

513.06 Method of Measurement

The first sentence is modified to distinguish measurement of crushed stone slope protection as follows:

Slope protection designated on plans as crushed stone slope protection shall be measured by the number of cubic yards acceptably placed in accordance with the contract.

513.07 Basis of Payment

The first sentence is modified to distinguish basis of payment of crushed stone slope protection as follows:

The accepted quantity of crushed stone slope protection (designated on plans as crushed stone slope protection) will be paid for at the contract unit price per cubic yard.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
513.221	Crushed Stone Slope Protection	Cubic 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 parapets, endposts, deck fascias and overhangs, and MSE wall copings in accordance with the Plans, Specifications and the manufacturer's published recommendations. Clear protective coating shall not be applied to MSE wall panels or single slope barrier.

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:

<u>Pay Item</u>	<u>Pay Unit</u>
515.202 Clear Protective Coating for Concrete Surfaces	Square Yard

SPECIAL PROVISION

SECTION 515

PROTECTIVE COATING FOR CONCRETE SURFACES

(Anti-Graffiti Coating)

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

515.01 Description

This work shall include the surface preparation and application of anti-graffiti protective coating to new concrete surfaces. The coating system shall be applied to all exposed faces of the MSE wall panels (excluding copings) and single slope barrier in accordance with the Plans, Specifications and the manufacturer's published recommendations.

This work also includes providing, cleaning, coating and curing a test panel to ensure product suitability, number of coats required and that the desired results have been achieved.

515.02 Materials

The protective coating shall be Si-COAT 531 Spray Grade Anti-Graffiti Protective Coating, as manufactured by CSL Silicones, Inc. The Contractor shall submit CSL Silicones product data sheets, material safety data sheets and recommended instructions for application of the Si-COAT 531 to the Resident.

Materials shall be delivered to the site in original packages or containers bearing the manufacturer's labels and identification.

515.021 Substitute Materials

No material substitutions will be allowed for this item.

515.03 Surface Preparation

The selected surfaces shall be thoroughly cleaned of dust, dirt, grease, oil, loose materials or other objectionable materials before applying the coating. Cleaning shall be completed by pressure washing in accordance with the manufacturer's written instructions. Sandblasting will not be permitted. The coating shall be applied as soon as practicable after cleaning is completed. If in the opinion of the Engineer, the surface has become soiled or otherwise contaminated prior to the application of the coating, the surface shall be re-cleaned at no additional cost.

515.04 Application

A spare MSE wall test panel measuring a minimum of 4 feet by 4 feet shall be provided, cleaned, coated and cured to ensure product suitability, number of coats required and that the desired results have been achieved. The test panel application and final results shall be inspected and approved by the Engineer prior to applying the coating to the bridge structure.

The Contractor shall apply the coating in strict accordance with these specifications and the manufacturer's published recommendations, whichever is more stringent.

Application of the protective coating shall not be conducted when surface and air temperatures are below 40°F. The environmental temperature shall be at least 5°F above the dew point prior to and during application. 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 coating shall not be applied during rain, to damp or wet surfaces, or when there is a chance of rain within 24-hours after application.

The coating shall not be applied when winds are sufficient to carry airborne coating to unprotected surfaces.

Prior to applying the coating the Contractor shall protect all surrounding surfaces not designated to receive anti-graffiti coating from accidental coating due to overspray or drifting.

The material shall be applied in a single coat using an airless sprayer taking care to evenly coat all pores and textured areas. The material shall be applied as packaged without dilution or alteration. A uniform application rate shall be used that provides a 12.5 mils DFT coating thickness.

The Contractor shall ensure that all safety equipment, facilities and precautions recommended by the product manufacturer are furnished and/or strictly adhered to.

515.05 Method of Measurement

Anti-Graffiti Coating will be measured for payment by the square yard satisfactorily applied and accepted.

No separate measurement will be made for providing, cleaning, and coating test panels.

515.06 Basis of Payment

Anti-Graffiti 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 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 Anti-Graffiti Coating pay item.

Providing, cleaning, and coating test panels will not be measured separately for payment, but shall be incidental to the Anti-Graffiti Coating pay item.

Payment will be made under:

Pay Item

Pay Unit

515.23 Anti-Graffiti Coating

Square Yard

SPECIAL PROVISION

SECTION 518

STRUCTURAL CONCRETE REPAIR

(Temporary Bridge Repairs – Deck Patching)

518.01 Description

The following paragraphs are added:

The work shall also consist of the periodic deck patching of all bridge decks, following the award of the Contract, in locations and at times as approved by the Resident. The bituminous concrete overlay and any unsound concrete in the selected areas shall be removed and the void created filled using THOROC 10-60. The Contractor shall be responsible for all deck patching for the duration of the Project.

The Contractor shall also have sufficient materials and equipment on-site at all times to initiate emergency repairs.

The Contractor's attention is directed to the fact that pneumatic hammers over 35 pounds are not allowed for the removal of concrete.

The Contractor shall be responsible for the maintenance of traffic and temporary lane closures that may be required in order to facilitate deck patching operations.

518.02 Materials

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

Cement concrete used for deck patching shall be THOROC 10-60 Rapid Set Mortar, as manufactured by Harris Specialty Chemicals, Inc., 10245 Centurion Parkway North, Jacksonville, FL 32256-0565 (888-904-2616). The THOROC 10-60 shall be extended by adding up to 50 pounds of clean well graded 3/8 inch pea gravel as recommended by the manufacturer, unless otherwise approved by the Resident.

518.04 Reinforcement

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 the bars shall be one (1) inch. Adequate Class E concrete blocks shall be provided by the Contractor to support the bars in their specified location.

518.10 Method of Measurement

The following paragraphs are added:

The quantity of THOROC 10-60 Rapid Set Mortar used, as approved by the Resident, for deck patching shall be measured by the number of 50 pound bags used. The required pea gravel will not be measured separately for payment, but shall be incidental to THOROC 10-60.

Temporary lane closures for bridge deck repairs will not be measured separately for payment, but shall be incidental to THOROC 10-60 Rapid Set Mortar item and no separate payment shall be made.

518.11 Basis of Payment

The following paragraphs are added:

THOROC 10-60 Rapid Set Mortar shall be paid for at the Contract unit bid price per bag (50 lbs. each) which price shall include, but not necessarily be limited to, removal and disposal of unsound materials; cleaning existing concrete and reinforcing steel; placing, curing and finishing new concrete; all materials, labor, equipment tools and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
518.64 THOROC 10-60 – Rapid Set Mortar (50 lb. Bag)	Each

SPECIAL PROVISION

SECTION 520

EXPANSION DEVICES – NON MODULAR

(Compression Seal)

520.02 Materials

The second paragraph is deleted and replaced with the following:

Compression seals shall be selected from the MaineDOT Qualified Product List of Bridge Compression Seals.

520.06 Installation

The following are added after the first paragraph:

The compression seal shall be installed in one piece. The Contractor shall schedule the installation of the work when the ambient temperature allows the bridge steel to contract sufficiently so the compression seal may be installed without damage.

520.08 Basis of Payment

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
520.221 Expansion Device - Compression Seal	Each

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.

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 shielding. The proposed methods of protective shielding, including connections and fasteners, shall be in accordance with the following criteria:

The protective shielding 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 shielding shall be stiff enough to limit deflection to 1/2 inch under maximum loads and to be tightly sealed at all joints. The protective shielding 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 shielding installed over a roadway shall project below a plane connecting the bottoms of the bottom flanges of the steel stringers. During demolition operations, the protective shielding 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.

The protective shielding on existing and new structures shall extend transversely three feet beyond the fascia lines and vertically to a point one foot minimum above the top of parapet. Shielding on existing structures shall extend longitudinally between the faces of roadside piers. Shielding on new structures shall extend 10 feet beyond the edge of pavement of the roadway below as shown on the Plans or as approved by the Resident.

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.

Construction sequences may require protective shielding material to be removed, stored and then reinstalled by the Contractor. Any shielding which is damaged during this removal and reinstallation shall be replaced by the Contractor at no additional cost.

524.28 Method of Measurement

The following paragraph is added:

Protective Shielding will be measured by the square yard for shielding designed, installed, removed and disposed or stacked. For purposes of computing the area, only the horizontal plan dimensions will be used.

524.29 Basis of Payment

The following paragraphs are added:

Protective Shielding will be paid for at the Contract bid price per square yard and shall include all design, materials, transportation and stacking, labor (to install, remove and stack as needed), tools and equipment necessary to perform the work as described above or as approved by the Resident. The measurement shall include one sequence of placement, removal, and on-site storage (if applicable for intended reuse) of Protective Shielding. Where bridge and girder construction dictates that Protective Shielding is to be installed in the same location at a later date, then the quantity of Protective Shielding shall be increased accordingly to reflect the total work, and shall be tabulated on the drawings. Therefore, the calculated quantity of Protective Shielding will be the summation of each sequence noted above (placement, removal, and on-site storage). The Contractor shall note that additional timber material may be required to accommodate differing girder spacing or differing overhang dimensions

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
524.40 Protective Shielding - Steel Girders	Square Yard

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 the installation and maintenance of Glare Screen. See Special Provision 644 Glare Barrier for more information.

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):

<u>Location</u>	<u>Linear Feet of Barrier</u>
Exit 80 Phase 1 MOT Installation	6,600
Exit 80 Supplemental Bridge Barrier (NB & SB)	1,440

Upon substantial completion of work, the Contractor shall remove and transport the concrete barrier - supplied by Authority to back to:

Crosby Maintenance Area	5,900
Auburn Maintenance Area	Remainder

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 – 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 notify the Resident prior to the scheduled movement of supplemental temporary bridge barrier from the existing mainline interchange bridges. These barriers shall not be moved or removed from the existing bridge(s) until the bridge has been permanently closed and is no longer servicing mainline traffic.

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 70 mph for turnpike roadways unless otherwise noted on the Plans.

527.05 Basis of Payment

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
527.341 Work Zone Crash Cushions – TL-3	Unit

SPECIAL PROVISION

SECTION 535

PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE

(Precast Concrete Deck Panels)

535.02 Materials

The following sentences are added:

Materials for precast deck panels shall meet the requirements specified in the following Subsections:

- Curing Materials 701.06
- Sealant 714.04

Deformed welded wire fabric shall conform to the requirements of AASHTO M221 (ASTM A497).

All mild reinforcing steel shall be epoxy coated in accordance with Standard Specification 503.

535.09 Rejections

The following sentences are added:

Any of the following conditions shall be cause for rejection of precast deck panels:

- a) Any cracks transverse or diagonal to the strand pattern and crossing more than one strand with crack widths greater than 0.15 mm.
- b) Any crack parallel to a strand and longer than 1/3 of the panel length strand with crack widths greater than 0.15 mm.
- c) Cracks shorter than 1/3 of the panel length and occurring at more than 25 percent of the total number of strands in the panel.
- d) Voids or honeycombed areas with exposed strand.

Panels with cracks or with damage less severe than the conditions stated above shall be repaired by the Contractor, at his own expense, using procedures approved by the Resident.

535.13 Concrete

The following paragraph is added:

Portland Cement concrete for precast deck panels shall be Class P ($f'_c=6,000$ psi, $f'_{ci}=4,000$ psi) concrete in accordance with Special Provisions Subsection 502.05, Composition and Proportioning. The mix design shall be approved by the Resident.

535.21 Precast Deck Panels

The following paragraphs are added:

Grout dams shall be continuous foam strips of one color fabricated from rigid high-density extruded polystyrene (XPS) conforming to ASTM C578 Type VII. Non-corrosive threaded inserts, leveling screws and compressible polyethylene foam (1.7 pcf) strips may be used in lieu of rigid grout dams if approved by the Resident. Compressible polyethylene foam shall be white such as "CelluPlank" manufactured by Sealed Air Corporation, or an approved equal.

Adhesive for bonding grout dams to girder flanges shall be "CX-200 Construction Adhesive" manufactured by ChemRex or an approved equal.

535.22 Tolerances

The following paragraph is added:

Precast deck panels shall be 3.5 inches thick throughout. The panels shall be rectangular in shape having a nominal width between 4'-0" and 8'-0". Panels shall have 0.5" chamfers along all edges. The panels shall be manufactured in conformity with the following tolerances:

Thickness of panel	-1/8", 1/4"
Width of panel	-0", +1/4"
Length of panel	±1/4"
Horizontal alignment (dev. from line parallel to CL)	1/4"
Squareness (difference along diagonals)	1/2"
Vertical position of strand group (meas. from bottom)	+0", -1/8"
Vertical position of individual strands	±1/8"
Horizontal strand position	±1/4"
Strand projection	±1/2"
Bowing	±1/8"
Sweep	±1/8"
Warping (meas. from nearest corner)	1/16" per foot
Threaded jack inserts (long. and transv.)	±1/4"

535.27 Erection of Precast Deck Panels

The following paragraphs are added:

At a minimum, stud welded shear connectors shall extend to the top of the precast deck panel, and preferably should extend two inches above the top of the precast deck panel.

Grout shall conform to the requirements of the amended Master Limits Table. Chemical air-entrainment is not required. Shrinkage-reducing properties shall be developed in the mix through the use of an approved admixture such as "Eclipse" manufactured by W.R. Grace or an approved equal. Expansive type additives are not acceptable.

The Master Limits Table is amended as follows:

MASTER LIMITS TABLE

Class of Concrete	Minimum Compressive Strength at 28 Days	Minimum Cementit. Content	Water Cement Ratio	Slump	Air Content	Maximum Coarse Aggregate Size (703.02)	Notes
	PSI	LB./CY		INCHES	%	INCHES	
Grout	4,000	658	0.38±0.02	7 ± 1	3 ± 1	1/2	1, 2, 3, 4

Prestressing steel for precast deck panels shall be uncoated, low relaxation, seven wire strand conforming to the requirements of AASHTO M203 (ASTM A416). The strand shall be 3/8 inch diameter Grade 270. The initial strand tension shall be 17.2 kips per strand.

If leveling screws are used, temporary bracing shall be installed between the ends of the panels to prevent any transverse movements and hence loss of bearing. The leveling screws shall be completely removed after the grouting operation and the holes filled with a fluid type grout prior to the placement of the cast-in-place topping.

The Contractor shall furnish certified copies of a representative load-elongation curve test report for each size and grade of strand for each lot of 10 tons or fraction thereof. The Contractor shall also furnish a certified mill test report for each heat and coil of wire used in the production of the strand.

535.28 Method of Measurement

No separate measurement will be made for Precast Concrete Deck Panels. All work and related materials including, but not necessarily limited to, furnishing and installing deck panels, lifting devices, grout dams, adhesive, leveling screws, inserts, grout, panel reinforcing steel or welded wire fabric, and cast-in-place concrete topping will be incidental to, and included in, Item 502.263, Structural Concrete Roadway and End Posts on Steel Bridges.

If precast concrete deck panels are utilized in the construction, no deducts will be applied to Structural Concrete Roadway and End Posts, Reinforcing Steel, and Protective Shielding for the material not used due to the use of the precast panels.

No separate measurement will be made for fabricating and placing reinforcing steel in the cast-in-place concrete topping. All costs associated with this work shall be paid for separately under Items 503.14 and 503.15 for reinforcing steel.

No separate measurement will be made for longer stud welded shear connectors required with the Precast Concrete Deck Panels. All costs associated with this work shall be incidental to Item 505.09.

SPECIAL PROVISION

SECTION 602

PIPE LINING

(Flowable Concrete Fill)

602.01 Description

This work shall consist of providing and placing flowable concrete fill at the locations designated on the Plans.

602.02 Materials

Materials shall conform to the requirements specified in the following Subsections of Division 700 — Materials:

Portland Cement	701.01
Water	701.02
Air Entraining Admixtures	701.03
Water Reducing Admixtures	701.04
Fly Ash	701.10
Fine Aggregate	703.01
Accelerating Admixtures	AASHTO M-194 Type “C”

602.03 Composition and Proportioning

Flowable concrete fill shall be composed of a homogeneous mixture of Portland Cement and/or pozzolans, fine aggregate, water, and chemical admixtures proportioned according to these Specifications.

The flowable concrete fill shall be proportioned to produce a 28-day compressive strength of 100 to 500 psi.

The water cement ratio for flowable concrete fill shall not be high enough to cause segregation of the mix.

Air content of five to 15 percent is the target. Higher air contents may be acceptable but will increase set time. All flowable concrete fill shall be air entrained by the addition of an air entraining admixture or other chemical admixtures.

At least 30 days prior to the first placement, a flowable concrete fill mix design shall be submitted by the Contractor to the Resident for approval. No flowable concrete fill shall be placed on the Project until the mix design is approved by the Resident. At a minimum, the mix design submitted by the Contractor shall include the following:

- A. Target water cement ratio
- B. Target strength

C. Target air content

602.04 Quality Control

Process control measurements of air content, mix temperature, and slump shall be performed on the portion or portions of flowable concrete fill batches delivered to the site. At least one set of measurements for air content, temperature, and slump of flowable concrete fill mix shall be performed per placement or per day, whichever is less frequent. Test cylinders will not be required.

Air content shall be measured following the requirements of AASHTO T152 utilizing Type B equipment.

Slump shall be measured by Modified Slump Test as described below.

Apparatus:

Scoop, measuring tape, flat edge, 3 in. x 6 in. cylinder mold open at both ends, and a flat non-absorbent surface.

Procedure:

1. Set cylinder upright on flat non-absorbent surface.
2. Scoop representative sample of flowable concrete fill.
3. Fill the cylinder, with the sample in one lift without tamping. Strike-off the top with the flat edge to form a level surface.
4. Clear any residue from around the bottom of the cylinder.
5. During a count of three seconds, lift the cylinder straight up allowing the sample to spread on the flat surface.
6. Measure the spread diameter to the nearest 1/2 inch. A spread of nine to 14 inches is considered flowable.

602.05 Batching

Measuring and batching of materials shall be performed at an approved batching plant, either commercial or otherwise.

602.06 Mixing and Delivery

The Contractor shall provide a Certificate of Compliance as described in Standard Specification Section 502, Structural Concrete, Subsection 502.0501, Quality Control METHOD C, for each truckload of flowable concrete fill.

602.07 Cold Weather Placement

The requirements of Standard Specification Section 502, Structural Concrete, Subsection 502.08, Cold Weather Concrete, amended as follows, apply.

The Cold Weather Temperature Table does not apply to flowable concrete fill. The minimum concrete temperature as placed shall be 40°F. No housing framework or heating will be required when placed under approved cold weather conditions.

602.08 Forms and Containment Berms

When necessary to contain flowable concrete fill within a defined area, berms shall be constructed of compacted granular material.

602.09 Placing Flowable Concrete Fill

Flowable concrete fill shall not be placed until forms and/or containment berms have been checked and approved. Flowable concrete fill shall not be placed under water. The method and sequence of placing flowable concrete fill shall be approved by the Resident before any flowable concrete fill is placed.

All flowable concrete fill shall be placed before it has taken its initial set. Flowable concrete fill shall be placed in such a manner as to avoid separation and segregation of the mix. Consolidation, tamping, and vibration is not required or allowed.

Flowable concrete fill shall be discharged directly from the truck into the space to be filled. The drop height of the flowable concrete fill shall be as low as practicable. Flowable concrete fill shall not flow down the vertical face of a trench causing erosion of the trench face. Finishing and curing of flowable concrete fill is not required.

Flowable concrete fill placed will not be opened to traffic or covered with structural concrete or pavement for a minimum of 24-hours.

602.10 Method of Measurement

Flowable Concrete Fill satisfactorily placed and accepted will be measured as one lump sum. If the Contractor elects to omit forms, or berms, then any excavation or Flowable Concrete Fill placed beyond the pay limits indicated on the Plans shall not be paid for, but shall be at the Contractor's own expense.

602.11 Basis of Payment

The accepted work done under Flowable Concrete Fill will be paid for at the Contract lump sum price. Payment will be full compensation for furnishing and placing Flowable Concrete Fill, including all forms, berms, granular material, pumping, dewatering and necessary incidentals.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
602.30 Flowable Concrete Fill	Lump Sum

SPECIAL PROVISION

SECTION 603

PIPE CULVERTS AND STORM DRAINS

(Reinforced Concrete Pipe)
(Concrete Collar)

603.01 Description

The following paragraphs are added:

This work shall also consist of furnishing and installing Class III reinforced concrete pipe at the locations as shown on the Plans or as approved by the Resident. These pipes shall meet the requirements of Subsection 706.02.

This work also consists of furnishing and installing a concrete collar to join the existing concrete pipe to the proposed concrete pipe in accordance with the details as shown on the Plans. The Contractor shall note that the concrete pipe ends may be of different sizes and may not fit snugly together.

603.11 Method of Measurement

The following paragraph is added:

The Concrete Collar shall be measured by each unit installed, complete in place and accepted. This shall be full compensation for furnishing labor and materials to construct a Concrete Collar to connect the existing and proposed pipe ends in a working like manner.

603.12 Basis of Payment

Concrete Collars will be paid for at the Contract unit price each regardless of the size of the existing and proposed pipes.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
603.155	12 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.175	18 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.225	42 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.28	Concrete Collar for Reinforced Concrete Pipe	Each

SPECIAL PROVISION

SECTION 603

PIPE CULVERTS AND STORM DRAINS

(Reinforced Concrete Pipe - Remove and Stack)

603.01 Description

The following paragraphs are added:

This work shall also consist of removing and stacking existing reinforced concrete pipe at the locations as shown on the Plans or as approved by the Resident. These pipes range in size from 12” diameter to 18” diameter.

The reinforced concrete pipe shall remain the property of the turnpike and shall be stacked at the Maine Turnpike Crosby Maintenance Area Mile 46 Southbound.

603.11 Method of Measurement

The following paragraph is added:

Reinforced Concrete Pipe - Removed and Stacked will be measured on a linear foot basis along the invert of pipe satisfactorily removed and stacked.

603.12 Basis of Payment

The accepted quantity of Reinforced Concrete Pipe Remove and Stack will be paid for at the Contract unit price bid, which price shall be full compensation for removing, transporting and stacking all pipes, equipment, labor and all incidentals necessary to complete the work.

Payment will be made under:

Pay Item

Pay Unit

603.741	Reinforced Concrete Pipe - Remove and Stack	Linear Foot
---------	---	-------------

SPECIAL PROVISION

SECTION 604

MANHOLES, INLETS AND CATCH BASINS

(Maine Turnpike Catch Basin and Manhole)

604.01 Description

This work shall consist of furnishing and installing new catch basins and Manholes.

604.02 Materials

The following is added:

Catch Basin Frames and Grates shall be as outlined below and be manufactured by EJ Company of Brockton, Massachusetts or an approved equal and shall meet or exceed the AASHTO M306 Loading Requirements.

Catch Basin Frames shall be manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product numbers:

5521Z - 8 Inch Frame Product Number 00552111

5546Z - 6 Inch Frame Product Number 00554611

5544Z - 4 Inch Frame Product Number 00554411

Catch Basin Frames shall be 8" frames unless otherwise specified by the plans or approved by the resident.

Catch Basin Grates shall be a square holed grate as manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product number:

5520M5 Grate Product Number 00552060

If a cascade catch basin grate is specified on the plans then it shall be manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product numbers depending on the direction of flow:

5520M8 Product Number 00552084 or 5520M8 Product Number 00552085

604.06 Basis of Payment

The following is added:

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
604.111	72 inch Catch Basin Type C1	Each
604.112	96 inch Catch Basin Type C1	Each
604.154	72 inch Manhole	Each

SPECIAL PROVISION

SECTION 604

MANHOLES, INLETS, AND CATCH BASINS

(Altering Catch Basin)

604.02 Materials

This Subsection is amended by the addition of the following:

The Class AAA concrete shall conform to Subsection 502.05; except that the minimum cement factor shall be 750 pounds per cubic yard and the coarse aggregate size shall conform to ASTM C33 Grading 7.

Catch Basin Frames and Grates shall be as outlined below and be manufactured by EJ Company of Brockton, Massachusetts or an approved equal and shall meet or exceed the AASHTO M306 Loading Requirements.

Catch Basin Frames shall be manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product numbers:

5521Z - 8 Inch Frame Product Number 00552111

5546Z - 6 Inch Frame Product Number 00554611

5544Z - 4 Inch Frame Product Number 00554411

Catch Basin Frames shall be 8" frames unless otherwise specified by the plans or approved by the Resident.

Catch Basin Grates shall be a square holed grate as manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product number:

5520M5 Grate Product Number 00552060

If a cascade catch basin grate is specified on the plans then it shall be manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product numbers depending on the direction of flow:

5520M8 Product Number 00552084 or 5520M8 Product Number 00552085

604.04 Altering, Adjusting, and Rebuilding Catch Basins and Manholes

The following sentence is added:

Subpart a. Altering Catch Basin shall be revised to include Type A, Type B or Type C frame and grates.

SPECIAL PROVISION

SECTION 604

MANHOLES, INLETS, AND CATCH BASINS

(Cap Catch Basin)

604.01 Description

This work shall consist of capping existing catch basins where shown on the Plans, as approved by the Resident, and in accordance with the requirements of the Specifications.

The following Subsection is added:

604.031 Capping Catch Basin

The Contractor shall remove existing frames, grates and concrete catch basins below the proposed roadway grade to a depth of approximately 6" above the top of inlet pipe. The catch basin shall be capped with a solid concrete flat top slab meeting the following criteria:

- Concrete 4000 psi at 28 days
- Design to conform to A.S.T.M C-478 and meet HS-25 loading requirements

The solid concrete flat top slab shall be mortared to the top of the concrete basin to remain such that any voids or surface irregularities resultant of concrete removal are completely sealed to the satisfaction of the Resident. Inlet and outlet piping shall not be disturbed or modified and the structure shall continue to allow drainage to pass through the structure.

The contractor shall furnish, install and compact type-A gravel over the concrete flat top slab to the bottom of proposed roadway template detailed on typical sections. The existing frame and grate pair, if no visible cracks, as determined by the resident, shall be stacked at Crosby Maintenance Area Mile 46 Southbound; all others shall become the property of the contractor and disposed of.

604.05 Method of Measurement

All work necessary and required to Cap Catch Basins will be measured per each catch basin successfully capped.

604.06 Basis of Payment

Cap Catch Basins will be paid for at the Contract unit price each. This price shall be full compensation for all labor, equipment and materials required to complete the work. The work shall consist of, but not necessarily be limited to, removing, transporting and stacking of the existing frames and grates; removing and disposing the concrete cone sections; furnishing and installing concrete flat top slab; furnishing, backfilling and compacting gravel. Any excavation, backfill and grading required around the existing catch basins will not be measured separately for payment, but shall be incidental to the Cap Catch Basin item.

Payment will be made under:

Pay Item

Pay Unit

604.162

Cap Catch Basin

Each

SPECIAL PROVISION

SECTION 604

MANHOLES, INLETS AND CATCH BASINS

(Rebuild Catch Basin to Grade Type IV)

604.01 Description

This Subsection is amended by the addition of the following:

The Type IV work shall consist of rebuilding catch basins as specified in the Specifications to grade, removing the existing unsound concrete, frame and grate, and installing a new frame and grate in accordance with these Specifications and in reasonable close conformity with the lines and grades as shown on the Plans.

604.02 Materials

This Subsection is amended by the addition of the following:

The Class AAA concrete shall conform to Subsection 502.05; except that the minimum cement factor shall be 750 pounds per cubic yard and the coarse aggregate size shall conform to ASTM C33 Grading 7.

Catch Basin Frames and Grates shall be as outlined below and be manufactured by EJ Company of Brockton, Massachusetts or an approved equal and shall meet or exceed the AASHTO M306 Loading Requirements.

Catch Basin Frames shall be manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product numbers:

5521Z - 8 Inch Frame Product Number 00552111
5546Z - 6 Inch Frame Product Number 00554611
5544Z - 4 Inch Frame Product Number 00554411

Catch Basin Frames shall be 8" frames unless otherwise specified by the plans or approved by the resident.

Catch Basin Grates shall be a square holed grate as manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product number:

5520M5 Grate Product Number 00552060

If a cascade catch basin grate is specified on the plans then it shall be manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product numbers depending on the direction of flow:

5520M8 Product Number 00552084 or 5520M8 Product Number 00552085

604.04 Altering, Adjusting, and Rebuilding Catch Basins and Manholes

This Subsection is deleted and replaced with the following:

When adjusting the existing catch basins they shall be dismantled sufficiently to allow reconstruction in accordance with the following requirements and as shown on the Plans:

Rebuild Catch Basin to Grade – Type IV

The existing frame and grate shall be removed and disposed. Remove all unsound concrete and anchor rods to sound concrete as determined by the Resident. Install four Number 4 dowels, twelve inches in length, in each sidewall, reform catch basin to necessary grade using Class AAA concrete. Install the proposed frame and grate to the finished grade as designated by the Resident and construct a bituminous concrete waterway including regrading (raising) the drainage swale with gravel borrow.

Any frame or grate damaged by the Contractor's operations shall be replaced by the Contractor at no additional cost to the Authority. Replacement material shall meet the requirements of Subsection 604.02. Damaged frames and grates become the property of the Contractor.

The Contractor shall remove unsound concrete (two inches minimum) from the existing floor slab and replace if directed by the Resident. Existing sumps shall be retained in the basin. Prior to placement of the concrete, the catch basin floor and walls shall be cleaned of all debris, loose and foreign materials to the satisfaction of the Resident.

604.05 Method of Measurement

The following are added after Subsection e. Grate:

Rebuild Catch Basin to Grade – Type IV will be measured for payment by each unit rebuilt, and accepted.

Each unit includes removing and replacing a depth up to 12 inches from the bottom of the frame to the top of sound concrete in the wall. Each six inches of concrete removed and replaced over 12 inches will be measured for payment as one eighth (1/8) of a unit. Depth measurements in excess of the dimensions authorized will not be included.

604.06 Basis of Payment

The following paragraphs are added after the first paragraph:

The accepted quantity of Rebuild Catch Basin to Grade – Type IV will be paid for at the Contract unit price each. This price shall be full compensation for removing and disposing existing frame and grate, rebuilding the catch basin top to grade, installing a new frame and grate, and all other labor, equipment and materials required to complete the work.

The second paragraph is deleted and replaced with the following:

Excavation and backfill will not be measured separately for payment, but shall be incidental to the following pay items:

Bituminous concrete waterways shall be paid for under Item 459.06 or 459.061.

Sawing bituminous pavement will not be measured separately for payment, but shall be incidental to the related drainage items.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
604.186	Rebuild Catch Basin to Grade – Type IV	Each

SPECIAL PROVISION

SECTION 604

MANHOLES, INLETS, AND CATCH BASINS

(Catch Basin Remove and Stack)

604.01 Description

The following paragraphs are added:

This work shall also consist of removing and stacking existing catch basins from the locations as shown on the Plans or as approved by the Resident. Any catch basins that were installed during Contract 2013.07 shall be relocated and reused on the project site if the contractor's sequence of construction permits.

Care shall be exercised in removing, transporting and stacking the catch basins, frames and grates. The Contractor will be required to replace, at his own expense, all components damaged or destroyed by his operation.

The catch basins shall remain the property of the turnpike and shall be stacked at the Maine Turnpike Crosby Maintenance Area Mile 46 Southbound.

604.05 Method of Measurement

The following paragraph is added:

Catch Basins Removed and Stacked will be measured by each basin satisfactorily removed and stacked.

604.06 Basis of Payment

The accepted quantity of Catch Basin Remove and Stack will be paid for at the Contract unit price bid, which price shall be full compensation for removing, transporting and stacking all basins, equipment, labor and all incidentals necessary to complete the work.

No additional compensation shall be made if the catch basin is reused on the project.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
604.271 Catch Basin Remove and Stack	Each

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Bridge Transition – Type III)
(Bridge Transition – Type III, Modified)

606.01 Description

The following sentence is added:

This work shall consist of furnishing and installing Type III guardrail bridge attachments as shown on the plans. Bridge Transition – Type III shall be for transitioning between bridges and w-beam guardrail. Bridge Transition – Type III, modified shall be for transitioning between bridges and thrie-beam guardrail

The following Subsection is added:

606.071 Guardrail Attachments at Bridges

Bridge Transition - Type III shall be used at the outside shoulder bridge endpost locations. Bridge Transition - Type III, modified shall be used at the median shoulder bridge endpost locations. Bridge transitions along the median shoulder shall only be installed on the approach end of the structure.

606.08 Method of Measurement

The following sentence is added:

Bridge Transition – Type III and Bridge Transition – Type III, Modified will be measured by each unit of the type specified, installed and accepted.

Curbing is not included in the Bridge Transition pay item but will be measured separately for payment under Special Provision Section 609.

606.09 Basis of Payment

The following paragraphs are added:

Bridge Transition – Type III and Bridge Transition – Type III, Modified will be paid for at the Contract unit price each complete in place and shall be full compensation for furnishing all labor, equipment and materials necessary to complete the work consisting of, but not necessarily limited to, the following: furnishing and installing guardrail, one terminal connector, including terminal connector anchorage and all other detailed accessories; furnishing and installing all required posts, rails, offset brackets, back-up plates, nuts, bolts, washers, and all other items necessary to make for a complete installation as shown on the Plans or as approved by the Resident.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
606.1723	Bridge Transition - Type III	Each
606.1724	Bridge Transition - Type III, Modified	Each

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Terminal End - Trailing End)
(Terminal End - Trailing End, Double Face)

606.01 Description

The following sentence is added:

This work shall also consist of furnishing and installing terminal end – trailing end, and terminal end – trailing end, double face end treatments in accordance with these Specifications, the AASHTO-AGC-ARBTA Joint Committee Task Force 13 Report: A Guide to Standardized Highway Barrier Hardware, dated May 1995; and in reasonably close conformity with the lines and grades as shown on the Plans or as approved by the Resident.

606.02 Materials

The following sentences are added:

The guardrail elements shall be per the Components' List found on Sheet No. 2 of 2 of Drawing SEW02a – Trailing End Terminal – Foundation Tube Option in the Task Force 13 Report noted above. For Double Face, replace W-Beam end section component RWE03a with RWE06a.

The offset bracket on the final post shall be wood to facilitate the attachment of the flexible delineator.

The following Subsection is added:

606.042 Terminal End - Trailing End

Installation of the terminal end – trailing end and terminal end – trailing end, double face shall be in strict accordance with the AASHTO-AGC-ARBTA Joint Committee Task Force 13 Report and the Details on Sheet No. 1 of 2 of Drawing SEW02a – Trailing End Terminal – Foundation Tube Option.

606.08 Method of Measurement

The second paragraph is amended by the addition of: “, Terminal End - Trailing End, and Terminal End – Trailing End, Double Face” after the words “breakaway cable terminal”.

606.09 Basis of Payment

The second paragraph is amended by the addition of: “, Terminal End - Trailing End, and Terminal End – Trailing End, Double Face” after the words “breakaway cable terminal”.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
606.277	Terminal End - Trailing End	Each
606.278	Terminal End - Trailing End, Double Face	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 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 fourth paragraph is deleted and replaced with the following:

The reflectorized beam guardrail delineators shall be fabricated from aluminum or approved equal.

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:

<u>Pay Item</u>	<u>Pay Unit</u>
606.352 Reflectorized Beam Guardrail Delineator	Each

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Delineator Post)
(Remove and Reset Delineator Post)

606.01 Description

The following paragraphs are added:

This work shall also consist of furnishing and installing new delineator posts and/or removing and resetting existing delineator posts within the Contract limits. The existing reflectorized delineator panels on reset posts shall be removed and replaced with new reflectorized delineator panels as required by the Resident.

Existing and reset delineator posts shall be located as follows:

Outside Shoulder:

- One at guardrail trailing ends (green delineator).
- Two at guardrail approach ends (red delineators at face end and first angle point, FLEAT red on traffic side).
- One at guardrail attachments to endposts (white delineator).

Median:

- One at guardrail trailing ends (green delineator).
- Two at guardrail approach ends (red delineators at face end and first angle point, CAT or FLEAT MT red on both sides).
- One at guardrail attachments to endposts (yellow delineator).

Other Locations:

- One at culvert outlets (red delineator).
- Twenty per mile evenly spaced at the edge of outside shoulder (white delineator).
- One at electrical junction boxes not associated with another item (blue delineator).

Delineator posts that do not exist in the locations described above, shall be supplied and installed by the Contractor. The installation of the delineator post shall include the demountable reflectorized delineator.

Delineator posts shall be bolted to the back of the first wood post in the FLEAT 350's, CAT systems and FLEAT MT systems.

606.02 Materials

The following paragraphs are added:

Non-guardrail guardrail delineator posts shall conform to Subsection 606.02.

Guardrail delineator posts for the approach ends of 350 compliant end treatments shall be fabricated of a flexible, durable, non-discoloring polyethylene plastic capable of recovering from repeated impacts and resistant to solar degradation. The posts shall be a minimum of 2-inches in diameter, shall be ovalized at the top of the post to allow application of reflective sheeting, and shall be a maximum length of 36 inches. Color of the guardrail delineator posts shall be grey. Posts shall be capped at the top with a flexible rubber cap; Safe-Hit Flexible Guardrail Delineator Post or approved equal.

Reflective sheeting shall be applied to the top of the post and the color of the sheeting shall be as described in section 606.01. Dimensions of sheeting shall be 3-inches by 8-inches and shall conform to ASTM Type XI; 3M™ Diamond Grade™ DG³ Reflective Sheeting Series 4000 or approved equal.

Guardrail delineator posts shall be fastened to guardrail posts with two fasteners. For wooden posts, two 3-inch by 3/8-inch lag screws with 5/8-inch flat washers shall be used. For steel guardrail posts, two self-drilling 1/4-inch by 2 inch screws with 5/8-inch flat washers shall be used.

The demountable reflectorized delineator panel shall meet the requirements of Subsection 719.06. Delineator panel shall be rectangles measuring 8" x 3".

606.03 Posts

The following paragraphs are added:

The installation of delineator posts shall conform to Subsection 606.03 for guardrail delineator posts.

The top of delineator posts associated with guardrail shall be installed 5'-0" (60") above edge of pavement elevation. White delineator posts for mile delineation shall be 4'-6" (54") above edge of pavement elevation. Delineators shall be installed four feet from edge of pavement except those delineating end treatments, culverts and electrical items.

Mile marker post shall be mounted on breakaway supports. The bottom of the sign shall be five feet from the solid white line and shall be offset five feet from the edge of pavement.

A mock-up of the guardrail delineator posts shall be submitted to the Resident for approval prior to installation.

Any materials damaged by the Contractor's operations shall be replaced at no additional cost to the Authority.

Top of the delineator panel shall be flush with the top of post.

606.08 Method of Measurement

The following paragraphs are added:

Delineator Posts shall be measured by each unit installed and accepted. Delineator Posts Removed and Reset will be measured by each unit satisfactorily reset.

Mile Marker post shall be measured for payment as Delineator Post.

606.09 Basis of Payment

The following sentences are added:

The accepted quantity of Delineator Posts will be paid for at the Contract unit price per each which price shall be full compensation for the post, specified delineator or mile marker panel, complete in place.

The accepted quantity of Delineator Posts Removed and Reset will be paid for at the Contract unit price each, which price shall be full compensation for removing and resetting delineator panel or mile marker panel and posts and all incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
606.353	Delineator Post	Each
606.354	Delineator Post - Remove and Reset	Each

SPECIAL PROVISIONS

SECTION 606

GUARDRAIL

(Guardrail Adjust)

606.01 Description

The following paragraphs are added:

This work shall consist of adjusting the height of the existing single and double rail guardrail in locations where the existing height of rail is not 30 inches. The guardrail shall be adjusted to a height of 30 inches. Existing single and double rail shall also be adjusted for lean.

The guardrail adjustment shall take place at all necessary locations; approximate locations are listed in the schedule of guardrail limits both median and outside shoulder. Exact locations for adjustment shall be determined by the Resident.

The following Subsections are added:

606.021 General

All existing guardrail to be raised or lowered shall be completed prior to new guardrail or end treatments being attached.

606.036 Adjusting Existing Guardrail

Any materials or galvanizing damaged by the Contractor's operations shall be replaced or touched-up at no additional cost to the Authority.

Guardrail posts shall be raised to a minimum of five inches above final elevation prior to driving post to final elevation; this applies to both raising and lowering rail.

Any given length of guardrail to be adjusted shall be done in such a way that top of rail elevations do not vary drastically between each section of guardrail. Rail height tolerance shall be 30 inches, plus 0 inches, minus ½ inch. The 30 inches shall be measured from the edge of pavement to the top of rail beam when within 2 feet of the edge of pavement.

Rail shall be adjusted for lean where needed. All posts shall be plumb after adjusting for lean.

When the rail tapers from one bound to the other the rail shall be adjusted to the correct height on the farthest ends and shall be adjusted towards the center of the median to create a smooth line.

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.

606.06 Method of Measurement

The following sentence is added:

Adjusting of both single and double rail guardrail shall be measured by the linear foot of Guardrail Adjusted and accepted.

606.09 Basis of Payment

The following paragraphs are added:

Adjusting of single and double rail guardrail will be paid for at the Contract unit price per linear foot and shall be full compensation for furnishing all labor, equipment and materials necessary to complete the work. Rail will not be measured for payment until all compaction has been completed.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
606.3621	Guardrail Adjust, Single Rail	Linear Foot
606.3622	Guardrail Adjust, Double Rail	Linear Foot

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Guardrail – Remove, Stack and Dispose)

606.01 Description

The following paragraph is added:

This work shall consist of removing, stockpiling for reuse, and disposing of ‘unsuitable for reuse’ existing single and double guardrail elements, component parts and hardware as approved by the Resident. Existing guardrail, component parts and hardware suitable for reuse shall be stacked on-site and reused within the project limits as approved by the Resident per Specification 606.3605. Upon request of and approval from the Resident, suitable for reuse guardrail in excess of the amount necessary for the project may be immediately transported to and stacked at the Turnpike’s Maintenance yard in Auburn. At the completion of the Contract, any unused guardrail elements, posts, component parts and hardware suitable for reuse as approved by the Resident shall be transported and stacked at the Authority’s Maintenance yard in Auburn. All remaining existing unsuitable guardrail elements, posts, component parts and hardware shall become the property of the Contractor and shall be removed from turnpike property.

606.08 Method of Measurement

The following paragraph is added:

Guardrail remove, stack, and dispose will be measured on a linear foot basis of guardrail satisfactorily Removed, Stacked and/or Disposed whether single rail or double rail. Double twisted end sections will be measured for payment on a linear foot basis as 25 feet of guardrail removed.

606.09 Basis of Payment

The following paragraphs are added:

The accepted quantity of guardrail remove, stack and dispose will be paid for at the Contract unit price bid per linear foot, which price shall be full compensation for removing, stacking, transporting and disposing all guardrail elements, component parts and hardware, equipment, labor and all incidentals necessary to complete the work. No additional payment will be made for double rail. Stockpiling existing rail elements, posts, and component parts will not be measured separately for payment, but shall be incidental to Item 606.3631.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
606.3631	Guardrail – Remove, Stack and Dispose	Linear Foot

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Asymmetrical Thrie Beam Transition)

606.01 Description

The following paragraph is added:

This work shall consist of removing and stacking existing thrie beam transition panels, furnishing and installing the asymmetrical thrie beam to W-beam transition, single rail - modified section and double rail modified section, connecting it to the existing or proposed W-Beam guardrail and thrie beam modified at locations on the Maine Turnpike, as shown on the Plans or as approved by the Resident. All guardrail components shall have passed the NCHRP 350 Test Level 3. Composite offset blocks shall be used.

606.08 Method of Measurement

The following sentence is added:

Asymmetrical Thrie Beam Transition shall be measured by each unit installed and accepted. The double rail transition consists of two units, one on each side.

606.09 Basis of Payment

The following paragraphs are added:

Asymmetrical Thrie Beam Transition will be paid for at the Contract unit price each complete in place, and shall be full compensation for furnishing all labor, equipment and materials necessary to complete the work consisting of, but not necessarily limited to, furnishing and installing the Asymmetrical Thrie Beam to W-beam Transition, Single Rail - Modified section and Double Rail – Modified Section, and all detailed accessories; furnishing and installing all required posts, modified steel, wood or composite offset blocks, cables, nuts, bolts, washers, and all other items necessary to complete the installation and connection to the existing or proposed W-Beam and the Thrie Beam – Modified.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
606.701 Asymmetrical Thrie Beam Transition	Each

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Guardrail 350 FLEAT Terminal)

606.01 Description

The following sentences are added:

This work shall also consist of furnishing and installing a Guardrail 350 FLEAT (Flared Energy Absorbing Terminal) as manufactured by Road Systems, Inc., 1507 East 4th Street, Big Spring, Texas 79720, (915) 263-2435, and retroreflective adhesive sheeting in accordance with these Specifications and in reasonably close conformity with the lines and grades as shown on the Plans or as approved by the Resident.

This work shall also consist of removing, storing during construction and resetting existing FLEATs.

606.02 Materials

The following sentence is added:

The retroreflective sheeting shall meet the requirements of Subsection 719.01, Reflective Sheeting – Minimum ASTM, Type VII.

The following Subsections are added:

606.03 Posts

Wood offset blocks shall be toe-nailed to the wood post to prevent the blocks from moving.

606.041 Reflective Sheeting

The color for the reflective sheeting shall be silver (white) when installed on the outside shoulder.

606.08 Method of Measurement

The second paragraph is amended by the addition of: “Guardrail 350 FLEAT Terminal” after the words “breakaway cable terminal”.

Guardrail 350 FLEAT Terminal – Remove and Reset will be measured by each unit satisfactorily reset complete in place and accepted.

606.09 Basis of Payment

The second paragraph is amended by the addition of: “and Guardrail 350 FLEAT Terminal” after the words “breakaway cable terminal”.

Guardrail 350 FLEAT Terminal – Remove and Reset will be paid for at the Contract unit price, complete in place and accepted. Payment shall be full compensation for all labor, equipment, materials and incidentals necessary to remove, store during construction and reset in accordance with the Plans and Specifications.

The retroreflective sheeting will not be measured separately for payment, but shall be incidental to the Guardrail 350 FLEAT Terminal item.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
606.80 Guardrail 350 FLEAT Terminal	Each

SPECIAL PROVISION

SECTION 609

CURBING

(Sloped Curb Type 1)

609.01 Description

The following sentence is added:

This work shall consist of furnishing and installing sloped curb Type 1 on the bridge parapets and endposts in accordance with these Specifications and in reasonably close conformity with the lines and grades as shown on the Plans or as approved by the Resident.

609.09 Method of Measurement

The following paragraph is added:

Sloped Curb Type 1 shall be measured by the linear foot along the front face of the curb at the elevation of the finished pavement, from endpost to endpost, complete in place and accepted. The four foot curbing section at the ends of the endposts will be measured for payment as Sloped Curb Type 1 and there will be no additional payment for special cutting and fitting.

SPECIAL PROVISION

SECTION 610

STONE FILL, RIPRAP, STONE BLANKET AND STONE DITCH PROTECTION

(Stone Check Dams)

610.01 Description

Paragraph (f) is deleted and replaced with the following:

- (f) Stone Ditch Protection - Machine placed stones on an earth or granular bedding at stone line ditches, stone downspouts and stone check dams.

This work shall also include the placement, removal and storage of the stone used for temporary and/or permanent stone check dams.

610.032 Placing Stones

The following paragraph is added:

Stone check dams shall be constructed in accordance with the details as shown on the Plans or as approved by the Resident. The stone shall be placed in one operation without special handling or handwork except to create a low point along the top gradient above the ditch flow lines.

The following Subsection is added:

610.033 Removing Stone

The stone for temporary stone check dams shall be removed after vegetation has been established in the ditches as approved by the Resident.

Any damage to the slopes and ditches caused by the removal of the stone check dams shall be repaired by the Contractor at his own expense.

The area directly under the temporary stone check dams shall be loamed, seeded and mulched immediately after the removal of the stone check dams. The loam, seed and mulch will be measured for payment under the appropriate pay items.

Stone used for temporary stone check dams shall be removed and stored and shall become the property of the Contractor at the completion of the Project.

The following Subsection is added:

610.034 Maintenance

Stone check dams shall be maintained by the Contractor. Sediment deposits behind check dams shall be removed when the depth of sediment reaches 50 percent of the check dam height.

610.05 Method of Measurement

The following paragraphs are added:

Stone for Permanent Stone Check Dams will be measured by the cubic yard complete in place.

Stone for Temporary Stone Check Dams will be measured by the cubic yard complete in place. The removal and storage of the stone will not be measured separately for payment, but shall be incidental to the Temporary Stone Check Dam item. This shall include the transporting and unloading of the stone. If this stone is reused on the Project, it will be measured for payment under the appropriate pay item.

The removal and disposal of sediment from behind the Temporary Stone Check Dams will not be measured separately for payment, but shall be incidental to the Stone Check Dam item.

610.06 Basis of Payment

The following sentences are added:

The accepted quantities of stone for Temporary and/or Permanent Stone Check Dams will be paid for at the Contract unit price per cubic yard.

Excavation will not be required for the placement of stone for Stone Check Dams.

Payment will be made under:

Pay Item

Pay Unit

610.181 Temporary Stone Check Dam

Cubic Yard

SPECIAL PROVISION

SECTION 618

SEEDING

(Seeding Method Number 2 Modified)

618.01 Description

The following shall be added:

g. "Seeding Method Number 2 Modified" shall consist of application of "Roadside Mixture Number 2 Modified", lime, and fertilizer to existing soils or loamed areas which are expected to be maintained by infrequent mowing: e.g. inslopes, ditches, areas designated as vegetated swales and other areas as directed by the Resident. All further reference to "Seeding Method Number 2" shall read "Seeding Method Number 2 and Number 2 Modified".

618.02 Materials

The following is added:

The seed mixes defined in Standard Specification section 717.03 shall include the addition of the following:

D. Roadside Mixture # 2 Modified

Red Fescue	50%
Little Bluestem	15%
Indian Grass	10%
Red Top	5%
White Clover	10%
Annual Rye	10%

All other requirements in Subsection 717.03 shall apply.

618.12 Basis of Payment

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
618.1402 Seeding Method Number 2 Modified, Plan Quantity	Unit

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

(Quazite Junction Box)

626.02 General

The following paragraph is added:

Junction boxes for the electrical and communication conduit associated with the toll equipment and intelligent transportations systems shall be polymer concrete as manufactured by QUAZITE® a division of Hubbell Power Systems. The boxes shall be 36” x 24” and 21” deep and shall have the word TRAFFIC on the cover. The boxes shall have an 8,000 lb. load rating. All existing QUAZITE® Junction Boxes in useable condition shall be removed and relocated as directed by the Resident Engineer.

626.04 Method of Measurement

The following sentence is added:

Quazite junction box and Remove and Relocate Quazite Junction Box shall be measured by each unit.

626.05 Basis of Payment

The words, “polymer concrete” shall be added after the words, “precast concrete” in the second sentence of the second paragraph.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
626.12 Quazite Junction Box	Each

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.

Lines on the Turnpike shall be six 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:

<u>Pay Item</u>	<u>Pay Unit</u>
627.681 Temporary 6 Inch Painted Pavement Marking Line – Yellow or White	Linear Foot

SPECIAL PROVISION

SECTION 627

PAVEMENT MARKINGS

627.01 Description

The following sentences are added:

This work shall consist of furnishing and placing the final pavement markings on Alfred Plourde Parkway. Except as noted on the plans, the final pavement marking lines on Alfred Plourde Parkway shall be painted, four inches wide, white or yellow markings.

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.

627.09 Method of Measurement

The following sentence is added:

The final pavement marking lines on Alfred Plourde Parkway will be measured for payment by the linear foot along the centerline stationing of the roadway.

627.10 Basis of Payment

The following paragraphs are added:

The accepted quantity of final pavement marking lines will be paid for at the Contract unit price per linear foot. This price shall include all labor and materials to furnish and install the paint.

Payment will be made under:

Pay Item

Pay Unit

627.712 4 Inch White or Yellow Pavement Marking Line

Linear Foot

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 locations shown on the Plans or as directed by the Resident.

627.02 Materials

The following paragraph is added:

Temporary pavement marking tape shall be Stamark Wet Reflective Removable Pavement Marking Tape Series 710 as manufactured by 3M of St. Paul, Minnesota or an approved equal.

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 manufacturer.

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 Marking Tape will be made at the Contract price bid 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 Marking Tape, as described above, will be incidental and no separate payment will be made.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
627.73 Temporary 6 Inch Pavement Marking Tape	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

(Recessed Pavement Marking Tape)

627.01 Description

The following sentence is added:

This work shall consist of furnishing and placing recessed, reflective pavement marking tape in conformity with the Plans, as specified herein and as directed by the Resident.

627.02 Materials

The following sentence is added:

Pavement Marking Tape for supplemental lane markings between travel lanes shall be 3M Tape Series 380AW – High Performance pavement marking tape, color- white, six (6) inch wide, as manufactured by 3M of St. Paul, Minnesota.

Pavement Marking Tape for SPUI ramp lane lines, Alfred Plourde Parkway intersection lane lines, stop bars and lane designation words and arrows shall be pre-cut by the manufacturer, and shall be 3M Stamark Extended Season Tape Series 380IES– High Performance pavement marking tape, color- white, twelve (12) inch wide, as manufactured by 3M of St. Paul, Minnesota.

3M Traffic Safety Systems Division
Mr. Michael D. Allen
Tel: (401) 368-0438
Email: mdallen@mmm.com

627.04 General

The following paragraphs are added:

The recessed tape used as a supplemental broken white lane line, shall be installed between the painted Broken White Lane Line (BWLL) spaced eighty (80) feet center to center as shown on the plans. The length of the tape shall be three (3) feet.

The recessed tape shall also be installed as the lane lines on the SPUI ramps and portions of Alfred Plourde Parkway as well as the lane designation arrows and words and stop bars. The limit of the recessed tape on Alfred Plourde Parkway is noted on the plans.

627.05 Preparation of Surface

The following paragraph is added:

The Contractor shall mill a groove in the pavement for each tape length or area to be placed (“in- and-out” pattern). Continuous grooving for installation of the tape shall not be allowed. The groove length or area shall be the required tape length plus 6 inches on all ends or sides. Tape length spacing shall be as shown on the plans. The groove width for inlaid tape pavement marking shall be the pavement marking width plus 1 inch, with a tolerance of $\pm \frac{1}{4}$ inch. The groove shall have a uniform depth of 150 Mils (± 20 Mils). Groove position shall be a minimum of 2 inches from the edge of the pavement marking to the longitudinal pavement joint.

The bottom of the groove shall have a smooth, flat finished surface. The use of gang stacked Diamond cutting blades is required for asphalt pavement surfaces. The spacers between blade cuts shall be such that there will be less than a 10 mil rise in the finished groove between the blades.

Grooves shall be clean, dry and free of laitance, oil, dirt, grease, paint or other foreign contaminants. The Contractor shall prevent traffic from traversing the grooves, and re-clean grooves, as necessary, prior to application of the primer and pavement marking tape. Depth plates shall be provided by the contractor to assure that desired groove depth is achieved.

Reference is made to 3M Information Folder 5.18 Grooving Applications, May 2011, “Application Guidelines for Pavement Marking in Grooved Pavement Surfaces.”

627.09 Method of Measurements

The following paragraph is added:

The accepted quantity of Pavement Marking Line – Recessed Tape will be measured for payment by the linear foot in place and accepted. The measurement will not include the gaps.

The accepted quantity of Pavement Markings – Recessed Tape – Words and Arrows will be measured for payment by the square foot in place and accepted.

627.10 Basis of Payment

The following paragraphs are added:

The accepted quantity of Pavement Marking Line – Recessed Tape will be paid for at the Contract unit price per linear foot which price shall include all material, pavement grooving, equipment, labor and incidentals necessary to complete the work.

The accepted quantity of Pavement Markings – Recessed Tape - Words and Arrows will be paid for at the Contract unit price per square foot which price shall include all material, pavement grooving, equipment, labor and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
627.94	Pavement Marking Line – Recessed Tape, Broken White Lane Line, 6-inch width	Linear Foot
627.941	Pavement Marking Line – Recessed Tape – Dotted White Lane Line, 4-inch width	Linear Foot
627.942	Pavement Marking Line – Recessed Tape, 4-inch width	Linear Foot
627.943	Pavement Marking Line – Recessed Tape, 6-inch width	Linear Foot
627.944	Pavement Markings – Recessed Tape – Words, Arrows and Stop Bars	Square Foot

SPECIAL PROVISION

SECTION 634

HIGHWAY LIGHTING

(Remove and Reset Light Standard)
(Conventional Light Standard with LED Fixture)

634.01 Description

The following paragraph is added:

This work shall consist of removing existing light standards, luminaires, and any breakaway devices and resetting with all associated appurtenances and wiring system on to new concrete foundations at locations as shown on the Plans. All existing light standards shall be on 25 feet in height for Alford Plourde Parkway and the Proposed Interchange Ramps.

634.021 Materials

The following paragraphs are added:

Underground junction boxes shall be precast concrete (Item 626.11). Provide manufacturer's listed cover for each junction box with logo stating "LIGHTING". All pull boxes are to be furnished as detailed on the Drawings.

Splices in junction boxes shall be made with ILSCO USPA-350-SS-DB Safetysub Watertight Direct Bury Splice Wire Range 350MCM-10-STR connectors for the appropriate wire count only. Splices in hand holes shall be Ideal SLK Disconnect Fuse Kit 30-S2212.

LED fixtures shall be the following:

LSRG Model #LSR3 R3 MVOLT 2B PCR PC, as manufactured by Lighting Science Group of 1227 South Patrick Drive, Satellite Beach, FL 32937, (877) 999-5742

634.04 Cable Installation

The reset light standards shall be wired with new wiring.

634.051 Removing Light Standards

The first paragraph is deleted and replaced with the following:

Before removing light standards, the luminaires shall be removed from the light standard and stacked.

The second paragraph is deleted and replaced with the following:

Care shall be exercised in removing, transporting and stacking the light standards and luminaires. The Contractor will be required to replace, at his own expense, all equipment damaged or destroyed by his operation.

The Contractor will not be allowed to remove the existing light standards until all new foundations, wiring, conduits and junction boxes have been installed. Breakaway devices shall be required on all proposed light standards. If breakaway devices do not exist on the existing light standard, new breakaway devices shall be supplied and installed. The Contractor will be allowed one (1) working day to remove and reset the light standards, including replacing luminaires and testing. At a minimum, existing light levels at each ramp intersection shall be maintained while new or relocated light standards are being installed and made fully operational.

634.06 Luminaires

In the second paragraph “12” is replaced with “10” and “THHN” replaced with “XHHW” to read:

“Number 10 wires AWG copper stranded XHHW...”.

634.092 Method of Measurement

The following sentences are added:

Replacement LED Fixture, Remove and Reset Light Standards and Conventional Light Standard with LED Fixture will be measured by the single unit, complete in place and accepted.

634.093 Basis of Payment

In the second sentence of the first paragraph, the words, “LED fixture, pole wiring” shall be added after the words, “bracket arm”.

The following paragraphs are added:

Payment for furnishing and installing Replacement LED Fixtures will be made for the accepted quantity at the Contract unit price each, which shall include luminaire, ballast, lamp and incidentals necessary to complete the work.

The accepted quantity of Remove and Reset Light Standard will be paid at the Contract unit price each for the number of units that are removed and reset. Payment shall be full compensation for the removal and resetting of the light standard, removing and stacking luminaires, resetting the breakaway device or installing a new breakaway device, new pole wiring to the new LED fixture and all incidentals necessary to complete the work.

The accepted quantity of Wiring will be paid for at the Contract unit price per linear foot for the respective size of Wire. Payment shall be full compensation for supplying the wire, installation, splicing and any other incidentals necessary to complete the work.

The accepted quantity of Conventional Light Standard with LED Fixture will be paid for at the Contract unit price per each for the number of units installed. Payment shall be full

compensation for the light standard, breakaway device, bracket arm, LED Fixture, and all incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
634.208	Remove and Reset Light Standard	Each
634.23	Conventional Light Standard with LED Fixture	Each

SPECIAL PROVISION

SECTION 636

MECHANICALLY STABILIZED EARTH RETAINING WALL

The following replaces Standard Specification Section 636 in its entirety:

636.01 Description

The work under this item shall consist of design, fabrication, furnishing, transportation, and erection of Mechanically Stabilized Earth (MSE) retaining wall system of the required type, including miscellaneous items necessary for a complete installation.

The MSE retaining walls shall consist of reinforcing strips or reinforcing mesh earth wall systems utilizing architectural precast concrete facing panels supported on cast-in-place concrete leveling pads. All reinforcing strips and/or mesh material shall consist of galvanized steel. The wall structures shall be dimensioned to achieve the design criteria shown on the plans and specified herein.

The MSE retaining walls shall be constructed in accordance with these specifications and in conformity with the lines, grades, design criteria, and dimensions shown on the plans or established by the Engineer.

The work under this item shall also consist of excavating and placing fill concrete around the existing 42 inch diameter RCP located beneath the highway embankment at approximate Station 4058+02. This work shall be as shown on the plans and as specified herein.

The work under this item shall also consist of constructing mock-ups of cast-in-place coping in accordance with Subsection 636.03(h) of this specification.

The work under this item shall also consist of placing impervious membrane and underdrain as shown on the plans and as specified herein.

636.02 Quality Assurance

The MSE retaining wall system shall be one of the following approved wall systems:

Reinforced Earth Walls
Reinforced Earth Company
133 Park Street
North Reading, MA 01864
Tel: (978) 664-2830

Retained Earth Walls
Reinforced Earth Company
133 Park Street
North Reading, MA 01864
Tel: (978) 664-2830

All necessary materials, except backfill and cast in-place concrete shall be obtained from the approved system designer.

Mechanically Stabilized Earth (MSE) retaining walls shall be designed and constructed as specified herein. The design shall be subject to review and acceptance by the Engineer.

The acceptability of a MSE retaining wall design shall be at the sole discretion of the Engineer. Any additional design, construction or other costs arising as a result of rejection of a retaining wall design by the Engineer shall be borne by the Contractor.

Precast facing panels shall be manufactured in a concrete products plant with approved facilities. Before proceeding with production, precast sample units shall be provided for the Resident's acceptance. These samples shall be kept at the plant to be used for comparison purposes during production.

All calculations and Shop Drawings shall be signed and sealed by a licensed Professional Engineer registered in accordance with the laws of the State of Maine and specializing in geotechnical construction.

The Contractor installing the MSE retaining walls shall have demonstrated experience constructing MSE walls and shall use personnel having demonstrated experience in the installation procedures recommended by the manufacturer and as specified herein.

All MSE walls shall be built in accordance with the plans and accepted shop drawings for the proposed wall systems.

A qualified representative from the wall design-supplier shall be present during construction of the MSE walls. The services of the qualified representative shall be at no additional cost to the project. The qualified experienced technical representative will advise the Contractor and the Resident concerning proper installation procedures.

The vendor's representative shall specify the required back-batter so that the final position of the wall is vertical. Furthermore, footing berms shall be placed in front of the first three (3) levels of panels erected, to maintain verticality.

636.03 Design Requirements

The MSE retaining walls shall be designed to provide the grade separation shown on the plans with a service life of not less than 100 years.

The MSE wall system shall be designed in accordance with:

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

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

The MSE wall design shall follow the general dimensions of the wall envelope shown on the plans. Base of footing elevation shall be as shown on the plans, or may be lower. All wall elements shall be within the right-of-way limits shown on the plans. The panels shall be placed so as not to interfere with drainage or other utilities, or other potential obstructions.

All appurtenances behind in front of, under, mounted upon, or passing through the wall such as drainage structures, utilities, fences, concrete parapet wall or other appurtenances shown on the plans shall be accounted for in the stability design of the wall.

Facing panels shall have tongue and groove, ship lap or similar approved connections along all joints, both vertical and horizontal. Where foundation conditions indicate large differential settlements, vertical full-height slip joints shall be provided. The shape of the panels shall be such that adjacent panels will have continuous, vertical joints, or as noted on the plans.

MSE facing panels shall be installed on cast-in-place concrete leveling pads. The top of the leveling pad shall be located at or below the theoretical leveling pad elevation. The minimum wall embedment shall be 5.0 ft as measured to the top of the leveling pad, or as shown on the plans, whichever is greater. The top of the face panels shall be at or above the top of the panel elevation shown on the plans. Where coping or barrier is used, the wall face shall extend up into the coping or barrier a minimum of 2 in.

The MSE walls shall be dimensioned so that the factored bearing resistance of the foundation soils, as noted on the plans, is not exceeded. Requirements for over excavation of native foundation soils and replacement with compacted structural fill are detailed on the plans.

The design by the wall system supplier shall consider the stability of the wall as outlined below and in the Contract Documents:

(a) Failure Plane – The theoretical failure plane within the reinforced soil mass shall be determined per LRFD Section 11 and be analyzed so that the soil stabilizing components extend sufficiently beyond the failure plane within the reinforced soil mass to stabilize the material. External loads which affect the internal stability such as those applied through piling, bridge footings, traffic, slope surcharge, hydrostatic, and seismic loads shall be accounted for in the design.

(b) External Stability - Load and Resistance Factors – Loads and load combinations selected for design shall be consistent with AASHTO LRFD. Application of load factors shall be taken as specified in AASHTO LRFD. Sliding resistance factors and bearing resistance factors shall be consistent with LRFD Section 10. Overturning provisions of LRFD Section 11 shall apply.

MSE walls shall be designed to resist failure by instability of temporary construction slope. Passive pressure in front of the wall mass shall be assumed to be zero for design purposes. The factored applied bearing pressures under the MSE mass for each reinforced length shall be clearly indicated on the design drawing.

(c) Internal Stability - Load and Resistance Factors – Evaluation of reinforcement pullout, reinforcement rupture and panel connection pullout or rupture shall be consistent with

LRFD Section 11. Loads, load combinations and load factors shall be as specified in LRFD Article 11. Resistance factors for internal design shall be consistent with LRFD Article 11. Maximum reinforcement loads shall be calculated using the Simplified Method approach. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life. The design life of steel soil reinforcements shall comply with LRFD Section 11.

(d) Backfill and Foundation Soils Parameters – The friction angle of the select backfill used in the reinforced fill zone for the internal stability design of the wall shall be assumed to be 34° unless noted otherwise. The friction angle of the foundation soils and random backfill shall be assumed to be 30° unless otherwise shown on the plans.

(e) Reinforcement Length – The soil reinforcement shall be the same length from the bottom to the top of each wall section. The reinforcement length defining the width of the entire reinforced soil mass may vary with wall height. The minimum length of the soil reinforcement shall be 8 ft, but shall not be less than 80 percent of the wall height, H, for walls with level surcharges, or 80 percent of H1 for walls with a sloped surcharge or walls supporting an abutment. The mechanical wall height, H or H1, shall be the vertical difference between the top of the leveling footing and the elevation at which the failure surface, as described above, intercepts the ground surface supported by the wall.

(f) Steel Reinforcement – For steel reinforcements, all structural connections, tie strips and loop inserts, the following galvanization and carbon steel loss rates shall be assumed:

<u>Component Type</u>	<u>mils/year/side</u>
Zinc galvanizing (first 2 years)	0.58
Zinc galvanizing (subsequent years to depletion):	0.16
Carbon Steel (after zinc depletion to 100 yrs):	0.47

Calculations for factored stresses and resistances in steel reinforcements and connections, including tie-strips and loop inserts, shall be based upon assumed conditions at the end of the design life. (or: The nominal long-term design strength in steel reinforcements and connections, including tie-strips and loop inserts shall be determined at the end of the service life.) The applied factored reinforcement loads shall be calculated in accordance with LRFD Section 11.10, and shall be checked against the nominal tensile strength multiplied by a resistance factor per LRFD Table 11.5.6-1. Transverse and longitudinal grid members shall be sized in accordance with ASTM A185/A158M.

When the expected differential settlement normal to the wall exceeds 3 in, the lower level reinforcement facing connections shall be designed to accommodate the increased tensile forces due to settlement.

(g) Facing Panel Requirements

1. Facing panels shall be designed to resist compaction stresses that occur during wall erection.
2. The minimum thickness for concrete panels in the zone of embedded connections shall be 5.5 inches and 3.5 inches elsewhere. The minimum

concrete cover shall be 1.5 inches. Facing panels shall meet the design requirements of LRFD Article 11.10.2.3.

3. The wall facing shall be designed to accommodate differential settlements of 1/100 feet.
4. The minimum spacing between adjacent panels shall be 0.75 inches in order to accommodate differential settlements without impairing the appearance of the facing or compromising the structural integrity of the individual panels. Joints between panels shall be no more than 0.75 in. Joint between panels shall have a ship lap configuration or tongue and groove connection. There shall be no openings through the wall facing, except for utilities to pass through the wall. Slip joints to accommodate differential settlement shall be included where shown on the plans.
5. Where wall or wall sections intersect with an angle of 130° or less, a special vertical corner element panel shall be used. The corner element panel shall cover the joint of the panels that abut the corner and allow for independent movement of the abutting panels. Corner elements shall not be formed by connecting standard facing panels that abut the acute corner.
6. The finish of the MSE retaining wall facing panels shall be cruciform ashlar stone similar to that manufactured by Reinforced Earth Company of North Reading, MA or approved equal. The Contractor shall submit samples of the finish to the Resident for approval prior to casting.

(h) Coping Requirements – The MSE wall coping may be either precast or cast-in-place. If both precast and cast-in-place coping sections are used the craftsmanship, formwork type, and concrete mix used for the cast-in-place portions shall match the finished appearance of the precast segments.

If precast and cast-in-place coping are proposed to be used in combination the Contractor shall construct a ten foot long section of cast-in-place coping as a mock-up. The purpose of this mock-up will be to demonstrate the final appearance, color, proportions and craftsmanship of the cast-in-place coping section is reasonably similar to the precast section. All mock-ups shall be batched, placed, cured and finished in accordance with these specifications.

Mock-ups deemed unsatisfactory due to workmanship, appearance or color variation from the precast sections shall be disposed of and recast at no additional cost to the Authority. The acceptance of mock-ups will be at the sole discretion of the Authority.

The approved mock-ups shall be stored in a safe location at the project site and shall become the visual standard for color, appearance and workmanship. The approved mock-ups shall not remain as part of the completed work. The mock-ups shall be disposed of by the Contractor as directed by the Resident.

636.04 Materials

The Contractor shall be responsible for the purchase or manufacture of the precast concrete facing panels, reinforcing mesh or strips, panel/reinforcement connections, bearing pads, joint filler, and all other necessary components. The Contractor shall furnish to the Resident the appropriate Certificates of Compliance certifying that the applicable wall materials meet the requirements of the project specifications. All materials used in the construction of the MSE retaining walls shall meet the requirements specified in the following subsections of the Maine Standard Specifications and as specified herein.

Materials not conforming to this section of the specifications, or from sources not listed in the contract documents, shall not be used without written consent from the Resident.

636.041 Reinforced Concrete Facing Panels

Reinforced concrete facing panels shall meet the requirements specified in the following subsections:

Structural Precast Concrete Units 712.061
Drainage Geotextile 722.02

All concrete for MSE wall panels shall include a calcium nitrate corrosion inhibitor meeting the requirements of ASTM 494 Type C. Calcium nitrate shall be added at a rate of not less than three gallons per cubic yard.

636.042 Precast Panel Tolerances and Surface Finish

Concrete surface for the front face shall have a smooth steel formed finish, or as noted on the plans. The rear face shall have an unformed surface finish. The rear face of the panel shall be roughly screeded to eliminate open pockets of aggregate and surface distortions in excess of ¼ in. All uncoated steel projecting from the panel unit shall be galvanized in accordance with ASTM A123/A123M (AASHTO M 111) with a minimum coating thickness of 2 oz/ft².

Precast panel tolerances shall comply with the following; units that do not meet the listed tolerances will be rejected.

1. Panel dimensions (edge to edge of concrete) within $\pm 3/16$ in.
2. Panel thickness: $\pm 1/4$ in.
3. Squareness. The length difference between the two diagonals shall not exceed ½ in.
4. Distance between the centerline of dowel and dowel sleeve, and to centerline of reinforcing steel shall be $\pm 1/8$ in.
5. Face of panel to centerline of dowel and dowel sleeve, and to centerline of reinforcing steel shall be $\pm 1/8$ in.
6. Position of panel connection devices (Tie Strip) shall be ± 1 in.
7. Location of Coil and loop Imbeds shall be $\pm 1/8$ in.
8. Warping of the exposed panel face shall not exceed 1/4 in. in 5 ft.
9. Surface defects on smooth-formed surfaces measured over a length of 5 ft shall not exceed 1/8 in. Surface defects on textured-finished surfaces measured over a length

of 5 ft shall not exceed 5/16 in.

636.043 Reinforcing

All reinforcing, tie strips, and attachment devices shall be carefully inspected to ensure they are true to size and free from defects that may impair their strength and durability.

A. Reinforcing Mesh shall be shop fabricated from cold drawn steel wire conforming to the requirements of AASHTO M 32 (ASTM A82/A82M) yield strength minimum of 65 ksi and shall be welded into the finished mesh fabric in accordance with AASHTO M 55 (ASTM A185/A185M). Galvanizing shall be in accordance with AASHTO M 111 (ASTM A123/A123M) after fabrication. The minimum coating thickness shall be 2 oz/ft². Any damage done to the mesh galvanization prior to the installation shall be repaired in an acceptable manner and provide a minimum galvanized coating of 2 oz/ft².

B. Reinforcing Strips shall be fabricated from hot rolled bars to the required shape and dimensions. Their physical and mechanical properties shall conform to AASHTO M 223 (ASTM A572/A572M) Grade 65, or approved equal. Reinforcing strips shall be hot dipped galvanized in accordance with AASHTO M 111 (ASTM A123/A123M) after fabrication. The minimum galvanization coating thickness shall be 2 oz/ft². Any damage done to the mesh galvanization prior to the installation shall be repaired 2 oz/ft².

C. Tie strips shall be fabricated of hot rolled steel conforming to ASTM A1011/A1011M, Grade 50 or equivalent. Tie strips shall be hot dipped galvanized in accordance with AASHTO M 111 (ASTM A123/A123M) after fabrication. The minimum coating thickness shall be 2 oz/ft².

D. The tie strips and reinforcing strips shall be cut to lengths and tolerances shown on the submitted plans. Holes for bolts shall be punched in the locations shown.

636.044 Attachment Devices

A. Steel clevis loop embeds shall be fabricated of cold drawn steel wire conforming to ASTM A510, UNS G 10350 or AASHTO M 32 (ASTM A82/A82M). Loop embeds shall be welded in accordance with AASHTO M 55 (ASTM A185/A185M). Both shall have electrodeposited coatings of zinc applied in accordance with ASTM B633.

B. Fasteners shall consist of hexagonal cap screw bolts and nuts, which are galvanized and conform to the requirements of AASHTO M 164 (ASTM A325) or equivalent.

C. Connector pins and mat bars shall be fabricated from AASHTO M 183 (ASTM A36/A36M) steel and welded to the soil reinforcement mats as shown on the plans. Galvanization shall conform to AASHTO M111 (ASTM A123/A123M) with a minimum coating thickness of 2 oz/ft². Connector bars shall be fabricated of cold drawn steel wire conforming to the requirements of ASTM A82/A82M (AASHTO M 32) and galvanized in accordance with ASTM A123/A123M.

D. Structural plate connectors and fasteners used for yokes to connect reinforcements to

wall panels around pile or utility conflicts shall conform to the material requirements for reinforcing strips and fasteners in 636.043.

636.045 Joint Materials

Joint material shall be installed to the dimensions and thicknesses specified below, or in accordance with the plans or approved shop drawings.

A. Provide flexible foam strips for filler for vertical joints between panels, and in horizontal joints where pads are used.

B. Provide in horizontal joints between panels either preformed EPDM rubber pads conforming to ASTM D2000 for 4AA, or 812 rubbers or neoprene elastomeric pads having a Durometer Hardness of 55 ± 5 , or high density polyethylene pads with a minimum density of 0.946 g/cm^3 in accordance with ASTM D1505

636.046 Nonwoven Drainage Geotextile

Cover all joints between panels on the back side of the wall with a geotextile fabric meeting the minimum requirements of 722.02 Class 2. Slit film and multifilament woven and resin bonded woven geotextile fabrics are not allowed for this application. The minimum width of the fabric shall be 12 in. Lap fabric at least 12 in. where splices are required. Nonwoven Drainage Geotextile shall be bonded with an approved adhesive compound to the back face covering all joints between panels. Adhesives used to hold the geotextile filter fabric material to the rear of the facing panels prior to backfill placement shall be supplied by the wall supplier and approved by the Resident.

636.047 Concrete Leveling Pad

The cast-in-place leveling pad shall be constructed of Class A concrete conforming to the requirements of Section 502 - Structural Concrete. Leveling pad shall have minimum dimensions of 6 in thickness and 12 in width and be placed at the design elevation shown on the shop drawings within a 1/8 in tolerance.

636.048 Backfill Materials

All backfill materials used in the MSE Walls volume shall conform to Gravel Borrow conforming to the requirements of Section 703.20, with the following additional requirements:

A. The maximum aggregate size is limited to 4 in (U.S Sieve Size - 102 mm)

B. Soundness – The material shall be substantially free of shale or other soft, poor durability particles. The materials shall have a magnesium sulfate soundness loss, as determined by AASHTO T104 (ASTM C88), of less than 30 percent after four cycles.

C. Electrochemical Requirements – The backfill materials shall meet the following criteria:

Requirements		Test Methods
Resistivity	>3,000 ohm-centimeters	AASHTO T 288
pH between	Between 5 and 10, inclusive	AASHTO T 289
Chlorides	<100 parts per million	AASHTO T 291
Sulfates	<200 parts per million	AASHTO T 290
Organic Content	<1%	AASHTO T 267-86

D. The plasticity index (PI) as determined by AASHTO T90 shall not exceed 6.

E. The select backfill material shall exhibit a peak angle of internal friction of not less than 34 degrees, as determined by the standard Direct Shear Test, AASHTO T 236 (ASTM D3080-72), on the portion finer than the 2 mm [#10 sieve], compacted to 95 percent of AASHTO T 99, Methods C or D (with oversized correction as outlined in Note 7) at optimum moisture content. No testing is required for backfills where 80 percent of sizes are greater than 3/4 in. (19 mm) Before construction begins, the borrow material selected shall be subject to show conformance with this frictional requirement. Compliance with the test requirements shall be the responsibility of the Contractor, who shall furnish a copy of the backfill test results prior to construction.

636.049 Crushed Stone

Crushed stone for use in the foundation layer, below the abutment and retaining walls, and around the underdrain shall be crushed stone conforming to the requirements of Special Provision 203, Crushed Stone.

636.050 Impervious Membrane

An impervious geomembrane shall be installed near the top of the reinforced backfill to reduce the chance of water infiltrating into the reinforced backfill. The geomembrane shall be bonded to the inside face of the wall panels and extend perpendicularly from the wall face into the fill, while being parallel to the top of the wall. The membrane should be sloped to drain away from the facing and outlet beyond the reinforcing zone. The impervious geomembrane shall extend into the fill a distance of 2 ft beyond the MSE reinforcement. The geomembrane shall have a minimum thickness of 30 mil (0.03 in, 1/32 in)

The geomembrane shall have both sides textured with a rough finish to improve resistance against sliding. The texture shall be approved by the Resident before installation. The geomembrane shall be shown on the design drawings of the MSE submittal of the Contractor.

636.051 Underdrain

Underdrain shall be six inch diameter Type B conforming to Standard Specification 605.

636.051 Acceptance of Material

The Contractor shall furnish to the Resident a Certificate of Compliance certifying that the above materials comply with the applicable contract specifications including the backfill material, in accordance with Section 700. A copy of all test results performed by the Contractor necessary to assure contract compliance shall also be furnished to the Resident. Acceptance will be based on the Certificate of Compliance, accompanying test reports, and visual inspection by the Resident.

636.06 Submittals

The MSE Retaining Wall Submittal shall include the following:

A. Design computations demonstrating compliance with the criteria specified herein and shown on the plans, shall be prepared, signed and stamped by a licensed Professional Engineer licensed in the State of Maine and specializing in geotechnical engineering. Design calculations that consist of computer generated output shall be supplemented with at least one hand calculation and graphic demonstrating the design methodology used. Design calculations shall provide thorough documentation of the sources of equations used and material properties.

The design calculations shall include:

1. Statement of all assumptions made and copies of all references used in the calculations.
2. Analyses demonstrating compliance with all applicable earth, water, surcharges, seismic, or other loads, as specified herein and required by AASHTO LRFD.
3. Analyses or studies demonstrating durability and corrosion resistance of retaining wall systems for the proposed location and environment. The designer shall provide all corrosion protection devices necessary for the retaining wall to have a minimum service life of 100 years in the proposed location and environment.

B. A detailed resume of the wall designer listing similar projects with references, and demonstrating necessary experience to perform the MSE retaining wall design, including a brief description of each project that is similar in scope.

C. A detailed listing of MSE walls that the Contractor has constructed including a brief description of each project and a listing of personnel who will construct the walls demonstrating their experience in construction of MSE retaining walls. A reference shall be included for each project listed. As a minimum, the reference shall include an individual's name, address and current phone number.

D. Manufacturer's product data for the MSE wall system, including material, manufacture and erection specifications, all specified erection equipment necessary, details of buried MSE wall elements, special details required of reinforcing layout around drainage structures and sign foundations, structures design properties, type of backfill and details for connections between facing panels.

E. Details of precast yard and concrete mix design.

F. Shop drawing showing the configuration and all details, dimensions, quantities and cross sections necessary to construct the MSE wall, including but not limited to the following:

1. A plan view of the wall, which shall include Contract limits, stations and offsets, and the face of wall line shown on the plans.
2. An elevation view of the wall which shall include the elevation at the top of the wall at all horizontal and vertical break points and at least every 50 ft along the face of the wall, all steps in the leveling pads, the designation as to the type of retaining wall system(s), and an indication of the final ground line and calculated factored bearing pressures. The face of wall shown on the plans shall be indicated.
3. A typical cross section or cross sections showing the elevation relationship between existing ground conditions and proposed grades, and the proposed wall configuration, including details for the proposed methods for connecting to existing conditions. The sections shall also indicate the location of the face of wall shown on the plans.
4. General notes pertaining to design criteria and wall construction.
5. A listing of material quantities for each wall.
6. Details of sleeves and pipes and other embedded items to be installed through the walls.
7. Clearly indicated details for construction of walls or reinforcing elements around drainage, foundations, utilities or any other potential obstructions.
8. Details of the architectural treatment of facing panels.
9. Drainage design detail and design scheme.
10. Location of utilities.
11. Sequence and schedule of construction, including overall construction schedule.
12. Methods of excavation and backfill.
13. Method of maintaining stability of excavated trenches.
14. Method of monitoring plumbness and deviation of wall.
15. Excavation support system, if any.
16. Any acceptance testing and frequency.
17. Details and location of all necessary construction and expansion joints along the wall.
18. Connection details at the interface of the wall and any adjacent proposed cast in place retaining wall or abutment structure.
19. Details of impermeable membrane connection to abutment in roadway runoff collection system.

636.07 Delivery, Storage and Handling

A. Contractor shall check the material upon delivery to assure that the proper material has been received. A product certification should be provided with each shipment.

B. Material shall be stored above -20° F

C. Contractor shall prevent excessive mud, wet cement, epoxy and like substances which may affix themselves to the material from coming in contact with the material.

D. Material may be laid flat and stored outside for 30 days. For extended storage, material shall be stored in or beneath a trailer or covered with a colored tarpaulin to prevent long-term exposure.

636.08 Wall Excavation

The excavation and reuse of all excavated material shall meet the requirements of Section 203 - Excavation and Embankment, except as modified herein. Temporary excavation supports, where required, shall be in accordance with Special Provision 511, Temporary Earth Support Systems.

636.09 Foundation Preparation

The foundation for the structure shall be graded level for a width equal to the length of reinforcement elements plus 5 ft, or as shown on the plans. Prior to wall construction the foundation shall be compacted with at least 10 passes of a smooth wheel vibratory roller weighing at least 10,000 lbs. Any foundation soils found to be unsuitable or incapable of sustaining the required compaction shall be removed and replaced with 703.20, Gravel Borrow. The foundation for the structure shall be approved by the Resident before erection is started.

A concrete leveling pad shall be constructed as indicated on the submitted plans. The leveling pad shall be cast to the design elevations as shown on the plans. Allowable elevation tolerances are +0.01 ft and -0.02 ft from the design elevations. Placement of wall panels may begin after 24 hours curing time of the concrete leveling pad.

636.10 Wall Erection

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

Precast concrete panels shall be placed so that their final position is vertical or battered as shown on the plans. The vendor representative shall specify the required back-batter so that the final position of the wall is vertical. Earth berms at the footing shall be placed to maintain the desired position of panels. For erection, panels are handled by means of lifting devices connected to the upper edge of the panel. Panels should be placed in successive horizontal lifts in the sequence shown on the approved shop drawings as backfill placement proceeds. As backfill material is placed behind the panels, the panels shall be maintained in position by means of temporary wedges or bracing according to the wall supplier's recommendations.

Concrete facing vertical tolerances and horizontal alignment tolerances shall not exceed 0.75 inch when measured with a 10 ft straightedge ($\frac{1}{4}$ in/yd). During construction, the maximum allowable offset in any panel joint shall be $\frac{3}{4}$ in. The overall vertical tolerance of the wall (from top to bottom) shall not exceed $\frac{1}{2}$ inch per 10 ft of wall height.

636.11 Backfill Placement

Backfill shall not be placed between November 1st and April 1st. Backfill placement shall closely follow erection of each course of panels. Backfill shall be placed and compacted in such a manner as to avoid any damage or disturbance of the wall materials or misalignment of the facing panels or reinforcing elements. Any wall materials which become damaged during backfill placement shall be removed and replaced at the Contractor's expense. Any misalignment or distortion of the wall facing panels due to placement of backfill outside the limits of this specification shall be corrected by the Contractor at his expense. Prior to the placement of the soil reinforcement, the backfill elevation after compaction shall be at the required elevation of the reinforcements. At each reinforcement level, the backfill shall be placed to the level of the connection. Backfill placement methods near the panels shall assure that no voids exist directly beneath the reinforcing element.

Gravel borrow backfill shall be compacted in accordance with Subsection 203.12 except that the minimum required compaction shall be 92 percent of maximum density as determined by AASHTO T 180, Method C or D (with oversize correction, as outlined in Note 7 of that test). If 30 percent or more of the backfill material is greater than 0.75 inches in size, AASHTO T 180 is not applicable, and the acceptance criterion for control of compaction shall be either a minimum of 70 percent of the relative density of the material as determined by ASTM D4253 and D4254, or a method of compaction consisting of at least 4 (four) passes by a heavy roller.

Where spread footings support bridge or other structural loads, the top 5 feet below the bottom of footing elevation shall be compacted to 98 percent of the maximum density as determined by AASHTO T 180, Method C or D (with oversize correction, as outlined in Note 7 of that test).

The moisture content (determined in accordance with AASHTO T 180, Method C or D) of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer. Backfill materials shall be placed at a moisture content not more than 2 percentage points less than or equal to the optimum moisture content. Backfill material with a placement moisture content in excess of the optimum moisture content shall be removed and reworked until the moisture content is uniformly acceptable throughout the entire lift.

At each reinforcing level, backfill shall be leveled before placing and bolting the reinforcing. The maximum lift thickness after compaction shall not exceed 12 in. The Contractor shall decrease this lift thickness, if necessary, to obtain the specified density.

Heavy compaction equipment shall not be used to compact backfill within 3 ft of the wall face. Compaction within 3 ft of the back face of the wall shall be achieved by at least three (3) passes of lightweight mechanical tamper, lightweight roller, or vibratory system. The specified lift thickness shall be adjusted as warranted by the type of compaction equipment actually used. No vehicular equipment shall be operated within 3 ft of the panels.

The frequency of sampling of the backfill material necessary to assure gradation control throughout construction shall be as directed by the Resident.

At the end of each day's operation, the Contractor shall slope the last level of the backfill away from the wall facing to rapidly direct runoff away from the wall face. In addition, the Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

636.12 Reinforcement Placement

Prior to placing the first layer of reinforcements (strips, mats or grids), backfill shall be placed and compacted in accordance with Subsection 636.11, Backfill Placement.

Bending of reinforcements in the horizontal plane resulting in a permanent deformation in their alignment shall not be allowed. Gradual bending in the vertical direction that does not result in permanent deformations is allowable.

Cutting of longitudinal or transverse reinforcement bars to avoid conflicts with utility obstructions or piles will not be allowed. A structural connection (yokes) from the wall panel to the reinforcement shall be used whenever it is necessary to avoid cutting or excessive skewing of reinforcement due to pile or utility conflicts.

Soil reinforcements shall be placed normal to the face of the wall, unless otherwise shown on the plans or directed by the Resident. If skewing of the soil reinforcements is required due to obstructions in the reinforced fill, rotatable bolted connections shall be used and the maximum skew angle shall not exceed 15° from the normal position except in the case of acute corner where redundant reinforcements are used. The tensile capacity of splayed reinforcement shall be reduced by the cosine of the splay angle.

636.13 Method of Measurement

Mechanically Stabilized Earth Retaining Wall will be measured by the square foot of face area computed using the plan dimensions. No adjustment in the pay quantity will be made if the computed quantity, based on the working drawings, varies from the plan quantity.

Vertical dimension limits will be from the top of leveling pad to the top of the wall facing units, as shown on the plans. The horizontal dimension limits will be from the edges of the facing units at each end of a wall, as shown on the plans. No field measurements will be made unless the Resident specifies, in writing, a change to the limits indicated on the plans.

The wall surface area, as shown on the plans, includes the surface area of nominal panel joint openings and wall penetrations such as pipes and other utilities.

The placement of crushed stone beneath the MSE wall leveling pads and bridge foundations will be measured for payment under Item 203.35 – Crushed Stone. Excavation for the placement of crushed stone shall be measured for payment under Item 203.20 – Common Excavation.

The installation of underdrains and associated crushed stone will not be measured for payment separately but shall be considered incidental to the Mechanically Stabilized Earth Retaining Wall pay item.

The installation of impervious membrane will not be measured for payment separately but shall be considered incidental to the Mechanically Stabilized Earth Retaining Wall pay item.

The excavation and placement of fill concrete around the existing 42 inch diameter RCP located beneath the highway embankment at approximate Station 4058+02 will not be measured for payment separately but shall be considered incidental to the Mechanically Stabilized Earth Retaining Wall pay item.

All temporary sheeting, temporary excavation, and temporary dewatering necessary to perform the work in this section shall be measured for payment under Item 511.091 – Temporary Earth Support Systems.

636.14 Basis of Payment

The accepted quantity of Mechanically Stabilized Earth Retaining Wall will be paid for at the contract unit price per square foot. Payment shall be full compensation for design, fabrication and erection of MSE retaining walls, furnishing all labor, equipment and materials including concrete face panels, fasteners, reinforcing mesh, reinforcing strips, tie strips, hardware, joint fillers, coping, woven drainage geotextile, impervious membrane, underdrains, select granular backfill, excavation to subgrade and technical field representative.

The cost of the cast-in-place concrete for leveling pad will not be paid for separately but will be considered incidental to the Mechanically Stabilized Earth Retaining Wall.

The cost of the fill concrete placed around the 42” RCP will be considered incidental to the Mechanically Stabilized Earth Retaining Wall.

Any extra excavation due to unsuitable foundation material will be measured and paid for under Item 203.20 - Common Excavation. Backfilling areas of unsuitable foundation material will be measured and paid for under Item 203.25 – Granular Borrow.

Foundation material and select backfill material in the reinforced zone will be considered incidental to the Mechanically Stabilized Earth Retaining Walls.

The unit price for Mechanically Stabilized Earth Wall shall include costs for:

1. All design work, preparation of written submittals and plans, revision of submittals, sample submittals and any other necessary preliminary work prior to and after acceptance of the retaining wall by the Resident.
2. All materials, including transportation, for the MSE walls, including facing panels, MSE reinforcing elements, attachment devices, fasteners, bearing blocks and shims, joint materials, copings, vertical corner elements, concrete masonry, reinforcing steel, select backfill and incidentals.
3. All labor and equipment required to excavate and prepare the wall foundation, form and cast the leveling pad, erect the MSE wall to the lines and grades shown on the plans, place and compact backfill, place and compact the drainage layer, and construct any other items necessary to complete the MSE wall.

There will be no allowance for excavating and backfilling for the Mechanically Stabilized Earth Retaining Wall beyond the limits shown on the approved submitted plans, except for excavation required to remove unsuitable subsoil in preparation for the foundation.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
636.40	Mechanically Stabilized Earth Retaining Wall	Square foot

SPECIAL PROVISION

SECTION 643

TRAFFIC SIGNALS

643.01 Description This work shall consist of furnishing and installing traffic signals at the intersection of the Maine Turnpike Exit 80 interchange and Alfred Plourde Parkway in Lewiston. Work shall include a new traffic signal installation and video detection system relocation. The work shall include poles, foundations, backfill, and all necessary fittings, cables, and components as ordered.

Traffic signal terms shall be in accordance with those defined in the NEC, MUTCD, NESC, NEMA, IMSA and the ITE Standards for traffic control equipment.

643.02 Materials A list of the recommended materials required to install the system may be included as an amendment to this specification, but the Authority will give no guarantee as to the completeness of this list.

Electrical materials shall meet the standards herein, local and utility codes, and the National Electrical Code, where applicable.

Drawings, manufacturer's specifications and applicable catalog cuts for all materials and components shall be submitted in accordance with Section 105.7 of the Standard Specification within 21 days after award of the Contract. An additional set of final approved documents, to total 6 sets, shall be provided to the Resident.

643.021 Traffic Signal Heads Housings shall be constructed of die cast aluminum or polycarbonate with a smooth outer surface and shall be capable of holding the optical units securely in place. Housings shall be adaptable for pedestal, bracket, or rigid mast arm vertical or horizontal mounting. The assembled housing shall be dust proof and moisture proof. Each housing shall be equipped with a hinged door of die cast aluminum or polycarbonate to hold the lens and parts of the optical units. The doors shall be designed to ensure uniform pressure around the doorframe when closed. Doors shall be fastened by two hinged wing nut assemblies or other approved fasteners. Unless otherwise indicated on the plans, lenses shall be furnished with approved tunnel visors (not less than 10 inches). If either longer visors than those specified above or louvers are deemed necessary, they shall be furnished and installed. All traffic signals shall be furnished with a 5 inch backplate. Backplates shall be louvered aluminum coated flat black, be fastened with stainless steel hex head slotted screws and a 3/16 inch by 3/4 inch stainless steel fender washer. Signal housings shall be manufactured by the Econolite Group, Inc. or an approved equal.

The assembled housings shall be made up of individual sections fastened together with bolts; the assembly of sectional units shall present a smooth unbroken contour of pleasing appearance. Each end of the housing assembly shall have an opening for a 1-1/2 inch pipe nipple. The area around this opening shall be reinforced and serrated so that lock nuts will seat firmly.

One cap shall be supplied with each assembled housing to act as a cover over the hole in the top to prevent water from entering.

Housing adapters for pedestal mounting shall be constructed of cast iron. They shall be adjustable with serrated surfaces to permit the housing to be locked in the desired horizontal position. The adapters shall be secured to the bottom of the housing by means of a close nipple, shall slip fit at least 7 inches over a standard traffic signal post of 4 inches in diameter and shall be secured to the post by a minimum of four set screws. Adapters shall contain raceways from the housing to the post to protect the wires from the elements.

Mast arm brackets shall be banded or cabled with “Astro-Brac” by Pelco or an approved equal.

LED lamps shall have a regulated power supply designed to electrically protect the diodes. The lamp shall be water tight and sealed to eliminate contaminants. The lamp shall be capable of operating at ambient air temperatures of -40° F to 140° F. LED’s shall be GelCore as manufactured by General Electric or an approved equal.

Each LED module shall be wired with two leads which shall terminate at the terminal block in each signal head. Separate leads shall be used to wire the block to the base. Leads shall be 18 AWG stranded wire with spade type copper terminal ends. All colors shall be bright and clearly defined and cover the insulation the entire length of the lead. The color of these leads shall be as follows:

- (a) From the receptacle behind the red lens: one red wire and one white wire with an optional red tracer;
- (b) From the receptacle behind the yellow lens: one yellow wire and one white wire with an optional yellow tracer;
- (c) From the receptacle behind the green lens: one green wire and one white wire with an optional green tracer;
- (d) From the receptacle behind the green arrow: one blue wire and one white wire with an optional blue tracer.

LED lamp life shall be a minimum of 100,000 hours of continuous operation. Power consumption for 12” indications including power supply shall not exceed 20 W and have an initial output of 1900-lumens.

LED modules shall conform to the standards set forth by the Institute of Transportation Engineers and shall be of the color indicated, circular in shape, with a visible diameter of approximately 12 inches.

643.03 Traffic Signal Poles, Mast Arms, and Pedestals Section 720 of the Standard Specifications shall apply unless otherwise noted.

Steel Structures. Section 720.04 of the Standard Specifications shall apply.

Concrete foundation shall be concrete Class A meeting the requirements of Section 502 of the Standard Specifications - Structural Concrete. Reinforcing steel shall meet the requirements of Section 503 of the Standard Specifications – Reinforcing Steel. The foundations shall be as shown on the plans.

Anchor bolts. Section 720.07 of the Standard Specifications shall apply.

Mast-arm structure and foundation (when required) design calculations and shop drawings shall be submitted for documentation in accordance with Section 105.7 of the Standard Specifications.

Wood Utility Poles. Section 720.10 of the Standard Specifications shall apply.

Messenger cable and guy cable shall be a minimum seven strand, 5/16 inch diameter wire with a breaking strength of 8,000 pounds, double galvanized in accordance with AASHTO M 111.

Aluminum Structures. Sections 720.01 and 720.02 of the Standard Specifications shall apply.

643.04 Traffic Signal Controllers and Cabinets. The controller shall operate on 120 volt, 60 hertz (cycle) alternating current, and shall be delivered completely wired and enclosed in a weatherproof cabinet. All components shall be new, and unless noted, the use of solid state components shall be required. Controllers shall be programmable, menu driven, contain an Ethernet communication port (RJ-45 connection) and one hundred (100) logic processor commands shall be accessible from the front panel of the controller or through remote database management software. The controller shall meet, as a minimum, all applicable sections of the NEMA Standards Publications for TS2 and NTCIP. The controller shall comply with NEMA TS-2 Type 1. The controller shall be a Cobalt as manufactured by the Econolite Control Group.

643.041 Bench test. All components of the controller and cabinet shall be bench tested for a minimum of 72 continuous hours by the Contractor at the Contractor's facility prior to delivery to the project. A representative of the Authority shall verify the test check list. The Contractor shall notify the Authority at least 3 days prior to testing as to the date, time and place that tests are to be performed. Testing shall be performed by a qualified Signal Technician using a test board and in conformance with the design loads, phasing, timing and auxiliary equipment such as pre-emption phases. Any defective component shall be replaced, retested and continuous testing continued. Test results shall be documented on a check list as provided by the Authority and these results attested by the signature of the performing technician. Upon completion of satisfactory bench testing, a written approval will be supplied to the Contractor by the Engineer for delivery to the project only. This approval does not relieve the Contractor from ensuring proper operation of the equipment. The approval shall accompany the cabinet and controller when delivered to the project.

The checklist will contain the following items:

- (a) Install all of the equipment into the cabinet as required per the plans and specifications.
- (b) Set the phase timings of the controller in accordance with plans.
- (c) Wire in load lamps, minimum rating of 90 watts, to the load packs in simulation to the intersection as per the plans.
- (d) Check all of the wiring connections for physical tightness.
- (e) Power up the cabinet.

- (f) Observe the sequences, timings and operations of the controller in conformance to the plans and specifications.
- (g) Using the phase test push buttons, insert a call for a phase and observe this phase as it is being called for sequencing, timing and returning to rest condition. Only one separate call for each phase shall be used.
- (h) Test the police panel switches, manual, on/off, flash/auto and test the police manual cord if present in the panel.
- (i) Test for Fire Pre-emption - Optical Detector - with the receivers wired in the cabinet and using an emitter, test each fire run as per the plans. Hard Wired - Attach a temporary push button as per the plans and test each fire run as per the plans.
- (j) Check exhaust fan controls by applying heat from a 100 watt lamp on an extension cord to the thermostat.
- (k) Check heat lamp controls by cooling the thermostat.
- (l) Check conflict monitor by testing for any conflicting Greens or Yellows by the use of a jumper wire attached to a displayed Green or Yellow and to the other non-parent Greens or Yellows to ascertain that conflicting colors are not present.

When all of the above procedures have been completed, the performing technician shall document the results on the approved form as provided by the Authority.

643.042 Controller cabinet. Controller, timing and flashing mechanisms, circuitry, and other components shall be enclosed within a weather tight 1/8 inch thick aluminum "P-44" type cabinet with 2 shelves, side and back panels, a main door and a switch compartment door on a 12 inch aluminum extension base. All exterior seams shall be continuously welded.

Two adjustable "C" mounting channels to allow for positioning of panels and shelves shall be installed on both side walls and back of the cabinet.

The 2 adjustable equipment shelves shall span the entire width of the cabinet. No part of the back panel shall extend above the equipment shelves.

The cabinet door shall be a minimum of 80% of the front surface area and shall be hinged on the right side with a continuous hinge. The cabinet doorframe shall be flanged on all four sides with a light/alarm switch bracket located in the upper right hand corner. The latching mechanism shall be a 3-point draw roller type made of steel with a center catch. The operating handle shall have provisions for padlocking in the closed position. The main lock shall be a Corbin 1548-1 and furnished with two keys as specified by the Authority. The door shall have a gasket that forms a weather tight seal between the door and the cabinet. The lower portion of the door shall be vented with louvers on the exterior to provide 100 cfm of air flow. A filter held firmly in place by side and bottom brackets shall cover the louver vents on the door's interior. A door restraint shall be furnished to prevent door movement during windy conditions.

The exterior of the cabinet shall be natural aluminum. The interior surface of the cabinet and door, including shelves shall be painted with appliance white alkyd baked enamel paint.

A switch compartment with a removable back plate shall be furnished on the main door. The compartment door opening shall be flanged on all sides. The compartment door shall be hinged on the right side with a continuous hinge and have a gasket that forms a weather tight seal when closed. A compartment door lock Corbin R557565 with keyhole cover and two keys shall be furnished. The switch compartment shall contain:

- (a) Signal automatic/flash switch.
- (b) Signal on/off switch.
- (c) Signal automatic/manual switch.
- (d) A manual advanced police button.

A ventilation fan powered by a 115 volt single phase motor and rated at an air flow of 100 cfm shall be installed at the top of the cabinet. The screened exhaust vent shall be vented between the top of the cabinet and the door. The ventilation fan shall be controlled by means of a thermostat with a range of 70°F to 160°F with overload protection and noise suppressor.

A cabinet heat lamp of 100/150 watts shall be installed. The heat lamp shall be controlled by a thermostat located on the left side of the cabinet with a range from 0°F to 50°F.

The cabinet power panel shall be installed on the right side of the cabinet 8 inches up from the mounting flange. It shall have a 30 amp and a 15 amp circuit breaker. The 15 amp breaker shall service the GFI duplex outlet, a switched light outlet, the heat lamp and the ventilation fan. The 30 amp breaker shall service all other items. The GFI outlet shall be mounted on the power panel. The switched light outlet shall be mounted on the upper right side. An AC line filter and ISTRON series line filter for controller and conflict monitor and lightning/surge suppressor shall be installed on the power panel.

The cabinet trouble light shall be a stainless steel, flex shaft type, 18 inch in length with on/off switch. Trouble light shall be mounted on the right-inside of the cabinet.

The cabinet shall be furnished with a resealable plastic print holder and 3 sets of cabinet prints showing all wiring and one copy of the intersection drawings. Print holder shall be mounted on the inside of the door.

643.043 Power and SDLC Bus Panel. The Power and SDLC BUS Panel shall be manufactured from 1/8 inch, 5052-H32 aluminum. It shall provide a central location to supply filtered power for the controller, malfunction management unit, cabinet power supply, and all auxiliary equipment. It shall include the SDLC Bus connecting cables wired to a barrier type terminal block. As an alternate, SDLC Bus connections may be made via an SDLC Hub Assembly.

All cabinet equipment requiring filtered power to operate shall be hardwired directly to the supplied barrier type terminal blocks on the Power and SDLC BUS Panel.

All AC+ power sources shall be protected with a removable plastic cover plate.

An SDLC Hub Assembly shall include a minimum of four and maximum of eight D-Subminiature Female 15 pin (DB15) connectors that are wired in series.

643.044 Detector Rack. A minimum of one Loop Detector rack shall be provided in each cabinet. Detector racks shall be shelf mounted on the bottom shelf of the cabinet and shall support up to 16 channels of loop detection (either eight 2 channel detectors or four 4 channel detectors), 4 channels of preemption devices (either two - 2 channel devices or one - 4 channel device) and one BIU.

All connections to the back of the detector racks to the detector cards shall be soldered to a 44 terminal, double row, 0.156 inch contact spacing, Cinch Jones card edge connector 50-44A-30M, or equivalent centered vertically for each detector module. All designations shall correspond to the requirements of the TS2-2003 specification.

Card Guides shall be provided on the top and bottom of the card rack for each connector position.

Each cabinet shall contain a detector interface panel per each detector rack for the purpose of connecting field loops and vehicle detector amplifiers. The panels shall be manufactured from 1/8 inch thick 5052-H32 Aluminum and use barrier type terminal blocks.

One 16-position interface panel shall be provided for a 16-channel rack cabinet. The vehicle detection panel shall be installed on the left side of the cabinet; the bottom edge shall be 10 inches from the mounting flange.

Each interface panel shall allow for the connection of eight or sixteen independent field loops. A ground bus terminal shall be provided between each loop pair terminal to provide a termination for the loop lead-in cable ground wire.

Each interface panel shall provide a barrier style terminal block to terminate the field wires for up to two 2-channel preemption devices.

Lightning protection device mounting holes shall be provided to accommodate the potential usage of a lightning protection device. Loop field terminals shall be protected from inductive transient surges by 150 V, 10 A Metal Oxide Varistor. All detector terminals shall be identified by number and shall correspond with the cabinet print.

A cable consisting of 20 AWG twisted pair wires shall be wired directly from the interface panel to the detector rack. The twisted pair wires shall be color coded red and white wire. No connectors shall be used to connect the interface panel to the detector rack.

All termination points shall be identified by a unique number and silk screened on the panel.

Each detector rack shall accommodate rack mountable preemption devices such as Opticom

643.045 Load Switches. Load switches shall be solid state and shall conform to the requirements of Section 6.2 of the NEMA TS2 Standard.

Signal load switches shall have a minimum rating of 10 A at 120 VAC for an incandescent lamp load.

The front of the load switch shall be provided with six indicators to show the input and output signal from the controller to the load switch.

Load switches shall be dedicated per phase. The use of load switches for other partial phases is not acceptable except under the provisions of the second paragraph of Section 643.049 of this Special Provision.

The full complement of load switches shall be supplied with each cabinet to allow for maximum phase utilization for which the cabinet is designed.

The back panel shall have 16 load switch sockets completely wired including MMU. All terminals shall be labeled for identification corresponding to the back panel print.

643.046 Flash Transfer Relays. All flash transfer relays shall meet the requirements of Section 6.4 of the NEMA TS2 Standard.

The coil of the flash transfer relay must be de-energized for flash operation.

The full complement of relays shall be supplied with each cabinet to allow for maximum phase utilization for which the cabinet is designed. The relay sockets shall be wired as follows:

<u>Relay</u>	<u>Assignment</u>
Flash Relay 1	Load Switch 1 and 2
Flash Relay 2	Load Switch 3 and 4
Flash Relay 3	Load Switch 5 and 6
Flash Relay 4	Load Switch 7 and 8
Flash Relay 5	Load Switch 9 and 10
Flash Relay 6	Load Switch 11 and 12

The cabinet shall be supplied with one (1) NEMA Type 2 solid state cube type flasher.

The flasher shall be solid state and shall conform to the requirements of Section 6.3 of the NEMA TS2 Standard. The signal flasher shall be mounted on the back panel.

Flashing of field circuits for the purpose of intersection flash shall be accomplished by a separate flasher.

The flasher shall be rated at 15 amperes, double pole with a nominal flash rate of 60 FPM.

Vehicle Detector Test Panel. A vehicle detector test panel shall be surface mounted on the interior side of the cabinet door; a push type test button shall be labeled and furnished for each phase. Pushing the button shall cause a detector call to be placed on the controller for as long as the button is held. Test panel wires shall be enclosed in a cable harness.

643.047 Controller On/Off Switch. A controller on/off switch shall be surface mounted on the interior side of the cabinet door or in the upper right hand side of the cabinet.

643.048 Malfunction Management Unit (MMU). Each cabinet assembly shall be supplied with one MMU as defined by the requirements of Section 4 of the NEMA TS2 Standard. The

MMU shall retain, at a minimum, complete information on the last 9 events including which channels were active, the date and the time. The assignment of conflicting channels shall be by means of a standard NEMA program card. The MMU shall be wired to detect absence of voltage on all channels. The MMU shall have an RS232 serial port and an Ethernet port for downloading. All software and cabling from the manufacturer will be supplied to the Authority to allow communication to the device with a PC.

Malfunction Management Units shall be a Type 16. The MMU shall be Reno A&E Model MMU-1600GE or approved equal.

643.049 Bus Interface Units (BIU). All BIUs shall meet the requirements of Section 8 of the NEMA TS2 Standard.

The full complement of Econolite Control Products, Inc. Model 32860G1 BIU's, or an approved equal, shall be supplied with each cabinet to allow for maximum phase and function utilization for which the cabinet is designed.

Each Bus Interface Unit shall include power on, transmit and valid data indicators. All indicators shall be LEDs.

643.05 Cabinet Power Supply. The cabinet power supply shall meet the requirements of Section 5.3.5 of the NEMA TS2 Standard.

The cabinet power supply shall provide LED indicators for the line frequency, 12 VDC, 12 VAC, and 24 VDC outputs.

The cabinet power supply shall provide (on the front panel) jack plugs for access to the +24 VDC for test purposes.

One Econolite Control Products, Inc. Model 1084-003 cabinet power supply, or approved equal, shall be supplied with each cabinet assembly and shall be wired directly to the Power Bus Assembly via a 12-pin Molex Robotic type connector Model# 54332-1270 or an approved equal.

643.06 Fire Pre-emption. Fire pre-emption shall be activated by optical detection equipment with optical detectors. Fire pre-emption shall clear the existing phase through a normal clearance followed by the fire phase as shown on the plans for the minimum time specified. The fire phase shall give a green in the called direction; the confirmation light shall be activated only during the fire pre-emption phase, after the call phase is satisfied. Upon release of the fire pre-emption, the controller shall provide a green to the major movement. Phase selector will be Opticom model 764 as manufactured by Global Traffic Technologies. All software and cabling from the manufacturer will be supplied to the Authority to allow communication to the device with a PC.

The engineering, design, and integration of the fire pre-emption shall be by the manufacturer of the equipment, in cooperation with the supplier of the signal controller equipment. Preemption receivers will be Opticom model 700 as required.

The confirmation light shall be operated by a back panel load switch (LS #9 Yellow).

Confirmation light shall be a self-contained 120 volt AC industrial strobe light beacon with a weather-resistant, fully enclosed, rugged, cast aluminum base and lexan red optic lens as manufactured by Whelen Engineering Company Inc. or an approved equal.

Optical detector locations shall be verified by the Engineer to assure optimum reception. Optical detector cable shall run unspliced from the optical detector head to the controller cabinet.

643.07 Video Detection. The work under this section will include relocating the existing Aldis Grid Smart camera from the existing intersection to the new SPUI intersection via attachment to the overpass bridge. This work will also include the installation of a second camera, to be provided by the Authority, as well as all conduits, cables and bridge mounting hardware needed to make the system operate as designated on the plans.

The work under this section will also include coordinating with the supplier of the Grid Smart cameras to perform the initial setup of the relocated system.

643.08 Contacts. All contacts used in connection with interval indications shall be of pure coin silver or equivalent, and shall be capable of breaking and carrying 15 A at 125 V alternating current. The contacts shall be readily accessible and capable of being replaced in the timer without the use of any tools other than pliers and screw driver.

643.09 Flashers. Intersection beacon flashers shall be housed in an approved cabinet containing: 25 A NEMA cube-type flasher, 10 A circuit breaker and disconnect switch. All components shall be completely wired and mounted within the cabinet. Painting shall be in accordance with 643.1531 of this Special Provision.

643.10 Pedestals. Meter pedestal shall be as indicated on the plans.

643.11 Radio and television interference. Electrical equipment shall be prevented from interfering with radio and television reception.

643.12 Cable and Wire. Cable shall be plastic covered cable meeting the applicable requirements of the International Municipal Signal Association (IMSA) specifications. The conductor color coding shall not be by means of printed code. Actual color coding shall be used. The minimum size wire for the circuits shall be as follows:

<u>Service</u>	<u>A.W.G.#</u>
(a) To Controller	8 Stranded
(b) Controller to Pole or Pedestal	12 Stranded
(c) Pole or Pedestal to Receptacles	14 Stranded
(d) Equipment Grounding Conductor	8 Stranded

Each lead-in cable shall be marked with plastic tape corresponding to the following color code to identify which phase it pertains to at the splice(s) in both the pull box(es) and in the cabinet.

PHASE COLOR CODE

Phase 1	1 Blue
Phase 2	1 Green
Phase 3	1 Yellow
Phase 4	1 Red
Phase 5	2 Blue
Phase 6	2 Green
Phase 7	2 Yellow
Phase 8	2 Red

Traffic signal conduit, pull boxes, frames, and covers shall conform to Section 626 of the Standard Specifications. Conduit for all lines shall be 3 inch in diameter unless noted on the plans. Unless otherwise noted, all conduits shall be schedule 80 PVC.

643.13 Painting. Prior to erection and assembly, if not manufactured of polycarbonate material, the entire traffic or pedestrian signal housing and visors shall be painted with an approved zinc-rich primer and a finish enamel coat of federal yellow No. 13538. The door face and inside visor shall be federal black No. 17038.

643.14 Backfill for foundations. Unless otherwise ordered, backfill for foundations shall be material conforming to the requirements of Section 203.26 of the Standard Specifications – Gravel Borrow.

643.15 Construction Requirements. All traffic signal and electrical installations shall comply with the requirements specified herein, local and utility codes, MUTCD, and the National Electrical Code (NEC).

A preconstruction meeting with the Contractor, signal Subcontractor, Engineer and Maine Turnpike Authority representative shall be arranged not less than 3 days prior to the start of signal installation, to resolve any problems.

The signal Subcontractor shall notify the Maine Turnpike Authority ITS / Toll Manager no less than 3 days prior to final inspection of signal installation. This final inspection is required prior to signal activation.

Each signal head mounted on a mast arm shall be installed with a 1/8 inch diameter aircraft cable, looped around the mast arm and mast arm bracket, as a safety device to prevent the signal head from falling. Cable ends shall be fastened by two opposing “U” clamps. When suspended by this cable, the top of the signal head shall be no more than 6 inches below the bottom of the mast arm.

All conduit lines necessary shall be constructed for the proper operation of the signals and shall conform to Section 626 of the Standard Specifications.

All conduits terminating in the cabinet shall be sealed with duct sealant.

Concrete foundations with anchor bolts to secure the traffic signal structures, flasher or controller cabinets, and meter pedestals, shall be installed at the locations specified on the plans. When directed, the concrete foundation for the controller cabinet shall be raised to any height up

to 18 inches above the surface. Chamfer strips shall be used on all signal controller cabinet foundations. Forms shall be inspected before concrete is placed.

Poles shall not be mounted on the leveling nuts until the concrete has cured for at least 7 days or attained a minimum of at least 80 percent of its design compressive strength.

Provide protection for wiring from rodents and other elements as approved by the Engineer and/or as shown on the Plans.

Prior to placing the controller cabinet on its foundation, silicone sealant shall be applied to the area of contact.

The Contractor shall use bolt pattern templates when setting mast-arm anchor bolts, signal pedestal bolts and controller cabinet mounting bolts. The templates shall remain in place for a minimum of 24 hours.

Wood poles shall be placed in the ground to a depth of 20% of their overall length, with a maximum deviation from the vertical of 1/4 inch in 5 feet.

Wood poles with a back-guy cable shall be placed in the ground to a depth of 20% of their overall length. Poles shall be back-guyed using a 10-inch expanding anchor with a 3/4 inch by 96-inch anchor rod. Thimble eyes of anchor rods shall extend 12 inches above finish ground. Cable used for back-guying shall be attached to the anchor rod by a short bail automatic type grip and to the guy hook on the pole by a preformed type grip. The pole shall be drilled 14 inches from top and a 5/8 inch oval eyebolt installed with one square flat washer and square nut on the messenger side and one square washer, square nut and guy hook on the opposite side. Any guy wire, messenger wire or span wire installations done on Utility Company poles shall follow Utility Company requirements.

643.152 Service and Meter Box. Electrical Service will be provided by the MTA, the contractor shall run the needed conduit and wiring from the signal cabinet to the existing utility building.

643.153 Signal Cable and Wire Installation. The Contractor shall furnish and install sufficient cable and wire to operate the system properly and at least 4 spare conductors in each cable run shall be provided.

Each mast arm assembly shall have a dedicated cable run from the controller cabinet.

No more than one cable shall be permitted in a conduit except to eliminate splices in pull boxes. When more than one cable is permitted the area of combined cables shall not exceed 30 percent of the inside area of the conduit.

Messenger cable shall run unspliced between poles and shall be installed with a 5 percent sag in the wire when measured from the point of attachment to the middle of span. The cable shall be attached to the pole eyebolt by a preformed type grip on one end and an automatic type grip on the opposite end. Messenger cable shall be grounded to the back-guy cable.

Signal bases, housings and controllers shall be furnished and installed as required. All structures and housings shall be plumb after erection.

Multiple housings on a single post shall be grouped together using 1-1/2 inch galvanized pipe and 1-1/2 inch galvanized rail fittings. All attachments to the posts shall be made by means of adapters conforming to the following. Housing adapters for pedestal mounting shall be constructed of cast iron. They shall be adjustable with serrated surfaces to permit the housing to be locked in the desired horizontal position. The adapters shall be secured to the bottom of the housing by means of a close nipple, shall slip fit at least 7 inch over a standard traffic signal post of 4 inches in diameter and shall be secured to the post by a minimum of four set screws. Adapters shall contain raceways from the housing to the post to protect the wires from the elements. The center of all housings shall be in the same horizontal plane.

Miscellaneous electrical equipment. All additional electrical fittings, service conduit, switches, fuses, traffic signal bulbs, and such other hardware as is necessary to properly and securely install the equipment shall be furnished. All electrical fittings shall be weatherproof.

Wiring and connections. All connections shall be spliced, soldered, compounded, and taped or made using waterproof wire nuts. The following color code shall be used:

- | | |
|------------------------|---------------------------|
| (a) Red Wire | Red, Artery |
| (b) Orange Wire | Yellow, Artery |
| (c) Green Wire | Green, Artery |
| (d) Red with tracer | Red, Side Street |
| (e) Orange with tracer | Yellow, Side Street |
| (f) Green with tracer | Green, Side Street |
| (g) White | Neutral for all signals |
| (h) Blue | All steady burning arrows |
| (i) Blue with tracer | Intermittent arrows |
| (j) Remaining | Push buttons and spares |

Note: The white wire shall be used for all neutral connections and shall be connected to the service ground.

No street lighting splices will be permitted in the mast-arm shaft. Splices for street lighting and lightning arrestors shall be located inside the nearest street light pull box.

Ground connections. All installations and equipment shall be bonded and grounded to the service ground rod in accordance with the requirements of the electric power company.

Each signal cable run shall be installed with one green plastic covered copper ground wire to which all equipment shall be bonded in accordance with standard practice. Each base and post, cabinet, and any other component that would be considered a part of the signal system shall be bonded to the ground wire. This ground wire shall be connected to the ground rod at the controller cabinet.

643.1531 Painting. All paint shall conform to Section 708 of the Standard Specifications. The following colors of enamel shall be used:

- | | |
|------------------------|--|
| (a) Controller Cabinet | Outside: Natural Aluminum |
| (b) Housings | Yellow (3) |
| (c) Visors | Inside: Black (2); Outside: Yellow (3) |
| (d) Meter Box | Same color as its mounting. |

	Federal No.
(1) Green Enamel =	H8-577
(2) Black Enamel =	17038
(3) Federal Yellow Enamel =	13538

After the signals have been completely installed, two coats of enamel shall be applied to all unpainted or scratched surfaces after the surface has been lightly sanded to remove gloss.

Operating sequences shall be as shown on the plans or ordered.

Operating sequences shall be verified by testing.

In cooperation with the Fire Department, the Contractor shall make trial runs to ascertain proper timing of the fire pre-emption system. The minimum time shall be approved by the Chief of the Fire Department or the Chief's representative.

643.154 Installation of signals and equipment. The signals and equipment shall be installed by competent workmen or the manufacturer's representative.

Prior to placing the signals in operation, the signal housing shall be hooded with approved non-transparent material or turned to clearly indicate that the signals are not in operation.

Signs mounted on the signals not applicable to construction conditions shall be covered as specified in Section 645 of the Standard Specifications.

All material including poles, foundations, fittings and cable shall be supplied and installed to make a complete operative installation.

Signs installed on signal arms shall be mounted with "Astro Bracs" at a right angle to the roadway.

643.155 Operation. The Contractor shall commence the operation of the signal system only when permitted by the Engineer. Unless otherwise noted, signals shall be placed in flash a minimum of 1 week before the planned start of operation. New signals shall be made operational between the hours of 10:00 AM and 2:00 PM unless approved by the Engineer.

The Contractor shall provide a qualified technician to thoroughly review and confirm that the system is satisfactory and operational as designed. Prior to the final inspection, the Contractor shall have a review with the Authority's Toll / ITS Manager and local officials (including Fire Department technician) to review and comment upon the system.

643.156 Warranty. Upon completion of the project, the Contractor shall forward to the Authority all warranties to the purchaser that the equipment which has been installed hereunder shall be free from defects in materials, workmanship and title, and shall be of the kind and quality designated or described in the Contract. The foregoing warranty supersedes all other warranties whether written, oral, or implied. If it appears within 24 months from the date of Acceptance of the work that the equipment installed hereunder does not meet the warranties specified above, the Contractor shall promptly correct any defect or nonconformance with the specifications. This warranty does not relieve the Contractor of the requirement of Section 106 of the Standard Specifications.

643.16 Method of Measurement. The new traffic signal will be measured as a lump sum unit. Video detection system relocation will be measured as a lump sum unit. No separate measurement will be done for the removal of the existing traffic signal, but will be considered incidental to the new signal installation.

643.17 Basis of Payment. The accepted quantity of traffic signals will be paid for at the Contract lump sum price complete in place.

When an item of conduit appears in the Contract, conduit for traffic signals will be paid for under Section 626 of the Standard Specification. When no item for conduit appears in the Contract, any conduit required will be incidental.

All miscellaneous electrical equipment required shall be subsidiary.

Video detection system relocation and modification (Item 643.90) will be paid for at the contract lump sum price, which payment will be full compensation for removal, reinstallation and furnishing all materials and all appurtenances and incidentals required for a complete functioning installation. The Contractor shall coordinate with the Manufactures Representative for initial configuration and onsite training.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
643.80	Traffic Signals at Exit 80 and Alfred Plourde Parkway and SPUI Ramps	Lump Sum
643.90	Video Detection System relocation and Modification	Lump Sum

SPECIAL PROVISION

SECTION 643

TRAFFIC SIGNALS

(Signal and Sign Support Assembly)

643.01 Description

This work shall consist of furnishing, fabricating and installing the required girder-mounted traffic Signal and Sign Support Assemblies as shown on the plans and described in this specification.

643.021 Materials

Steel pipe and fittings shall conform to the requirements of Subsection 715.02

Structural bolts, washers and nuts shall be galvanized and conform to the requirements of Subsection 713.02.

Flange gaskets shall be 1/8" thick full-face gaskets fabricated from resilient rubber conforming to the requirements of ASTM D2000.

643.023 Shop Drawings

The Contractor shall submit shop drawings for all girder-mounted Signal and Sign Support Assemblies to be installed as part of the project. The drawings shall be of sufficient detail to indicate material and dimensional conformance with these Specifications and the Plans.

643.03 Fabrication and Installation

Installation details shall be as shown on the Plans. The location shown for the sign and signal support assemblies is approximate; final locations and support length will be determined in the field. All bolted connections to girder webs shall be located and field drilled after girder erection.

After the Signal and Sign Support Assemblies have been fabricated, assembled and erected all threaded connections shall be secured in place by tack welding.

All areas of damaged galvanizing shall be touched up in accordance with ASTM A780 after installation. The Contractor shall tape off or otherwise protect the surrounding girder surfaces to keep these surfaces free of galvanizing repair product.

643.18 Method of Measurement

All Signal and Sign Support Assemblies required for this project shall be measured as one lump sum.

Signs, Traffic Signals, attachment brackets and associated installation hardware are not included in this specification but shall be measured for payment under the related sign and traffic signal pay items.

643.19 Basis of Payment

Payment for Signal and Sign Support Assemblies will be made at the contract lump sum price, which payment will be full compensation for furnishing and installing all materials, tools and labor necessary to fabricate and erect all required Signal and Sign Support Assemblies.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
643.95 Signal and Sign Support Assembly	Lump Sum

SPECIAL PROVISION

SECTION 644

GLARE BARRIER

(Glare Screen – Supplied by Authority)

644.1 Description

The following paragraphs are added:

The work shall also consist of transporting, installing and maintaining a glare screen system on temporary concrete barrier at the traffic crossovers at locations as shown on the Plans or as approved by the Resident.

Approximately 900 LF of temporary glare screen is currently installed on the Phase 1 temporary concrete barrier which will require removal and resetting for the Phase II MOT crossover.

644.2 Material

Glare Screen – Supplied by Authority shall be the SAFE-HIT Glare Screen System as manufactured by SAFE-HIT Corporation, 23785 Cabot Blvd., #322, Hayward, California 94545, (312) 467-6750, or equivalent as determined by the Authority. Fasteners shall be 3/8” diameter HILTI Drop-in anchors and 3/8” diameter bolts with washers.

644.3 Installation of the Glare Screen

Final location of glare screen for Phase 2 shall be approved by the Resident.

The glare screen shall be fastened to the temporary precast concrete barrier by a method suggested by the manufacturer or Contractor and approved by the Resident. Fasteners shall be provided by the Contractor.

The Contractor shall note that some modification to the approved system may be required to accommodate existing lifting hooks located on the tops of the temporary concrete barriers.

The glare screen and fasteners shall remain attached to the temporary concrete barrier and become the property of the Authority upon completion of the Contract.

The Contractor shall operate in a manner which prevents damage to the glare screen during installation. The Contractor shall be responsible for replacement and reinstallation of glare screen damaged during the Contractor’s operations. No additional payment shall be made for replacement and reinstallation of glare screen damaged as a result of the Contractor’s operations.

644.4 Method of Measurement

Glare Screen – Supplied by Authority will not be measured separately for payment but will be incidental to the Temporary Concrete Barrier pay item.

644.5 Basis of Payment

Transporting, installing, removing and resetting, and maintaining the Glare Screen including all labor, tools, equipment and incidentals necessary to complete the work will not be paid for separately but will be incidental to the Temporary Concrete Barrier pay item 526.306.

SPECIAL PROVISION

SECTION 645

HIGHWAY SIGNING

(Remove and Reset Sign)

(Remove and Stack Sign)

645.07 Demounting and Reinstalling Existing Signs and Poles

The following paragraphs are added:

At locations noted on the Plans, existing ground-mounted signs are designated to be removed and reset. This work shall consist of removing the sign panels, removing and resetting or disposing of the existing wood post and resetting the sign panels on a new wood post if required in the appropriate specified location. The Resident will determine if a new wood post is required.

At locations as shown on the Plans, existing ground-mounted signs are designated to be removed and stacked. This work shall consist of removing and stacking existing sign panels and posts at the MTA Sign Shop Mile 58.3 Northbound and the excavations shall be backfilled and ground restored to the satisfaction of the Resident.

Any existing signs not shown on the Plans are to remain in their existing condition unless directed otherwise by the Resident.

645.08 Method of Measurement

The following sentences are added:

Removing and Resetting existing ground-mounted signs shall be measured as complete units each, removed, reset and accepted.

Removing and stacking existing signs shall be measured as complete units each removed and stacked. When more than one sign is attached to the same post, this is shall be counted as one unit removed and stacked.

645.09 Basis of Payment

The following paragraphs are added:

The accepted signs Removed and Reset will be paid for at the Contract unit price each as specified. Such price will include removing and resetting sign panels, removing and resetting or disposing existing wood post and resetting the sign panels on the existing or new wood post and new hardware as required to complete the sign installation. Any signs or supports damaged by the Contractor shall be replaced with new signs or supports conforming to the applicable Specifications at no additional cost to the Authority.

The accepted signs removed and stacked shall be paid for at the Contract unit price each as specified. Such price shall include removing and stacking sign panels and supports at the location specified.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
645.105	Remove and Stack Sign	Each
645.109	Remove and Reset Sign	Each

SPECIAL PROVISION

SECTION 645

HIGHWAY SIGNING

(Installation of Type I Regulatory Sign - Bridge Mounted)

645.01 Description

The following paragraph is added:

This work shall consist of installing new signs and Astro-Brac ®, on to bridge mounted signal and sign support assemblies supplied by the Contractor.

645.02 General

Sign sizes and types are as shown on the proposed Traffic Signal Plan sheet. All signs will be fabricated of sheet aluminum and shall conform to Subsection 645.061 for installation. Signs shall be mounted with new Pelco Sign Mounting Astro-Brac®.

645.08 Method of Measurement

The following sentence is added:

Installation of Type II Signs shall be measured for payment per square foot.

645.09 Basis of Payment

Payment for Installation of Type I Regulatory Sign - Bridge Mounted shall be at the Contract unit price per square foot and shall include all needed mounting hardware. This payment shall be full compensation for furnishing and installing new Astro-Brac® as designated on the Traffic Signal Plan sheet, installing the signs on to the new Astro-Brac®, including all hardware, labor, equipment, and all other incidentals necessary to complete the installation in accordance with the details as shown on the Plans.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
645.2711 Installation of Type II Signs – Single Post	SF

SPECIAL PROVISION

SECTION 645

HIGHWAY SIGNING

(Installation of Type II Signs)

645.01 Description

The following paragraph is added:

This work shall consist of installing new signs fabricated by the Authority, on to new single posts supplied by the Contractor. Contractor shall pick up all new signs at the Sign Shop, Mile 58.3 northbound.

645.02 General

Sign sizes and post sizes and types are as shown on the proposed sign summary sheet. All signs will be fabricated of sheet aluminum and shall conform to Subsection 645.061 for installation. Sign posts shall either be new or may be posts in good condition from the inventory of stacked signs. Resident shall approve of any reused posts prior to their use.

645.08 Method of Measurement

The following sentence is added:

Installation of Type II Signs shall be measured for payment per each sign or sign assembly satisfactorily installed.

645.09 Basis of Payment

Payment for Installation of Type II Signs shall be at the Contract unit price per each sign (single post). This payment shall be full compensation for transporting the signs from the Authority's Sign Shop to the project site, furnishing and installing new posts or reset posts as designated on the sign summary, installing the signs on to the new posts, including all hardware, labor, equipment, and all other incidentals necessary to complete the installation in accordance with the details as shown on the Plans.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
645.401 Installation of Type II Signs – Single Post	Each

SPECIAL PROVISION

SECTION 645

HIGHWAY SIGNING

(Radar Activated Flashing LED Wrong Way Warning Sign)

645.01 Description

The following paragraph is added:

This work consists of furnishing and installing new solar powered 36" x 24" Radar Activated Flashing LED Wrong Way Warning Signs at the locations shown on the plans or established by the Resident. The sign shall be self- powered by solar panels and long-life nickel metalhydride batteries with no external electrical power installation.

645.021 Materials

The Radar Activated Flashing LED Wrong Way Warning Signs shall be Tapco BlinkerSigns™ or approved equal and include the following components:

The system shall have the following specifications:

Sign Substrate	.080 Highway Grade Aluminum
Reflective Sheeting	3M™ DG3™- with anti-graffiti overlay
MUTCD Compliance	MUTCD Section 2A.08 Compliant
Battery Lifespan	Up to 5 years
Autonomy- Functionality without Charge	Up to 30 days in
24/7 operation Flash Pattern	MUTCD Compliant
LED Type	High Power Luxeon- 1 watt
LED Life Expectancy Warranty	Over 100,000 hours
Term	1 Full Year Warranty
Smart Activation	Options 24/7 continuous
Time clock activation	Wireless control activation
Vehicle detection activation	
(Windows based software programmable)	

645.064 Installation

The sign shall be complete, with all the hardware and tools, and ready to be installed on a U-channel or square yielding sign post. The system shall be mounted using the TAPCO Heavy Duty V-loc Base System or approved equal.

645.08 Method of Measurement

The following sentence is added:

Radar Activated Flashing LED Wrong Way Warning Signs will be measured by each unit, complete in place and accepted.

645.09 Basis of Payment

The accepted quantity of Radar Activated Flashing LED Wrong Way Warning Signs will be paid for at the contract unit price which shall include furnishing sign posts, anchor base system and installation.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
645.511 Radar Activated Flashing LED Wrong Way Warning Signs	Each

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

Delete the existing 5 paragraphs and replace with the following:

Flashing Arrow Panels (FAP) must be of a type that has been submitted to AASHTO's National Transportation Product Evaluation Program (NTPEP) for evaluation and placed on the Maine Department of Transportation's 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

Replace the first paragraph with the following;

The Contractor shall furnish flaggers as required by the TCP or as otherwise specified by the Resident. All flaggers must have successfully completed a flagger test approved by the 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,...”

Fourth paragraph, delete and replace with:

Flaggers shall be provided as a minimum, a 10 minute break, every 2 hours and a 30 minute or longer lunch period away from the work station. Flaggers may only receive 1 unpaid break per day; all other breaks must be paid. Sufficient certified flaggers shall be available onsite to provide for continuous flagging operations during break periods. If the flaggers are receiving the appropriate breaks, breaker flagger(s) shall be paid starting 2 hours after the work begins and ending 2 hours before the work ends. A maximum of 1 breaker per 6 flaggers will be paid. (1 breaker flagger for 2 to 6 flaggers, 2 breaker flaggers for 7 to 12 flaggers, etc)”

652.6 Nightwork

Delete this section entirely and replace with the following:

652.6.1 Daylight Work Times

Unless otherwise described in the Contract, the Contractor is allowed to commence work and end work daily according to the Sunrise/Sunset Table at: <http://www.sunrisesunset.com/usa/Maine.asp> . If the Project town is not listed, the closest town on the list will be used as agreed at the Preconstruction Meeting. Any work conducted before sunrise or after sunset will be considered Night Work.

652.6.2 Night Work

When Night Work occurs (either scheduled or unscheduled), the Contractor shall provide and maintain lighting on all equipment and at all work stations.

The lighting facilities shall be capable of providing light of sufficient intensity to permit good workmanship, safety and proper inspection at all times. The lighting shall be cut off and arranged on stanchions at a height that will provide perimeter lighting for each piece of equipment and will not interfere with traffic, including commercial vehicles, approaching the work site from either direction.

The Contractor shall have available portable floodlights for special areas.

The Contractor shall utilize padding, shielding or other insulation of mechanical and electrical equipment, if necessary, to minimize noise, and shall provide sufficient fuel, spare lamps, generators, etc. to maintain lighting of the work site.

The Contractor shall submit, as a subset of the Traffic Control Plan, a lighting plan at the Preconstruction Conference, showing the type and location of lights to be used for night work. The Resident may require modifications be made to the lighting set up in actual field conditions.

Prior to beginning any Night Work, the Contractor shall furnish a light meter for the Residents use that is capable of measuring the range of light levels from 5 to 20 foot-candles.

Horizontal illumination, for activities on the ground, shall be measured with the photometer parallel to the road surface. For purposes of roadway lighting, the photometer is placed on the pavement. Vertical illumination, for overhead activities, shall be measured with

the photometer perpendicular to the road surface. Measurements shall be taken at the height and location of the overhead activity.

Night Work lighting requirements:

Mobile Operations: For mobile-type operations, each piece of equipment (paver, roller, milling machine, etc) will carry indirect (i.e. balloon type) lights capable of producing at least 10 foot-candles of lighting around the work area of the equipment.

Fixed Operations: For fixed-type operations (flaggers, curb, bridge, pipes, etc.), direct (i.e. tower) lighting will be utilized capable of illuminating the work area with at least 10 foot-candles of light.

Hybrid Operations: For hybrid-type operations (guardrail, sweeping, Inslope excavation, etc.), either direct or indirect lighting may be utilized. The chosen lights must be capable of producing at least 10 foot-candles of light around the work area of the equipment

Inspection Operations: Areas required to be inspected by the Authority 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 360°. 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 Authority reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Authority 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.”

652.63 Traffic Coordinator

The Contractor shall submit to the Resident for approval a list of traffic control personnel assigned to the Project including qualifications, certifications and experience.

The Traffic Coordinator duties shall include, but are not necessarily limited to:

- a. Developing, in conjunction with the Resident and Project superintendent, a traffic control program for the days' work activities which will facilitate traffic in a safe and efficient manner;
- b. Insure that all traffic control implements (signs, arrow boards, barrels, etc.) are on-site so the traffic program can be implemented effectively;
- c. Insure a safe and effective setup or take-down of all signing implements to least impact the traveling motorist; and,
- d. Working knowledge of construction signing/traffic control requirements in conformance with the latest issued Manual on Uniform Traffic Control Devices.

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 Maintenance of Traffic Requirements)

This Specification describes the specific project maintenance of traffic requirements for this Project.

The following minimum traffic requirements shall be maintained:

Alfred Plourde Parkway Traffic Control Requirements

A minimum of one lane in each direction shall be maintained on Alfred Plourde Parkway at all times in accordance with the details shown on the Plans with the exception of the following:

- Short periods of alternating one-way traffic for installing and removing traffic control devices, culvert removal or installation, deck removal and shielding installation. Single lane operation of traffic will not be permitted weekdays between the hours of 6 AM. and 9 AM. and between the hours of 4 PM and 6 PM
- Brief complete stoppages of traffic during blasting operations.
- Nightly stoppages of traffic for beam removal or erection. Beam removal and erection shall be completed as night work, Sunday through Thursday, between the hours of 10 PM. and 5 AM.

Maine Turnpike Traffic Control Requirements

A maintenance of traffic control plan has been developed to facilitate construction.

There are no lane closure or shoulder closure restrictions on this Project. A minimum of one lane in each direction shall remain open at all times with the exception of during blasting.

Maine Turnpike Ramps

A maintenance of traffic control plan has been developed to facilitate construction.

All ramps shall remain open during construction at all times with the exception of during blasting.

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 excluding shoulder) 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.

Complete stoppages of traffic 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.
- 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
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 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.

Work Requiring Complete Stoppages of Traffic

Complete stoppages of traffic will only be allowed as outlined in Special Provision Section 652, Specific Project Maintenance of Traffic Requirements, or as approved by the Resident.

Additional traffic stoppages will not be allowed until traffic associated with the previous stoppage 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 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.
- Moving of heavy or slow equipment across or on the travel lanes (stoppage less than five minutes).

State Police will be used to stop traffic on the Maine Turnpike and Alfred Plourde Parkway. 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, southbound or Alfred Plourde Parkway), 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 cannot reasonably be completed with the erection of a lane closure. Contractor shall be responsible for the installation of Signs CS-3, "Expect Stopped Traffic" and Signs W3-4 "Be Prepared to Stop", in accordance with the Single Lane Closure Detail immediately prior to the equipment move. 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 PM. noon to be considered as received on that day. Requests received after 12:00 PM. 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

(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 a travel lane or shoulder 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 652

MAINTENANCE OF TRAFFIC

(Type III Barricades – Supplied by Authority)
(Drums – Supplied by Authority)
(Construction Signs - Supplied by Authority)

652.1 Description

The following paragraph is added:

Type III Barricades, Drums, and Construction Signs to be Supplied by Authority, are currently in place as shown on the Phase I Traffic Control Plans. These will be available to the Contractor for use in Phase II work. At the completion of the contract, they shall become the property of the Authority and shall be stacked at Crosby Maintenance Area.

Ramp closures, Alfred Plourde Parkway work and miscellaneous mainline work not shown on the Traffic Control Plans will require additional drums and signage beyond what is currently available in the Phase I maintenance of traffic set up. These additional drums and signs will be supplied by the Contractor and will remain owned by the Contractor. Payment for those drums shall be under 652.33 Drum and payment for those construction signs shall be under 652.35 Construction Signs.

652.8 Basis of Payment

The following paragraph is added:

No separate payment for Type III Barricades – Supplied by Authority, Drums/Cones – Supplied by Authority, and Construction Signs – Supplied by Authority, will be made to the Contractor. The cost for maintenance, replacement of damaged, resetting, transporting and stacking shall be incidental to 652.361 Maintenance of Traffic Control Devices.

SPECIAL PROVISION

SECTION 652

MAINTENANCE OF TRAFFIC

(Flashing Arrow Boards – Owned by Others)

652.1 Description

The following paragraphs are added:

Flashing Arrow Boards – Owned by Others are currently in place as shown on the Phase I Traffic Control Plans. The Contractor shall replace these devices with their own and shall deliver the Flashing Arrow Boards – Owned by Others to Crosby Maintenance, Mile 45.8.

652.8 Basis of Payment

The following paragraph is added:

No separate payment shall be made for Flashing Arrow Boards – Owned by Others. The cost for relocation shall be incidental to 652.361 Maintenance of Traffic Control Devices.

SPECIAL PROVISION

SECTION 655

ELECTRICAL WORK

655.01 Description

All work shall be governed by the Standard Specifications except for that work which applies to those sections of the Standard Specifications which are amended by the following modifications, additions and deletions.

Specifically, for the electrical work (in addition to standards specified in individual work sections), the following standards are imposed, as applicable to the work in each instance:

- NEC, National Electrical Code (NFPA No. 70)
- NFPA No. 101, Life Safety Code
- ANSI C 2, National Electrical Safety Code
- ANSI C 73, Dimensions of Attachment Plugs and Receptacles
- NECA standards for installation
- NEMA standards for materials and products
- UL, Underwriters Laboratories

The Contractor will warranty the material supplied by them and their workmanship for a minimum of 1 year.

655.02 General Provisions

The Contractor shall submit certification of the adequacy of each power and/or communications circuit for the following sub-systems, where applicable:

- Automatic Vehicle Identification (AVI)
- Digital Video Audit System (DVAS)
- Highway Advisory Radio (HAR)
- Relocated Traffic Signal at Exit 80 Northbound Ramps

Verification of the electrical system should be done by turning on/off assigned circuit breakers prior to attachment of equipment to validate panel schedule and that proper voltage is present at termination.

655.03 Wires and Connectors

The requirements of this section apply to the wire work specified elsewhere in these specifications.

The applications for wire and connectors required on the project may include the following:

- Power distribution circuitry.
- Lighting circuitry.
- Appliance and equipment circuitry.

Provide products produced by one of the following or approved equal (for each type of cable, wire and connectors):

Cable and Wire:

- Anaconda Wire and Cable Co.
- Belden Corp.
- General Cable Corp.
- Phelps Dodge Cable and Wire Co.
- Wire and Cable Dept., General Electric Co.
- Rome Cable Corp.

Connectors:

- AMP Inc.
- Burndy Corp.
- Minnesota Mining and Mfg. Co.
- OZ/Gedney Co.
- Thomas & Betts Co.

Wire:

Provide factory-fabricated wire of the size, rating, material and type as required for each service. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements and with NEC standards. Select from only the following types, materials, conductor configurations, insulations, and coverings for 120/240 Volt circuits:

UL Type: THW. (Sizes #6 AWG wire and larger)

UL Type: THHW. (Sizes up to #4 AWG wire)

UL Type: USE. (Underground installation)

Material: Copper.

Conductors: (AWG wire 20 to AWG wire 16).

Note: All low voltage signal conductors (including CAT5e and CAT6 data cables) shall be stranded. Conductors for underground, below grade, or in conduit to lane devices shall be OSP grade, gel filled. Interior building communications cables may be plenum rated for interior wall or cable tray applications.

Concentric-lay-stranded (standard flexibility) (AWG wire 14 and larger).

Interconnection for data communication shall be performed with cables that shall be submitted for approval. The general cable types are designated on the Plans/ Specifications. Minimum bend radius should meet the requirements of the manufacturer and the requirements of the system.

Lead-in cables to extend loop detectors (if needed) shall be IMSA Type 50-2. Loop lead-in cables shall be manufactured with a size of #16 AWG.

Klik-Its (Power & Tel Enterprise Part #C8820) or approved equivalent shall be used at all loopwire splice locations. All splices must be twisted, soldered and shrink-wrap waterproofed before enclosure is placed.

All cable labeling shall be coordinated with the requirements of the Toll System Integrator.

Install electrical wire and connectors as required, in accordance with the manufacturer's written instructions, the applicable requirements of NEC and the National Electrical Contractors Association's "Standard of Installation", and in accordance with recognized industry practices to ensure that products serve the intended functions.

Coordinate cable and wire installation work with electrical wireway and equipment installation work, as necessary for proper interface.

All wire and cable shall be in first class condition when they are installed. Lo-leak lubricants manufactured for the purpose of a pulling lubricant may be used when necessary.

All wires shall be continuous from outlet and there shall be no unnecessary slack in the conductors.

655.04 Electrical Boxes and Fittings

The types of electrical boxes and fittings required for the project may include the following:

- Junction boxes
- Pull boxes
- Conduit bodies

- Bushings
- Locknuts

Provide products produced by one of the following or approved equal (for each type of box and fitting):

Junction and Pull Boxes:

- Arrow-Hart, Inc.
- General Electric Co.
- Hubbell Power Systems
- OZ/Gedney Co.
- Square D Co.
- Unitil

Conduit Bodies:

- Appleton Electric Co.
- Crouse-Hinds Co.
- Killark Electric Mfg. Co.
- Pyle-National Co.

Bushings, Knockout Closures and Locknuts:

- Allen-Stevens Conduit Fittings Corp.
- Allied Metal Stamping, Inc.
- Appleton Electric Co.
- Carr Co.
- Raco, Inc.
- Steel City, Midland-Ross Corp.
- Thomas and Betts Co., Inc.

Install all equipment cabinets in compliance with NEC requirements, in accordance with the manufacturer's written instructions and with recognized industry practices to ensure that the boxes and fittings serve the intended purposes. The Contractor shall coordinate all associated conduit, wiring and related work with the Resident to confirm appropriate placement in coordination with the equipment installation.

Install electrical boxes and fittings in compliance with NEC requirements, in accordance with the manufacturer's written instructions and with recognized industry practices to ensure that the boxes and fittings serve the intended purposes:

- a. Provide knockout closures to cap unused knockout holes where blanks have been removed.
- b. Locate boxes and conduit bodies to ensure accessibility of electrical wiring.
- c. All boxes shall be rigidly secured in position unless otherwise directed.

- d. Where standard boxes are not suitable, provide boxes of special design to suit space and function.

655.05 Grounding

Furnish labor and material to provide grounding facilities for the entire electrical installation as required by all inspecting and jurisdictional authorities as herein specified. The following are included, but not limited to, as items requiring grounding:

- Electrical service neutral conductor.
- Neutral conductor of all transformer secondaries.
- Conduits, boxes and other conductor enclosures. Neutral or identified conductor of interior wiring system.
- Distribution panels and power subpanel boards.
- Non-current - carrying parts of fixed equipment, such as transformers, motors, starters, control cabinets, disconnects, lighting fixtures, stand-by generator, etc.
- Metallic cabinets and auxiliary systems cabinets.

Furnish and install all boxes and/or access plates required for installation and inspection of grounding connections to electrodes.

Provide brass identifying tags on all ground clamps.

Ground connections made to electrodes at such locations as will be readily available for inspection. Provide jumper connections around all meters and shut off devices.

Use electrodes as described in NEC Sections 250-81 or 250-83.

Equipment Grounding: All electrical equipment shall be grounded. Most other equipment will be furnished with grounding pads or grounding lugs. All ground connections shall be cleaned immediately prior to connection. Contractor shall provide all grounding material required but not furnished with the equipment.

No grounding conductor shall be smaller than 10 AWG wire unless it is a part of an acceptable cable assembly.

SPECIAL PROVISION

SECTION 655

ELECTRICAL WORK

(AWG Wire)

The following Section is added:

655.01 Description

This task shall include the providing and installation of the AWG wire, as described herein for clean and dirty power wiring, for grounding wires (where applicable) and other locations called for in the plans/specifications. All wire installed in conduit must be burial grade, suitable for wet locations.

655.05 Measurement of Payment

Measurement and payment for furnishing and installation of the AWG wire as described herein will be per foot, to the nearest 10 foot interval per run.

655.06 Basis of Payment

The accepted quantity of AWG Wire will be paid for at the Contract unit price per linear foot for the furnishing, installation, routing, termination, splices and connection of the wire per the plans and specifications.

Payment will be made under:

<u>Item</u>	<u>Description</u>	<u>Unit</u>
655.02	#2 AWG Wire	Linear Foot
655.04	#4 AWG Wire	Linear Foot
655.10	#10 AWG Wire	Linear Foot

SPECIAL PROVISION

SECTION 655

ELECTRICAL WORK

(Shielded Category 5e Cable)

This task shall include the providing and installation of the Shielded Category 5e cable shown on the Plan drawings and described herein.

Cable: Direct burial type, Shielded Category 5e cable, as approved.

Basis of Payment

Measurement and payment for the installation of the Shielded Category 5e cable will be by linear foot to the nearest 10 ft. interval. It shall include the furnishing, installation and routing of the cable per the wiring schedule.

Payment will be made under:

<u>Item</u>	<u>Description</u>	<u>Unit</u>
655.13	Shielded Category 5e Cable	Linear Foot

SPECIAL PROVISION

SECTION 655

ELECTRICAL WORK

(Fiber Optic Cable)

The following Section is added:

655.01 Description

This task shall include the providing and installation of 62.5/125 micron multimode fiber optic cable as shown on the Plan drawings and described herein. The following specifications for the selection and installation of fiber-optic cable and associated hardware are intended to ensure a reliable and consistent fiber optic media infrastructure for the MTA. All fiber optic cable termination will be incidental to the fiber optic cable.

655.02 Materials

Cable: 6-Fiber multi-mode, 100 mbs, 62.5/125 Microns, Indoor/Outdoor Riser Rater, ST (Male) Connection, as approved.

Specifications: Fiber installed must meet or exceed the following specifications:

- Multimode fiber installed cable shall be 62.5/125micron core/cladding, enhanced grade, multimode, and graded index glass fiber. All materials in the cable shall be dielectric.
- Installed fiber must meet or exceed the following performance specifications:

Wavelength (nm)	Max. Attn.(dB/Km)	Min. Bandwidth (Mhz*Km)
850	3.0	200
1,300	0.9	500

- Plenum rated cable shall be used for all interior installations. Plenum rated cable shall be:
 - Tight buffered 900 um
 - Mechanical strippable Teflon (for plenum applications)
 - EIA/TIA -598 color coding for fiber optic cable
 - Aramid yarn strength member
 - Capable of supporting a short-term tensile load of 400 lb. without stretching.
 - Capable of bend radii as small as 20 x outside cable diameter (under installation load) and 10 x outside cable diameter (long term load)
 - Capable of a minimum crush resistance of 850 lb./in.

- Corning and Berk-Tech fiber are currently recommended for installation. Cable from other manufacturers will be considered. All cable installed must be cleared by MTA prior to installation.

All cable is to be fully supported throughout its entire run.

At no time shall more than 400 pounds of tension be placed on any fiber cable while it is being pulled through tray or conduit. It is preferred that all fiber cable be pulled with hand power only. If power winches or mechanical advantage devices are used to pull cable, a tensionometer must be used to insure that maximum tension is not exceeded. Alternatively, a "mechanical fuse" rated at 350 pounds may be included in the linkage. Torsion shall be avoided by the use of a swivel at the cable end. While under tension, a minimum bend radius of 20 times the outside cable diameter will be maintained through the use of pulleys and sheaves where required. After pulling, no bend may have a radius, at rest, of less than 10 times the outside cable diameter.

Each cable is to be permanently labeled at each end with a unique cable number. In addition, labels shall be affixed to the cable at every transition of a vault, hand hole, riser closet, or major pull box.

Each fiber optic strand shall be labeled with a unique identifier at the ST coupler.

Fiber ends are to be terminated in ST-type connectors. No splices will be permitted. The cable shall be continuous run from LC to server room fiber switch location.

At each end of the cable, sufficient slack (15 - 30') shall be left to facilitate reasonable future relocation of the fiber switch or LC. Slack shall be mounted on walls or upper ladder racks.

Testing: Contractor shall test all long reels with an OTDR for length and transmission anomalies while on the reel prior to installation. It is suggested that each individual fiber in a cable regardless of length be tested with an OTDR for length and transmission anomalies while on the reel before installation.

All multimode fiber strands shall be tested end-to-end for bi-directional attenuation, 850 nm/1300 nm for multimode. Tests should be conducted in compliance with EIA/TIA-526-14 or OFSTP 14, Method B, according to the manufacturer's instructions for the test set being utilized.

Tests must ensure that the measured link loss for each strand does not exceed the "worst case" allowable loss defined as the sum of the connector loss (based on the number of mated connector pairs at the EIA/TIA-568 B maximum allowable loss of 0.75 dB per mated pair) and the optical loss (based on the performance standard above, 2.1.1 and 2.2.1).

After termination, each fiber shall be tested with an ODTR for length, transmission anomalies, and end-to-end attenuation. Results are to be recorded and supplied to MTA in the form of hard-copy printouts or photographs of screen traces.

After termination each terminated fiber is to be tested for end-to-end loss with a power meter/light source. As above, results are to be recorded and supplied to MTA.

5.2.4. The Contractor shall review all end faces of field terminated connectors with a fiber inspection scope following the final polish. Connector end faces with hackles, scratches, cracks, chips and or surface pitting shall be rejected and repolished or replaced if repolishing will not remove the end face surface defects. The recommended minimum viewing magnifications for connector ends are 100X for multimode fiber and 200X for single mode fiber.

655.05 Measurement of Payment

Measurement for the installation of the Fiber Optic cable will be by linear foot to the nearest 10 ft. interval. It shall include the furnishing, installation, routing and termination of the cable per the plan drawings.

655.06 Basis of Payment

The accepted quantity of 6 Strand Multi-modal Fiber Optic Cable will be paid for at the Contract unit price per linear foot for furnishing, installation and routing of the cable.

Payment will be made under:

<u>Item</u>	<u>Pay Unit</u>
655.16 Fiber Optic Cable	Linear Foot

SPECIAL PROVISION

SECTION 655

ELECTRICAL WORK

(Fiber Optic Splice Panel)

The following Section is added:

655.01 Description

This task shall include providing and installing 2 fiber optic splice panels as described herein. Fiber optic splice panels shall be Panduit® FWME2 or an approved equal.

655.05 Measurement of Payment

Measurement for installing the fiber optic splice panel cabinet as shown on the Plans and as described herein will be per each item. It shall include the furnishing, installation, and mounting of the cabinet.

655.06 Basis of Payment

The accepted quantity of Fiber Optic Splice Panels will be paid for at the Contract unit price per each for furnishing, installation and routing of the cable.

Payment will be made under:

<u>Item</u>		<u>Unit</u>
655.165	Fiber Optic Splice Panel	Each

SPECIAL PROVISION

SECTION 655

ELECTRICAL WORK

(Stainless Steel Flush Mounted Junction Box)

The following Section is added:

655.01 Description

This task shall include providing and installing 2 Stainless Steel Flush Mounted Junction Boxas described herein. Stainless Steel Flush Mounted Junction Box shall be 12" x 12" x 6" stainless steel, NEMA 4X.

655.05 Measurement of Payment

Measurement for installing the Stainless Steel Flush Mounted Junction Box as shown on the Plans and as described herein will be per each item. It shall include the furnishing, installation, and mounting of the junction box.

655.06 Basis of Payment

The accepted quantity of Stainless Steel Flush Mounted Junction Box will be paid for at the Contract unit price per each for furnishing, installation and routing of the conduit and wiring.

Payment will be made under:

<u>Item</u>		<u>Unit</u>
655.165	Stainless Steel Flush Mounted Junction Box	Each

SPECIAL PROVISION

SECTION 655

ELECTRICAL WORK

(3 Inch Schedule 80 PVC Conduit)

The following Section is added:

655.01 Description

This task shall include providing and the installation of PVC Conduit as shown on the Plan drawings and described herein. All conduit shall be installed per NEC specification. Connections to specialized fittings are to be compatible with adjoining conduit.

Joints shall be made in accordance with ASTM D 2855. Solvent cement shall meet the requirements of ASTM D 2564 with particular attention to matching the viscosity to the conduit size.

Joint adhesives shall be in accordance with ASTM D2517.

All conduit runs shall be watertight. Slope conduit to drain into junction boxes.

All empty conduits shall have a labeled pull string. Pull strings shall have length markings and should be used for long conduits over 50' or for all underground installations. Clean, plug and seal conduit ends after installation.

655.05 Measurement of Payment

Measurement and payment for installing the PVC Conduit as shown on the Plan drawings and described herein will be per foot. It shall include the furnishing, installing, supporting and connection of the conduit and all misc. hardware necessary for the installation. This price shall include the cost of hand digging, trenching, or plowing; furnishing and installing the conduit; and all labor, equipment and incidentals necessary to complete the work.

655.06 Basis of Payment

Pay Items are as follows:

<u>Item</u>		<u>Unit</u>
655.204	3" Schedule 80 PVC Conduit	Linear Foot

SPECIAL PROVISION

SECTION 655

ELECTRICAL WORK

(2 Inch Rigid Metal Conduit)

The following Section is added:

GALVANIZED RIGID METAL CONDUIT (RMC)

This task shall include providing and the installation of Galvanized RMC as shown on the Plan drawings and described herein. All fittings shall be threaded, or approved compression type (approved by the Resident and compatible with the conduit), so as to be waterproof. All conduit installed shall be grounded per NEC regulations. All supports shall be hot dipped galvanized or stainless steel.

Basis of Payment

Measurement and payment for furnishing and installing the Galvanized RMC as shown on the plan drawings, where necessary, and described herein will be per foot. It shall include the furnishing, installing, supporting and connection of the conduit and misc. hardware, to include couplings, fittings, condulets, hangers and all other material necessary for the installation.

Pay Items are as follows:

<u>Pay Item</u>	<u>Pay Unit</u>
655.42 2" Rigid Metal Conduit	Linear Foot

SPECIAL PROVISION

SECTION 655

ELECTRICAL

(Under Bridge Lighting Fixture)

655.91 Description

This task shall include furnishing, mounting and wiring the under bridge lighting as described in the Plan drawings and described herein. Drawings and general provisions of this Contract, including General Provisions and Special Conditions, apply to work of this Section.

655.92 Materials

Lighting fixtures shall be LSI LED MULTI-PURPOSE LIGHT (XPGP - with bird guard and Polycarb Shield) or approved equal containing a minimum of 68 LEDs with a drive current of 450 mA. Driver housing and light fixture casing shall be watertight. Operating temperatures shall be rated for -40⁰F to +122⁰F or better. Lighting fixtures shall be compatible with a universal voltage supply, 120-277 VAC, 50/60 Hz input. The lighting units shall come with a warranty and have an expected life minimum of 60,000 hours. Lighting fixtures shall be approved by the resident.

Design of the mounting connections to attach the lighting fixtures to the bridge shall be provided by the supplier of the lighting fixtures. The connections must be approved by a licensed engineer in the state of Maine prior to installation. Final locations and mountings to be approved by Resident prior to installation of lighting and associated power conduits.

655.93 Execution

Lighting fixtures shall be installed as per; manufactures recommendations, NEC Standards, plans, and specifications.

The Contractor shall submit a proposed method of attaching all ancillary components to the bridge to the Resident for approval. The proposed attachment method shall not require drilling, welding or other attachment methods that will damage the bridge.

Basis of Payment

The under bridge lighting will be paid for at the Contract unit price per each which shall include all associated hardware and mounting equipment required for a complete operational system. Conduit and wirings shall be paid for under the respective items.

Payment will be made under:

<u>Item</u>		<u>Unit</u>
655.90	Under Bridge Lighting Fixture	Each

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 stabilized. 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 disturbed 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, polyimide 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.

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 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:

<u>Pay Item</u>		<u>Pay Unit</u>
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

SPECIAL PROVISION

SECTION 830

HORIZONTAL DIRECTIONAL DRILLING

(Sleeve and Conduit Installation)

The following Section is added:

830.01 Description

The work specified in this Section consists of installing an underground conduit using Horizontal Directional Drilling (HDD), also commonly referred to as guided horizontal boring. This work shall include all services, equipment, miscellaneous materials, and labor for the complete and proper installation of the underground conduit. Ledge may be encountered during the HDD process.

HDD is required within the limits of the Project where the electrical and communications PVC conduit traverses the active turnpike mainline at Station 4051+30 and 4062+30 as shown on the Plans. There shall be four three-inch Schedule 80 PVC conduits inside a 12 inch Schedule 80 PVC sleeve.

830.02 References

The following publications and/or standards may be referenced in this Specification:

DCCA Directional Crossing Contractors Association Guidelines for a
Successful Directional Crossing Bid Package.

830.03 Quality Assurance

Adherence to the Specifications contained herein, or the Resident's approval of any aspect of any directional drilling operation covered by this Specification, shall in no way relieve the Contractor of their ultimate responsibility for the satisfactory completion of the work authorized under the Contract.

830.04 Submittals

The Contractor shall submit to the Resident a Directional Drilling Submittal Package for review, comment, and approval prior to the commencement of work. At a minimum, the following components shall be submitted as part of the Submittal Package:

Work Plan: The Contractor shall submit to the Resident a general work plan outlining the procedure to be used to execute the Project. The work plan should document the staging area requirements; the location and description of pits, if needed; the proposed alignment of the boring; the method used to create the bore hole; and the method used to pull the conduit through the hole. Drilling alignment shall include lines and grades, entry and exit points, and drilling angles. The proposed entry and exit angles shall be checked against the bending radius of the

conduit, and the longitudinal pulling force shall be checked against the allowable strength of the conduit during pullback. The work plan shall also include a general construction schedule and sequence in order to coordinate this activity with the overall Project. Work which may require a shoulder closure or lane closure should be noted.

Equipment: The Contractor shall submit specifications on directional drilling equipment to ensure that the equipment will be adequate to complete the Project. Equipment used to locate and monitor the position of the drilling head shall also be provided in this submittal. Spares inventory shall be included.

Material: Include the slurry material description and material data safety sheets, and any miscellaneous materials needed to perform the work. An estimate of the volume of the slurry to be used and the location of the disposal facility shall be provided.

Personnel: Documentation of training and relevant experience of personnel shall be submitted. Indicate the number of years and/or projects that each individual has completed.

Environmental Controls: The Contractor shall indicate the environmental control devices that will be employed to ensure that no slurry or hydraulic fluids enter the drainage ditches on either side of the turnpike mainline or the interchange roadways. The manner by which slurry will be introduced and captured for proper disposal shall be outlined.

Warranty: A five-year warranty shall be provided on the work.

830.05 Drilling Equipment

The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore and pullback the conduit; a drilling fluid mixing & delivery system of sufficient capacity to successfully complete the crossing; a guidance system to accurately guide boring operations; and trained and competent personnel to operate the system. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this Project.

Drilling Rig: The directional drilling machine shall consist of a hydraulically powered system to rotate, push, and pull conduit into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The machine shall be anchored or secured to the ground to withstand the pulling, pushing and rotating pressure required to complete the crossing. The hydraulic power system shall be self-contained with sufficient pressure and volume to power drilling operations. Hydraulic system shall be free of leaks. Rig shall have a system to monitor and record maximum pull-back pressure during pull-back operations.

Drill Head: The drill head shall be steerable by changing its rotation and shall provide the necessary cutting surfaces and drilling fluid jets. The drill bit shall be equipped with a signal generator providing constant output for continuous path monitoring.

Mud Motors (if required): Mud motors shall be of adequate power to turn the required drilling tools.

Drill Pipe: Drill pipe shall be constructed of high quality tubing with threaded box and pins.

830.06 Guidance System

The guidance system shall be of a proven type and shall be setup and operated by personnel trained and experienced with this system. The Operator shall be aware of any magnetic anomalies and shall consider such influences in the operation of the guidance system if using a magnetic system.

830.07 Drilling Slurry

Mixing System: A self-contained, closed, drilling fluid mixing system shall be of sufficient size to mix and deliver drilling fluid composed of bentonite clay, potable water and appropriate additives. Mixing system shall be able to molecularly shear individual bentonite particles from the dry powder to avoid clumping and ensure thorough mixing. The drilling fluid reservoir tank shall be sized for adequate storage of the mud. Mixing system shall continually agitate the drilling fluid during drilling operations.

Drilling Fluids: Contractor shall supply and/or arrange for connection to supply water for mixing drilling fluid. Drilling fluid shall be composed of clean water and an appropriate additive. Water shall be from a clean source with a pH of 8.5 – 10 and/or as per mixing requirements of the Manufacturer. Water of a lower pH or with excessive calcium shall be treated with the appropriate amount of sodium carbonate or equal. The water and additives shall be mixed thoroughly and be absent of any clumps or clods. A bentonite based drilling slurry shall be utilized which may include polymer extenders. The slurry shall be a mixture that will harden into a stable clay substance around the outside of the conduit, leaving no voids and allowing no settlement of ground after installation. No hazardous additives may be used. Drilling fluid shall be maintained at a viscosity sufficient to suspend cuttings and maintain the integrity of bore wall. The slurry shall be recycled to minimize material and water requirements.

Delivery System: The mud pumping system shall have a minimum capacity to supply mud in accordance with the drilling equipment pull-back rating at a constant required pressure. The delivery system shall have filters in-line to prevent solids from being pumped into the drill pipe. Connections between the pump and drill pipe shall be relatively leak-free. Used drilling fluid and drilling fluid spilled during drilling operations shall be contained and properly disposed of. A berm, minimum of 12" high, shall be maintained around drill rigs, drilling fluid mixing system, entry and exit pits and drilling fluid recycling system (if used) to prevent spills into the surrounding environment. Pumps and or vacuum truck(s) of sufficient size shall be in place to convey excess drilling fluid from containment areas to storage facilities.

830.08 Commencement of Work

The Submittal Package shall be approved by the Resident prior to starting work. The Resident must be notified seven (7) days in advance of starting work. All personnel shall be fully trained in their respective duties as part of the directional drilling crew and in safety.

Prior to any alterations to work-site, Contractor shall photograph or video tape entire work area, including entry and exit points. The Contractor shall also survey the cross-section of

the roadway for a distance of 20 feet to each side of the proposed drilling operation. Obtain grade elevations across the roadway no less than 10 in number, which shall be taken at the edge of pavements and at accessible lane lines. One (1) copy of the elevations shall be given to the Resident and one (1) copy shall remain with the Contractor for a period of one year following the completion of the Project.

Work site as indicated on the drawings, within the right-of-way, shall be graded or filled to provide a level working area. No alterations beyond what is required for operations are to be made. Contractor shall confine all activities to designated work areas. No construction equipment shall be located within the 10 feet of the edge of pavement without approval from the Resident.

Entire drill path shall be accurately surveyed with entry and exit stakes placed in the appropriate locations within the areas indicated on drawings. If Contractor is using a magnetic guidance system, drill path will be surveyed for any surface geo-magnetic variations or anomalies.

Contractor shall place silt fence between all drilling operations and any drainage, wetland, waterway or other area designated for such protection by Contract Documents, State, Federal and local regulations. Hydraulic fluid and slurry is not permitted to enter any drainage ditch or water feature on-site. Additional environmental protection necessary to contain any hydraulic or drilling slurry shall be put in place, including berms, liners, sump pumps, turbidity curtains, and other measures. Contractor shall adhere to all applicable environmental regulations. Fuel or oil may not be stored in bulk containers within 200 feet of any water-body or wetland.

Contractor shall adhere to all applicable State, Federal and local safety regulations and all operations shall be conducted in a safe manner. Safety meetings shall be conducted at least weekly with a written record of attendance and topic submitted to Resident.

830.09 Drilling Procedure

The drilling alignment shall conform to the lines and grades indicated on the Drawings or as directed by the Resident. Ground entry and exit points shall be as shown on the Drawings or as approved, and angles shall not deviate by more than two degrees. Entry and exit points shall be within five feet of their intended locations. The alignment of the conduit shall remain at least 10 feet below the mainline traffic lanes and ramps at all times, and the depth of the bore head shall be monitored every 12 feet to 20 feet as dictated by traffic control. No monitoring shall be allowed in an active traffic lane. Directional bore depths less than 10 feet in areas of bedrock may be allowed but shall be approved by the Resident prior to drilling.

Pilot hole shall be drilled on bore path with no deviations greater than five percent of desired depth over a length of 100 feet. In the event that pilot does deviate from bore path more than five percent of depth in 100 feet, Contractor will notify Resident and Resident may require Contractor to pullback and re-drill from the location along bore path before the deviation.

In the event that a drilling fluid fracture, inadvertent returns, or returns loss occurs during pilot hole drilling operations, Contractor shall cease drilling, wait at least 30 minutes, inject a quantity of drilling fluid with a viscosity exceeding 120 seconds as measured by a Marsh Funnel

and then wait another 30 minutes. If mud fracture or returns loss continues, Contractor will cease operations and notify Resident. Resident and Contractor will discuss additional options and work will then proceed accordingly.

Upon successful completion of the pilot hole, Contractor will ream bore hole to no greater than 25 percent of the outside diameter of the conduit using the appropriate tools. Contractor will not attempt to ream at one time more than the drilling equipment and mud system are designed to safely handle.

After successfully reaming bore hole to the required diameter, Contractor will pull the PVC conduit through the bore hole. In front of the conduit will be a swivel. Once pullback operations have commenced, operations must continue without interruption until conduit is completely pulled into borehole. During pullback operations, Contractor will not apply more than the maximum safe conduit pull pressure at any time. The Contractor shall not exceed the allowable bending radius of the conduit as specified by the conduit manufacturer.

In the event that conduit becomes stuck, Contractor will cease pulling operations to allow any potential hydro-lock to subside and will commence pulling operations. If conduit remains stuck, Contractor will notify Resident. Resident and Contractor will discuss options and then work will proceed accordingly.

In the event that the Contractor must abandon the drill hole before completion of the crossing, the Contractor will seal the hole and re-drill the crossing at no extra cost to the Authority.

830.10 Site Restoration

Following drilling operations, Contractor will demobilize equipment and restore the work site to original condition. All excavations will be backfilled and compacted to 95 percent of original density. Landscaping will be restored to original condition. All mud, cuttings, and slurry shall be properly contained, collected, and disposed of by the Contractor.

830.11 Record Keeping and Close Out

As-Builts: Contractor shall maintain a daily project log of drilling operations and a guidance system log with a copy given to Resident at completion of the Project. A final survey of elevations shall be completed by the Contractor of the mainline and ramp cross-section which shall accompany the as-built drawings.

Owner shall have access at all times to any measuring or gauging devices used for the horizontal drilling operation, as well as any drilling logs maintained by the Contractor.

830.12 Method of Measurement

Directional drilling will be measured by the horizontal linear foot.

830.13 Basis of Payment

The accepted quantity of Horizontal Directional Drilling will be paid for at the Contract unit price per horizontal linear foot. No adjustment will be made for vertical depth or parabolic draping of the drilled hole or for encountering ledge. Payment shall be full compensation for labor, equipment and materials to complete the surveying, excavations, pits, drilling, environmental controls, installation of conduit, and site restoration. Payment shall also include full compensation for disposing of unsuitable and surplus soils, slurry, and materials. PVC conduit will not be paid for under Horizontal Directional Drilling, but rather will be paid for under the corresponding Electrical pay item.

Payment will be made under:

<u>Item</u>		<u>Pay Unit</u>
830.25	Horizontal Directional Drilling, 3 inch PVC Conduit Installation	Linear Foot

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART III – APPENDICES

APPENDIX A

PERMITS



REPLY TO ATTENTION OF

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

MAINE GENERAL PERMIT (GP)
AUTHORIZATION LETTER AND SCREENING SUMMARY

SARA DEVLIN
MAINE TURNPIKE AUTHORITY
2360 CONGRESS STREET
PORTLAND, MAINE 04102

CORPS PERMIT # NAE-2011-02505
CORPS PGP ID#
STATE ID# PBR/L-25701-L6-A-N

DESCRIPTION OF WORK:

Place permanent and temporary fill below the ordinary high water line of multiple unnamed streams and in adjacent freshwater wetlands at Lewiston, Maine in order to reconfigure the existing Exit 80 interchange. The project will result in approximately 27,175 s.f. of permanent wetland impact; 8,653 s.f. of temporary wetland impact, 65 s.f. of temporary stream bed impact, and 1,612 s.f. of permanent stream bed impact (403 linear feet of stream bed). This work is shown on the attached plans entitled "LEWISTON (EXIT 80) INTERCHANGE IMPROVEMENTS" in ten sheets dated "JANUARY, 2012".

LAT/LONG COORDINATES : 44.0738640° N -70.1841602° W USGS QUAD: LEWISTON, ME

I. CORPS DETERMINATION:

Based on our review of the information you provided, we have determined that your project will have only minimal individual and cumulative impacts on waters and wetlands of the United States. Your work is therefore authorized by the U.S. Army Corps of Engineers under the enclosed Federal Permit, the Maine General Permit (GP). Accordingly, we do not plan to take any further action on this project.

You must perform the activity authorized herein in compliance with all the terms and conditions of the GP [including any attached Additional Conditions and any conditions placed on the State 401 Water Quality Certification including any required mitigation]. Please review the enclosed GP carefully, including the GP conditions beginning on page 5, to familiarize yourself with its contents. You are responsible for complying with all of the GP requirements; therefore you should be certain that whoever does the work fully understands all of the conditions. You may wish to discuss the conditions of this authorization with your contractor to ensure the contractor can accomplish the work in a manner that conforms to all requirements.

If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

Condition 41 of the GP (page 18) provides one year for completion of work that has commenced or is under contract to commence prior to the expiration of the GP on October 12, 2015. You will need to apply for reauthorization for any work within Corps jurisdiction that is not completed by October 12, 2016.

This authorization presumes the work shown on your plans noted above is in waters of the U.S. Should you desire to appeal our jurisdiction, please submit a request for an approved jurisdictional determination in writing to the undersigned.

No work may be started unless and until all other required local, State and Federal licenses and permits have been obtained. This includes but is not limited to a Flood Hazard Development Permit issued by the town if necessary.

II. STATE ACTIONS: PENDING [X], ISSUED[], DENIED [] DATE: _____

APPLICATION TYPE: PBR: ____, TIER 1: ____, TIER 2: ____, TIER 3: X LURC: ____ DMR LEASE: ____ NA: ____

III. FEDERAL ACTIONS:

JOINT PROCESSING MEETING: 9/12/13 LEVEL OF REVIEW: CATEGORY 1: ____ CATEGORY 2: X

AUTHORITY (Based on a review of plans and/or State/Federal applications): SEC 10 ____, 404 X 10/404 ____, 103 ____

EXCLUSIONS: The exclusionary criteria identified in the general permit do not apply to this project.

FEDERAL RESOURCE AGENCY OBJECTIONS: EPA_NO ____, USF&WS_NO ____, NMFS_NO ____

If you have any questions on this matter, please contact my staff at 207-623-8367 at our Manchester, Maine Project Office. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://per2.nwp.usace.army.mil/survey.html

Jay L. Clement
JAY L. CLEMENT
SENIOR PROJECT MANAGER
MAINE PROJECT OFFICE

FRANK J. DEL GIUDICE
CHIEF, PERMITS & ENFORCEMENT BRANCH
REGULATORY DIVISION
DATE 10/31/2013



US Army Corps
of Engineers
New England District

Project Description Continued from Page 1

To address state requirements for compensatory mitigation, approximately 115 linear feet of stream bed and 230 s.f. of wetland will be re-established at the former Exit 80 Northbound Ramp; 200 linear feet of stream bed with an associated 2,000 s.f. of adjacent riparian habitat will be re-established at a former turnpike service plaza off-ramp; and 100,000 s.f. of upland habitat will be re-established at the former turnpike service plaza all as detailed in the attachment and plans entitled "ATTACHMENT 4, Stream Compensation Plan" dated "9/13". Finally, a payment to the Natural Resources Mitigation Fund shall be made as conditioned below.

PLEASE NOTE THE FOLLOWING CONDITIONS FOR
DEPARTMENT OF THE ARMY
GENERAL PERMIT
NO. NAE-2011-02505

1. This authorization requires you to 1) notify us before beginning work so we may inspect the project, and 2) submit a Compliance Certification Form. You must complete and return the enclosed Work Start Notification Form(s) to this office at least two weeks before the anticipated starting date. You must complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work and any required mitigation (but not mitigation monitoring, which requires separate submittals).
2. The permittee shall assure that a copy of this permit is at the work site whenever work is being performed and that all personnel performing work at the site of the work authorized by this permit are fully aware of the terms and conditions of the permit. This permit, including its drawings and any appendices and other attachments, shall be made a part of any and all contracts and sub-contracts for work which affects areas of Corps of Engineers' jurisdiction at the site of the work authorized by this permit. This shall be done by including the entire permit in the specifications for the work. If the permit is issued after construction specifications but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. The term "entire permit" includes permit amendments. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions of the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps of Engineers jurisdiction.
3. Adequate sedimentation and erosion control devices, such as geotextile silt fences or other devices capable of filtering the fines involved, shall be installed and properly maintained to minimize impacts during construction. These devices must be removed upon completion of work and stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to a waterway or wetland.
4. All exposed soils resulting from the construction will be promptly seeded and mulched in order to achieve vegetative stabilization.
5. All areas of temporary waterway or wetland fill will be restored to their original contour and character upon completion of the project.
6. Instream work shall be conducted between April 1 and October 1 in order to minimize potential impacts to fisheries and local water quality.
7. The permittee must still obtain any other Federal, State, or local permits as required by law before beginning work. This includes but is not limited to a Flood Hazard Development Permit issued by the town if necessary.
8. Mitigation shall consist of payment of \$95,836.74 to the Natural Resource Mitigation Fund. The completed ILF Project Data Worksheet which is attached must be mailed with a cashier's check or bank draft, made out to "Treasurer, State of Maine", with the permit number noted on the check. The check and worksheet should be mailed to: ME DEP, Attn: ILF Program Administrator, State House Station 17, Augusta, ME 04333. No project construction may begin until the permittee provides the Corps with a copy of the check, with the permit number noted on the check. The ILF amount is only valid for a period of one year from the date on the authorization letter. After that time, the project would need to be reevaluated and a new amount determined.

**IN-LIEU-FEE (ILF) PROJECT DATA
WORKSHEET**

DEP Invoice # _____

[Note: Will be filled in by ILF Administrator at DEP]

Project name: Exit 80 Interchange Improvements

Applicant (s): Maine Turnpike Authority

DEP Permit #: L-25701-L6-A-N

Corps Permit #: NAE-2011-02505

ILF Contribution Amount \$95,836.74

[Note: Please attach a copy of the check]

Project address: Exit 80 Interchange; Lewiston, Maine

Biophysical region: Central Interior and Mid-Coast Subsection

Size of total impact subject to compensation: 27,175 s.f.

Resources Impacted: Refer to attached table

DEP Project manager: Callahan

Corps Project manager: Clement

Corps ILF Processing Procedure:

Within 3 days of final permit approval the Corps project manager **MUST** send via e-mail to the ILF Administrator at DEP with the following attachments:

1. A Microsoft word version of this completed ILF project worksheet including the resource impact table. Please make sure that you double check the information to make sure that the worksheet is accurate and reflects the actual impacts that are stated in the permit and the correct biophysical region.

[Note: The DEP Invoice # section of the worksheet should be left blank and will be filled in by the ILF Program Administrator.]

2. A copy of a location map for the project site. The map **MUST** be made in GIS and saved as a pdf and **MUST** include a call out box to physically locate the project site and enough reference information so that project site can be geo-located on the MNRCP GIS data layer.
3. A pdf copy of the Corps permit for the project.

Corps permittees **MUST** be instructed to send all required ILF payments to the attention of the ILF Administrator Maine Department of Environmental Protection, State House Station 17, Augusta, Maine 04333. All checks must have the ILF program routing # 014.06A.1776.14 on the memo line.

Resource(s) Impacted:

Resource Type: (Wetlands by NWI Type (PFO, PSS, M1, M2, E1, E2, etc), significant vernal pool (SVP), shorebird feeding & staging habitat (Shorebird), inland waterfowl & wading bird habitat (IWWH), tidal waterfowl & wading habitat (TWWH), and river, stream, or brook (RSB).

Wetland Functions & Values: Groundwater recharge/discharge (GWR); floodflow alterations (FF); fish & shellfish habitat (FSH); sediment toxicant retention (STR); nutrient removal (NR); production export (PE); sediment/shoreline stabilization (SS); wildlife habitat (WH); recreation (R); education/scientific value (ESV); uniqueness/heritage (UH); and visual quality/aesthetics (VQ).

Types of impacts: may include filling, dredging, vegetation conversion (e.g. forested to shrub/scrub), others.

Resource type (list all that apply)	Functions (for wetland impacts) (list all that apply, by resource type)	Type of Impact (by resource type)	Sq Feet Impacted (by resource type)
PEM	SS, PE, GWD, STR, NR, WH	Filling	3,585
PFO	SS, PE, GWD, STR, NR, WH	Filling	23,590
		Total square feet impacted	27,175 s.f.



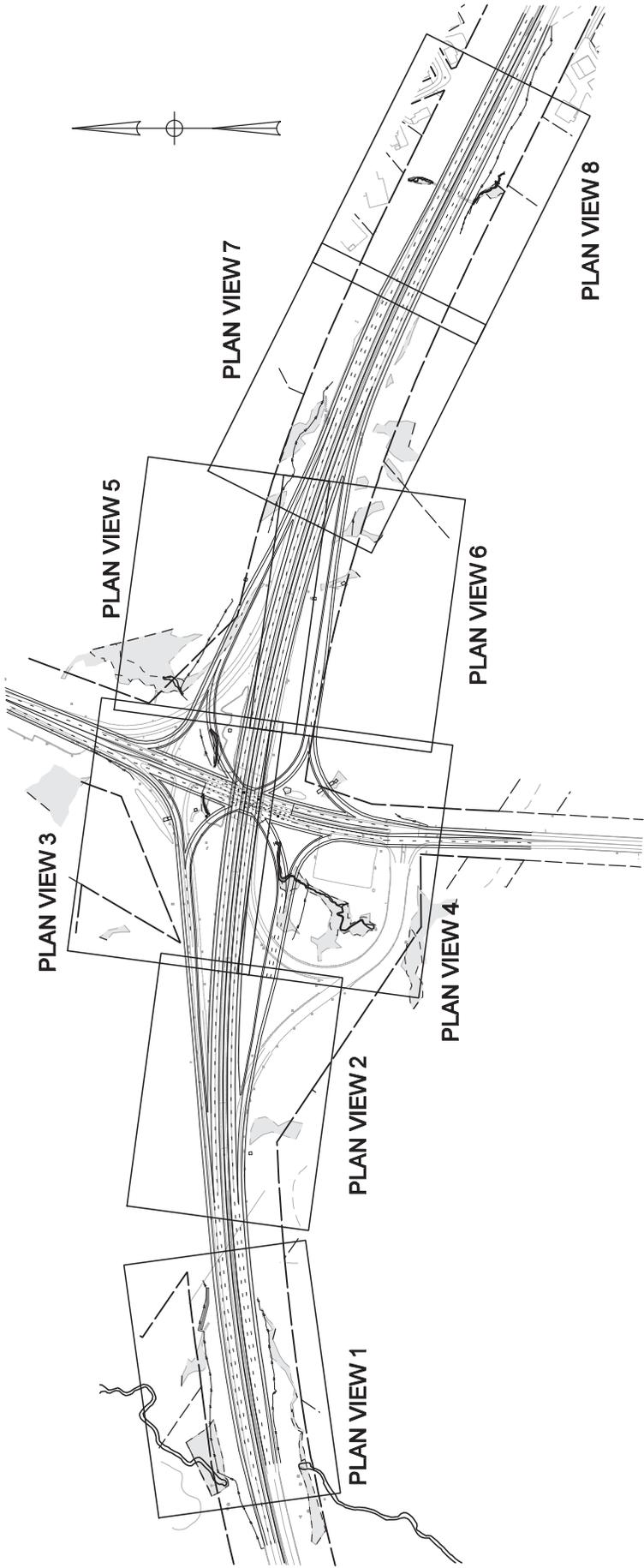
Replacement Park and Ride

Project Location

USGS Locus - Lewiston Quad
Lewiston Interchange Reconfiguration
Lewiston, Maine

 THE GOLD STAR
MEMORIAL HIGHWAY





Plan Legend

- ◇ Temporary stone check dam
- ▨ Wetland
- ▨ Temporary wetland impact
- ▨ Permanent wetland impact
- ▨ Stream impact
- Limit of field delineated wetland (wetland continues)
- Limit of field delineated wetland of special significance (WSS)
- ROW line
- S/F Silt fence
- S/F Silt fence
- CLL Clearing limit

Symbols Key

- ▾ Groundwater Recharge/ Discharge
- ▾ Floodflow Alteration (Storage & Desynchronization)
- ▾ Fish and Shellfish Habitat
- ▾ Sediment/Toxicant Retention
- ▾ Nutrient Removal/Retention/Transformation
- ▾ Production Export

Principal Valuable Function

- ▾ Sediment/Shoreline Stabilization
- ▾ Wildlife Habitat
- ▾ Recreation Consumptive & Non-consumptive
- ▾ Educational Scientific Value
- ▾ Uniqueness/Heritage
- ▾ Visual Quality/Aesthetics
- ES Endangered Species

Wetland I.D.	Total Acres	Impacted Acres
▾	-	-
▾	-	-
▾	-	-
▾	-	-



HNTB
ARCHITECTS ENGINEERS PLANNERS

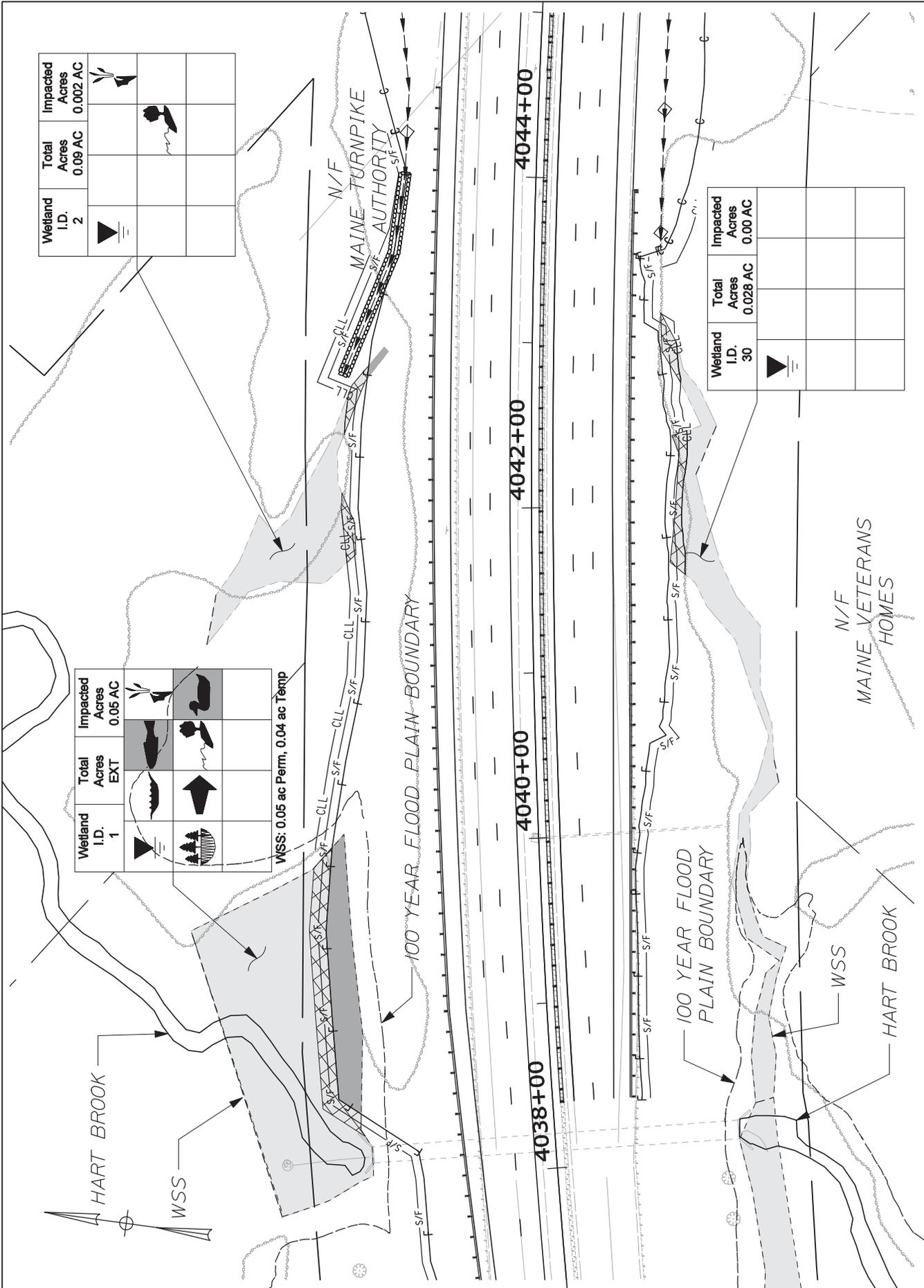
THE GOLD STAR MEMORIAL HIGHWAY

LEWISTON (EXIT 80) INTERCHANGE IMPROVEMENTS

WETLAND IMPACTS INDEX PLAN

DATE: JANUARY, 2012

SHEET 1 OF 9

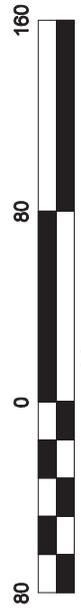


Wetland I.D.	Total Acres	Impacted Acres
2	0.09 AC	0.002 AC

Wetland I.D.	Total Acres EXT	Impacted Acres
1	0.05 AC	0.05 AC

WSS: 0.05 ac Perm, 0.04 ac Temp

Wetland I.D.	Total Acres	Impacted Acres
30	0.028 AC	0.00 AC



HNTB
ARCHITECTS ENGINEERS PLANNERS

THE GOLD STAR MEMORIAL HIGHWAY

LEWISTON (EXIT 80) INTERCHANGE IMPROVEMENTS

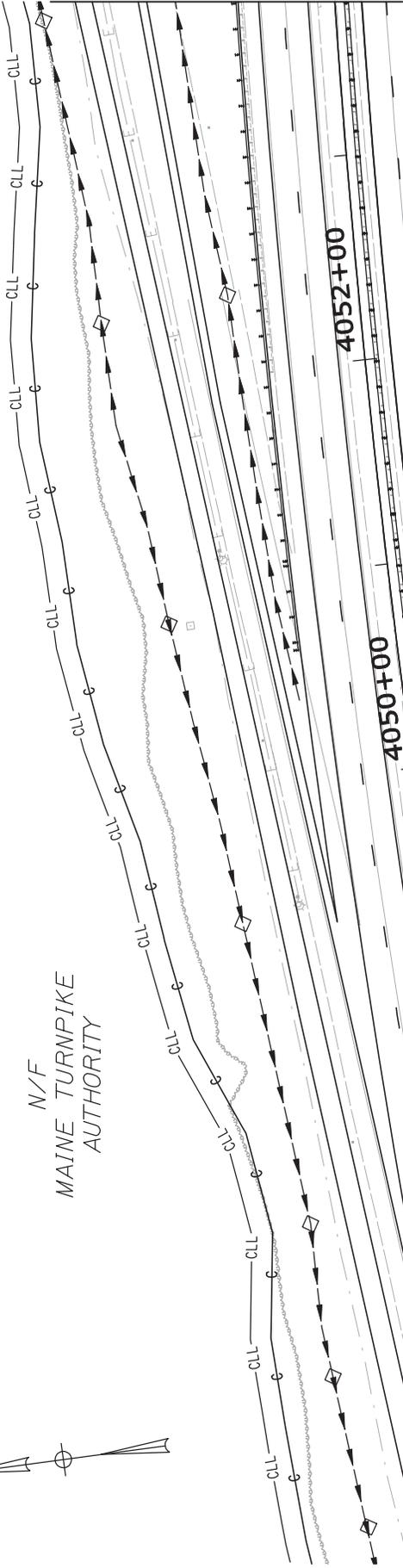
WETLAND IMPACTS PLAN VIEW 1

DATE: JANUARY, 2012

SHEET 2 OF 9



N/F
MAINE TURNPIKE
AUTHORITY



MATCH LINE - SEE PLAN VIEW 3

MATCH LINE - SEE PLAN VIEW 4

Wetland I.D.	Total Acres	Impacted Acres
29	0.15 AC	0.01 AC

N/F
MAINE TURNPIKE
AUTHORITY



SCALE: 1"=80'



THE GOLD STAR
MEMORIAL HIGHWAY

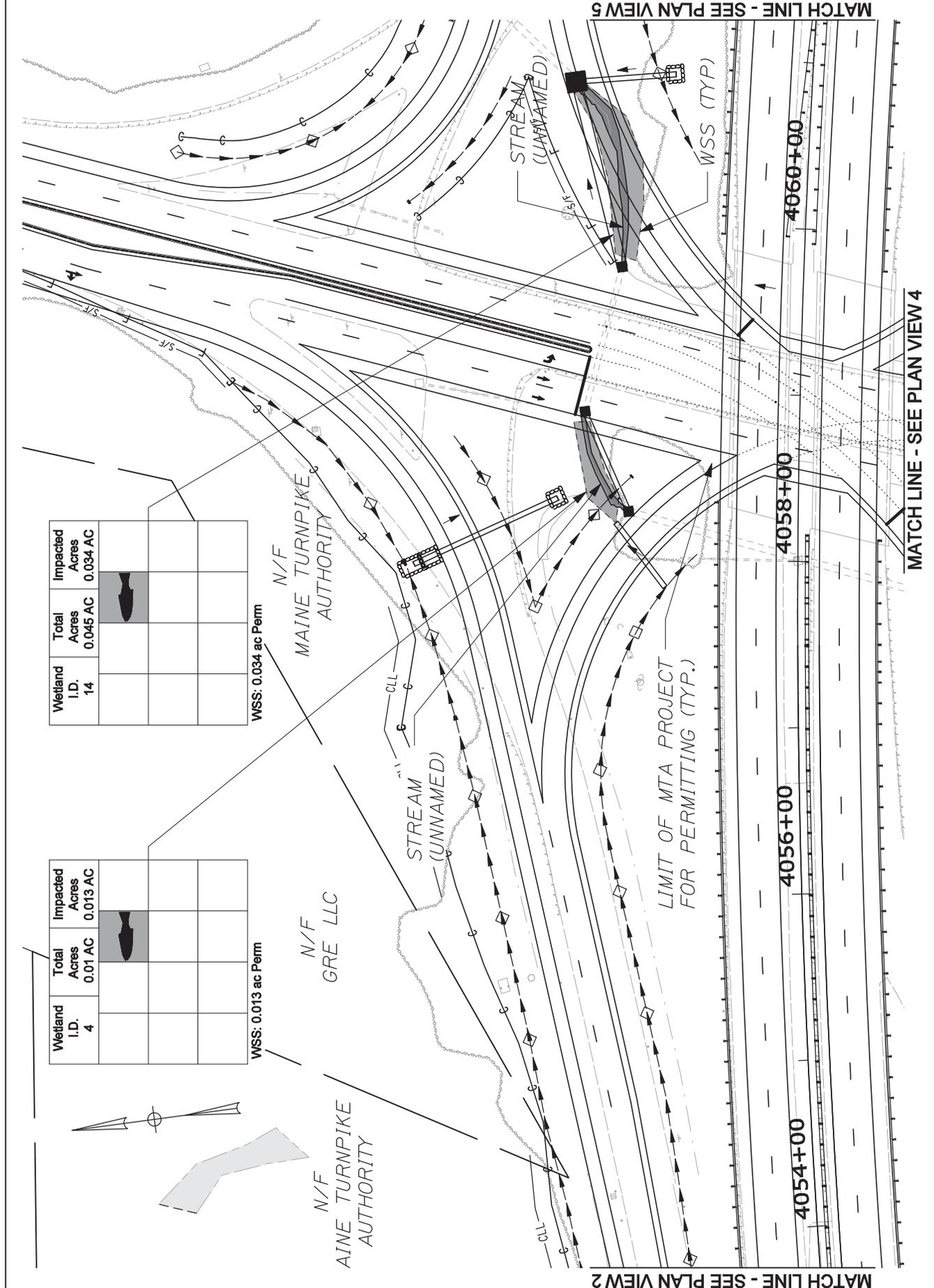
HNTB
ARCHITECTS ENGINEERS PLANNERS

LEWISTON (EXIT 80) INTERCHANGE IMPROVEMENTS

WETLAND IMPACTS PLAN VIEW 2

DATE: JANUARY, 2012

SHEET 3 OF 9



Wetland I.D.	Total Acres	Impacted Acres
14	0.045 AC	0.034 AC

WSS: 0.034 ac Perm

Wetland I.D.	Total Acres	Impacted Acres
4	0.01 AC	0.013 AC

WSS: 0.013 ac Perm

WETLAND IMPACTS
PLAN VIEW 3

LEWISTON (EXIT 80)
INTERCHANGE
IMPROVEMENTS

SCALE: 1"=80'

HNTB
ARCHITECTS ENGINEERS PLANNERS

THE GOLD STAR
MEMORIAL HIGHWAY

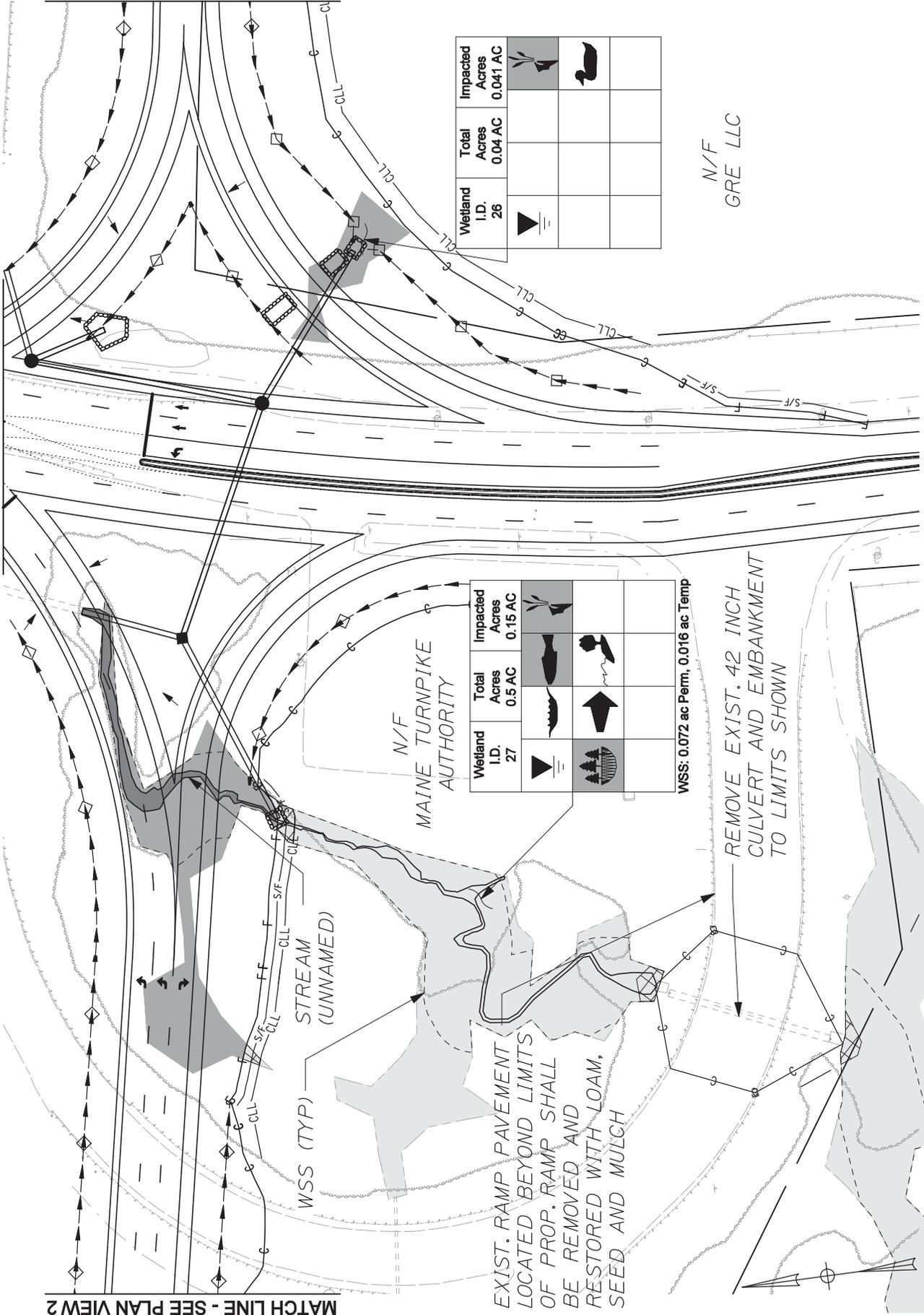
DATE: JANUARY, 2012

SHEET 4 OF 9

MATCH LINE - SEE PLAN VIEW 3

MATCH LINE - SEE PLAN VIEW 2

MATCH LINE - SEE PLAN VIEW 6



Wetland I.D.	26	Total Acres	0.04 AC	Impacted Acres	0.041 AC

N/F
GRE LLC

Wetland I.D.	27	Total Acres	0.5 AC	Impacted Acres	0.15 AC

WSS: 0.072 ac Perm, 0.016 ac Temp

REMOVE EXIST. 42 INCH
CULVERT AND EMBANKMENT
TO LIMITS SHOWN

EXIST. RAMP PAVEMENT
LOCATED BEYOND LIMITS
OF PROP. RAMP SHALL
BE REMOVED AND
RESTORED WITH LOAM,
SEED AND MULCH



SCALE: 1"=80'



THE GOLD STAR
MEMORIAL HIGHWAY

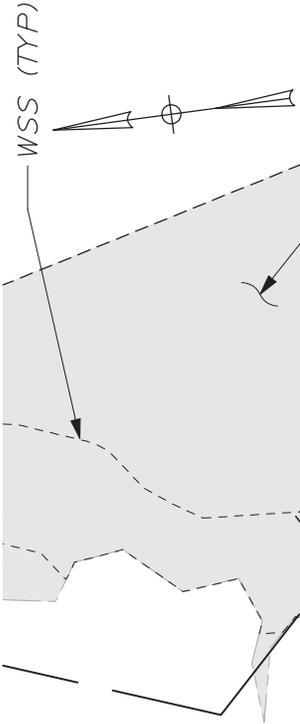
HNTB
ARCHITECTS ENGINEERS PLANNERS

WETLAND IMPACTS
PLAN VIEW 4

LEWISTON (EXIT 80)
INTERCHANGE
IMPROVEMENTS

DATE: JANUARY, 2012

SHEET 5 OF 9

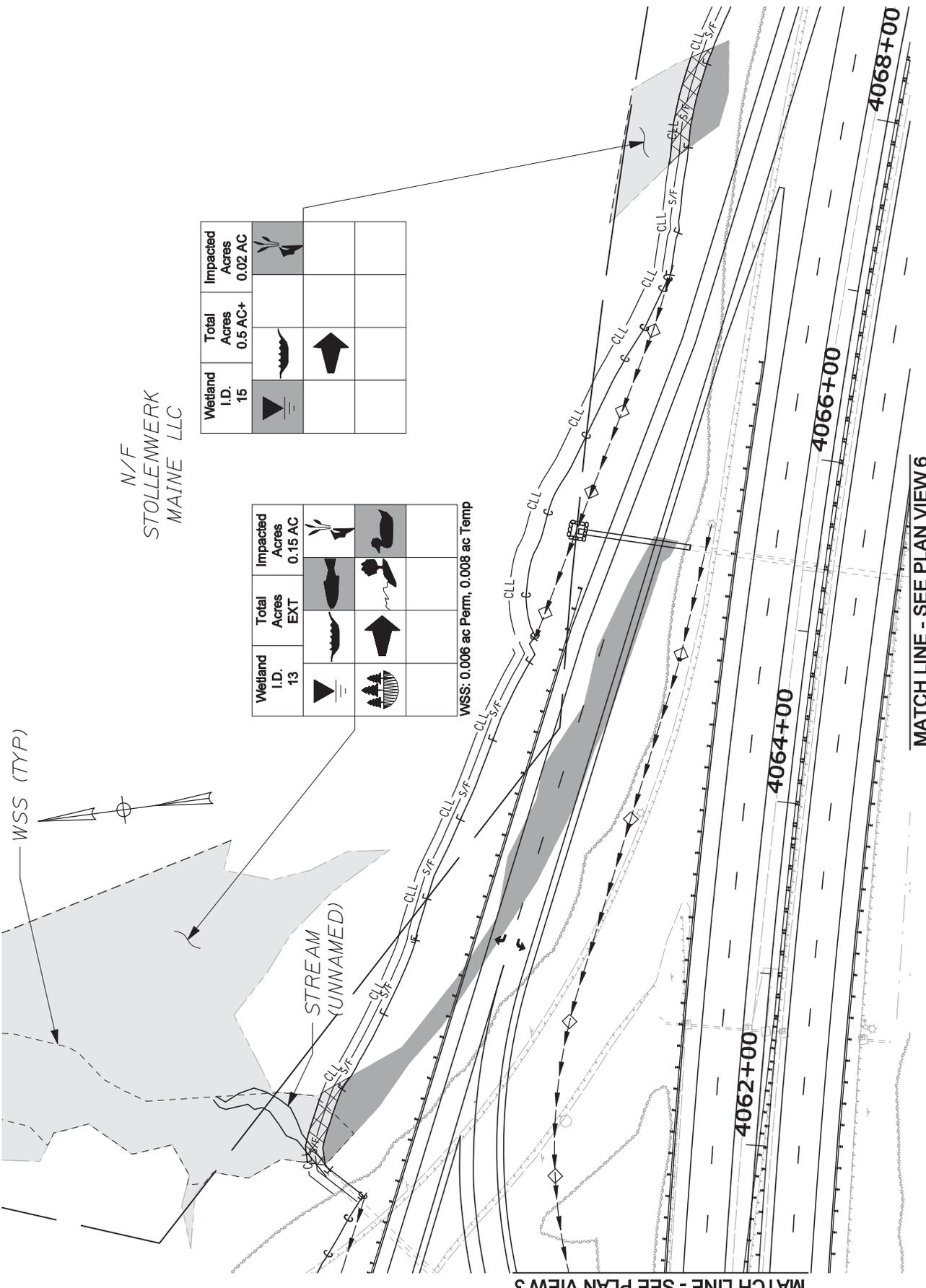


N/F
STOLLENWERK
MAINE LLC

Wetland I.D. 15		Total Acres 0.5 AC+		Impacted Acres 0.02 AC	

Wetland I.D. 13		Total Acres EXT		Impacted Acres 0.15 AC	

WSS: 0.006 ac Perm, 0.008 ac Temp



SCALE: 1"=80'



THE GOLD STAR
MEMORIAL HIGHWAY

HNTB
ARCHITECTS ENGINEERS PLANNERS

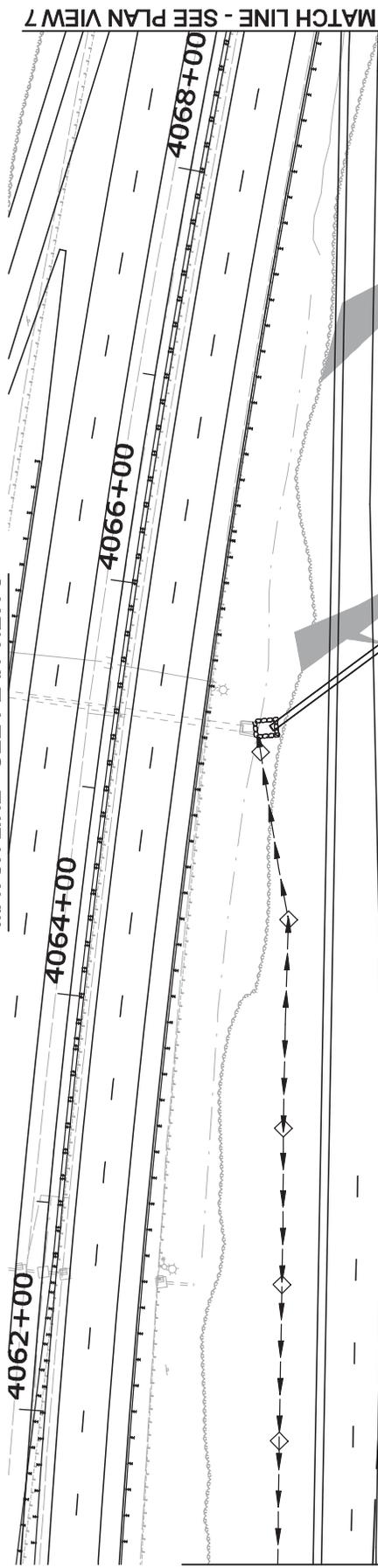
WETLAND IMPACTS
PLAN VIEW 5

LEWISTON (EXIT 80)
INTERCHANGE
IMPROVEMENTS

DATE: JANUARY, 2012

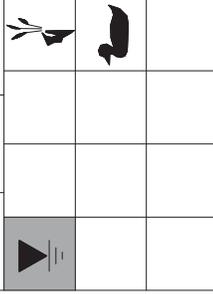
SHEET 6 OF 9

MATCH LINE - SEE PLAN VIEW 5

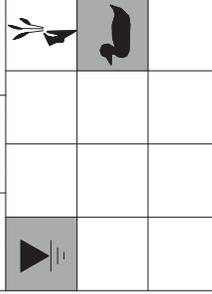


MATCH LINE - SEE PLAN VIEW 4

Wetland I.D.	Total Acres	Impacted Acres
25	0.43 AC	0.04 AC



Wetland I.D.	Total Acres	Impacted Acres
24	0.14 AC	0.03 AC



N/F
GRE LLC



SCALE: 1"=80'



THE GOLD STAR
MEMORIAL HIGHWAY



ARCHITECTS ENGINEERS PLANNERS

WETLAND IMPACTS
PLAN VIEW 6

LEWISTON (EXIT 80)
INTERCHANGE
IMPROVEMENTS

DATE: JANUARY, 2012

SHEET 7 OF 9

Wetland I.D.	16				
Total Acres	1 AC+				
Impacted Acres	0.04 AC				

Wetland I.D.	23				
Total Acres	0.25 AC				
Impacted Acres	0.009 AC				

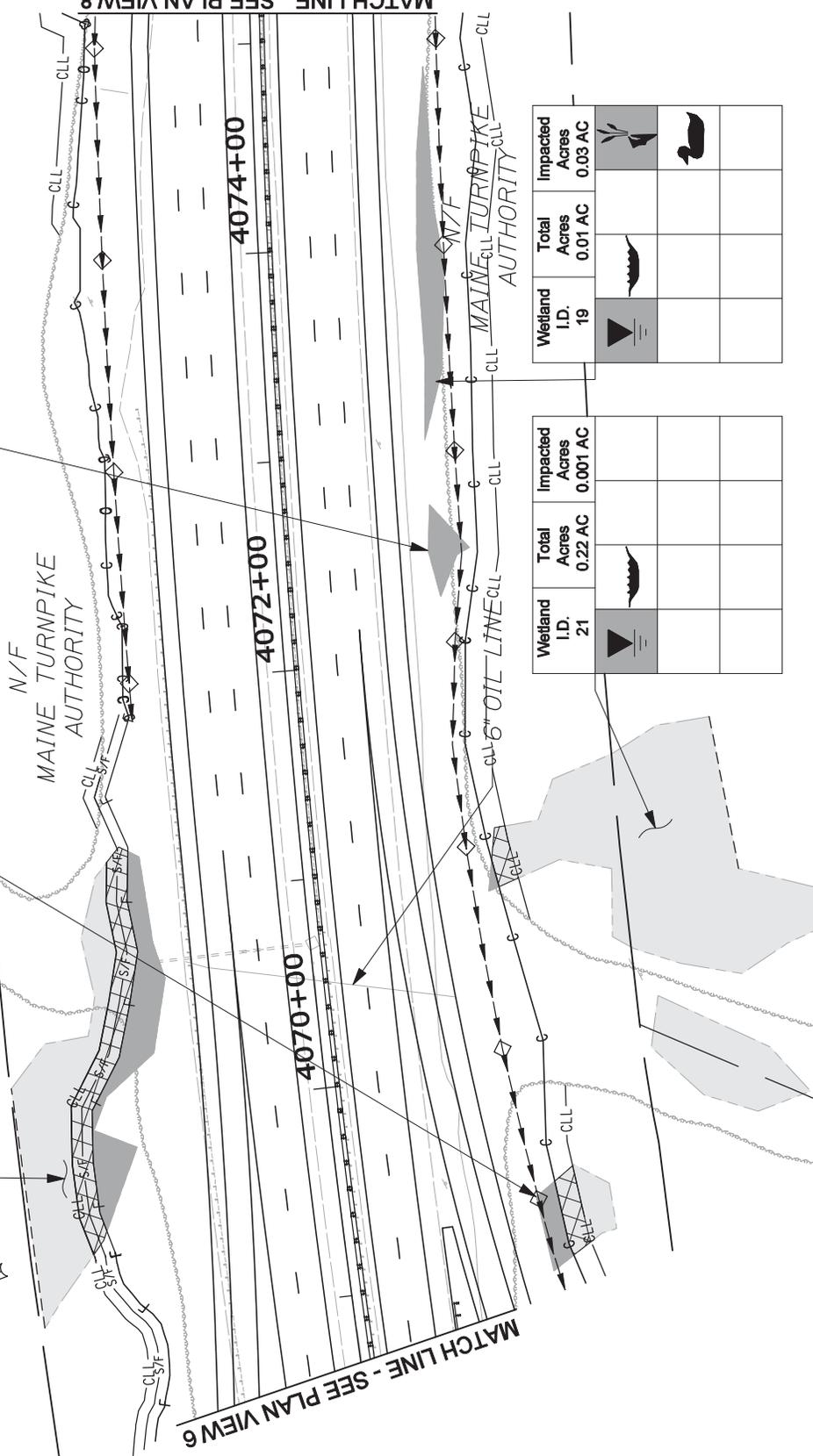
Wetland I.D.	20				
Total Acres	0.009 AC				
Impacted Acres	0.009 AC				

N/F
STOLLENWERK
MAINE LLC

N/F
MAINE TURNPIKE
AUTHORITY

MATCH LINE - SEE PLAN VIEW 6

MATCH LINE - SEE PLAN VIEW 8



Wetland I.D.	21				
Total Acres	0.22 AC				
Impacted Acres	0.001 AC				

Wetland I.D.	19				
Total Acres	0.01 AC				
Impacted Acres	0.03 AC				



THE GOLD STAR
MEMORIAL HIGHWAY



HNTB
ARCHITECTS ENGINEERS PLANNERS

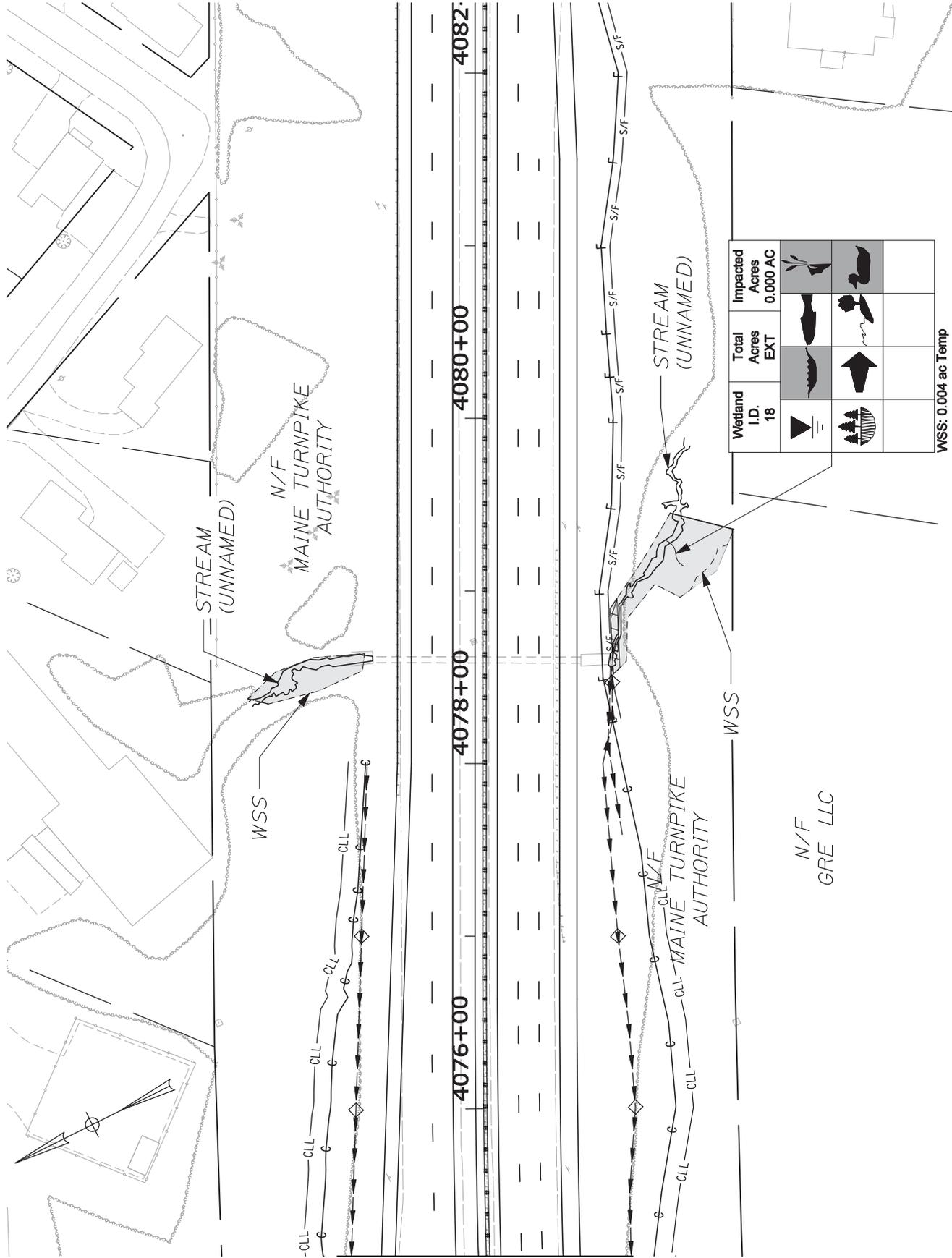
WETLAND IMPACTS
PLAN VIEW 7

LEWISTON (EXIT 80)
INTERCHANGE
IMPROVEMENTS

DATE: JANUARY, 2012

SHEET 8 OF 9

MATCH LINE - SEE PLAN VIEW 7



HNTB
ARCHITECTS ENGINEERS PLANNERS

THE GOLD STAR MEMORIAL HIGHWAY

LEWISTON (EXIT 80) INTERCHANGE IMPROVEMENTS

WETLAND IMPACTS PLAN VIEW 8

ATTACHMENT 4 Stream Compensation Plan

Introduction

The objective of the stream compensation plan is to offset the effects from unavoidable stream impacts. The compensation is considered when assessing the project's environmental effects and the resulting impacts, to determine whether the project may be authorized in compliance with state and federal wetland laws. The proposed Lewiston Exit 80 Interchange reconfiguration design includes mitigation measures to avoid direct and indirect stream impacts where practicable and to minimize impacts where unavoidable. The compensation plan for the remaining stream impacts is described here.

Stream Impacts

Stream impacts are unavoidable due to the location of the existing interchange and the unnamed tributary streams to Hart Brook. In total, three direct permanent stream impact locations comprising approximately 403 linear feet, (1,612 square feet of bed based upon an average width of 4 feet) will occur to the unnamed Hart Brook tributary passing through the existing interchange. The stream impacts will all occur adjacent to existing culverts, including areas within the ramp in-fields for both the southbound and northbound ramps. Impact locations are all within stream sections that were formerly channelized during the original interchange or Turnpike construction (Figures 1 and 2). For detailed information about the stream physical characteristics including hydrology, channel form, substrate, vegetation, stream stability and evidence of prior manipulation; fish and aquatic invertebrate assemblage; stream connectivity; and biological functions and values of the stream, refer to the *Stream Survey Report, Hart Brook Unnamed Tributary* (July 2011) prepared by Kleinschmidt. Temporary stream impacts are assumed at the ends of the culvert work areas, based upon a ten foot work zone that may be needed for vegetation clearing and equipment work. The length of temporary stream impact is estimated to be 48 linear feet for the stream passing through the interchange. All temporary and permanent stream impacts below the Ordinary High Water elevation are included in the Waters of the U.S. and State of Maine jurisdictions.



Figure 1 – Picture of unnamed tributary to Hart Brook, located within the southbound off-ramp infield area. Stream is not visible, but it is within the area of common reed, flowing from the right foreground to the distant view near the ramp, then into a culvert beneath the ramp.



Figure 2 - Same unnamed tributary passing under the Turnpike and through the interchange. This is the inlet located near the park and ride lot on Alfred Plourde Parkway between the northbound ramps and the Turnpike. This pipe flows under the Turnpike and into the southbound ramp in-fields.



Figure 3 – Picture showing a second (northernmost in the project area) unnamed tributary to Hart Brook. The culvert to the left would be extended to the right where the stream is contained within a three-sided concrete channel. The culvert extension would not extend to the natural channel substrate material.

A fourth area of stream impact would not affect natural stream substrate, but involves working with the watercourse in an existing concrete channel. This fourth location would occur at the northern unnamed tributary within the three-sided concrete channel at the inlet to the culvert beneath the Turnpike (Figure 3). The northbound on-ramp reconfiguration will require extending the upstream end of the culvert to the south by approximately 12 feet and installing 5 feet of riprap inlet protection. However, the proposed stream culvert extension and riprap would only affect the stream contained within the concrete channel; no additional natural channel impact is expected.

Compensation Plan

There are two components to the overall stream compensation plan for the proposed project. They are based upon restoration to the existing stream within the project limits and to a stream within the limits of the former Lewiston Service Plaza approximately three miles north of the project. The stream compensation plan will be implemented in phases corresponding to the project construction. The phasing is both necessary (for example removal of an existing culvert under a ramp cannot be accomplished until the replacement ramp is constructed), and efficient based upon equipment availability in proximity to work areas. In addition to stream restoration, upland areas adjacent to both streams will receive conversion elements.

Restoration

The restoration component of the compensation plan includes re-exposing the stream from under the northbound ramps, removal of soil, grading, planting and naturalizing the channel and riparian buffer to provide 115 linear feet of restored channel habitat. Figure 4 shows the proposed restoration. This section of the unnamed stream is near the upper reaches of the defined stream channel, and in an area where fish

Maine Turnpike Authority Lewiston Exit 80 Interchange Improvements
 Army Corps Section 404 Permit Application

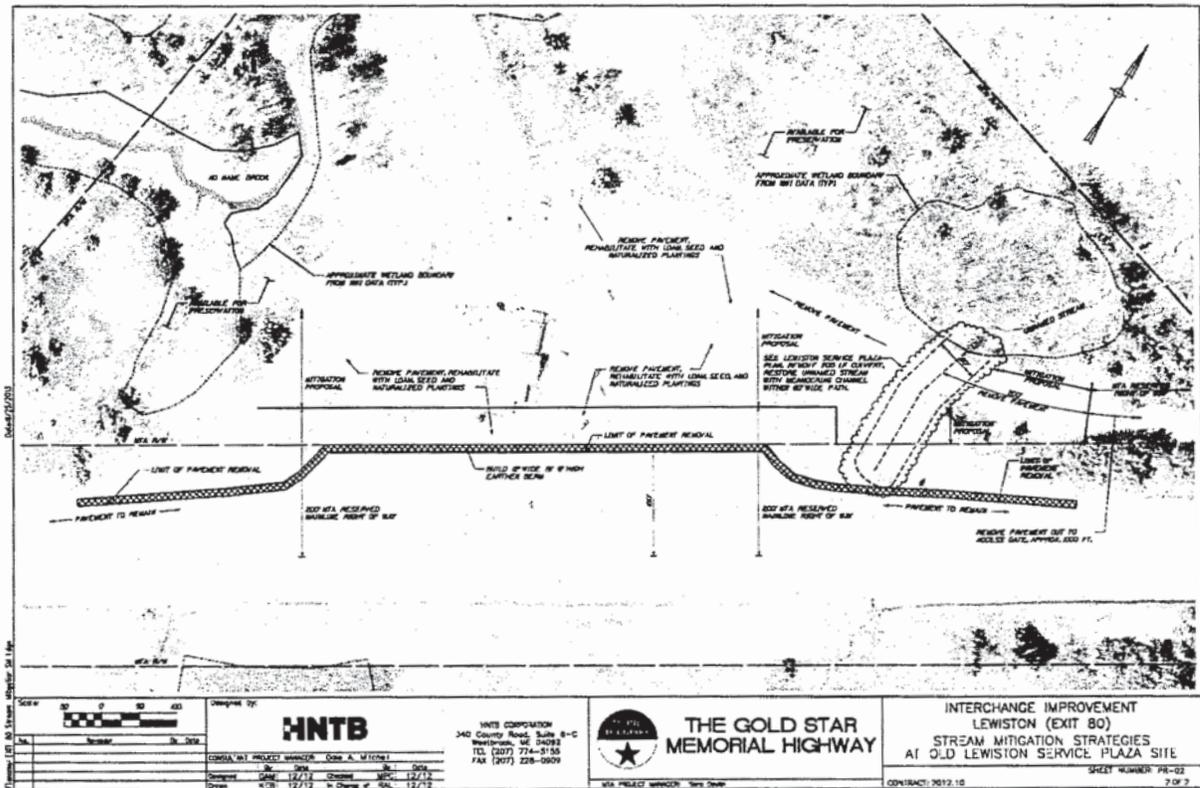


Figure 6 Proposed Conversion/Enhancement to Upland Area at the Former Lewiston Service Plaza.

Phasing of stream mitigation

The proposed construction timing for the overall interchange reconfiguration includes three phase components:

- Phase I – Northbound On Ramp (Ramp B) and Southbound On Ramp (Ramp C), Northbound Off Ramp (Ramp A) and Southbound Off Ramp (Ramp D) (anticipated 2014-2015)
- Phase IIa – Maine Turnpike Southbound Roadway and Bridge (estimated 2015-2016)
- Phase IIb – Maine Turnpike Northbound Roadway and Bridge (estimated 2016-2017)
- Phase III – Single Point (left turn) connector ramps (estimated 2017)

Based upon the proposed construction phases, the following stream mitigation components are proposed.

Phase 1 Ramps A & B: remove culvert from circular ramps; create upland border (2014-2015)

Phase 2 Former Lewiston Service Plaza: remove culvert; create upland border (2014-2016)

This phased implementation will coincide with proposed stream impacts, and accommodate the previously described construction logistics. All stream improvements will be implemented prior to the final single point (left turn) connector ramp construction.



**US Army Corps
of Engineers** ®
New England District

(Minimum Notice: Permittee must sign and return notification
within one month of the completion of work.)

COMPLIANCE CERTIFICATION FORM

Permit Number: NAE-2011-02505

Project Manager Clement

Name of Permittee: Maine Turnpike Authority

Permit Issuance Date: _____

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

 * MAIL TO: U.S. Army Corps of Engineers, New England District *
 * Permits and Enforcement Branch C *
 * Regulatory Division *
 * 696 Virginia Road *
 * Concord, Massachusetts 01742-2751 *

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date

Printed Name

Date of Work Completion

() _____
Telephone Number

() _____
Telephone Number



**US Army Corps
of Engineers**®
New England District

**GENERAL PERMIT
WORK-START NOTIFICATION FORM**
(Minimum Notice: Two weeks before work begins)

* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Permits and Enforcement Branch *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *

Corps of Engineers Permit No. NAE-2011-02505 was issued to the Maine Turnpike Authority on _____ . This work is located in unnamed streams and in adjacent freshwater wetlands at Lewiston, Maine. The permit authorized the permittee to place permanent and temporary fill in order to reconfigure the existing Exit 80 interchange. The project will impact approximately 0.62 acres of wetland and 403 linear feet of stream.

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

PLEASE PRINT OR TYPE

Name of Person/Firm: _____

Business Address: _____

Telephone Numbers: () _____ () _____

Proposed Work Dates: Start: _____ Finish: _____

Permittee/Agent Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Date Permit Issued: _____ **Date Permit Expires:** _____

FOR USE BY THE CORPS OF ENGINEERS

PM: _____ **Submittals Required:** _____

Inspection Recommendation: _____

**DEPARTMENT OF THE ARMY
GENERAL PERMIT
STATE OF MAINE**

The New England District of the U.S. Army Corps of Engineers (Corps) hereby issues this General Permit (GP) for activities in waters of the United States (U.S.) that have no more than minimal individual, secondary, and cumulative adverse effects on the aquatic environment in waters of the U.S. within the boundaries of and off the coast of the State of Maine.

I. GENERAL CRITERIA

In order for activities to qualify for this GP, they must meet the GP's terms and eligibility criteria (Pages 1 – 4), general conditions (GC) (Pages 5 – 18), and Appendix A - Definition of Categories.

Under this GP, projects may qualify for the following:

- Category 1: Category 1 Notification Form required.
(Submittal of the Category 1 Notification Form at Appendix B to the Corps is required.)
- Category 2: Application required.
(Submittal of an application to the Corps is required and written approval from the Corps must be received.)

If your project is ineligible for Category 1, it may qualify for Category 2 or an Individual Permit and you must submit an application (see Page 3). The thresholds for Categories 1 and 2 are defined in Appendix A. This GP does not affect the Corps Individual Permit review process or activities exempt from Corps regulation.

II. ACTIVITIES COVERED:

- Work and structures that are located in, under or over any navigable water of the U.S.¹ that affect the course, location, condition, or capacity of such waters; or the excavating from or depositing of material in such waters. The Corps regulates this under Section 10 of the Rivers and Harbors Act of 1899);
- The discharge of dredged or fill material into waters of the U.S.². The Corps regulates this under Section 404 of the Clean Water Act (CWA).³
- The transportation of dredged material for the purpose of disposal in the ocean. The Corps regulates this under Section 103 of the Marine Protection, Research and Sanctuaries Act.

¹ Defined at 33 CFR 329 and Appendix A, Page 4.

² Defined at 33 CFR 328

³ When there is a regulated discharge of dredged or fill material into waters of the U.S., the Corps will also consider secondary impacts, which are defined at Appendix A, Endnote/Definition 2.

III. PROCEDURES:

1. State Approvals

Applicants are responsible for applying for and obtaining any of the required state or local approvals (see GC 1, Page 5). Federal and state jurisdictions may differ in some instances. State permits may be required for specific projects regardless of the general permit category.

In order for authorizations under this GP to be valid, when any of the following state approvals or statutorily-required reviews is also required, the approvals must be obtained prior to the commencement of work in Corps jurisdiction.

- Maine Department of Environmental Protection (DEP): Natural Resources Protection Act (NRPA) permit, including permit-by-rule and general permit authorizations; Site Location of Development Act permit; and Maine Waterway Development and Conservation Act permit.
- Maine Department of Conservation: Land Use Regulation Commission (LURC) permit.
- Maine Department of Marine Resources: Aquaculture Leases.
- Maine Department of Conservation, Bureau of Parks and Lands, Submerged Lands: Lease

NOTE: This GP may authorize projects that are not regulated by the State of Maine (e.g., seasonal floats or moorings).

2. Corps Authorizations

a. Category 1 (Submission of Category 1 Notification Form required)

Eligibility Criteria

Activities in Maine that:

- Are subject to Corps jurisdiction (see GC 2, Page 5),
- Meet the terms and eligibility criteria of this GP (Pages 1 - 4),
- Meet all GCs of this GP (Pages 5 – 18), and
- Meet the definition of Category 1 in Appendix A - Definition of Categories,

may proceed without application to the Corps provided:

- The Category 1 Notification Form (Appendix B) is submitted to the Corps before starting the work authorized by this GP.

Consultation with the Corps and/or outside experts may be necessary to ensure compliance with this GP's general conditions (starting on Page 5) and related federal laws such as the National Historic Preservation Act, the Endangered Species Act (ESA), and the Wild and Scenic Rivers Act. For example, experts on historic resources may include the agencies and tribes referenced in GC 8, while experts on endangered species include the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). Project proponents are encouraged to contact the Corps with Category 1 eligibility questions.

Work that is not regulated by the State of Maine, but is subject to Corps jurisdiction, is eligible for Category 1 authorization under this GP. The Maine DEP and LURC have waived WQC for projects authorized under Categories 1 and 2 of this GP. The state has concurred with the determination that projects authorized under Categories 1 and 2 of this GP are consistent with the enforceable policies of the Maine CZM Program.

b. Category 2 (Application to and written approval from the Corps required)

Eligibility Criteria

Activities in Maine that:

- Are subject to Corps jurisdiction (see GC 2, Page 5),
- Meet the terms of this GP (Pages 1 - 4),
- Meet all GCs of this GP (Pages 5 - 18),
- Meet the definition of Category 2 in Appendix A - Definition of Categories,

require an application to and written approval from the Corps. The Corps will coordinate review of Category 2 activities with federal and state agencies, as appropriate. To be eligible and subsequently authorized, an activity must result in no more than minimal impacts to the aquatic environment as determined by the Corps based on comments from the review team and the criteria listed above. This may require project modifications involving avoidance, minimization or compensatory mitigation for unavoidable impacts to ensure the net effects of a project are minimal. Compensatory mitigation for waterway/wetland impacts may take the form of wetland preservation, restoration, enhancement, creation, and/or “in-lieu fee” for inclusion into the Natural Resources Mitigation Fund. See www.nae.usace.army.mil/reg, “Mitigation” and then “Maine” for more information.

Work that is not regulated by the State of Maine, but is subject to Corps jurisdiction, is eligible for Category 2 authorization under this GP. The Maine DEP and LURC have waived WQC for projects authorized under Categories 1 and 2 of this GP. The state has concurred with the determination that projects authorized under Categories 1 and 2 of this GP are consistent with the enforceable policies of the Maine CZM Program.

3. Applying for a Permit

All applicants for Category 2 projects must:

- a.** Apply directly to the Corps using the state application form or the Corps application form (ENG Form 4345¹), and apply directly to the state (DEP, LURC, BPL or DMR) as applicable using the appropriate state form, if the work is regulated by the Corps and the state.
- b.** Apply directly to the Corps using the Corps application form (ENG Form 4345¹) if the work is regulated by the Corps but not the state (DEP, LURC, BPL or DMR).
- c.** Provide application information (see “Information Typically Required” in Appendix C) to help ensure the application is complete and to speed project review.
- d.** Submit a copy of their application materials to the Maine Historic Preservation Commission (MHPC) and the five Indian tribes listed at Appendix D, at the same time, or before, they apply to the state (DEP or LURC) or the Corps, to be reviewed for the presence of historic, archaeological or tribal resources in the permit area that the proposed work may affect. Submittals to the DEP or Corps shall include information to indicate that this has been done (a copy of the applicant’s cover letter to MHPC and tribes or a copy of the MHPC and tribal response letters is acceptable).

¹ Located at www.nae.usace.army.mil/reg under “Forms.”

4. Review Procedures

The Corps will coordinate review of all Category 2 activities with federal and state agencies, as appropriate, to ensure that the work will result in no more than a minimal impact to the aquatic environment. Applicants are responsible for applying for the appropriate state and local approvals listed on Page 2.

Emergency Procedures: 33 CFR 325.2(e)4 states that an “emergency” is a situation which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a permit is not undertaken within a time period less than the normal time needed to process the application under standard procedures.” The Corps will work with all applicable agencies to expedite authorization according to established procedures in emergency situations.

Individual Permit Procedures: Proponents of work that does not meet the terms and general conditions of this GP must submit the Corps application form and the appropriate application materials to the Corps at the earliest possible date in order to expedite the Individual Permit review process. General information and application forms can be obtained at our website or by calling us (see Appendix D). Individual WQC and CZM consistency concurrence are required when applicable from the State of Maine before Corps permit issuance. The Corps encourages applicants to concurrently apply for a Corps Individual Permit and state permits.

5. Approval Process

Applicants for Category 2 activities may not proceed with work in Corps jurisdiction until written authorization is received from the Corps. If the Corps determines that the Category 2 activity is eligible for the GP, the Corps will send an authorization letter directly to the applicant. The Corps will attempt to issue a written eligibility determination within the state’s review period. If the Corps determines that the activity is not eligible under the GP or that additional information is required, the Corps will notify the applicant in writing and send a copy to the DEP or LURC. Applicants are responsible for obtaining all applicable approvals listed on Page 2 from the appropriate state and local agencies before commencing work in Corps jurisdiction.

V. GENERAL PERMIT CONDITIONS:

The following conditions apply to activities authorized under this Maine GP, unless otherwise specified, including all Category 1 (notification required) and Category 2 (application required) activities:

1. Other Permits. Authorization under this GP does not obviate the need to obtain other federal, state, or local authorizations required by law. This includes, but is not limited to, the project proponent obtaining a Flood Hazard Development Permit issued by the town, if necessary. Inquiries may be directed to the municipality or to the Maine Floodplain Management Coordinator at (207) 287-8063. See www.maine.gov/spo/flood.

2. Federal Jurisdictional Boundaries.

(a) Applicability of this GP shall be evaluated with reference to federal jurisdictional boundaries. Applicants are responsible for ensuring that the boundaries used satisfy the federal criteria defined at 33 CFR 328 “Waters of the U.S.” and 33 CFR 329 “Navigable Waters of the U.S.”

Note: Waters of the U.S. include the subcategories “navigable waters of the U.S.” and “wetlands.”

(b) For Category 1 projects, proponents are not required to delineate the waters of the U.S. that they plan to impact, but must approximate the square footage of impacts in order to determine the review category (1 or 2 or Individual Permit). For projects filling <15,000 SF of waters of the U.S. that do not qualify for Category 1 (e.g., vernal pool, secondary or endangered species impacts, etc.) and therefore require an application to the Corps, and for those filling \geq 15,000 SF, applicants shall delineate all waters of the U.S. that will be filled (direct impacts) in accordance with the Corps of Engineers Wetlands Delineation Manual and the most recent regional supplements (see Appendix E). In addition, applicants shall approximately identify all waters of the U.S. on the property and known waters adjacent to the property in order for the Corps to evaluate secondary impacts. The waters of the U.S. shall be clearly shown on the project plans submitted with the application. This includes all waters of the U.S. in areas under DEP or LURC jurisdiction regardless of whether they’re shown on LURC zoning maps.

(c) On a case-by-case basis, the Corps may modify/refine the above delineation and identification requirements for waters of the U.S.

3. Minimal Direct, Secondary and Cumulative Impacts.

(a) Projects authorized by this GP shall have no more than minimal direct, secondary and cumulative adverse environmental impacts. Category 2 applicants should provide information on secondary and cumulative impacts as stated in Appendix C. Compensatory mitigation may be required to offset unavoidable impacts (see GC 16) and to ensure that they are no more than minimal. Compensatory mitigation requirements will be determined on a case-by-case basis.

(b) Secondary impacts to waterway and/or wetland areas, (e.g., areas drained, flooded, cleared, excavated or fragmented) shall be added to the total fill area when determining whether the project qualifies for Category 1 or 2. Direct, secondary and cumulative impacts are defined at Appendix A, Endnote 2.

(c) Site clearing, grading and construction activities in the upland habitat surrounding vernal pools (“Vernal Pool Management Areas”) are secondary impacts. See GC 28 for avoidance and minimization requirements and recommendations.

4. Discretionary Authority. Notwithstanding compliance with the terms and conditions of this permit, the Corps retains discretionary authority to require Category 2 or Individual Permit review based on concerns for the aquatic environment or for any other factor of the public interest [33 CFR

320.4(a)]. This authority is invoked on a case-by-case basis whenever the Corps determines that the potential consequences of the proposal warrant a higher level of review based on the concerns stated above. This authority may be invoked for projects that may contribute to cumulative environmental impacts that are more than minimal or if there is a special resource or concern associated with a particular project that is not already covered by the remaining conditions of the GP and that warrants greater review. Whenever the Corps notifies an applicant that an Individual Permit may be required, the project is not authorized under this GP and no work may be conducted until an Individual Permit is obtained or until the Corps notifies the applicant that further review has demonstrated that the work may proceed under this GP.

5. Single and Complete Projects.

(a) This GP shall not be used to piecemeal work and shall be applied to single and complete projects¹. When determining the review category in Appendix A (Category 1 or 2) for a single and complete project, proponents must include any permanent historic fill placed since October 1995 that is associated with that project and all currently proposed temporary and permanent impact areas.

(b) A single and complete project must have independent utility¹.

(c) Unless the Corps determines the activity has independent utility¹:

i. This GP shall not be used for any activity that is part of an overall project for which an Individual Permit is required,

ii. All components of a single project and/or all planned phases of a multi-phased project (e.g., subdivisions should include all work such as roads, utilities, and lot development) shall be treated together as constituting one single and complete project¹.

(d) For linear projects, such as power lines or pipelines with multiple crossings, the single and complete project¹ is all crossings of a single water of the U.S. (i.e., single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly-shaped wetland or lake, etc., are not separate waterbodies and crossings of such features cannot be considered separately. If any crossing requires a Category 2 activity, then the entire linear project shall be reviewed as one project under Category 2.

6. Permit On-Site. For Category 2 projects, the permittee shall ensure that a copy of this GP and the accompanying authorization letter are at the work site (and the project office) authorized by this GP whenever work is being performed, and that all personnel with operation control of the site ensure that all appropriate personnel performing work are fully aware of its terms and conditions. The entire permit authorization shall be made a part of any and all contracts and sub-contracts for work that affects areas of Corps jurisdiction at the site of the work authorized by this GP. This shall be achieved by including the entire permit authorization in the specifications for work. The term “entire permit authorization” means this GP and the authorization letter (including its drawings, plans, appendices and other attachments) and also includes permit modifications. If the authorization letter is issued after the construction specifications, but before receipt of bids or quotes, the entire permit authorization shall be included as an addendum to the specifications. If the authorization letter is issued after receipt of bids or quotes, the entire permit authorization shall be included in the contract or sub-contract. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire GP authorization, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps jurisdiction.

¹ Single and Complete Project and Independent Utility are defined at Appendix E.

7. St. John/St. Croix Rivers. Work within the Saint John and Saint Croix River basins that requires approval of the International Joint Commission is not eligible for Category 1 and an application to the Corps is required if any temporary or permanent use, obstruction or diversion of international boundary waters could affect the natural flow or levels of waters on the Canadian side of the line; or if any construction or maintenance of remedial works, protective works, dams, or other obstructions in waters downstream from boundary waters could raise the natural level of water on the Canadian side of the boundary.

8. Historic Properties. No activity otherwise authorized by this GP shall result in effects (as that term is defined at 36 C.F.R. § 800.16(i)) on properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties, unless and until the Corps or another federal agency has satisfied the consultation requirements of Section 106 of the National Historic Preservation Act. Work is not eligible for Category 1 and an application to the Corps is required if the activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. Work is eligible for Category 1 if a no effect or no adverse effect determination has been made for that work by another federal action agency in its Section 106 consultation with the Maine Historic Preservation Commission (MHPC) and the five federally recognized Indian tribes listed at Appendix D. Information on the location and existence of known historic resources can be obtained from the MHPC, the National Register of Historic Places, and the five tribes listed in Appendix D. Historic properties include those that are eligible for inclusion, but not necessarily listed on the National Register. If the permittee, either prior to construction or during construction of the work authorized herein, encounters a previously unidentified archaeological or other cultural resource within the area subject to Corps jurisdiction that might be eligible for listing in the National Register of Historic Places, he/she shall stop work and immediately notify the Corps and the MHPC and/or applicable tribe(s).

9. National Lands. None of the following work is eligible as a Category 1 project:

(a) Activities that impinge upon the value of any National Wildlife Refuge, National Forest, National Marine Sanctuary, National Park or any other area administered by the National Park Service, U.S. Fish and Wildlife Service (USFWS) or U.S. Forest Service.

(b) Work on Corps properties and Corps-controlled easements. Contact the Corps, Real Estate Division (978) 318-8585 to initiate reviews about both Corps holdings and permit requirements.

(c) Any proposed temporary or permanent modification or use of a federal project (including but not limited to a levee, dike, floodwall, channel, sea wall, bulkhead, jetty, wharf, pier, or other work built but not necessarily owned by the United States), which would obstruct or impair the usefulness of the federal project in any manner, and/or would involve changes to the authorized federal project's scope, purpose, and/or functioning that go beyond minor modifications required for normal operation and maintenance (requires review and approval by the Corps pursuant to 33 USC 408). Federal projects in Maine as of October 2010 are shown at Appendix F. This map may not be inclusive of all projects.

10. Endangered Species.

(a) No activity may be authorized under Category 1 of this GP which:

i. "May affect" a threatened or endangered species, a species proposed for listing as threatened or endangered, or designated or proposed critical habitat (all herein referred to as "listed species or habitat") as identified under the federal Endangered Species Act (ESA) (unless specified in a programmatic agreement with NMFS or USFWS),

- ii. Results in a “take” of any federally-listed threatened or endangered species of fish or wildlife, or
- iii. Results in any other violation of Section 9 of the ESA protecting threatened or endangered species of plants.

(b) Work in Inland Waters and Wetlands¹ and the non-tidal portions of Navigable Waters² (e.g., the Penobscot River, Kennebec River) is not eligible for Category 1 if:

- i. The project action area occurs within a watershed occupied by listed Atlantic salmon or shortnose sturgeon. Project proponents must check the site in Footnote 3 below.
- ii. In areas outside these watersheds contact the USFWS (see Appendix D, Page 1 for contact information) to check for the presence of other listed species.

(c) Work in the tidal portions of Navigable Waters may be eligible for Category 1. Reference Appendix A, II. Navigable Waters, Pages 4 – 9, and the other terms and general conditions (GC 11 is particularly relevant) of this GP to determine Category 1 eligibility. Project proponents must contact the USFWS (see Appendix D, Page 1 for contact information) to ensure that work in all tidal portions of Navigable Waters² is not in critical habitat or areas occupied by listed species other than Atlantic salmon or shortnose sturgeon.

(d) Although some work is excluded from Category 1 as stated in (b) and (c) above, work may qualify for Category 1 if a no effect determination has been made for that work by a federal action agency such as the Corps.

(e) Proponents must submit an application to the Corps if any of the activities in 10(a)-10(c) that do not qualify for Category 1 may occur and provide information on federally-listed species or habitat to allow the Corps to conduct any required consultation under Section 7 of the ESA.

(f) The Corps review may consider species listed as endangered and threatened pursuant to Maine state law.

11. Essential Fish Habitat. Any work in the following rivers and streams, including all tributaries to the extent that they are currently or were historically accessible for salmon migration, shall not be authorized under Category 1 of the GP and must be screened for potential impacts to EFH (see Appendix E for more information).

Androscoggin River	Aroostook River	Boyden River	Dennys River
Ducktrap River	East Machias River	Hobart Stream	Kennebec River
Machias River	Narraguagus River	Orland River	Passagassawaukeag River
Patten Stream	Penobscot River	Pleasant River	Presumpscot River
Saco River	Sheepscoot River	St. Croix River	Tunk Stream
			Union River

The above does not apply to the following activities which may qualify for Category 1 work:

- Exploratory drilling and borings for bridges.
- Moorings (see Appendix A, Page 6 for Category 1 thresholds and requirements)
- Structures and floats (see Appendix A, Page 7 for Category 1 thresholds and requirements)
- Other activities specified in a programmatic agreement with NMFS.

¹ See Appendix A, Page 1 for definition.

² See Appendix A, Page 4 for definition.

³ For areas considered occupied by listed Atlantic salmon and/or shortnose sturgeon in Inland Waters and Wetlands, and in Navigable Waters, see: www.nero.noaa.gov/prot_res/altsalmon/dpsmaps.html. Tidal portions of navigable waters occupied by listed Atlantic salmon are more specifically described as those waters from the Kennebec River to its mouth at Merrymeeting Bay, northeast to the Dennys River, including the Androscoggin River upstream to the Brunswick Dam, and other streams northeast of this line to the limit of their tidal reaches.

12. Wild and Scenic Rivers. Any activity that occurs in the designated main stem of, within 0.25 mile up or downstream of the designated main stem of, or in tributaries within .25 miles of the designated main stem of a National Wild and Scenic River, or in “bordering and contiguous wetlands” (see Appendix A, Endnote 1) that are adjacent to the designated main stem of a National Wild and Scenic River, or that has the potential to alter flows within a river within the National Wild and Scenic River System, is not eligible for Category 1 regardless of size of the impacts. This condition applies to both designated Wild and Scenic Rivers and rivers officially designated by Congress as study rivers for possible inclusion while such rivers are in an official study status. National Wild and Scenic Rivers System segments for Maine as of October 2010 include: Allagash River beginning at Telos Dam continuing to Allagash checkpoint at Eliza Hole Rapids, approximately 3 miles upstream of the confluence with the St. John River (length = 92 miles).

13. Federal Navigation Project. Any structure or work that extends closer to the horizontal limits of any Corps Federal Navigation Project (see Appendix F) than a distance of three times the project’s authorized depth shall be subject to removal at the owner’s expense prior to any future Corps dredging or the performance of periodic hydrographic surveys. This is applicable to Category 1 and 2. Reference Appendix A, Page 6 (Moorings) and Page 7 (Structure and Floats).

14. Navigation.

(a) There shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein and no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized herein.

(b) The permittee understands and agrees that, if future U.S. operations require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

15. Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following: (a) damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes; (b) damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the U.S. in the public interest; (c) damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit; (d) design or construction deficiencies associated with the permitted work; (e) damage claims associated with any future modification, suspension, or revocation of this permit.

16. Avoidance, Minimization and Compensatory Mitigation.

Discharges of dredged or fill material into waters of the U.S., including wetlands, shall be avoided and minimized to the maximum extent practicable through consideration of alternatives. The Corps may require compensatory mitigation of unavoidable direct and secondary impacts associated with Category 2 projects on a case-by-case basis (see Appendix E).

17. Heavy Equipment in Wetlands. Operating heavy equipment other than fixed equipment (drill rigs, fixed cranes, etc.) within wetlands shall be minimized, and such equipment shall not be stored, maintained or repaired in wetlands, to the maximum extent practicable. Where construction requires heavy equipment operation in wetlands, the equipment shall either have low ground pressure

(typically <3 psi), or it shall be placed on swamp/construction/timber mats (herein referred to as “construction mats” and defined at Appendix A, Endnote 4) that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation. Construction mats are to be placed in the wetland from the upland or from equipment positioned on swamp mats if working within a wetland. Dragging construction mats into position is prohibited. Other support structures that are capable of safely supporting equipment may be used with written Corps authorization (Category 2 authorization or Individual Permit). Similarly, the permittee may request written authorization from the Corps to waive use of mats during frozen, dry or other conditions. An adequate supply of spill containment equipment shall be maintained on site.

18. Temporary Fill.

Temporary fill that qualifies for Category 1 (e.g., <15,000 SF of combined temporary and permanent fill associated with the single and complete project) or is authorized in writing under Category 2, shall adhere to the following:

- (a) All temporary fill shall be stabilized to prevent its eroding into portions of waters of the U.S., including wetlands, where it is not authorized.
- (b) Unconfined temporary fill authorized for discharge into waters of the U.S., including wetlands, shall consist of material that minimizes impacts to water quality (e.g. sandbags, clean gravel, stone, aggregate, etc.).
- (c) Temporary fill authorized for discharge into wetlands should be placed on geotextile fabric or other material (e.g., straw) laid on the pre-construction wetland grade where practicable to minimize impacts.
- (d) Temporary fill shall be removed as soon as it is no longer needed, disposed of at an upland site, and suitably contained to prevent subsequent erosion into waters of the U.S, including wetlands. To qualify for Category 1, temporary fill placed during the:
 - i. Growing season must be removed before the beginning of the next growing season.
 - ii. Non-growing season may remain throughout the following growing season, but must be removed before the beginning of the next growing season.
- (e) Waters of the U.S., including wetlands, where temporary fill was discharged shall be restored (see GC 19).
- (f) Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must be placed in a manner that will not be eroded by expected high flows (see GC 21).
- (g) Construction mats and corduroy roads (see GC 17 above) are considered as temporary fill when they are removed immediately upon work completion. The area must be restored (see GC 19).

19. Work Site Restoration.

- (a) Wetland areas where permanent disturbance is not authorized shall be restored to their original condition and elevation, which under no circumstances shall be higher than the pre-construction elevation. Original condition means careful protection and/or removal of existing soil and vegetation, and replacement back to the original location such that the original soil layering and vegetation schemes are approximately the same, unless otherwise authorized.
- (b) Upon completion of construction, all disturbed wetland areas (the disturbance of these areas must be authorized) shall be properly stabilized. Any seed mix shall contain only plant species native to New England and shall not contain any species listed in the “Invasive and Other Unacceptable Plant Species” Appendix in the “New England District Compensatory Mitigation Guidance” (see Appendix E, Paragraph 6). This list may be updated periodically.
- (c) In areas of authorized temporary disturbance, if trees are cut they shall be cut at ground level and

not uprooted in order to prevent disruption to the wetland soil structure and to allow stump sprouts to revegetate the work area, unless otherwise authorized.

20. Bank Stabilization.

(a) Projects involving construction or reconstruction/maintenance of bank stabilization structures within Corps jurisdiction shall be designed to minimize environmental effects, effects to neighboring properties, scour, etc. to the maximum extent practicable.

(b) Project proponents must design and construct bank stabilization projects using this sequential minimization process: avoidance of aquatic resource impacts, diversion of overland flow, vegetative stabilization, stone-sloped surfaces, and walls/bulkheads. Vertical walls/bulkheads shall only be used in situations where reflected wave energy can be tolerated. Refer to Appendix E for design guidance.

(c) Inland Water bank stabilization activities necessary for erosion prevention must meet all of the following criteria: (i) No material is placed in excess of the minimum needed for erosion protection; (ii) The activity is no more than 500 feet in length along the bank; (iii) The activity will not exceed an average of one cubic yard per running foot placed along the bank below the plane of the ordinary high water mark; (iv) Structures angled steeper than 1H:1V and any material other than angular or subangular stone or fiber roll revetments require at least a Category 2 review. (v) The activity does not involve discharges of dredged or fill material into special aquatic sites; (vi) No material is of the type, or is placed in any location, or in any manner, to impair surface water flow into or out of any water of the U.S.; (vii) No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored trees and treetops may be used in low energy areas); and, (viii) The activity is not a stream channelization activity.

(d) Navigable Water bank stabilization activities are provided at Appendix A, Page 4.

21. Sedimentation and Erosion Control.

(a) Adequate sedimentation and erosion control management measures, practices and devices, such as phased construction, installation of sediment control barriers (i.e. silt fence, vegetated filter strips, geotextile silt fences, erosion control mixes, hay bales or other devices) downhill of all exposed areas, retention of existing vegetated buffers, application of temporary mulching during construction, and permanent seeding and stabilization shall be installed and properly maintained to reduce erosion and retain sediment on-site during and after construction. They shall be capable of preventing erosion, of collecting sediment, suspended and floating materials, and of filtering fine sediment.

(b) Temporary sediment control barriers shall be removed upon completion of work, but not until all disturbed areas are permanently stabilized. The sediment collected by these sediment barriers shall be removed and placed at an upland location and stabilized to prevent its later erosion into a waterway or wetland.

(c) All exposed soil and other fills shall be permanently stabilized at the earliest practicable date (see GC 19).

22. Stream Work and Crossings¹.

Notes:

(a) GC 22(a) and (b) apply to Inland Waters and Wetlands (see Appendix A, Page 1 for definition) and Navigable Waters (see Appendix A, Page 4 for definition). GC 22(c)-(l) only apply to Inland Waters and Wetlands that are streams. All new and replacement crossings in Navigable Waters require an application to the Corps and at least a Category 2 review.

(b) In-stream work in a watershed occupied by listed Atlantic salmon or shortnose sturgeon [see GC 10(b)] and some stream work such as crossings on EFH waters (see GC 11) is not eligible for Category 1.

(c) “High-Quality Stream Segments” are shown at www.maine.gov/dep/gis/datamaps and may be useful in evaluating impacts to fisheries. GIS shape files are under “Other Google Earth Interactive Maps” and PDFs by county are under “DEP GIS Maps.” See Appendix E, 8(b) for more information.

Conditions:

(a) All permanent crossings of rivers, streams, brooks, etc. (hereon referred to as “streams”) shall be suitably culverted, bridged, or otherwise designed to **i**) withstand and to prevent the restriction of high flows to qualify for Category 1, and **ii**) not obstruct the movement of or not substantially disrupt the necessary life-cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, beyond the actual duration of construction unless the activity’s primary purpose is to impound water to qualify for Category 1 or 2. (NOTE: Areas of fill and/or cofferdams must be included in total waterway/wetlands impacts to determine applicability of this GP).

(b) Any work that temporarily or permanently impacts upstream or downstream flood conditions, or permanently impacts wetlands in excess of Category 1 thresholds, must be reviewed at least under Category 2. See the documents referenced in Appendix E, 8(c) and (d) for guidance.

(c) New Stream Crossings. For new stream crossings to qualify for Category 1:

i. Must ensure compliance with GC 22(a) and GC 22(b) above.

ii. Shall be designed and constructed in accordance with the Corps General Stream Crossing Standards provided on Page 14 and the stream simulation document listed at Appendix E, 8(a).

(d) Replacement Stream Crossings. For replacement stream crossings to qualify for Category 1:

i. Must ensure compliance with GC 22(a) and GC 22(b) above.

ii. Shall be designed and constructed in accordance with the Corps General Stream Crossing Standards provided on Page 14 and the stream simulation document listed at Appendix E, 8(a).

(e) Culvert Extensions. Culvert extensions on culverts that do not meet the Corps General Stream Crossing Standards do not qualify for Category 1 and require an application to the Corps at least as a Category 2 project.

(f) Temporary Stream Crossings.

Note: The General Stream Crossing Standards don’t apply to temporary stream crossings.

i. Temporary stream crossings or cofferdams shall be used for equipment access across streams [see Appendix E, 8(e)]. Note: Areas of fill and/or cofferdams must be included in total waterway/wetlands impacts to determine the review category in Appendix A.

ii. Temporary stream crossings shall be removed within 180 days to qualify for Category 1.

iii. Temporary stream crossings that are not spans² (typically culverts) must be designed in accordance with 1-6 below to qualify for Category 1. Category 2 applications should include information demonstrating 2-6 below:

¹ This condition does not apply to non-tidal drainage systems and irrigation ditches excavated on dry land.

² For the purposes of this GP, spans are bridges, three-sided box culverts, open-bottom culverts or arches that span the stream with footings landward of bankfull width.

1. Installed and removed during the low flow period specified in GC 22(l) below.
2. Placed on geotextile fabric or other material where practicable to ensure restoration to the original grade. Soil may not be used to construct or stabilize these structures and rock must be large enough to allow for easy removal without disrupting the streambed.
3. Designed and maintained to withstand and pass high flows. Water height should be no higher than the top of the culvert's inlet. A minimum culvert diameter of two feet is required to pass debris. Culverts must be aligned to prevent bank erosion or streambed scour.
4. Equipped with energy dissipating devices installed downstream if necessary to prevent scour.
5. Designed and maintained to prevent soil from entering the waterbody.
6. Removed upon the completion of work. Impacts to the streambed or banks requires restoration to their original condition using stream simulation methods¹.

(g) Slip Lining. Work using slip lining (retrofitting an existing culvert by inserting a smaller diameter pipe), invert lining, or resulting in decreased diameter, do not qualify for Category 1, either as new work or maintenance activities.

(h) Work in Flowing Waters. To qualify for Category 1, no unconfined fill [see GC 18(b)] or excavation in flowing waters is allowed. To accomplish this:

i. Bank stabilization work below ordinary high water (OHW) shall utilize erosion controls such as inflatable cofferdams, jersey barrier, silt screen, turbidity curtain, etc. where practicable to prevent sediment input to the stream and to minimize turbidity and sedimentation impacts for sensitive life stages. Bank stabilization above OHW must utilize erosion controls.

ii. Management techniques such as temporary flume pipes, culverts, cofferdams, etc. must be used to maintain normal flows within the stream boundary's confines, or water diversions may be used immediately up and downstream of the work footprint (see Appendix A, Endnote 6) or work must be performed in the dry under no flow conditions, or under very low flow conditions following the practices in GC 22(a).

(i) Minimization. In order to make the Category 2 review process more efficient and result in a faster decision, new and replacement stream crossings should be designed using the least intrusive and environmentally damaging method following this sequential minimization process: 1) spans with no stream impacts, 2) spans with stream impacts, and 3) embedded culverts with stream simulation or low-slope design.

(j) Maintenance Requirements. The permittee shall maintain the work authorized herein in good condition and in conformance with the terms and general conditions of this permit to facilitate aquatic life passage as stated in GC 22(a). Culverts that develop "hanging" inlets or outlets, result in bed washout, or a stream that doesn't match the characteristics of the substrate in the natural stream channel such as mobility, slope, stability confinement will require maintenance or repair to comply with this GC. This does not apply to GC 22(f) above.

(k) Maintenance and Replacement Information. An existing stream crossing must be authorized and in compliance with all conditions of its authorization(s) to qualify for maintenance not subject to regulation. See Appendix A, Endnote 7. A non-serviceable crossing is not eligible for maintenance and is therefore considered as a replacement crossing [see 22(d)].

(l) Work Window. For projects that otherwise meet the terms of Category 1, in-stream construction work shall be conducted during the low flow period July 15 - October 1 in any year. Projects that are not to be conducted during that time period are ineligible for Category 1 and shall be screened pursuant to Category 2, regardless of the waterway and wetland fill and/or impact area.

(See next page for Corps General Stream Crossing Standards.)

¹ Design and construction shall be in accordance with the stream simulation document listed at Appendix E, 8(a).

Corps General Stream Crossing Standards (required for Category 1, recommended for Category 2):

(a) Culverts must be embedded:

- ≥ 2 feet for box culverts and other culverts with smooth internal walls,
- ≥ 1 foot for corrugated pipe arches
- ≥ 1 foot and at least 25 percent for corrugated round pipe culverts

(b) For new crossings, spans¹ are required to avoid or cause minimal disruption to the streambed and to meet the requirements of General Condition 22(a) and 22(b). Footings and abutments must be landward of 1.2 times bankfull width. To the greatest extent practicable, work in the stream shall be minimized, and design and construction shall allow the streambed's natural structure and integrity to remain intact. Any fill or excavation of the streambed below bankfull width other than footings, support pilings, or work specified in 22(h)ii requires Category 2 review and, unless demonstrated otherwise, stream simulation² to establish substrate and banks in the span structure and work area as specified in (d) and (e) below.

(c) For replacement crossings, spans¹ are required to meet the requirements of General Condition 22(a) and 22(b). Footings and abutments shall be landward of 1.2 times bankfull width. Unless demonstrated otherwise, stream simulation² is required to establish substrate and banks in the span structure and work area as specified in (d) and (e) below.

(d) Crossings must have a natural bottom substrate within the structure matching the characteristics of the substrate in the natural stream channel and the banks (mobility, slope, stability, confinement, grain and rock size)² at the time of construction and over time as the structure has had the opportunity to pass significant flood events. To allow terrestrial passage for wildlife and prevent undermining the footings, crossings shall have a bank on both sides of the stream matching the horizontal profile of the existing stream and banks².

(e) Crossings must be designed and constructed² with appropriate bed forms and streambed characteristics so that water depths and velocities are comparable to those found in the natural channel at a variety of flows. In order to provide appropriate water depths and velocities at a variety of flows and especially low flows, it is usually necessary to reconstruct the streambed or preserve the natural channel within the structure. Otherwise, the width of the structure needed to accommodate higher flows will create conditions that are too shallow at low flows. The grain and rock size, and arrangement of streambed materials within the structure should be in accordance with (d) above. Flows could go subsurface within the structure if only large material is used without smaller material filling the voids.

23. Wetland Crossings.

(a) All temporary and permanent crossings of wetlands shall be suitably culverted, bridged, or otherwise designed to: **i)** Withstand and prevent the restriction of high flows, **ii)** Not obstruct the movement of or not substantially disrupt the necessary life-cycle movements of those species of aquatic life indigenous to the wetland, including those species that normally migrate through the area, beyond the actual duration of construction unless the activity's primary purpose is to impound water. See Appendix E for the Maine DEP's crossing standards.

(b) To qualify for Category 1, new and replacement wetland crossings that are permanent shall be culverted, spanned or bridged in such a manner as to preserve hydraulic and ecological connectivity, at its present level, between the wetlands on either side of the road. To meet this requirement, we

¹ For the purposes of this GP, spans are bridges, three-sided box culverts, open-bottom culverts or arches that span the stream with footings landward of bankfull width.

² Design and construction shall be in accordance with the stream simulation document listed at Appendix E, 8(a).

recommend that culverts, spans or bridges be placed at least every 50 feet with an opening at least 2 feet high and 3 feet wide at ground level where practicable. Closed bottom culverts shall be embedded at least 6 inches with a natural bottom.

(c) In the case of non-compliance, the permittee shall take necessary measures to correct wetland damage due to lack of hydraulic and ecological connectivity.

(d) Any work that results in flooding, results in impacts to wetlands on either side of the wetland crossing in excess of Category 1 thresholds, or impacts wetland drainage from the upgradient side of the wetland crossing does not qualify for Category 1.

24. Discharge of Pollutants.

(a) All activities involving any discharge of pollutants into waters of the U.S., including wetlands, authorized under this GP shall be consistent with applicable water quality standards, effluent limitations, standards of performance, prohibitions, and pretreatment standards and management practices established pursuant to the Clean Water Act (CWA) (33 USC 1251), and applicable state and local laws. If applicable water quality standards, limitations, etc., are revised or modified during the term of this GP, the authorized work shall be modified to conform with these standards within six months of the effective date of such revision or modification, or within a longer period of time deemed reasonable by the Corps in consultation with the EPA. Issuance of a LURC or DEP NRPA permit confirms that state water quality standards are met.

(b) All projects authorized by this GP shall be designed, constructed and operated to minimize or eliminate the discharge of pollutants.

(c) All activities involving any discharge of pollutants into waters of the U.S., including wetlands, authorized under this GP must comply with Section 402 [33 U.S.C. 1342] of the CWA and the requirements of the National Pollutant Discharge Elimination System (40 CFR 122).

25. Spawning, Breeding and Migratory Areas. Activities and impacts such as excavations, discharges of dredged or fill material, and/or suspended sediment producing activities, in fish migratory areas, fish and shellfish spawning or nursery areas, or amphibian and migratory bird breeding areas, during spawning or breeding seasons shall be avoided and minimized to the maximum extent practicable.

26. Storage of Seasonal Structures. Coastal structures, such as pier sections and floats, that are removed from the waterway for a portion of the year (often referred to as seasonal structures) shall be stored in an upland location located above mean high water (MHW) and not in tidal wetlands or mudflats. These seasonal structures may be stored on the fixed, pile-supported portion of the structure that is seaward of MHW. This is intended to prevent structures from being stored on the marsh substrate, mudflats, or the substrate seaward of MHW. Seasonal storage of structures in navigable waters, e.g., in a protected cove on a mooring, requires Corps and local harbor master approval.

27. Environmental Functions and Values. The permittee shall make every reasonable effort to carry out the construction or operation of the work authorized herein in a manner that maintains as much as is practicable, and minimize any adverse impacts on existing fish, wildlife, and natural environmental functions and values.

28. Protection of Vernal Pools (VPs).

(a) Impacts to VP Management Areas¹ for all VPs on, and known VPs surrounding, the project site shall be minimized to the maximum extent practicable.

(b) The following management practices must be followed for all work within the VP Management Area (750' of a VP's edge) of all VPs in order to qualify for Category 1 when there is fill placed in a water of the U.S., including wetlands:

i. Similar to the DEP's Significant Wildlife Habitat regulations²:

1. No disturbance within the VP Depression or VP Envelope (area within 100 feet of the VP Depression's edge)³;
2. Maintain a minimum of 75% of the Critical Terrestrial Habitat (area within 100-750 feet of the VP Depression's edge) as unfragmented forest with at least a partly-closed canopy of overstory trees to provide shade, deep litter and woody debris³;
3. Maintain or restore forest corridors connecting wetlands and significant vernal pools;
4. Minimize forest floor disturbance; and
5. Maintain native understory vegetation and downed woody debris.

ii. Cape Cod style-curbings or no curbing options shall be used on new roads to facilitate amphibian passage².

(c) For work not complying with the requirements in (b) above, applicants shall submit an application to the Corps for at least Category 2 review with information on directional buffers in accordance with the VP Directional Buffer Guidance document². Conservation of the unimpacted area within the VP Management Area will often be required.

(d) GC 2 requires applicants to delineate or approximately identify on the project plans all waters of the U.S., which include vernal pools. Appendix A, Page 1 lists VP Category 1 thresholds.

29. Invasive Species.

(a) The introduction, spread, or the increased risk of invasion of invasive plant or animal species on the project site, into new or disturbed areas, or areas adjacent to the project site caused by the site work is prohibited (see Appendix E, Paragraph 6).

(b) Unless otherwise directed by the Corps, all applications for Category 2 inland projects and Category 2 coastal fill projects proposing fill in Corps jurisdiction shall include an Invasive Species Control Plan (ISCP) (see Appendix E, Paragraph 6).

30. Cranberry Development Projects. For cranberry development projects authorized under the GP, the following conditions apply:

(a) If a cranberry bog is abandoned for any reason, the area must be allowed to revert to natural wetlands unless an Individual Permit is obtained from the Corps allowing the discharge of fill for an alternate use.

¹ The Corps VP Management Area, which includes the VP and a 750' radius from the VP's edge, is defined at Appendix A, Endnote 5.

² Appendix E, 10(a)-(d) provides links to the state's Significant Wildlife Habitat regulations and references that provide impact minimization measures to reference when designing projects.

³ The no disturbance requirement in the VP envelope [see (b)(i)(1)], and (b)(i)(2), do not apply to temporary impacts associated with construction mats in previously disturbed areas of existing utility project (e.g., transmission lines, gas pipelines) or linear transportation project (e.g., roads, highways, railways, trails, airport runways and taxiways) right-of-ways provided there is a Vegetation Management Plan that avoids, minimizes and mitigates impacts to aquatic resources.

(b) No stream diversion shall be allowed under Category 1 of this GP.

(c) No impoundments of intermittent or perennial streams shall be allowed under Category 1 and an application to the Corps is required for at least Category 2 review.

(d) The project shall be designed and constructed to not cause flood damage on adjacent properties.

31. Inspections. The permittee shall allow the Corps to make periodic inspections at any time deemed necessary in order to ensure that the work is being or has been performed in accordance with the terms and conditions of this GP. The Corps may also require post-construction engineering drawings for completed work or post-dredging survey drawings for any dredging work.

To facilitate these inspections, the permittee shall complete and return to the Corps:

- For Category 1 projects, the Category 1 Notification Form (Appendix B).
- For Category 2 projects, the 1) Work-Start Notification Form and 2) Compliance Certification Form whenever either is provided with a Category 2 authorization letter.

32. Maintenance.

(a) The permittee shall maintain the work authorized herein in good condition and in conformance with the terms and general conditions of this permit.

(b) This does not include maintenance of dredging projects. Each maintenance dredging event exceeding the Category 1 thresholds (see Appendix A, Page 6) requires a new written Corps authorization unless an unexpired, written Corps authorization specifies that the permittee may “dredge and maintain” an area for a particular time period. Category 1 or 2 maintenance dredging includes only those areas and depths previously authorized and dredged.

(c) Some maintenance activities may not be subject to regulation under Section 404 in accordance with 33 CFR 323.4(a)(2) (see Appendix A, Endnote 7).

33. Property Rights. This PGP does not convey any property rights, either in real estate or material, or any exclusive privileges, nor does it authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations.

34. Transfer of GP Verifications. When the structures or work authorized by this GP are still in existence at the time the property is transferred, the terms and conditions of this GP, including any special conditions, will continue to be binding on the entity or individual who received the GP verification, as well as the new owner(s) of the property. The permittee may transfer responsibilities and obligations under the GP verification to the new owner by submitting a letter to the Corps (see Appendix D for address) to validate the transfer. A copy of the GP verification must be attached to the letter and the letter must contain the following statement and signature: “When the structures or work authorized by this GP are still in existence at the time the property is transferred, the terms and conditions of this GP, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this GP and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

35. Modification, Suspension, and Revocation. This GP or any work authorized under Category 1 or 2 may be either modified, suspended, or revoked, in whole or in part, pursuant to the policies and procedures of 33 CFR 325.7. Any such action shall not be the basis for any claim for damages against the United States.

36. Restoration Directive. The permittee, upon receipt of a notice of revocation of authorization under this GP, shall restore the wetland or waterway to its former condition without expense to the United States and as directed by the Secretary of the Army or his authorized representative. If the permittee fails

to comply with such a directive, the Secretary or his designee may restore the wetland or waterway to its former condition, by contract or otherwise, and recover the cost from the permittee.

37. Special Conditions. The Corps may independently, or at the request of the Federal resource agencies, impose other special conditions on a project authorized pursuant to this GP that are determined necessary to minimize adverse navigational and/or environmental effects or based on any other factor of the public interest. Failure to comply with all conditions of the authorization, including special conditions, constitutes a permit violation and may subject the permittee to criminal, civil, or administrative penalties and/or an ordered restoration.

38. False or Incomplete Information. If the Corps makes a determination regarding the eligibility of a project under this GP and subsequently discovers that it has relied on false, incomplete, or inaccurate information provided by the permittee, the GP authorization shall not be valid and the U.S. government may institute appropriate legal proceedings.

39. Abandonment. If the permittee decides to abandon the activity authorized under this GP, unless such abandonment is merely the transfer of property to a third party, he/she may be required to restore the area to the satisfaction of the Corps.

40. Enforcement Cases. This GP does not apply to any existing or proposed activity in Corps jurisdiction associated with an on-going Corps or EPA enforcement action, until such time as the enforcement action is resolved or the Corps and/or EPA as appropriate determines that the activity may proceed independently without compromising the enforcement action.

41. Duration of Authorization. This GP expires on October 11, 2015. Activities authorized under this GP that have commenced (i.e., are under construction) or are under contract to commence before this GP expires will have until October 11, 2016 to complete the activity under the terms and conditions of the current GP.

42. Previously Authorized Activities.

(a) Projects that have received authorization (Category 1 or 2) from the Corps and that were completed under the previous PGPs, nationwide permits, regional general permits or letters of permission, shall remain authorized.

(b) Activities authorized pursuant to 33 CFR Part 330.3 ("Activities occurring before certain dates") are not affected by this GP.

(c) Any work not commenced nor completed that was authorized in a written letter from the Corps under the PGP in effect between October 11, 2005 and October 11, 2010 remains authorized subject to the terms and general conditions of this GP along with any special conditions in the authorizing written letter.

43. NEPA Compliance. The Maine PGP was authorized in full compliance with Council for Environmental Quality ("CEQ") NEPA regulations. The Corps has determined that individual permit actions taken under the terms and conditions of the PGP are not a major federal action significantly affecting the quality of the human environment.


District Engineer
10/12/10
Date

APPENDIX A: DEFINITION OF CATEGORIES

<p>A. INLAND WATERS AND WETLANDS</p>	<p>Inland Waters and Wetlands: Waters that are regulated under Section 404 of the Clean Water Act, including rivers, streams, lakes, ponds and wetlands, and excluding Section 10 Navigable Waters of the U.S. The jurisdictional limits are the ordinary high water (OHW) mark in the absence of adjacent wetlands, beyond the OHW mark to the limit of adjacent wetlands when adjacent wetlands are present, and the wetland limit when only wetlands are present. For the purposes of this GP, fill placed in the area between the mean high water (MHW) and the high tide line (HTL), and in the bordering and contiguous wetlands¹ to tidal waters are reviewed in the Navigable Waters section. (See II. Navigable Waters on page 4 below.)</p>
<p>ACTIVITY</p>	<p>Projects not meeting Category 1 require an application for review as a Category 2 or Individual Permit project. All Category 1 and 2 projects must comply with all of this GP's applicable terms (Pages 1 – 4) and general conditions (Pages 5–18).</p>
<p>(a) NEW FILL/ EXCAVATION DISCHARGES (You must reference (b) – (e) below for other thresholds that may be relevant to your project.)</p>	<p align="center">CATEGORY 1</p> <p>1. <15,000 square feet (SF) (in LURC or DEP territories) of inland waterway and/or wetland fill and associated secondary impacts² (e.g., areas drained, flooded, fragmented, mechanically cleared or excavated). Fill area includes all temporary and permanent fill, and regulated discharges associated with excavation. Construction mats are considered as fill. [See General Condition (GC) 18(g.) <u>Provided:</u></p> <ul style="list-style-type: none"> • Historic fill + proposed impact area <15,000 SF and subdivision fill complies with GC 5, Single and Complete Projects. • No work in special aquatic sites (SAS)⁴ other than wetlands. <p>2. Construction mats⁴ of any area necessary to conduct activities that were previously authorized, authorized under Category 1, or not subject to regulation (see Endnote 7). Authorized construction mats must be in place for <3 months, removed immediately upon work completion, and the wetlands must be restored (see GC 19).</p> <p>3. For work in Vernal Pool (VP) Management Areas (includes VPs)⁵:</p> <ul style="list-style-type: none"> • See GC 2 and Appendix C for VP delineation requirements. • See GC 28 to determine if work qualifies for Category 1 or 2. • See Appendix E, Page 3 for VP documents providing mitigation guidance.
<p>(b) OTHER</p>	<p align="center">CATEGORY 2</p> <p>1. ≥15,000 square feet (SF) (in LURC or DEP territories) to <3 acres of inland waterway and/or wetland fill and associated secondary impacts (e.g., areas drained, flooded, fragmented, or excavated). Fill area includes all temporary and permanent fill, and regulated discharges associated with excavation. Mechanical clearing without grubbing or other soil disturbance >3 acres as a secondary impact may still be eligible for Category 2 at the discretion of the Corps.</p> <p>2. Specific activities with impacts of any area ≥15,000 SF required to affect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority. Wetlands must be restored in place.</p> <p>3. Temporary structures, work, and discharges (including construction mats)⁴ ≥15,000 SF necessary for construction activities or access fills or dewatering of construction sites, provided that the associated primary activity is authorized by the Corps, authorized under Category 1, or not subject to Corps regulation. GCs 16 -19 are particularly relevant.</p> <p align="center">See GC 2 and Appendix C for wetland delineation requirements.</p>

ACTIVITY	CATEGORY 1	CATEGORY 2
<p>(b) BANK STABILIZATION PROJECTS</p>	<p>1. Inland bank stabilization <500 FT long and <1 CY of fill per linear foot below OHW, provided:</p> <ul style="list-style-type: none"> • ≤1 cubic yard of fill per linear foot placed along the bank waterward of ordinary high water. • Work complies with the GCs (GC 20 in particular), including: <ul style="list-style-type: none"> ○ No structures angled steeper than 1H:1V allowed. Only rough-faced stone or fiber roll revetments allowed. ○ No in-stream work involving fill or excavation in flowing waters (see GC 22(h)). • In-stream work limited to Jul 15 - Oct 1 [see GC 22 (l)]. • No work in vernal pools⁵ or SAS³. • GC 10 Endangered Species and GC 11 Essential Fish Habitat are particularly relevant. 	<p>1. Inland bank stabilization ≥500 FT long and/or ≥1 CY of fill per linear foot, or any amount with fill in wetlands.</p>
<p>(c) RIVER/ STREAM/ BROOK WORK & CROSSINGS and WETLAND CROSSINGS</p>	<p>1. River, stream and brook work and crossings:</p> <ul style="list-style-type: none"> • Must comply with GC 22 in particular, including: <ul style="list-style-type: none"> ○ No slip lining [see GC 22 (g)]. ○ No in-stream work involving fill or excavation in flowing waters [see GC 22(h)]. ○ In-stream work limited to Jul 15 - Oct 1 [see GC 22 (l)]. • No work in riffles and pools³. • No stream relocations. • No dams or dikes⁶. • Work in areas designated as Atlantic salmon critical habitat or occupied by listed Atlantic salmon, or any other area occupied by a listed species is not eligible for Category 1 (see GC 10). • No work in EFH streams except for the activities stated in GC 11. <p>2. Wetland crossings must comply with the particularly relevant GC 23.</p>	<p>1. Work not qualifying for Category 1.</p>

ACTIVITY	CATEGORY 1	CATEGORY 2
(d) REPAIR, REPLACEMENT, & MAINTENANCE OF AUTHORIZED FILLS	<p>1. Repair or maintenance of existing, currently serviceable, authorized fills with no expansion or change in use:</p> <ul style="list-style-type: none"> • Conditions of the original authorization apply • Minor deviations in fill design allowed.⁷ • The repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events is authorized, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. 	<p>2. Replacement of non-serviceable fills, or repair/maintenance of serviceable fill, with expansion <3 acres, or with a change in use.</p>
(e) MISCELL-ANEOUS	<p>1. Activities required for the containment and cleanup of oil and hazardous substances that are subject to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300) provided that the work is done in accordance with the Spill Control and Countermeasure Plan required by 40 CFR 112.3 and any existing state contingency plan and provided that the Regional Response Team (if one exists in the area) concurs with the proposed containment and cleanup action. SAS³ must typically be restored in place at the same elevation.</p> <p>2. Scientific measurement devices whose purpose is to measure and record scientific data, such as staff gages, water recording devices, water quality testing and improvement devices, and similar structures. This excludes any biological sampling devices. Structures may not restrict movement of aquatic organisms.</p> <p>3. Survey activities, such as core sampling, seismic exploratory operations, plugging of seismic shot holes and other exploratory-type bore holes, exploratory trenching, soil surveys, sampling, and historic resources surveys (but not recovery). Exploratory trenches must be restored in accordance with GC 19. The construction of temporary pads is authorized provided the discharge doesn't exceed 25 CY. This doesn't authorize permanent structures or the drilling and the discharge of excavated material from test wells for oil and gas exploration (the plugging of such wells is authorized).</p> <p>4. Any work not commenced nor completed that was authorized in a written letter from the Corps under the PGP in effect between October 11, 2005 and October 11, 2010. The terms and general conditions of this GP apply along with any special conditions in the written authorization.</p>	<p>1. Aquatic habitat restoration, establishment, and enhancement of wetlands and riparian areas and the restoration and enhancement of streams and other open waters with impacts of any area $\geq 15,000$ SF, provided those activities result in net increase in overall aquatic resource functions and services.⁸</p> <p>2. Projects where an EIS is required by the Corps are not eligible for Category 2.</p>

<p>II. NAVIGABLE WATERS</p>	<p>Navigable Waters of the United States: Waters that are subject to the ebb and flow of the tide and/or the tidal and non-tidal portions of the Federally designated navigable waters (the Penobscot River, Kennebec River, and Lake Umbagog) (Section 10 Rivers and Harbors Act of 1899). The jurisdictional limits are the mean high water (MHW) line in tidal waters and the ordinary high water (OHW) mark in non-tidal portions of the federally designated navigable rivers. For the purposes of this GP, fill placed in the area between the mean high water (MHW) and the high tide line (HTL), and in the bordering and contiguous wetlands¹ to tidal waters are also reviewed in this Navigable Waters section.</p> <p>Projects not meeting Category 1 require an application for review as a Category 2 or Individual Permit project.</p> <p>All Category 1 and 2 projects must comply with all of this GP's applicable terms (Pages 1 - 4) and general conditions (Pages 5 - 18).</p>	
<p>ACTIVITY</p>	<p>CATEGORY 1</p>	<p>CATEGORY 2</p>
<p>(a) FILL</p>	<p>1. Discharges of dredged or fill material incidental to the construction of bridges across navigable waters of the U.S., including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills provided the U.S. Coast Guard authorizes such discharges as part of the bridge permit or appropriate approval. Causeways and approach fills are not included in this category and require Category 2 or Individual Permit authorization.</p> <p>2. Bank stabilization projects <200 linear feet:</p> <ul style="list-style-type: none"> • ≤1 cubic yard of fill per linear foot placed along the bank waterward of high tide line. No fill or equipment will occur in SAS³. • Work conducted in the intertidal zone must be conducted in-the-dry during low water, or between Nov. 8 – Apr. 9. • No structures angled steeper than 1H:1V and only rough-faced stone or fiber roll revetments allowed. • No driving of piles or sheeting. <p>3. For 1 and 2 above:</p> <ul style="list-style-type: none"> • Project proponents must contact the USFWS for work on coastal beaches to ensure no impacts to piping plovers, roseate terns or their habitat [see GC 10(b)iii]. 	<p>1. <1 acre temporary or permanent fill, excavation and/or secondary impacts (e.g., areas drained, flooded, fragmented or mechanically cleared). Fill area includes all temporary and permanent waterway fills, provided:</p> <ul style="list-style-type: none"> • Temporary or permanent fill in eelgrass¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass¹⁴) <4300 SF.
<p>(b) STREAM WORK & CROSSINGS, and WETLAND CROSSINGS</p>	<p>1. No new fill for crossings allowed.</p>	<p>1. New crossings or replacement crossings that do not fit the (c) Repair and Maintenance activity below.</p>

ACTIVITY	CATEGORY 1	CATEGORY 2
<p>(c) REPAIR AND MAINTENANCE WORK</p>	<p>1. Repair, replacement in-kind, or maintenance⁷ of existing, currently serviceable⁷, authorized structures or fills:</p> <ul style="list-style-type: none"> • Conditions of the original authorization apply. • No substantial expansion or change in use. • Must be rebuilt in same footprint, however minor deviations in structure design allowed⁷. • The repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events is authorized, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. Minor deviations for work involving piles shall adhere to one of the 4 methods in a - d below: <ul style="list-style-type: none"> a. Piles installed in-the-dry during low water or in-water between Nov. 8th - Apr. 9th, or b. Must be drilled and pinned to ledge, or c. Vibratory hammers used to install any size and quantity of wood, concrete or steel piles, or d. Impact hammers limited to one hammer and <50 piles installed/day with the following: wood piles of any size, concrete piles ≤18-inches diameter, steel piles <12-inches diameter if the hammer is ≤3000 lbs and a wood cushion is used between the hammer and steel pile, and <ul style="list-style-type: none"> • For b – d above: <ul style="list-style-type: none"> ○ In-water noise levels shall not exceed >187dB SEL re 1μPa or 206dB peak re 1μPa at a distance >10m from the pile being installed, and ○ In-water noise levels >155dB peak re 1μPa shall not exceed 12 consecutive hours on any given day and a 12 hour recovery period (i.e., in-water noise below 155dB peak re 1μPa) must be provided between work days. • For a – d above: <ul style="list-style-type: none"> ○ Work is not eligible for Category 1 if conducted in tidal portions of the Penobscot river upstream of a line extending from Turner point in Castine to Moose Point (formerly squaw point) on Cape Jellison in Stockton Springs or in tidal portions of the Kennebec or Androscoggin Rivers upstream of a line extending from Doubling point in Arrowsic to Hospital Point in West Bath. 	<p>CATEGORY 2</p> <p>1. Replacement of non-serviceable structures and fills or repair/maintenance of serviceable structures or fills, with fill, replacement or expansion <1 acre, or with a change in use.</p>

ACTIVITY	CATEGORY 1	CATEGORY 2
<p>(d) DREDGING AND ASSOCIATED DISPOSAL</p>	<p>1. Maintenance dredging¹⁰ for navigational purposes <1,000 CY with upland disposal. Includes return water from upland contained disposal area, provided:</p> <ul style="list-style-type: none"> • Proper siltation controls are used. • Dredging & disposal operation limited to Nov. 8 – Apr. 9. • No impact to SAS³. • No dredging in intertidal areas. • No dredging in areas considered occupied by listed Atlantic salmon [see GC 10(b)(ii)]. • For dredging in waters outside of Atlantic salmon critical habitat, applicants must contact NMFS (Appendix D) to ensure no impacts to listed species such as shortnose sturgeon. • Project proponents must contact the USFWS for work on coastal beaches to ensure no impacts to piping plovers, roseate terns or their habitat [see GC 10(c)]. 	<p>1. Maintenance dredging¹⁰ ≥1,000 CY, new dredging <25,000 CY, or projects not meeting Category 1. Includes return water from upland contained disposal areas. Disposal includes:</p> <ul style="list-style-type: none"> • Upland. • Beach nourishment (above mean high water) of any area provided dredging's primary purpose is navigation or sand is from an upland source. • Open water & confined aquatic disposal, if Corps finds the material suitable. <p>2. Beach nourishment associated with dredging when the primary purpose is not navigation requires at least a Category 2 review.</p> <p>3. Maintenance or new dredging¹⁰ and/or disposal in or affecting a SAS³ requires an Individual Permit. See II(a) above for dredge disposal in wetlands or waters.</p>
<p>(e) MOORINGS</p>	<p>1. Private, non-commercial, non-rental, single-boat moorings, provided:</p> <ul style="list-style-type: none"> • Authorized by the local harbormaster/town. • Not associated with any boating facility.¹¹ • Boat or mooring not located in a Federal Navigation Project¹² other than a Federal Anchorage¹². Moorings in Federal Anchorage not associated with a boating facility¹¹ and are not for rent. • No interference with navigation. • No new moorings located in SAS³. Prior to installation of moorings, a site-specific eelgrass survey should be conducted to document that eelgrass is not present. • When existing, authorized moorings in SAS³ are going to be replaced, they shall be replaced with elastic mooring systems that prevent mooring chains from resting or dragging on the bottom substrate at all tides and helical anchors, or equivalent SAS protection systems where practicable. <p>2. Minor relocation of previously authorized moorings and moored floats, provided:</p> <ul style="list-style-type: none"> • Authorized by the local harbormaster/town. • Not located in SAS³ • No interference with navigation. • Cannot be relocated into a Federal Navigation Project¹² other than a Federal Anchorage¹² 	<p>1. Moorings associated with a boating facility¹¹. An eelgrass¹⁴ survey may be required.</p> <p>2. Moorings that don't meet the terms in Category 1 and don't require an Individual Permit. This includes private moorings with no harbormaster or means of local approval.</p> <p>3. Moorings located such that they, and/or vessels docked or moored at them, are within the buffer zone of the horizontal limits¹³ of a Federal Channel¹². (See Appendix F.) The buffer zone is equal to 3 times the authorized depth of that channel.</p> <p>4. An IP is required for moorings within the horizontal limits¹¹, or with moored vessels that extend, into the horizontal limits of a Federal Navigation Project¹², except those in Federal Anchorages¹².</p> <p>For 1-4 above, siting of new individual moorings in SAS³, including eelgrass¹⁴, should be avoided to the maximum extent practicable. If SAS³ cannot be avoided, plans should show elastic mooring systems that prevent mooring chains from resting or dragging on the bottom substrate at all tides and helical anchors, or equivalent SAS protection systems, where practicable.</p>

ACTIVITY	CATEGORY 1	CATEGORY 2
<p>(f) STRUCTURES AND FLOATS</p>	<p>1. Reconfiguration of existing, authorized structures or floats.</p> <p><u>Provided:</u></p> <p>a. Piles shall adhere to one of the 4 methods in (i) –(iv) below:</p> <ul style="list-style-type: none"> i. Piles installed in-the-dry during low water or in-water between Nov. 8th - Apr. 9th, or ii. Must be drilled and pinned to ledge, or iii. Vibratory hammers used to install any size and quantity of wood, concrete or steel piles, or iv. Impact hammers limited to one hammer and <50 piles installed/day with the following: wood piles of any size, concrete piles ≤18-inches diameter, steel piles <12-inches diameter if the hammer is ≤3000 lbs and a wood cushion is used between the hammer and steel pile. <p>b. For (ii) – (iv) above:</p> <ul style="list-style-type: none"> i. In-water noise levels shall not exceed > 187dB SEL re 1µPa or 206dB peak re 1µPa at a distance >10m from the pile being installed, and ii. In-water noise levels >155dB peak re 1µPa shall not exceed 12 consecutive hours on any given day and a 12 hour recovery period (i.e., in-water noise below 155dB peak re 1µPa) must be provided between work days. <p>c. For (i) –(iv) above:</p> <ul style="list-style-type: none"> i. Work is not eligible for Category 1 if conducted in tidal portions of the Penobscot river upstream of a line extending from Turner point in Castine to Moose Point (formerly squaw point) on Cape Jellison in Stockton Springs or in tidal portions of the Kennebec or Androscoggin Rivers upstream of a line extending from Doubling point in Arrowsic to Hospital Point in West Bath. 	<p>CATEGORY 2</p> <p>1. Private structures or floats, including floatways/skidways, built to access waterway (seasonal and permanent)</p> <p>2. Expansions to existing boating facilities¹¹.</p> <p>For 1 & 2 above, compliance with the following design standards is not required but recommended:</p> <ul style="list-style-type: none"> ● Pile-supported structures <400 SF, with attached floats totaling ≤200 SF. ● Bottom anchored floats ≤200 SF. ● Structures are ≤4’ wide and have at least a 1:1 height:width ratio¹¹. ● Floats supported a minimum of 18” above the substrate during all tides. ● Structures & floats not located within 25’ of any eelgrass⁸. ● Moored vessels not positioned over SAS⁴. ● No structure located within 25’ of the riparian property boundary without written approval from the abutter(s). ● No structure extends across >25% of the waterway width at mean low water. ● Not located within the buffer zone of the horizontal limits¹³ of a Corps Federal Navigation Project (FNP) (App. F). The buffer zone is equal to three times the authorized depth of that FNP. <p>3. An Individual Permit is required for structures or floats, including floatways/skidways, located such that they and/or vessels docked or moored at them are within the horizontal limits¹³ of a Corps Federal Navigation Project¹² (see App. F).</p> <p>4. An Individual Permit is required for structures & floats associated with a new or previously unauthorized boating facility¹¹.</p>

ACTIVITY	CATEGORY 1	CATEGORY 2
(g) MISCELL- ANEOUS	<p>1. Temporary buoys, markers, floats, etc. for recreational use during specific events, provided they are removed within 30 days after use is discontinued.</p> <p>2. The placement of aids to navigation and regulatory markers which are approved by and installed in accordance with the requirements of the U.S. Coast Guard. (See 33 CFR 66, Chapter I, subchapter C).”</p> <p>3. Activities required for the containment and cleanup of oil and hazardous substances that are subject to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300) provided that the work is done in accordance with the Spill Control and Countermeasure Plan required by 40 CFR 112.3 and any existing state contingency plan and provided that the Regional Response Team (if one exists in the area) concurs with the proposed containment and cleanup action. SAS³ must typically be restored in place at the same elevation.</p> <p>4. Fish and wildlife harvesting, enhancement, and attraction devices and activities such as pound nets, crab traps, crab dredging, eel pots, lobster traps, and clam and oyster digging, and small fish attraction devices such as open water fish concentrators (sea kites, etc.). This does not authorize artificial reefs or impoundments and semi-impoundments of waters of the U.S. for the culture or holding of motile species such as lobster, or the use of covered oyster trays or clam racks. No activity that results in a hazard to navigation. Note: A Category 1 Notification Form is not required for these devices and activities.</p> <p>5. Scientific measurement devices whose purpose is to measure and record scientific data, such as staff gages, water recording devices, water quality testing and improvement devices, and similar structures. Structures may not restrict movement of aquatic organisms. No activity results in a hazard to navigation.</p> <p>6. Survey activities such as exploratory drilling, surveying and sampling activities, excluding any biological sampling devices. Does not include oil and gas exploration and fill for roads or construction pads. No activity results in a hazard to navigation. Applicants must contact NMFS to ensure no impacts to listed species.</p>	<p>1. Structures or work in or affecting tidal or navigable waters, that are not defined under any of the previous headings listed above. Includes, but is not limited to, utility lines, aerial transmission lines, pipelines, outfalls, boat ramps, floatways/skidways, bridges, tunnels and horizontal directional drilling activities seaward of the mean high water line.</p> <p>2. Shellfish/finfish (other than Atlantic salmon), or other aquaculture facilities with no more than minimal individual and cumulative impacts to environmental resources or navigation. –Aquaculture guidelines are provided at: www.maine.gov/dmr/aquaculture/index.htm.</p> <p>3. Specific activities with impacts of any area required to affect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority. Wetlands must typically be restored in place at the same elevation to qualify.</p> <p>4. Aquatic habitat restoration, establishment and enhancement provided those activities are proactive and result in net increases in aquatic resource functions and services.⁸</p> <p>5. Projects where an EIS is required by the Corps are not eligible for Category 2.</p>

ACTIVITY	CATEGORY 1	CATEGORY 2
<p>(g) MISCELL-ANEIOUS (continued)</p>	<p>7. Shellfish seeding (brushing the flats⁹) projects.</p> <p>8. Marine railway work not eligible for maintenance⁷ (i.e. not currently serviceable⁷ or in non-compliance) may be replaced “in-kind” with minor deviations⁷ provided:</p> <ul style="list-style-type: none"> • Work is in the intertidal zone • No fill expansion below high tide line. • Work conducted in-the-dry during low water or in-water between Nov. 8 – Apr. 9. <p>9. Test plots <100 SF for the planting of wetland species native to the area. No grading, no structures, no plant growing devices and no interference with navigation, which require at least Category 2 review.</p> <p>10. Any work not commenced nor completed that was authorized in a written letter from the Corps under the PGP in effect between October 11, 2005 and October 11, 2010. The terms and general conditions of this GP apply along with any special conditions in the written authorization</p>	

Endnotes/Definitions

¹ **Bordering and Contiguous Wetlands:** A bordering wetland is immediately next to its adjacent waterbody and may lie at, or below, the ordinary high water mark (mean high water in navigable waters) of that waterbody and is directly influenced by its hydrologic regime. Contiguous wetlands extend landward from their adjacent waterbody to a point where a natural or manmade discontinuity exists. Contiguous wetlands include bordering wetlands as well as wetlands that are situated immediately above the ordinary highwater mark and above the normal hydrologic influence of their adjacent waterbody. Note, with respect to the federally designated navigable rivers, the wetlands bordering and contiguous to the tidally influenced portions of those rivers are reviewed under “II. Navigable Waters.”

² **Direct, Secondary, and Cumulative Impacts/Effects:**

Direct Impacts: The immediate loss of aquatic ecosystem within the footprint of the fill.

Secondary Impacts: These are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material. Information about secondary effects on aquatic ecosystems shall be considered prior to the time final section 404 action is taken by permitting authorities. Some examples of secondary effects on an aquatic ecosystem are a) fluctuating water levels in all impoundment and downstream associated with the operation of a dam, b) septic tank leaching and surface runoff from residential or commercial developments on fill, and c) leachate and runoff from a sanitary landfill located in waters of the U.S. Put another way, secondary effects are those impacts outside the footprint of the fill that arise from and are associated with the discharge of dredged or fill material, including the operation of an activity or facility associated with the discharge. Examples may include habitat fragmentation; interruption of travel corridors for wildlife (for example, for amphibians that migrate to and from seasonal or vernal pools used as breeding habitat); hydrologic regime changes; and impacts from operation and maintenance activities for constructed facilities; such as noise/lighting, storm water runoff, and road kill of wetland dependent wildlife. Using the directions contained in the guidelines, we consider the circumstances of a proposed discharge and the project of which it is a part to evaluate the scope, extent, severity, and permanence of direct, secondary, and cumulative adverse effects upon the aquatic ecosystem.

Cumulative Impacts: The extent of past, present, and foreseeable developments in the area may be an important consideration in evaluating the significance of a particular project's impacts. Although the impacts associated with a particular discharge may be minor, the cumulative effect of numerous similar discharges can result in a large impact. Cumulative impacts should be estimated only to the extent that they are reasonable and practical.

³**Special Aquatic Sites:** Includes wetlands and saltmarsh, mudflats, riffles and pools, and vegetated shallows (predominantly comprised of eelgrass in Maine).

⁴**Construction Mats:** Constructions, swamp and timber mats (herein referred to as "construction mats") are generic terms used to describe structures that distribute equipment weight to prevent wetland damage while facilitating passage and providing work platforms for workers and equipment. They are comprised of sheets or mats made from a variety of materials in various sizes. A timber mat consists of large timbers bolted or cabled together. Corduroy roads, which are not considered to be construction mats, are cut trees and/or saplings with the crowns and branches removed, and the trunks lined up next to one another. Corduroy roads are typically installed as permanent structures. Like construction mats, they are considered as fill whether they're installed temporarily or permanently.

⁵**Vernal Pools:** A vernal pool, also referred to as a seasonal forest pool, is a temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish. A vernal pool may provide the primary breeding habitat for wood frogs (*Rana sylvatica*), spotted salamanders (*Ambystoma maculatum*), blue-spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubranchipus* sp.), as well as valuable habitat for other plants and wildlife, including several rare, threatened, and endangered species. A vernal pool intentionally created for the purposes of compensatory mitigation is included in this definition. For the purposes of this GP, the presence of any of the following species in any life stage in any abundance level/quantity would designate the waterbody as a vernal pool: fairy shrimp, blue spotted salamanders, spotted salamanders or wood frogs. The Corps may determine during a Category 2 review that a waterbody should not be regulated as a VP based on available evidence. For the purposes of this GP*, the VP Management Areas are the: Vernal Pool Depression (includes the vernal pool depression up to the spring or fall high water mark, and includes any vegetation growing within the depression), Vernal Pool Envelope (area within 100 FT of the VP Depression's edge) and Critical Terrestrial Habitat (area within 100-750 FT of the Vernal Pool Depression's edge). [*Note: Critical Terrestrial Habitat is defined as 100 -750 FT on page 243 of the document "Science and Conservation of Vernal Pools in Northeastern North America," Calhoun and deMaynadier, 2008, which is referenced in Appendix E, page 3, Paragraph 10(b).

⁶**Water Diversions:** Water diversions are activities such as bypass pumping or water withdrawals. Temporary flume pipes, culverts or cofferdams where normal flows are maintained within the stream boundary's confines aren't water diversions. "Normal flows" are defined as no change in flow from pre-project conditions.

⁷**Maintenance:** a) In accordance with 33 CFR 323.4(a)(2), any discharge of dredged or fill material that may result from any of the following activities is not prohibited by or otherwise subject to regulation under Section 404 of the CWA: "Maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, bridge abutments or approaches, and transportation structures. Maintenance does not include any modification that changes the character, scope, or size of the original fill design." Otherwise, the following work is regulated and subject to the Category 1 or 2 thresholds in Appendix A above: The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3 – "Activities occurring before certain dates," provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. b) Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards that are necessary to make repair, rehabilitation, or replacement are authorized. c) Currently serviceable means useable as is or with some maintenance, but not so degraded as to essentially require reconstruction. d) No seaward expansion for bulkheads or any other fill activity is considered Category 1 maintenance. e) Only structures or fills that were previously authorized and are in compliance with the terms and condition of the original authorization can be maintained as a non-regulated activity under 33 CFR 323.4(a)(2), or in accordance with the Category 1 or 2 thresholds in Appendix A. f) The state's maintenance provisions may differ from the Corps and may require reporting and written authorization from the state. g) Contact the Corps to determine whether stream crossing replacements require a written application to the Corps for at least a Category 2 review.

⁸**Aquatic Habitat Restoration, Establishment and Enhancement:** The Corps will decide if a project qualifies and must determine in consultation with federal and state agencies that the net effects are beneficial. The Corps may refer to Nationwide Permit 27 published in the 3/12/07 Federal Register. Activities authorized here may include, but are not limited to: the removal of accumulated sediments; the installation, removal, and maintenance of small water control structures, dikes, and berms; the installation of current deflectors; the enhancement, restoration, or establishment of riffle and pool stream structure; the placement

of in-stream habitat structures; modifications of the stream bed and/or banks to restore or establish stream meanders; the backfilling of artificial channels and drainage ditches; the removal of existing drainage structures; the construction of small nesting islands in inland waters; the construction of open water areas; the construction of native shellfish species habitat over unvegetated bottom for the purpose of habitat protection or restoration in tidal waters; shellfish seeding; activities needed to reestablish vegetation, including plowing or discing for seed bed preparation and the planting of appropriate wetland species; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.

⁹ **Brushing the Flats:** The placement of tree boughs, wooden lath structure, or small-mesh fencing on mudflats to enhance recruitment of soft-shell clams (*Mya arenaria*).

¹⁰ **Maintenance Dredging:** This includes only those areas and depths previously authorized by the Corps and dredged.

¹¹ **Boating Facilities:** Facilities that provide for a fee, rent, or sell mooring space, such as marinas, yacht clubs, boat clubs, boat yards, town facilities, dockminiums, etc.

¹² **Federal Navigation Projects (FNPs):** FNPs are comprised of Federal Channels and Federal Anchorages. See Appendix F for their location and contact the Corps for more information. “Horizontal Limits” is the outer edge of an FNP. “Buffer Zone” is equal to three times the authorized depth of that channel.

¹³ **Horizontal Limits:** The outer edge of a Federal Navigation Project (FNP). See Appendix F and contact the Corps for information on FNP’s.

¹⁴ **Eelgrass (*Zostera marina*):** A type of rooted aquatic vegetation that exists in intertidal and shallow subtidal areas known as vegetated shallows. See www.nero.noaa.gov/hcd/ for eelgrass survey guidance.

¹⁵ **Structures:** The height of structures shall at all points be equal to or exceed the width of the deck. For the purpose of this definition, height shall be measured from the marsh substrate to the bottom of the longitudinal support beam.



**US Army Corps
of Engineers**[®]
New England District

Appendix B: Category 1 Notification Form
(for all Inland and Navigable Water Projects
in Maine subject to Corps jurisdiction)

Two (2) weeks **before** work commences, submit this to the following mailing address or complete the form at www.nae.usace.army.mil/reg, “State General Permits,” “Maine.” Call (207) 623-8367 with any questions.

Maine Project Office
U.S. Army Corps of Engineers
New England District
675 Western Avenue #3
Manchester, Maine 04351

State Permit Number: _____
Date of State Permit: _____
State Project Manager: _____

Permittee: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Contractor: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Consultant/Engineer/Designer: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Wetland/Vernal Pool Consultant: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Project Location/Description: _____
Address, City, State & Zip: _____
Latitude/Longitude Coordinates: _____
Waterway Name: _____
Work Description: _____

Provide any prior Corps permit numbers: _____
Proposed Work Dates: Start: _____ Finish: _____

Area of wetland impact: _____ SF (leave blank if work involves structures & no fill in Navigable Waters)
Area of waterway impact: _____ SF (leave blank if work involves structures & no fill in Navigable Waters)
Area of compensatory mitigation provided: _____ SF

Work will be done under the following Appendix A categories (circle all that apply):

- I. Inland Waters and wetlands: a b c d e
- II. Navigable Waters: a b c d e f g

Your name/signature below, as permittee, indicates that you accept and agree to comply with the terms, eligibility criteria, and general conditions of Category 1 of the Maine General Permit.

Permittee Printed Name: _____

Permittee Signature: _____ Date: _____



**US Army Corps
of Engineers**®
New England District

Appendix C: Information Typically Required for Department of the Army Permits (Category 2 & Individual Projects)

The following information may not be necessary for all projects. For a more comprehensive checklist, go to www.nae.usace.army.mil/reg “Forms” and then “Application and Plan Guideline Checklist.” Please check with our Maine office for project-specific requirements at (207) 623-8367.

All Projects:

- Corps application form ([ENG Form 4345](#)) as appropriate.
- Photographs of wetland/waterway to be impacted.
- Purpose of the project.
- Legible, reproducible black and white (no color) plans no larger than 11”x17” with bar scale. Provide locus map and plan views of the entire property.
- Typical cross-section views of all wetland and waterway fill areas and wetland replication areas.
- In navigable waters, show mean low water (MLW) and mean high water (MHW) elevations. Show the high tide line (HTL) elevations when fill is involved. In other waters, show ordinary high water (OHW) elevation.
- On each plan, show the following for the project:
 - Vertical datum and the NAVD 1988 equivalent with the vertical units as U.S. feet. Don’t use local datum. In coastal waters this may be mean higher high water (MHHW), mean high water (MHW), mean low water (MLW), mean low lower water (MLLW) or other tidal datum with the vertical units as U.S. feet. MLLW and MHHW are preferred. Provide the correction factor detailing how the vertical datum (e.g., MLLW) was derived using the latest National Tidal Datum Epoch for that area, typically 1983-2001.
 - Horizontal state plane coordinates in U.S. survey feet based on the [insert state grid system] for the [insert state] [insert zone] NAD 83.
- Show project limits with existing and proposed conditions.
- Limits of any Federal Navigation Project in the vicinity of the project area and horizontal State Plane Coordinates in U.S. survey feet for the limits of the proposed work closest to the Federal Navigation Project;
- Volume, type, and source of fill material to be discharged into waters and wetlands, including the area(s) (in square feet or acres) of fill in wetlands, below the ordinary high water in inland waters and below the high tide line in coastal waters.
- Delineation of all waterways and wetlands on the project site, including vernal pools:
 - Use federal delineation methods and include Corps wetland delineation data sheets. See GC 2; Endnotes 1, 3 and 14 in Appendix A; and www.nero.noaa.gov/hcd for eelgrass survey guidance.
 - Appendix A, (e) Moorings, contains eelgrass survey requirements for the placement of moorings.
 - Labels on the plans should indicate whether the federal wetland is also a ME DEP “Wetlands of Special Significance,” i.e, coastal wetland, great pond, or one of the eight “Freshwater Wetlands of Special Significance” such as “Critically imperiled or imperiled community,” “Significant wildlife habitat,” etc. [see Appendix E, 10(a)].
- For activities involving discharges of dredged or fill material into waters of the U.S., include a statement describing how impacts to waters of the U.S. are to be avoided and minimized, and either a statement describing how impacts to waters of the U.S. are to be compensated for (or a conceptual or detailed mitigation plan) or a statement explaining why compensatory mitigation should not be required for the proposed impacts. Please contact the Corps for guidance.

- Provide information on secondary and cumulative effects associated with the project (see GC 3).
- Indicate that application materials were submitted to the Maine Historic Preservation Commission (MHPC) and the appropriate tribes (see Section 3(d) on Page 4).
- The name(s) of federal endangered and threatened “listed species or habitat” present in the action area (see GC 10 and Appendix E).
- Identify and describe potential impacts to Essential Fish Habitat (see GC 11).
- Invasive Species Control Plan (see GC 29).

Information typically required for dredging projects:

- Sediment testing, including physical (e.g., grain-size analysis), chemical and biological testing. For projects proposing open water disposal, applicants are encouraged to contact the Corps as early as possible regarding sampling and testing protocols. Sampling and testing of sediments without such contact should not occur and if done, would be at the applicant’s risk.
- The area in square feet and volume of material to be dredged below mean high water.
- Existing and proposed water depths.
- Type of dredging equipment to be used.
- Nature of material (e.g., silty sand).
- Any existing sediment grain size and bulk sediment chemistry data for the proposed or any nearby projects.
- Information on the location and nature of municipal or industrial discharges and occurrence of any contaminant spills in or near the project area.
- Shellfish survey.
- Location of the disposal site (include locus sheet).
- Identify and describe potential impacts to Essential Fish Habitat (see GC 11).
- Delineation of submerged aquatic vegetation (e.g., eelgrass beds).

Appendix D: Contacts and Tribal Areas of Interest

1. **FEDERAL**

U.S. Army Corps of Engineers

Maine Project Office
675 Western Avenue #3
Manchester, Maine 04351
(207) 623-8367; (207) 623-8206 (fax)

Federal Endangered Species

U.S. Fish and Wildlife Service
Maine Field Office
17 Godfrey Drive, Suite 2
Orono, Maine 04473
(207) 866-3344; (207) 866-3351 (fax)

Wild and Scenic Rivers

National Park Service
North Atlantic Region
15 State Street
Boston, Massachusetts 02109
(617) 223-5203

Bridge Permits

Commander (obr)
First Coast Guard District
One South Street - Battery Bldg
New York, New York 10004
(212) 668-7021; (212) 668-7967 (fax)

Federal Endangered Species

National Marine Fisheries Service
Maine Field Office
17 Godfrey Drive Suite 1
Orono, ME 04473
(207) 866-7379; (978) 866-7342 (fax)

Federal Endangered Species & EFH

National Marine Fisheries Service
55 Great Republic Drive
Gloucester, Massachusetts 01930
(978) 281-9102; (978) 281-9301 (fax)

2. **STATE OF MAINE**

Maine Department of Environmental Protection (for State Permits & Water Quality Certifications)

Division of Land Resource Regulation
Bureau of Land and Water Quality
17 State House Station
Augusta, Maine 04333
(207) 287-7688

Eastern Maine Regional Office
106 Hogan Road
Bangor, Maine 04401
(207) 941-4570

Southern Maine Regional Office
312 Canco Road
Portland, Maine 04103
(201) 822-6300

Northern Maine Regional Office
1235 Central Drive - Skyway Park
Presque Isle, Maine 04769
(207) 764-0477

Maine Land Use Regulation Commission (LURC) (www.maine.gov/doc/lurc/offices.html)

22 State House Station
Augusta, Maine 04333-0022
(207) 287-2631; (207) 287-7439 (fax)

106 Hogan Rd, Suite 7
Bangor, Maine 04401
(207) 941-4052; (207) 941-4222 (fax)

Lakeview Drive
P.O. Box 1107
Greenville, Maine 04441
(207) 695-2466; (207) 695-2380 (fax)

45 Radar Road
Ashland, ME 04732-3600
(207) 435-7963; (207) 435-7184 (fax)

191 Main Street
East Millinocket, ME 04430
(207) 746-2244; (207) 746-2243 (fax)

(For CZM Determinations)

State Planning Office
Coastal Program
184 State Street
State House Station 38
Augusta, Maine 04333
(207) 287-1009

(For Aquaculture Leases)

Maine Department of Marine Resources
P.O. Box 8
West Boothbay Harbor, Maine 04575
(207) 633-9500

(For Submerged Lands Leases)

Maine Department of Conservation
Bureau of Parks and Lands
22 State House Station
Augusta, Maine 04333
(207) 287-3061

3. HISTORIC PROPERTIES

Maine Historic Preservation Commission
(MHPC)

State House Station 65
Augusta, Maine 04333-0065
(207) 287-2132; (207) 287-2335 (fax)

Aroostook Band of Micmacs

Attn: Victoria Higgins, Chief
7 Northern Road
Presque Isle, Maine 04769
(207) 764-1972; (207) 764-7667 (fax)

Houlton Band of Maliseet Indians

Attn: Sharri Venno, Environmental Planner
88 Bell Road
Littleton, Maine 04730
(207) 532-4273, x215; (207) 532-1883 (fax)
envplanner@maliseets.com

Passamaquoddy Tribe of Indians

Indian Township Reservation
Attn: Donald Soctomah, THPO
P.O. Box 301
Princeton, Maine 04668
(207) 796-2301; (207) 796-5256 (fax)

Passamaquoddy Tribe of Indians

Pleasant Point Reservation
Attn: Donald Soctomah, THPO
P.O. Box 343
Perry, Maine 04667
(207) 853-2600; (207) 853-6039 (fax)

Penobscot Indian Nation

Indian Island Reservation
Attn: Ms. Bonnie Newsom, THPO
12 Wabanaki Way
Indian Island, Maine 04468
(207) 817-7471; (207) 817-7450 (fax)

4. ORGANIZATIONAL WEBSITES:

Army Corps of Engineers, N.E. District
Army Corps of Engineers, Headquarters
Environmental Protection Agency
National Marine Fisheries Service
U.S. Fish and Wildlife Service
National Park Service
State of Maine
Maine Department of Environmental Protection
Maine Land Use Regulation Commission
State of Maine -Aquaculture Guidelines

www.nae.usace.army.mil/reg
www.usace.army.mil/CECW/Pages/cecwo_reg.aspx
www.epa.gov/owow/wetlands
www.nmfs.noaa.gov
www.fws.gov/mainefieldoffice
www.nps.gov/rivers/index.html
www.maine.gov
www.maine.gov/dep
www.maine.gov/doc/lurc
www.maine.gov/dmr/aquaculture/index.htm

Appendix E: Additional References

1. GC 2: Federal Jurisdictional Boundaries.

(a) Corps Wetlands Delineation Manual, regional supplements, and Corps Wetland Delineation Data Sheets: www.nae.usace.army.mil/reg and then “Wetlands and Jurisdictional Limits.”

(b) The USFWS publishes the 1988 National List of Plant Species that Occur in Wetlands (www.nwi.fws.gov).

The Natural Resources Conservation Service (NRCS) publishes the current hydric soil definition, criteria and lists: <http://soils.usda.gov/use/hydric>. For the Field Indicators for Identifying Hydric Soils in N.E., see www.neiwpcc.org/hydricsoils.asp.

2. GC 5:

Single and complete project means the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. For example, if construction of a residential development affects several different areas of a headwater or isolated water, or several different headwaters or isolated waters, the cumulative total of all filled areas should be the basis for deciding whether or not the project will be covered by Category 1 or 2.

The *Independent utility* test is used to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

3. GC 10: Threatened and Endangered Species.

(a) The following NMFS site must be referenced to ensure that listed species or critical habitat are not present in the action area [GC 10(b)] or to provide information on federally-listed species or habitat [GC 10(e)]: www.nero.noaa.gov/prot_res/esp/ListE&Tspec.pdf. Contact the USFWS for information to check for the presence of listed species (see Appendix D for contact information).

(b) The Endangered Species Act Consultation Handbook – Procedures for Conducting Section 7 Consultations and Conferences, defines action area as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. [50 CFR 402.02].”

4. GC 11: Essential Fish Habitat.

As part of the PGP screening process, the Corps may coordinate with NMFS in accordance with the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act to protect and conserve the habitat of marine, estuarine and anadromous finfish, mollusks, and crustaceans. This habitat is termed “Essential Fish Habitat (EFH)”, and is broadly defined to include “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” There are EFH waters throughout inland and coastal waters in Maine. For additional information, see the EFH regulations 50 CFR 600 at www.nero.noaa.gov/hcd including the “Guide for EFH Descriptions” at www.nero.noaa.gov/hcd/list.htm. Additional information on the location of EFH can be obtained from NMFS (see Appendix D for contact information).

5. GC 16: Avoidance, Minimization and Compensatory Mitigation.

(a) See www.nae.usace.army.mil/reg and then “Mitigation” to view the April 10, 2008 “Final Compensatory Mitigation Rule” (33 CFR 332) and related documents. The Q&A document states: “In order to reduce risk and uncertainty and help ensure that the required compensation is provided, the rule establishes a preference hierarchy for mitigation options. The most preferred option is mitigation

bank credits, which are usually in place before the activity is permitted. In-lieu fee program credits are second in the preference hierarchy, because they may involve larger, more ecologically valuable compensatory mitigation projects as compared to permittee-responsible mitigation. Permittee-responsible mitigation is the third option, with three possible circumstances: (1) conducted under a watershed approach, (2) on-site and in kind, and (3) off-site/out-of-kind.

(b) Compensatory mitigation may take the form of wetland preservation, restoration, enhancement, creation, and/or in lieu fee (ILF) for inclusion into the Natural Resources Mitigation Fund for projects in DEP and LURC territories. Avoidance of wetland impacts will reduce the ILF dollar total for applicants. The ILF compensation program was established to provide applicants with a flexible compensation option over and above traditional permittee responsible compensation projects. See the Maine ILF Agreement at www.nae.usace.army.mil/reg, “Mitigation” and then “Maine,” or www.maine.gov/dep/blwq/docstand/nrpa/ILF_and_NRCP/index.htm.

6. GCs 19 and 29: Invasive Species.

(a) Information on what are considered “invasive species” is provided in our “Compensatory Mitigation Guidance” document at www.nae.usace.army.mil/reg under “Mitigation.” The “Invasive Species” section has a reference to our “Invasive Species Control Plan (ISCP) Guidance” document, located at www.nae.usace.army.mil/reg under “Invasive Species,” which provides information on preparing an ISCP.

(b) The June 2009 “Corps of Engineers Invasive Species Policy” is at www.nae.usace.army.mil/reg under “Invasive Species” and provides policy, goals and objectives.

7. GC 20: Bank Stabilization.

This generally eliminates bodies of water where the reflected wave energy may interfere with or impact on harbors, marinas, or other developed shore areas. A revetment is sloped and is typically employed to absorb the direct impact of waves more effectively than a vertical seawall. It typically has a less adverse effect on the beach in front of it, abutting properties and wildlife. See the Corps Coastal Engineering Manual [EM 1110-2-1100](#) at www.nae.usace.army.mil/reg under “Useful Links and Documents” for design and construction guidance.

8. GC 22: Stream Crossings and Work.

(a) Projects should be designed and constructed to ensure long-term success using the most recent manual located at www.nae.usace.army.mil/reg under “Stream and River Continuity,” currently “Stream Simulation: An Ecological Approach to Providing Passage for Aquatic Organisms at Road-Stream Crossings, by the U.S. Forest Service.” Section 5.3.3 is of particular importance. Sections 7.5.2.3 Construction Methods and 8.2.11 Stream-Simulation Bed Material Placement both show important steps in the project construction.

(b) For more information on High-Quality Stream Segments and their components see:

i. High-Quality Stream Segments are shown at www.maine.gov/dep/gis/datamaps.

ii. Class A Waters or Class AA Waters:

www.mainelegislature.org/legis/statutes/38/title38sec465.html, and

www.mainelegislature.org/legis/statutes/38/title38sec467.html.

iii. Outstanding river segments www.mainelegislature.org/legis/statutes/38/title38sec480-P.html.

(c) The Massachusetts Dam Removal and the Wetland Regulations guidance may be used to evaluate the positive and negative impacts of culvert replacement, including the loss of upstream wetlands, which may be offset by the overall benefits of the river restoration. See www.nae.usace.army.mil/reg and then “Stream and River Continuity.”

(d) The ME DOT’s document “Waterway and Wildlife Crossing Policy and Design Guide for Aquatic Organism, Wildlife Habitat, and Hydrologic Connectivity,” 3rd Edition, July 2008, may be used to

evaluate impacts to aquatic, wildlife and surface water resources when designing, constructing, repairing and maintaining stream crossings. Note: Adherence to this DOT document does not ensure compliance with this GP. Projects must comply with the requirements of this GP including GC 22 and the Corps General Stream Crossing Standards contained therein.

www.maine.gov/mdot/environmental-office-homepage/fishpassage/3rd%20edition%20-%20merged%20final%20version%207-01-08a1.pdf.

(e) GC 22(f): The Skidder Bridge Fact Sheet at www.nae.usace.army.mil/reg under “Stream and River Continuity” may be a useful temporary span construction method.

9. GC 23: Wetland Crossings. The Maine DEP’s crossing standards are at 06-096 DEP, Chapter 305: Permit by Rule, 9) Crossings (utility lines, pipes and cables).
www.maine.gov/dep/blwq/rules/NRPA/2009/305/305_effective_2009.pdf

10. GC 28: Protection of Vernal Pools.

(a) The state’s Significant Wildlife Habitat rules ([Chapter 335](#), Section 9(C) “Habitat management standards for significant vernal pool habitat”) are located at www.maine.gov/dep/blwq/docstand/nrpapage.htm#rule under “Rules.”

(b) The following documents provide conservation recommendations:

i. Best Development Practices: Conserving pool-breeding amphibians in residential and commercial development in the northeastern U.S., Calhoun and Klemens, 2002. Chapter III, Management Goals and Recommendations, Pages 15 – 26, is particularly relevant. (Available for purchase at www.maineaudubon.org/resource/index.shtml and on Corps website*.)

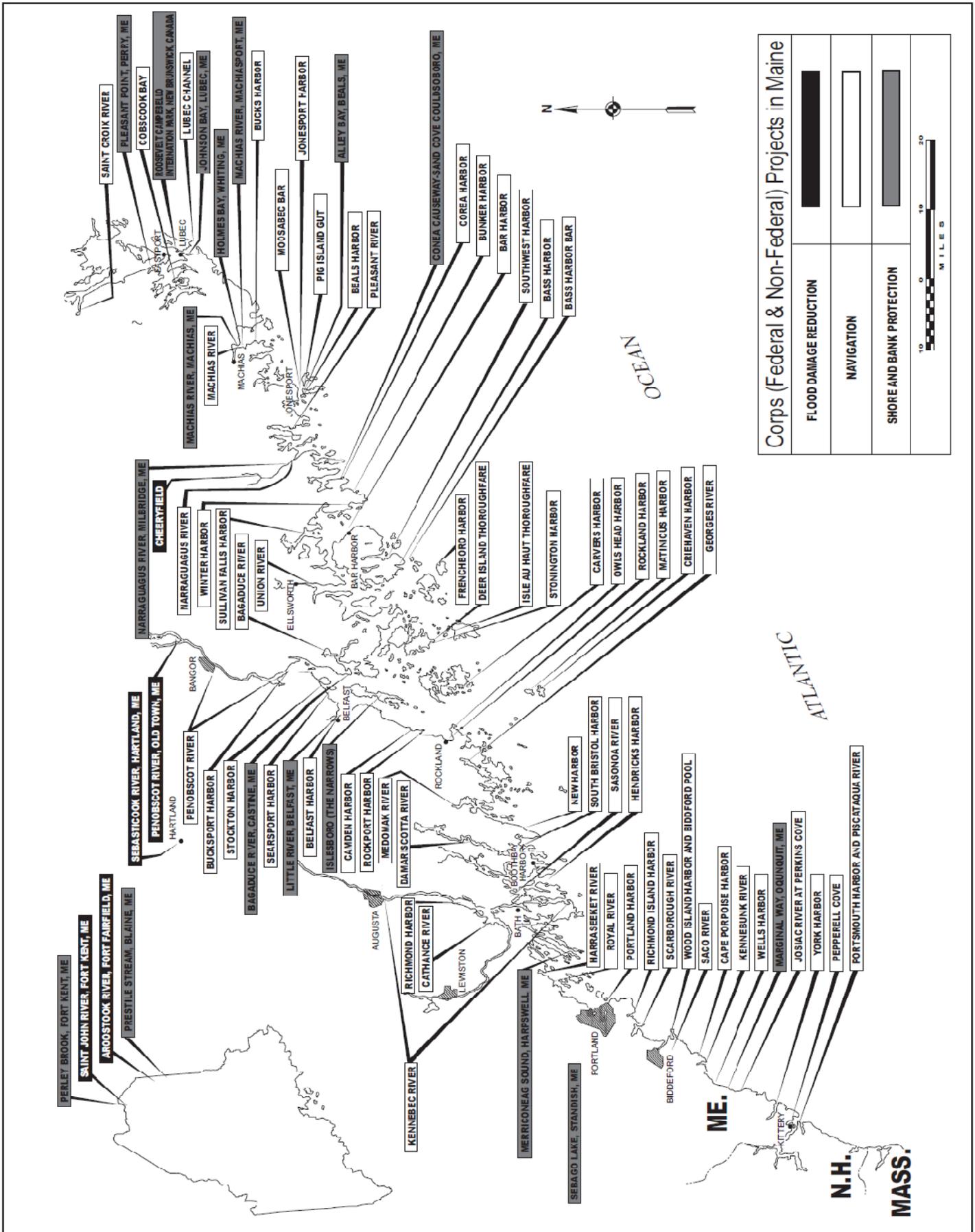
ii. Science and Conservation of Vernal Pools in Northeastern North America, Calhoun and deMaynadier, 2008. Chapter 12, Conservation Recommendations section, Page 241, is particularly relevant. (Available for purchase via the internet. Chapter 12 is available on Corps website*.)
* www.nae.usace.army.mil/reg under “Vernal Pools.”

(c) Cape Cod Curbing: For smaller roads and driveways, the most important design feature to consider is curbing. Granite curbs and some traditional curbing can act as a barrier to amphibian and hatchling turtle movements. Large numbers of salamanders have been intercepted in their migrations by curbs and catch basins. Use of Cape Cod curbs rather than traditional curbing may be one solution. Alternatively, where storm water management systems require more traditional curbing, it may be possible to design in escape ramps on either side of each catch basin. Cape Cod curbing is shown on Page 35 of the document cited in 10.b.i above. Bituminous material is not required; other materials such as granite are acceptable.

(d) The VP Directional Buffer Guidance document is located at www.nae.usace.army.mil/reg under: 1) “State General Permits” and then “Maine,” and 2) “Vernal Pools.”

11. GC 32: Maintenance. River restoration projects that are designed to accommodate the natural dynamic tendencies of the fluvial system are maintained in accordance with the project’s design objectives (Category 1) or the Corps authorization letter (Category 2). These projects are generally designed to support and implement channel assessment and management practices that recognize a stream’s natural dynamic tendencies.

Appendix F: Corps Projects in Maine



12/01/2008

DEPARTMENT OF ENVIRONMENTAL PROTECTION PERMIT BY RULE NOTIFICATION FORM (For use with DEP Regulation, Chapter 305)

PLEASE TYPE OR PRINT IN BLACK INK ONLY

Name of Applicant: (owner)	Maine Turnpike Authority Steve Tartre, P.E.	Name of Agent:	HNTB Corporation Kevin Slattery, PWS
Applicant Mailing Address:	2360 Congress Street	Agent Phone # (include area code):	617-532-2243
Town/City:	Portland	PROJECT Information Name of Town/City:	Lewiston
State and Zip code:	Maine, 04102	Name of Wetland or Waterbody:	Unknown wetlands in the Hart Brook Watershed
Daytime Phone # (include area code):	207-871-7771	Map #:	Lot #:
Detailed Directions to Site: From 95 North or South the site is located at the Exit 80 Interchange in Lewiston, ME.			
		UTM Northing: (if known)	4880576 UTM Easting: (if known) 405142
Description of Project:	The project includes the alteration of Exit 80 from a modified trumpet shape to a single point urban interchange design. Wetland impact includes 0.6 acres permanent and 0.2 acres temporary. An Individual stream permit filing is being submitted for stream impacts.		
Part of a larger project? (check one) →	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	After the Fact? (check one) →	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Check one → This project <input checked="" type="checkbox"/> does (or) <input type="checkbox"/> does not involve work below mean low water (average low water).			

PERMIT BY RULE (PBR) SECTIONS: (Check at least one)

I am filing notice of my intent to carry out work which meets the requirements for Permit By Rule (PBR) under DEP Rules, Chapter 305. I and my agents, if any, **have read** and will comply with all of the standards in the Sections checked below.

- | | | |
|---|---|---|
| <input type="checkbox"/> Sec. (2) Act. Adj. to Protected Natural Res. | <input type="checkbox"/> Sec. (10) Stream Crossing | <input type="checkbox"/> Sec. (17) Transfers/Permit Extension |
| <input type="checkbox"/> Sec. (3) Intake Pipes | <input checked="" type="checkbox"/> Sec. (11) State Transportation Facil. | <input type="checkbox"/> Sec. (18) Maintenance Dredging |
| <input type="checkbox"/> Sec. (4) Replacement of Structures | <input type="checkbox"/> Sec. (12) Restoration of Natural Areas | <input type="checkbox"/> Sec. (19) Activities in/on/over significant vernal pool habitat |
| <input type="checkbox"/> Sec. (5) REPEALED | <input type="checkbox"/> Sec. (13) F&W Creation/Enhance/Water Quality Improvement | <input type="checkbox"/> Sec. (20) Activities in existing dev. areas located in/on/over high or moderate value inland waterfowl & wading bird habitat or shorebird nesting, feeding & staging areas |
| <input type="checkbox"/> Sec. (6) Movement of Rocks or Vegetation | <input type="checkbox"/> Sec. (14) REPEALED | |
| <input type="checkbox"/> Sec. (7) Outfall Pipes | <input type="checkbox"/> Sec. (15) Public Boat Ramps | |
| <input type="checkbox"/> Sec. (8) Shoreline stabilization | <input type="checkbox"/> Sec. (16) Coastal Sand Dune Projects | |
| <input type="checkbox"/> Sec. (9) Utility Crossing | | |

I have attached the following required submittals. NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS:

- Attach** a check for \$65 made payable to: "Treasurer, State of Maine".
- Attach** a U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.
- Attach Proof of Legal Name.** If applicant is not an individual or municipality, provide a copy of Secretary of State's registration information (available at <http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x>)
- Attach photos of the proposed site where activity will take place as outlined in PBR Sections checked above.**
- Attach** all other required submissions as outlined in the PBR Sections checked above.

I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules. I also understand that **this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.**

By signing this Notification Form, I represent that the project meets all applicability requirements and standards in the rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.

Signature of Agent or Applicant:	<i>Stephen R. Tartre</i>	Date:	6/6/12
----------------------------------	--------------------------	-------	--------

Keep a copy as a record of permit! Send the form with attachments via certified mail or hand deliver to the Maine Dept. of Environmental Protection at the appropriate regional office listed below. The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. Permits are valid for two years. Work carried out in violation of any standard is subject to enforcement action.

AUGUSTA DEP 17 STATE HOUSE STATION AUGUSTA, ME 04333-0017 (207)287-3901	PORTLAND DEP 312 CANCO ROAD PORTLAND, ME 04103 (207)822-6300	BANGOR DEP 106 HOGAN ROAD BANGOR, ME 04401 (207)941-4570	PRESQUE ISLE DEP 1235 CENTRAL DRIVE PRESQUE ISLE, ME 04769 (207)764-0477
--	---	---	---

OFFICE USE ONLY	Ck #	Date	Staff	Staff	After Photos
	304349	6/12/12	BC		
PBR #	FP		Acc Date	Def Date	
54238	765.00		6/25/12		

Chapter 305: PERMIT BY RULE

- 1. Introduction.** A "permit by rule" or "PBR", when approved by the Department of Environmental Protection (DEP), is an approval for an activity that requires a permit under the Natural Resources Protection Act (NRPA). Only those activities described in this chapter may proceed under the PBR process. A PBR activity will not significantly affect the environment if carried out in accordance with this chapter, and generally has less of an impact on the environment than an activity requiring an individual permit. A PBR satisfies the Natural Resources Protection Act (NRPA) permit requirement and Water Quality Certification requirement.

If a proposed activity is not described in this chapter, or will not be conducted in accordance with the standards of this chapter, the applicant must obtain an individual permit prior to beginning the activity.

- A. Location of activity.** The location of an activity may affect whether an activity qualifies for PBR, and whether review by the Department of Inland Fisheries and Wildlife is required.
- (1) Type of resource. For some types of activities, the availability of a PBR is affected by the type of natural resource in or adjacent to which the activity is proposed. For example, an applicant proposing an activity consisting of "Movement of rocks or vegetation" may receive a PBR only if the activity will take place in a great pond, river, stream or brook. Limitations concerning the location of activities are addressed in the "Applicability" provision in each section of this chapter.
 - (2) Essential habitat. Essential habitats include areas critical to the survival of threatened and endangered species such as the bald eagle, least tern, roseate tern, and piping plover. If the activity is located in essential habitat, such as near an eagle nesting site, a PBR is only available if the applicant obtains written approval from the Department of Inland Fisheries and Wildlife (IF&W). This approval from IF&W must be submitted to the DEP with the PBR notification form, and the applicant must follow any conditions stated in the IF&W approval.

NOTE: Maps showing areas of essential habitat are available from the Department of Inland Fisheries and Wildlife regional headquarters, municipal offices, the Land Use Regulation Commission (for unorganized territories) and DEP regional offices. If the activity is located in essential habitat, IF&W must be contacted to request and obtain a "certification of review and approval".

- B. Notification.** The applicant must file notice of the activity with the DEP prior to beginning work on the activity. The notification must be on a form provided by the DEP and must include any submissions required in this chapter. The applicant must keep a copy to serve as the permit.

The notification form must be sent to the DEP by certified mail (return receipt requested), or hand delivered to the DEP and date stamped by the department. By signing the notification form, the applicant is representing that the activity will meet the applicability requirements and standards of the rule. In addition, by signing the notification form the applicant represents that the applicant has sufficient title, right, or interest in the property where the proposed activity is to take place.

C. Effective period

- (1) Beginning of period. The PBR becomes effective 14 calendar days after the DEP receives the notification form, unless the DEP approves or denies the PBR prior to that date. If the DEP does not speak with or write to the applicant within this 14 day period regarding the PBR notification, the applicant may proceed to carry out the activity.

There are three exceptions regarding the effective date of an approved PBR:

- (a) Activities listed in Section 10 (Stream crossings) occurring in association with forest management are exempt from the 14 day waiting period.
- (b) Activities listed in Section 10 (Stream crossings) performed or supervised by individuals currently certified in erosion control practices by the DEP are exempt from the 14 day waiting period. To be certified in erosion control practices, an individual must successfully complete all course requirements of the Voluntary Contractor Certification Program administered by the DEP's Nonpoint Source Training and Resource Center.
- (c) Activities that are part of a larger project requiring a permit under the Site Location of Development or the Storm Water Management Acts may not proceed until any required permit under those laws is obtained.

NOTE: Activities that are part of a larger project may require other permits from the DEP also. These other laws may prohibit the start of construction of any part of the project unless a permit under that law is obtained. In these cases, while not a violation of this rule, starting work on a PBR approved activity would be a violation of those other applicable laws.

- (2) End of period. The PBR is generally effective for 2 years from the date of approval, except that a PBR for "Replacement of structures" under Section 4 is effective for 3 years.

NOTE: Activities that qualify under this chapter may need to meet other local, state and federal requirements. Examples -- (1) If an activity extends below the low water line of a lake, coastal wetland or international boundary water, the applicant should contact the Bureau of Parks and Lands (287-3061) concerning possible lease or easement requirements, or (2) If an activity will involve work below the mean high water line in navigable waters of the United States, the applicant should contact the Army Corps of Engineers (623-8367).

D. Discretionary authority. Notwithstanding compliance with the PBR applicability requirements and standards set forth in this chapter, the DEP may require an individual permit application to be filed in any case where credible evidence indicates that the activity:

- (1) May violate the standards of this rule or the NRPA (38 M.R.S.A. Section 480-D);
- (2) Could lead to significant environmental impacts, including cumulative impacts; or
- (3) Could adversely impact a resource of special concern.

If an individual permit is required pursuant to this subsection, the DEP shall notify the applicant in writing within the 14 calendar day waiting period described in sub-section (C) above. When the DEP notifies an applicant that an individual permit is required, no work may be conducted unless and until the individual permit is obtained.

E. Violations. A violation of law occurs when a person, or his or her agent, performs or causes to be performed any activity subject to the NRPA without first obtaining a permit from the DEP, or acts contrary to the provisions of a permit. The person, his or her agent, or both, may be held responsible for the violation. Commonly, the "person" is the landowner, and the "agent" is the contractor carrying out the activity. A violation occurs when:

- (1) An activity occurs that is not allowed under PBR, whether or not a PBR notification form has been filed with and/or approved by the DEP;
- (2) An activity occurs that is allowed under PBR, but a PBR for the activity has not become effective prior to the beginning of the activity; or
- (3) An activity occurs that is allowed under PBR and a PBR for the activity is in effect, but the standards specified in this chapter are not met.

See the "applicability" provision under each activity for rules concerning what activities are allowed under PBR. A PBR is only valid for the person listed on the notification form, or for his or her agent.

Each day that a violation occurs or continues is considered a separate offense. Violations are subject to criminal penalties and civil penalties of not less than \$100 nor more than \$10,000 for each day of that violation (38 M.R.S.A. Section 349).

NOTE: A local Code Enforcement Officer (CEO) may take enforcement action for a violation of the Natural Resources Protection Act if he or she is authorized to represent a municipality in District Court, and he or she has been certified as familiar with court procedures, 30-A M.R.S.A. Section 4452(7).

2. Activities adjacent to protected natural resources

A. Applicability

- (1) This section applies to an activity adjacent to, but not in:
 - (a) A coastal wetland, great pond, river, stream or brook or significant wildlife habitat contained within a freshwater wetland; or
 - (b) Freshwater wetlands consisting of or containing:
 - (i) Under normal circumstances, at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, except for artificial ponds or impoundments; or
 - (ii) Peatlands dominated by shrubs, sedges and sphagnum moss.

D. Definitions. The following terms, as used in this chapter, have the following meanings, unless the context indicates otherwise:

- (1) **Cross-sectional area.** The cross-sectional area of a stream channel is determined by multiplying the stream channel width by the average stream channel depth. The stream channel width is the straight line distance from the normal high water line on one side of the channel to the normal high water line on the opposite side of the channel. The average stream channel depth is the average of the vertical distances from a straight line between the normal high water marks of the stream channel to the bottom of the channel.
- (2) **Crossing.** Any activity extending from one side to the opposite side of a protected natural resource, or to an island or upland within a protected natural resource whether under, through or over that resource. Such activities include, but are not limited to roads, fords, bridges, culverts, utility lines, water lines, sewer lines and cables, and the clearing and removal of vegetation necessary to install and maintain these crossings.
- (3) **Fill.** a. (verb) To put into or upon, supply to, or allow to enter a water body or wetland any earth, rock, gravel, sand, silt, clay, peat, or debris; b. (noun) Material, other than structures, placed in or adjacent to a water body or wetland.
- (4) **Ford.** A permanent crossing of a stream utilizing an area of existing, non-erodible substrate of the stream, such as ledge or cobble, or by placing non-erodible material such as stone or geotextile on the stream bottom.
- (5) **Perennial watercourse.** A river, stream or brook depicted as a solid line on the most recent edition of a United States Geological Survey 7.5 minute series topographic map, or if not available, a 15 minute series topographic map.
- (6) **Riprap.** Heavy, irregularly-shaped rocks that are fit into place, without mortar, on a slope. Square or rectangular rocks with flat faces, such as quarry stone or manufactured blocks, do not qualify as “irregularly-shaped”.
- (7) **Used for navigation.** Those rivers, streams or brooks used by motorized watercraft.

11. State transportation facilities

A. Applicability

- (1) This section applies to the maintenance, repair, reconstruction, rehabilitation, replacement or minor construction of a State Transportation Facility carried out by, or under the authority of, the Maine Department of Transportation (MaineDOT) or the Maine Turnpike Authority, including any testing or preconstruction engineering, and associated technical support services.
- (2) This section does not apply to an activity within a coastal sand dune system.

NOTE: The construction of a transportation facility other than roads and associated facilities may be subject to the Storm Water Management Law, 38 M.R.S.A. Section 420-D.

B. Standards

- (1) Photographs of the area to be altered by the activity must be taken before work on the site begins. The photographs must be kept on file and be made available at the request of the DEP.
- (2) The activity must be reviewed by the Department of Inland Fisheries and Wildlife and the Department of Marine Resources, as applicable. The applicant must coordinate with the reviewing agencies and incorporate any recommendations from those agencies into the performance of the activity.
- (3) All construction activities undertaken must be detailed in a site-specific Soil Erosion and Water Pollution Control Plan and conducted in accordance with MaineDOT's Best Management Practices for Erosion and Sediment Control, dated January 2000, and Standard Specifications, dated December 2002.
- (4) Alignment changes may not exceed a distance of 200 feet between the old and new center lines in any natural resource.
- (5) The activity may not alter more than 300 feet of shoreline (both shores added together) within a mile stretch of any river, stream or brook, including any bridge width or length of culvert.
- (6) The activity may not alter more than 150 feet of shoreline (both shores added together) within a mile stretch of any outstanding river segment identified in 38 M.R.S.A. 480-P, including any bridge width or length of culvert.
- (7) The activity must minimize wetland intrusion. The activity is exempt from the provisions of Chapter 310, the Wetland and Waterbodies Protection Rules, if the activity alters less than 15,000 square feet of natural resources per mile of roadway (centerline measurement) provided that the following impacts are not exceeded within the 15,000 square foot area:
 - (a) 1,000 square feet of coastal wetland consisting of salt tolerant vegetation or shellfish habitat; or
 - (b) 5,000 square feet of coastal wetland not containing salt tolerant vegetation or shellfish habitat; or
 - (c) 1,000 square feet of a great pond.

All other activities must be performed in compliance with all sections of Chapter 310, the Wetland Protection Rules, except 310.2(C), 5(A), 9(A), 9(B) and 9(C).

- (8) The activity may not permanently block any fish passage in any watercourse containing fish. The applicant must coordinate with the reviewing agencies listed in paragraph 2 above to improve fish passage and incorporate any recommendations from those agencies into the performance of the activity.

NOTE: For guidance on meeting the design objectives for fish passage, including peak flow, maximum velocity, mining depth and gradient, see the MaineDOT Waterbody and Wildlife Crossing Policy and Design Guide (July 2008), developed in conjunction with state and federal resource and regulatory agencies.

- (9) Rocks may not be removed from below the normal high water line of any coastal wetland, freshwater wetland, great pond, river, stream or brook except to the minimum extent necessary for completion of work within the limits of construction.
- (10) If work is performed in a river, stream or brook that is less than three feet deep at the time and location of the activity, the applicant must isolate the work area from the resource and divert stream flows around the work area, maintaining downstream flows while work is in progress.
- (11) Wheeled or tracked equipment may not operate in the water. Equipment operating on the shore may reach into the water with a bucket or similar extension. Equipment may cross streams on rock, gravel or ledge bottom. If avoiding the operation of wheeled or tracked equipment in the water is not possible, the applicant must explain the need to operate in the water. Approval from the DEP to operate in the water must be in writing, and any recommendations from the DEP must be incorporated into the performance of the activity.
- (12) All wheeled or tracked equipment that must travel or work in a vegetated wetland area must travel and work on mats or platforms.
- (13) Any debris or excavated material must be stockpiled either outside the wetland or on mats or platforms. Erosion and sediment control best management practices must be used, where necessary, to prevent sedimentation. Any debris generated during the activity must be prevented from washing downstream and must be removed from the wetland or water body. Disposal of debris must be in conformance with the Maine Hazardous Waste, Septage and Solid Waste Management Act, 38 M.R.S.A. Section 1301 *et seq.*
- (14) Work below the normal high water line of a great pond, river, stream or brook must be done at low water except for emergency work or work agreed to by the resource agencies listed in paragraph 2 above.
- (15) Perimeter controls must be installed before the work starts. Disturbance of natural resources beyond the construction limits shown on the plans is not allowed under this rule.

NOTE: Guidance on the location of construction limits can be obtained from the on site Construction Manager.

- (16) The use of untreated lumber is preferred. Lumber pressure treated with chromated copper arsenate (CCA) may be used only if necessary and only if use is allowed under federal law and not prohibited from sale under 38 M.R.S.A. 1682, and provided it is cured on dry land in a manner that exposes all surfaces to the air for a period of at least 21 days prior to construction. Wood treated with creosote or pentachlorophenol may not be used where it will contact water.

- (17) A temporary road for equipment access must be constructed of crushed stone, blasted ledge, or similar materials that will not cause sedimentation or restrict fish passage. Such roads must be completely removed at the completion of the activity. In addition, any such temporary roads which are in rivers, streams or brooks, must allow for a passage of stormwater flows associated with a 10-year storm.
- (18) Non-native species may not be planted in restored areas.
- (19) Disposal of debris must be in conformance with Maine Hazardous Waste, Septage and Solid Waste Management Act, 38 M.R.S.A. Sections 1301 *et seq.*
- (20) Disturbance of vegetation must be avoided, if possible. Where vegetation is disturbed outside of the area covered by any road or structure construction, it must be reestablished immediately upon completion of the activity and must be maintained.
- (21) A vegetated area at least 25 feet wide must be established and maintained between any new stormwater outfall structure and the high water line of any open water body. A velocity reducing structure must be constructed at the outlet of the stormwater outfall that will create sheet flow of stormwater, and prevent erosion of soil within the vegetated buffer. If the 25 foot vegetated buffer is not practicable, the applicant must explain the reason for a lesser setback in writing. Approval from the DEP must be in writing and any recommendations must be incorporated into the activity.

C. Definitions. The following terms, as used in this chapter, have the following meanings, unless the context indicates otherwise:

- (1) **Diversion.** The rerouting of a river, stream or brook around a construction site and then back to the downstream channel.
- (2) **Fill.** a. (verb) To put into or upon, supply to, or allow to enter a water body or wetland any earth, rock, gravel, sand, silt, clay, peat, or debris; b. (noun) Material, other than structures, placed in or immediately adjacent to a wetland or water body.
- (3) **Floodplain wetlands.** Freshwater wetlands that are inundated with flood water during a 100-year flood event based on flood insurance maps produced by the Federal Emergency Agency or other site specific information.
- (4) **Riprap.** Heavy, irregularly shaped rocks that are fit into place, without mortar, on a slope as defined in the MaineDOT Standard Specifications, dated December 2002.

12. Restoration of natural areas

A. Applicability

- (1) This section applies to the restoration of an altered portion of a coastal wetland, freshwater wetland, great pond, river, stream or brook to its pre-existing natural condition through the removal of fill, structures or debris which is located in, on over, or adjacent to the natural resource.

- (d) No construction or clearing activity may take place from April 15 through July 31 of any year unless otherwise approved by the Maine Department of Inland Fisheries and Wildlife.
- (7) All work is limited to the location and extent depicted on the plan or plans submitted pursuant to subsection B(3) of this section.

D. Definitions. The following terms, as used in this chapter, have the following meanings, unless the context indicates otherwise.

- (1) **Development area.** The area of property altered including, but not limited to, buildings, driveways, parking areas, wastewater disposal systems, lawns and other landscaped areas, as of June 8, 2006. "Developed area" has the same meaning as "development area".
- (2) **Inland high or moderate value waterfowl and wading bird habitat.** A high to moderate value inland habitat is an inland wetland complex, and a 250 foot wide zone surrounding the wetland complex, that through a combination of dominant wetland type, wetland diversity, wetland size, wetland type interspersion, and the percent of open water meets IF&W guidelines or is an inland wetland complex that has documented outstanding use by waterfowl or wading birds. See Chapter 335(10)(A) for complete criteria.
- (3) **Shorebird nesting, feeding, and staging areas.** Shorebird nesting, feeding, and staging areas, and a zone surrounding those areas as described in paragraphs (4) and (5), are significant wildlife habitats. Shorebird species include the members of the families Scolopacidae, Charadriidae, and Haematopodidae, including, but not limited to, sandpipers and plovers. See Chapter 335(11) for complete criteria.
- (4) **Shorebird feeding area.** A shorebird feeding or staging area that is not a roosting area. The shorebird feeding area includes a 100-foot-wide surrounding buffer referred to as the feeding buffer.
- (5) **Shorebird roosting area.** A shorebird feeding or staging area that is also a roosting area. The shorebird roosting area includes a 250-foot-wide surrounding buffer referred to as the roosting buffer.
- (6) **Structure.** Anything built for the support, shelter or enclosure of persons, animals, goods or property of any kind, together with anything constructed or erected with a fixed location on or in the ground. Examples of structures include buildings, utility lines and roads.

NOTE: The significant wildlife habitats subject to this section are depicted on GIS data layers maintained by IF&W and available from either IF&W or the DEP.

STATUTORY AUTHORITY: 38 M.R.S.A., Section 480-H & 341-D(1)

EFFECTIVE DATE:

February 15, 1989

AMENDED:

March 23, 1991
April 11, 1992
May 19, 1992
May 1, 1995

EFFECTIVE DATE (ELECTRONIC CONVERSION):

May 4, 1996

NON-SUBSTANTIVE CORRECTIONS:

May 12, 1997 - punctuation, formatting, comparison with May 14, 1995 amendment
October 29, 1998 - APA Office Note added to first Section 5

AMENDED:

June 1, 1999
July 16, 1999 (EMERGENCY, expires October 14, 1999) - Section 10(A)
October 15, 1999 - language reverted to June 1, 1999 version
February 14, 2000 - Section 10

NON-SUBSTANTIVE CORRECTIONS:

November 23, 2000 - removed erroneous April 21, 1995 amendment date

AMENDED:

September 1, 2002

NON-SUBSTANTIVE CORRECTIONS:

September 5, 2002 - title of Section 2 only

AMENDED:

May 25, 2005 – filing 2005-174
December 5, 2006 – filing 2006-496
February 25, 2008 – Section 20 only, filing 2008-88
July 15, 2009 – filing 2009-339
July 30, 2011 – Section 16 only, filing 2011-211 (*Final adoption, major substantive*)
June 8, 2012 – filing 2012-146 (*Final adoption, major substantive*)



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

November 2013

Maine Turnpike Authority
2360 Congress Street
Portland, ME 04102

RE: Natural Resources Protection Act Application, Lewiston,
Department Order #L-25701-L6-A-N

Dear Applicant:

Please find enclosed a signed copy of your Department of Environmental Protection land use permit. You will note that the permit includes a description of your project, findings of fact that relate to the approval criteria the Department used in evaluating your project, and conditions that are based on those findings and the particulars of your project. Please take several moments to read your permit carefully, paying particular attention to the conditions of the approval. The Department reviews every application thoroughly and strives to formulate reasonable conditions of approval within the context of the Department's environmental laws. You will also find attached some materials that describe the Department's appeal procedures for your information.

If you have any questions about the permit or thoughts on how the Department processed this application please get in touch with me directly. I can be reached at (207) 446-1586 or at beth.callahan@maine.gov.

Sincerely,

Beth Callahan, Project Manager
Division of Land Resource Regulation
Bureau of Land and Water Quality

pc: File

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

MAINE TURNPIKE AUTHORITY) NATURAL RESOURCES PROTECTION ACT
Lewiston, Androscoggin County) STREAM ALTERATION
EXIT 80 INTERCHANGE) WATER QUALITY CERTIFICATION
L-25701-L6-A-N (approval)) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S.A. Sections 480-A *et seq.* and Section 401 of the Federal Water Pollution Control Act, the Department of Environmental Protection has considered the application of the MAINE TURNPIKE AUTHORITY with the supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT DESCRIPTION:

A. Summary: The Lewiston Interchange of the Maine Turnpike (Interstate 95), known as Exit 80, was constructed in 1954 in the City of Lewiston as a trumpet-shaped interchange with the northbound and southbound main roads crossing over the northbound ramps with two separate bridge structures. In 1989, the interchange was modified to include an extension of the Alfred Plourde Parkway. Following a 2010 evaluation by the Maine Department of Transportation (MDOT), entitled “Lewiston-Auburn Downtown Connector Turnpike Interchange Study”, the applicant determined that the existing interchange does not meet current design criteria in accordance with MDOT’s *Highway Design Guide* and the existing interchange exhibits several safety issues and operational deficiencies.

The applicant proposes to replace the modified trumpet-shaped design of Exit 80 with a single point urban interchange configuration. The proposed project will be constructed in four phases as follow: Phase 1 – northbound and southbound on-ramps; Phase 2 – northbound and southbound off-ramps; Phase 3a – southbound roadway and bridge; Phase 3b – northbound roadway and bridge; and Phase 4 – left turn connector ramps. Culvert extensions associated with the proposed new interchange will result in permanent and temporary alteration of a perennial tributary stream of Hart Brook. Culverts will be installed onto the ends of existing culverts in three locations. The proposed project can be seen on a set of plans, the first of which is entitled “Wetland Impacts Index Plan” prepared by HNTB and dated January 2012, with a last revision date on any of the plans of September 2013.

In addition, the applicant submitted a Section 11 Permit By Rule (PBR #54238) for 25,154 square feet of permanent forested and scrub shrub freshwater wetland impacts associated with the proposed project. To compensate for the loss of wetland functions and values, the applicant proposes to make a contribution into the In-Lieu Fee (ILF)

program of the Maine Natural Resource Conservation Program in the amount of \$95,836.74. PBR #54238 was approved by the Department on June 25, 2012.

B. Current Use of the Site: The project site consists of an existing trumpet-shaped interchange of northbound and southbound roadways over Interstate 95.

2. EXISTING SCENIC, AESTHETIC, RECREATIONAL OR NAVIGATIONAL USES:

In accordance with Chapter 315, Assessing and Mitigating Impacts to Scenic and Aesthetic Uses, the applicant submitted a copy of the Department's Visual Evaluation Field Survey Checklist as Appendix A to the application along with a description of the property and the proposed project. The applicant also submitted several photographs of the proposed project site. Department staff visited the project site on several occasions.

The proposed project is located over and adjacent to an unnamed perennial stream, which is not a scenic resource visited by the general public, in part, for the use, observation, enjoyment and appreciation of its natural and cultural visual qualities. The proposed project site is bound by the Maine Turnpike on all sides.

The proposed project was evaluated using the Department's Visual Impact Assessment Matrix and was found to have an acceptable potential visual impact rating. Based on the information submitted in the application, the visual impact rating, and the site visits, the Department determined that the location and scale of the proposed activity is compatible with the existing visual quality and landscape characteristics found within the viewshed of the scenic resource in the project area.

The Department did not identify any issues involving existing recreational and navigational uses.

The Department finds that the proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational or navigational uses of the protected natural resource.

3. SOIL EROSION:

In order to minimize sedimentation into the resource, construction will be performed using a number of erosion control and sedimentation controls in accordance with the MDOT's *Best Management Practices for Erosion and Sediment Control*. The applicant submitted a construction and erosion control plan for the proposed project that provides an overview of preparatory activities, excavation activities, construction activities, a post-construction work plan, and a schedule of construction activity, as explained in Attachment 7 and 8 of the application. Construction of the proposed project will occur in four phases over the course of several years.

The Department finds that the activity will not cause unreasonable erosion of soil or sediment nor unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

4. HABITAT CONSIDERATIONS:

According to the Department's Geographic Information System (GIS) database there are no mapped significant wildlife habitats located at the site.

The applicant identified one vernal pool on its property within the project site and four vernal pools on adjacent properties. The applicant surveyed the vernal pools and determined that none of them met the Department's abundance criteria for significance. The applicant's determination was verified by the Maine Department of Inland Fisheries and Wildlife (MDIFW) in a significant vernal pool determination report dated July 24, 2012.

Fisheries staff of MDIFW reviewed the proposed project and stated that the proposed project will not significantly impact local fisheries within the stream or Hart Brook.

The Department finds that the activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine or marine fisheries or other aquatic life.

5. WATER QUALITY CONSIDERATIONS:

The proposed project was reviewed by the Department's Division of Environmental Assessment (DEA). DEA did not identify any issues of concern and recommended approval of the proposed project.

Based upon the applicant's construction and erosion control plan as described in Finding 3, the Department does not anticipate that the proposed project will violate any state water quality law, including those governing the classification of the State's waters.

6. WETLANDS AND WATERBODIES PROTECTION RULES:

The applicant proposes to permanently alter 403 linear feet (approximately 1,612 square feet) and temporarily alter 48 linear feet of an unnamed perennial stream due to the installation of culverts at three separate locations. All impact locations are within stream sections that were formerly altered and channelized during the construction of the original interchange or during construction of Interstate 95, and all impacts will occur adjacent to existing culverts.

The Wetland and Waterbodies Protection Rules interpret and elaborate on the Natural Resources Protection Act (NRPA) criteria for obtaining a permit. The rules guide the Department in its determination of whether a project's impacts would be unreasonable.

A proposed project would generally be found to be unreasonable if it would cause a loss in waterbody area, functions and values, and there is a practicable alternative to the project that would be less damaging to the environment. Each application for a NRPA permit that involves a stream alteration must provide an analysis of alternatives in order to demonstrate that a practicable alternative does not exist.

A. Avoidance. No activity may be permitted if there is a practicable alternative to the project that would be less damaging to the environment. The purpose of the project is to create a highway interchange that meets current safety and operational design criteria. The applicant submitted an alternatives analysis for the proposed project completed by HNTB and dated June 6, 2012. The applicant considered several interchange configurations and weighed them against such factors as traffic patterns, resource impacts, adjoining property impacts, and costs. Alternative designs considered by the applicant include realignment of the existing northbound loop ramps, a traditional diamond-shaped interchange, and a narrow diamond interchange. After evaluating these alternatives, the applicant determined that the proposed project contains a significantly less amount of environmental impact than the alternatives, and that the proposed project avoids impacts to protected natural resources to the greatest extent practicable while still meeting the project purpose.

B. Minimal Alteration. The amount of waterbody to be altered must be kept to the minimum amount necessary for meeting the overall purpose of the project. The applicant identified all areas of impact and applied minimization strategies to these areas to the extent practicable. The applicant stated that as it is currently designed, the proposed project minimizes impacts to the stream.

C. Compensation. Compensation is required to achieve the goal of no net loss of wetland functions and values. The applicant submitted several plan sheets detailing the proposed project site. These plans identify the location of the stream in relationship to the existing interchange and the proposed interchange. The applicant also submitted a stream survey report prepared by Kleinschmidt and dated July 2011 as Attachment 9 of the NRPA application. The report states that the stream's fish community contained low diversity and that there are several in-stream obstructions that prevent a direct connection with more valuable fisheries habitat downstream. The stream bed consists primarily of sand and silt and normal stream flows are low.

To compensate for lost functions and values of the impacted stream, the applicant submitted a mitigation plan that implements restoration and enhancement of three areas as follows:

Exit 80 Northbound Ramp. The applicant will restore 115 linear feet of the unnamed stream by removing the existing northbound ramp of Exit 80 which includes its ramp fill, pipe culvert, and headwall. The applicant proposes to daylight the stream in this area by removing obstructions and structures, create a natural stream channel, and install several native wetland and upland trees and shrubs to create a canopied riparian buffer.

Lewiston Service Plaza Off-Ramp Culvert. The applicant will restore 200 linear feet of an existing, unnamed stream channel by removing 2,000 square feet of pavement, exposing culverted stream channel to daylight, and creating a vegetated riparian buffer along the stream. Pavement, embankment fill, a culvert, and an intermediate drop inlet structure will be removed. The applicant will create a daylighted natural stream channel and create a riparian buffer with plantings. The stream channel is a tributary of No Name Brook, which drains to the Sabattus River.

Lewiston Service Plaza Surface. The applicant will convert 100,000 square feet of pavement to a natural meadow area to enhance the re-exposed stream at the service plaza. Pavement and multiple catch basins will be removed and then loamed, seeded, and planted to create a meadow buffer.

The location and details of the enhancement and preservation areas are shown as Attachment 4 of the NRPA application.

DEA reviewed the applicant's compensatory plan and recommended approval of the proposed project. DEA stated that all portions of the plan will increase water quality and benefit aquatic life within the two stream systems.

The applicant shall inspect and monitor the enhancement and restoration areas over a period of five years following completion of the proposed project. Prior to December 31 of each year, the applicant shall submit annual monitoring reports to the Department. Monitoring reports shall consist of photo documentation and a report on the progress of the enhancement and restoration efforts. A functional assessment of the restored and enhanced areas must be performed by a professional wetland scientist and provided to the Department within 60 days following the end of the five-year monitoring period. If functions and values of the restored and enhanced areas are not successfully equal to or better than the functions lost due to the proposed project, then additional mitigation may be required by the Department.

The applicant submitted a draft Declaration of Covenants and Restrictions to protect the restoration and enhancement areas in perpetuity. Within 90 days of issuance of this Order, the deed restriction that protects the restoration and enhancement areas in perpetuity must be placed on the appropriate deeds. The applicant must then submit a copy of the recorded restriction to the Department within 30 days of its recording.

The Department finds that the applicant has adequately offset the loss of stream functions and values from the proposed project.

The Department finds that the applicant has avoided and minimized stream impacts to the greatest extent practicable and that the proposed project represents the least environmentally damaging alternative that meets the overall purpose of the project, provided that the applicant completes the approved compensation plan, inspects and monitors the enhanced and restored stream and riparian buffer areas on a five year period

and that the deed restriction that protects the preservation areas be implemented as described above.

7. OTHER CONSIDERATIONS:

The Department did not identify any other issues involving existing scenic, aesthetic, or navigational uses, soil erosion, habitat or fisheries, the natural transfer of soil, natural flow of water, water quality, or flooding.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S.A. Sections 480-A et seq. and Section 401 of the Federal Water Pollution Control Act:

- A. The proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational, or navigational uses.
- B. The proposed activity will not cause unreasonable erosion of soil or sediment.
- C. The proposed activity will not unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.
- D. The proposed activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine, or marine fisheries or other aquatic life provided that the applicant completes the approved compensation plan, inspects and monitors the restored and enhanced stream and riparian buffer areas annually for a five year period and that the deed restriction that protects the areas be implemented as described in Finding 6.
- E. The proposed activity will not unreasonably interfere with the natural flow of any surface or subsurface waters.
- F. The proposed activity will not violate any state water quality law including those governing the classifications of the State's waters.
- G. The proposed activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties.
- H. The proposed activity is not on or adjacent to a sand dune.
- I. The proposed activity is not on an outstanding river segment as noted in Title 38 M.R.S.A. Section 480-P.

THEREFORE, the Department APPROVES the above noted application of the MAINE TURNPIKE AUTHORITY to permanently alter 403 linear feet and temporarily alter 48 linear feet of a stream to construct a single point urban interchange at Exit 80 of the Maine Turnpike as described in Finding 1, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations:

1. Standard Conditions of Approval, a copy attached.
2. The applicant shall take all necessary measures to ensure that its activities or those of its agents do not result in measurable erosion of soil on the site during the construction of the project covered by this approval.
3. Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.
4. The applicant shall inspect and monitor the restoration and enhancement areas annually over a period of five years following completion of the proposed project. Prior to December 31 of each year, the applicant shall submit annual monitoring reports to the Department. Monitoring reports shall consist of photo documentation and a report on the progress of the enhancement and restoration efforts.
5. Within 60 days following the end of the five-year monitoring period, a functional assessment of the enhanced and restored areas must be performed by a professional wetland scientist and provided to the Department. If functions and values of the restored and enhanced areas are not successfully equal to or better than the functions lost due to the proposed project, then the Department may require additional mitigation.

6. Within 90 days of issuance of this Order, the deed restriction that protects the restoration and enhancement areas in perpetuity must be placed on the appropriate deed. The applicant must then submit a copy of the recorded restriction to the Department within 30 days of its recording.

THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DONE AND DATED IN AUGUSTA, MAINE, THIS 26th DAY OF November, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION



BY: Michael Kuhus
For: Patricia W. Aho, Commissioner

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES...

BC/#L25701AN/ATS#74807



Natural Resources Protection Act (NRPA) Standard Conditions

THE FOLLOWING STANDARD CONDITIONS SHALL APPLY TO ALL PERMITS GRANTED UNDER THE NATURAL RESOURCE PROTECTION ACT, TITLE 38, M.R.S.A. SECTION 480-A ET.SEQ. UNLESS OTHERWISE SPECIFICALLY STATED IN THE PERMIT.

- A. Approval of Variations From Plans. The granting of this permit is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation.
- B. Compliance With All Applicable Laws. The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.
- C. Erosion Control. The applicant shall take all necessary measures to ensure that his activities or those of his agents do not result in measurable erosion of soils on the site during the construction and operation of the project covered by this Approval.
- D. Compliance With Conditions. Should the project be found, at any time, not to be in compliance with any of the Conditions of this Approval, or should the applicant construct or operate this development in any way other the specified in the Application or Supporting Documents, as modified by the Conditions of this Approval, then the terms of this Approval shall be considered to have been violated.
- E. Time frame for approvals. If construction or operation of the activity is not begun within four years, this permit shall lapse and the applicant shall reapply to the Board for a new permit. The applicant may not begin construction or operation of the activity until a new permit is granted. Reapplications for permits may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.
- F. No Construction Equipment Below High Water. No construction equipment used in the undertaking of an approved activity is allowed below the mean high water line unless otherwise specified by this permit.
- G. Permit Included In Contract Bids. A copy of this permit must be included in or attached to all contract bid specifications for the approved activity.
- H. Permit Shown To Contractor. Work done by a contractor pursuant to this permit shall not begin before the contractor has been shown by the applicant a copy of this permit.



DEP INFORMATION SHEET

Appealing a Department Licensing Decision

Dated: March 2012

Contact: (207) 287-2811

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's ("DEP") Commissioner: (1) in an administrative process before the Board of Environmental Protection ("Board"); or (2) in a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S.A. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S.A. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S.A. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This INFORMATION SHEET, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S.A. §§ 341-D(4) & 346, the *Maine Administrative Procedure Act*, 5 M.R.S.A. § 11001, and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 CMR 2 (April 1, 2003).

HOW LONG YOU HAVE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed after 30 calendar days of the date on which the Commissioner's decision was filed with the Board will be rejected.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, c/o Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017; faxes are acceptable for purposes of meeting the deadline when followed by the Board's receipt of mailed original documents within five (5) working days. Receipt on a particular day must be by 5:00 PM at DEP's offices in Augusta; materials received after 5:00 PM are not considered received until the following day. The person appealing a licensing decision must also send the DEP's Commissioner a copy of the appeal documents and if the person appealing is not the applicant in the license proceeding at issue the applicant must also be sent a copy of the appeal documents. All of the information listed in the next section must be submitted at the time the appeal is filed. Only the extraordinary circumstances described at the end of that section will justify evidence not in the DEP's record at the time of decision being added to the record for consideration by the Board as part of an appeal.

WHAT YOUR APPEAL PAPERWORK MUST CONTAIN

Appeal materials must contain the following information at the time submitted:

1. *Aggrieved Status.* The appeal must explain how the person filing the appeal has standing to maintain an appeal. This requires an explanation of how the person filing the appeal may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions or conditions objected to or believed to be in error.* Specific references and facts regarding the appellant's issues with the decision must be provided in the notice of appeal.
3. *The basis of the objections or challenge.* If possible, specific regulations, statutes or other facts should be referenced. This may include citing omissions of relevant requirements, and errors believed to have been made in interpretations, conclusions, and relevant requirements.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested.* The Board will limit its consideration to those arguments specifically raised in the written notice of appeal.
6. *Request for hearing.* The Board will hear presentations on appeals at its regularly scheduled meetings, unless a public hearing on the appeal is requested and granted. A request for public hearing on an appeal must be filed as part of the notice of appeal.
7. *New or additional evidence to be offered.* The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered by the Board in an appeal only when the evidence is relevant and material and that the person seeking to add information to the record can show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process or that the evidence itself is newly discovered and could not have been presented earlier in the process. Specific requirements for additional evidence are found in Chapter 2.

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, made easily accessible by DEP. Upon request, the DEP will make the material available during normal working hours, provide space to review the file, and provide opportunity for photocopying materials. There is a charge for copies or copying services.
2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer questions regarding applicable requirements.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed the license normally remains in effect pending the processing of the appeal. A license holder may proceed with a project pending the outcome of an appeal but the license holder runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will formally acknowledge receipt of an appeal, including the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials accepted by the Board Chair as supplementary evidence, and any materials submitted in response to the appeal will be sent to Board members with a recommendation from DEP staff. Persons filing appeals and interested persons are notified in advance of the date set for Board consideration of an appeal or request for public hearing. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, a license holder, and interested persons of its decision.

II. JUDICIAL APPEALS

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court, see 38 M.R.S.A. § 346(1); 06-096 CMR 2; 5 M.R.S.A. § 11001; & M.R. Civ. P 80C. A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. Failure to file a timely appeal will result in the Board's or the Commissioner's decision becoming final.

An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S.A. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

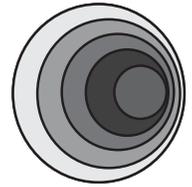
ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board's Executive Analyst at (207) 287-2452 or for judicial appeals contact the court clerk's office in which your appeal will be filed.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.

APPENDIX B

**BUCKEYE PARTNERS, L.P. AND AFFILIATES
RIGHT OF WAY USE RESTRICTIONS
SPECIFICATIONS**

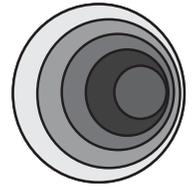


Right-of-Way Use Restrictions Specification
Revision 3.3

Table of Contents

<u>SECTION</u>	<u>PAGE NO.</u>
Purpose and Scope-----	2
1.0 General Guidelines-----	2
2.0 Excavation and Construction Restrictions-----	3
3.0 Specific Guidelines-----	4
3.1 Cover, Grading, and Drainage -----	4
3.1.1 Cover and Grading-----	4
3.1.2 Drainage-----	5
3.2 Aboveground and Underground Structures -----	5
3.2.1 General Requirements-----	5
3.2.2 Gardening and Landscaping -----	5
3.2.3 Fences and Walls -----	5
3.3 Roads, Driveways, Sidewalks, and Parking Areas-----	6
3.3.1 General Requirements-----	6
3.4 Foreign Utility Crossings-----	6
3.4.1 General Requirements-----	6
3.4.2 Metallic Utilities -----	6
3.4.3 Non-Metallic Utilities-----	7
3.5 Electrical, Fiber-Optic, and Communications Cables-----	7
3.5.1 General Requirements-----	7
3.5.2 Buried Cables -----	7
3.5.3 Aboveground Cables-----	7
3.6 Temporary Access Roads and Heavy/Construction Vehicle Crossings-----	8
3.7 Railroad Crossings-----	8
3.8 Farming and Field Tile -----	8
3.9 Construction-Induced Vibrations-----	8
3.10 Blasting Operations -----	9
3.11 Seismic Vibrating Operations-----	10
4.0 Deviations and Exceptions -----	11
5.0 Additional Information and Buckeye Contacts-----	11
 <u>ATTACHMENTS</u>	
1 Buckeye Facility Locations and Phone Numbers-----	12
2 Right of Way and Engineering Contacts-----	13
3 State One Call Systems -----	14
4 Requirements for Submission of Design Plans -----	15
5 Reinforced-Concrete Slab Detail -----	18
6 Earthen Ramp Detail -----	19
7 Blasting Plan Submission Form -----	20
8 Excavation Safety Checklist -----	21

**Buckeye Partners, L.P. and Affiliates
Right-of-Way Use Restrictions Specification
Revision 3.3**



Purpose and Scope

This Right-of-Way Use Restrictions Specification (hereinafter called “Specification”) has been developed by Buckeye Partners, L.P. and Affiliates (hereinafter called “Buckeye”) and is intended for landowners, utility owners, general contractors and their sub-contractors, pipeline/utility contractors, real estate developers, brokers and agents, lending officers and title underwriters, engineers, architects, surveyors, and local / governmental elected staffs (hereinafter called “Crossing Party”) as a guideline for the design and construction of proposed land development.

Buckeye appreciates this opportunity to work with you in the planning stages of your development (or construction activity), and we look forward to working with you proactively. Buckeye’s primary concern when activities are taking place near our pipeline is public safety and environmental protection. The intent of this Specification is to provide a clear and consistent set of requirements that will: (1) reduce the risk of damage to our pipeline and related facilities; (2) ensure unencumbered access to our right-of-way and pipeline facilities and the availability of adequate workspace for routine maintenance, future inspection, and/or repair work on our pipeline; and (3) enable the effective corrosion protection of our pipeline.

All such activities and projects that are performed near Buckeye’s pipeline facilities are subject to formal review by Buckeye prior to issuance of final written approval. Depending on the scope of the project and its impact on Buckeye’s pipeline facilities, additional engineering requirements and protective measures may apply. The following requirements are not only the policy of Buckeye, but comply with regulations set forth by the United States Department of Transportation, Safety Regulations, 49 CFR, Parts 192 and 195.

We want to be a good neighbor, but to do so requires us to act responsibly in protecting our right-of-way and preventing damage to the pipeline system. While we want to make every effort to accommodate your desired use of your property, our responsibility for public safety is paramount. Through proper planning and communications, we can ensure the safety and integrity of our pipeline system and the welfare of our neighbors.

The transmittal of this Specification does not constitute Buckeye’s approval or permission for the Crossing Party to begin construction or work within or across the pipeline right-of-way. Work may not commence until written authorization approving such work has been issued by Buckeye.

1.0 General Guidelines

- 1.1 The safety of the pipeline must be considered at all times. No attempt to probe for or engage in any construction activities which might damage the pipeline is permitted.
- 1.2 Before any preliminary field work or construction begins in the vicinity of Buckeye’s pipeline, a determination of the exact location and elevation of the pipeline must be made. To coordinate this procedure, please contact our local Field Operations Manager at the Buckeye facility nearest to your proposed project (see [Attachment 1](#) for a listing of Buckeye’s facilities and telephone numbers).

- 1.3 All proposed drawings/plans must be submitted to Buckeye's Right of Way Department for review to determine to what extent, if any, the pipeline or right-of-way will be affected by the proposed construction and/or development. These drawings/plans must be prepared in strict compliance to Attachment 4, "Requirements for Submission of Design Plans".
- 1.4 When any construction activity is conducted in or around our pipeline right-of-way, Buckeye's On-Site Inspector must be present at all times. **NO WORK SHALL TAKE PLACE WITHOUT A BUCKEYE ON-SITE INSPECTOR PRESENT.** For this free-of-charge service, contact our local Field Operations Manager at the Buckeye facility nearest to your proposed project.
- 1.5 The Crossing Party shall contact Buckeye for re-marking of a pipeline if the existing markers are inadequate for any reason, including disturbance due to construction activities.

Note: Federal law prohibits the removal of pipeline markers.

- 1.6 The Crossing Party shall not burn trash, brush, or other items or substances within 50 feet of the pipeline.
- 1.7 The Crossing Party shall not store any equipment or materials on the right-of-way.
- 1.8 During routine or emergency maintenance on the pipeline, the cost to restore approved surface improvements (e.g., pavement, landscaping, sidewalks, etc.) shall be the responsibility of the Crossing Party.

2.0 Excavation and Construction Restrictions

- 2.1 Excavation operations shall be performed in accordance with appropriate State "One-Call" utility locating system requirements. As a matter of State law, anyone undertaking excavation work is required to call three (3) working days before excavating in MA, ME, MI, MO, NJ, PA, TN and WI; two (2) working days in all other states (see Attachment 3 for State One-Call numbers).
- 2.2 The Crossing Party will conduct "white-lining" of any proposed excavation areas. Buckeye will erect temporary pipeline markers/flags (yellow) identifying the location of the pipeline within the work area, and will provide information on how to respond should the pipeline be damaged or a commodity release occur. All personnel operating equipment over or around the pipeline must be made aware of its location and what to do if they make contact with the pipeline.
- 2.3 When a Crossing Party excavates near Buckeye's pipeline, a Buckeye representative must locate the pipeline and determine the depth of cover before the Crossing Party begins excavation. The Buckeye representative and the excavator must review and complete an Excavation Safety Checklist (Attachment 8). The Crossing Party shall not perform any excavation, crossing, backfilling, or construction operations until Buckeye's On-Site Inspector has reviewed the proposed work on site and given approval for work to proceed. Buckeye's On-Site Inspector shall have full authority to stop the work if it is determined that the work is being performed in an unsafe manner.
- 2.4 No equipment shall work directly over the pipeline. The Crossing Party shall install temporary fencing along Buckeye's right-of-way boundaries so that equipment will not inadvertently pass over the pipeline at locations other than those established for crossing (see Section 3.6).
- 2.5 When excavating within the right-of-way, the Crossing Party's backhoe shall have a plate welded over the teeth of the backhoe bucket, and the side cutters must be removed prior to

excavation. However, if within 24 inches of the outer edge of the pipe (this “tolerance zone” extends on all sides of the pipe), only hand excavation, air cutting, and vacuum excavation are permitted.

- 2.6 No excavations shall be made on land adjacent to the pipeline that will in any way impair, withdraw lateral support, cause subsidence, create the accumulation of water, or cause damage to the pipeline or right-of-way.
- 2.7 The Crossing Party shall ensure all excavation work complies with OSHA’s excavation standards outlined in 29 CFR 1926 and correct any noncompliant excavation site before Buckeye’s On-Site Inspector or the Crossing Party enters the site to perform work.
- 2.8 If conditions require, the Crossing Party shall be directed by Buckeye to install sand or cement bags or other suitable insulating materials to maintain proper vertical clearance from the pipeline.
- 2.9 At any location where the pipeline is exposed, the Crossing Party shall provide Buckeye the opportunity to inspect the pipeline condition, install cathodic protection test leads, and/or install underground warning mesh.
- 2.10 The maximum unsupported exposed length of pipe shall be 20 feet for 4-inch-diameter pipe, 25 feet for 6-inch- to 10-inch-diameter pipe, and 35 feet for 12-inch- to 24-inch-diameter pipe. When required, the pipeline shall be supported with grout and sand bags or padded skids. At no time shall the pipeline be used as a brace to support equipment or sheeting/shoring materials.

Note: The Crossing Party shall submit a support plan for Buckeye’s review and approval.

- 2.11 No buried pipeline may be left exposed for any duration of time without concurrence of Buckeye’s On-Site Inspector.
- 2.12 Backfill and compaction shall be performed to the satisfaction and in the presence of Buckeye’s On-Site Inspector. At least 6 inches of fine, loose earth or sand with no sharp gravel, rock, hard clods, vegetation, or other debris shall be placed on all sides of any pipeline, and remaining backfill shall be placed so as not to disturb this padding material or damage the pipeline. Backfill over the pipe shall be compacted by hand until 18 inches of cover is achieved. The disturbed ground shall be compacted to the same degree of compaction of surrounding areas. The Crossing Party shall restore the site to its original condition except for items that are part of the Buckeye approved change.

3.0 Specific Guidelines

3.1 Cover, Grading, and Drainage

3.1.1 Cover and Grading:

- a. The existing cover over the pipeline shall not be modified without Buckeye’s written approval.
- b. The final grading shall net a minimum cover of 36 inches over the pipeline.
- c. In areas where buildings are proposed within 50 feet of the pipeline or due to other surface improvements and/or in areas determined by Buckeye, final grading shall net a minimum cover of 48 inches over the pipeline.
- d. The maximum allowable cover/soil shall not exceed six (6) feet without Buckeye’s written approval.

- e. Use of vibratory equipment larger than walk-behind units is not permitted within 25 feet of the pipeline.

3.1.2 **Drainage:**

- a. Detention ponds, lakes, structures or any type of impoundment of water, temporary or permanent, are prohibited within the right-of-way.
- b. Culverts are not permitted within the right-of-way.
- c. Any modifications to an existing drainage pattern shall be designed such that the erosion of the pipeline cover is controlled.
- d. For streams, drainage channels, and ditches, a minimum of cover of 60 inches is required between the pipeline and the bottom of the drainage canal or ditch (see Section 3.3.1.f for road drainage ditches).

3.2 Aboveground and Underground Structures

3.2.1 **General Requirements:**

- a. Buildings or other structures, including, but without limitation, overhanging balconies, patios, decks, swimming pools, wells, walls, septic systems, propane tanks, transformer pads, or the storage of materials which creates an obstruction or prevents the inspection of the right-of-way by air or foot, shall not be erected within the right-of-way.
- b. The Crossing Party shall not develop or build retaining walls, drive piling or sheeting, or install an engineered structure that develops or controls overburden loads that will impact the pipeline (see Section 3.9).
- c. Deep foundations which include piers, caissons, drilled shafts, bored piles, and cast-in-situ piles located within 500 feet of the pipeline shall be installed/drilled using an auger.
- d. Occupied structures shall not be located within 50 feet of the pipeline unless a minimum cover of 48 inches is provided above the top of the pipeline.
- e. Any deviation for aboveground and underground structures will be reviewed by Buckeye on a **case-by-case basis**.

3.2.2 **Gardening and Landscaping:**

- a. Trees or large shrubs and bushes are not permitted within the right-of-way. Trees planted outside of the right-of-way should be placed so branches and limbs will not overhang the pipeline right-of-way as the tree matures. Buckeye may trim/remove overhanging branches and limbs that encroach into the right-of-way.
- b. Flowerbeds, vegetable gardens, lawns, and low shrubbery not exceeding 30 inches are permitted within the right-of-way. Buckeye is not responsible for replacing any plantings located within the right-of-way.

3.2.3 **Fences and Walls:**

- a. Privacy fences or fences that prevent access to the right-of-way are not permitted.
- b. All other fence installations within the right-of-way will be reviewed for approval by Buckeye on a **case-by-case basis**. Upon Buckeye's written approval, fences shall be constructed with a 14-foot gate or removable sections across the right-of-way.
- c. Fence posts shall not be installed within 5 feet of the pipeline and must be equidistant if crossing the pipeline.
- d. No fence shall cross the right-of-way at less than a 60-degree angle.
- e. Fences that run parallel to the pipeline shall be installed outside the right-of-way.
- f. Masonry, brick, or stone walls are not permitted on the right-of-way.

3.3 Roads, Driveways, Sidewalks, and Parking Areas

3.3.1 **General Requirements:**

- a. Roads, driveways, sidewalks, or parking areas shall not be constructed across the right-of-way without Buckeye's written approval. Upon Buckeye's approval, roads, driveways, and sidewalks shall cross perpendicular to the pipeline.
- b. The maximum allowable cover shall not exceed six (6) feet without Buckeye's written approval.
- c. Use of vibratory equipment larger than walk-behind units is not permitted within 25 feet of the pipeline.
- d. Roads or driveways shall not be installed longitudinally within the right-of-way.
- e. For roads and driveways, a minimum cover of 48 inches with a net cover of 36 inches of undisturbed soil is required above the pipeline.
- f. A minimum cover of 36 inches over the pipeline is required at road drainage ditches. Upon Buckeye's approval, this cover can be reduced to 24 inches if ditch is rock/rip-rap lined and 12 inches if ditch is concrete lined.
- g. For asphalt parking lots and sidewalks, a minimum cover of 36 inches with a net cover of 24 inches of undisturbed soil is required above the pipeline. Additional cover may be required by Buckeye based upon specific site conditions.

3.4 Foreign Utility Crossings

3.4.1 **General Requirements:**

- a. Utilities shall cross perpendicular to the pipeline.
- b. Utilities are required to cross beneath the pipeline with a minimum clearance of 24 inches. Exceptions to Buckeye's clearance requirements for underground service entrances to single family dwellings will be reviewed on a **case-by-case basis**.
- c. Sand or select fill shall be placed between the pipeline and utility (see Section 2.8).
- d. Utilities installed parallel to the pipeline shall be reviewed by Buckeye on a **case-by-case basis**. If approved, the utility shall be no closer than 15 feet from the pipeline.
- e. Warning tape, in accordance with A.P.W.A. Uniform Color Code, shall be placed above utility, 12 inches below ground, for a distance of 25 feet on either side of crossing.
- f. Signage shall be placed at crossing as determined appropriate by Buckeye.
- g. Trenchless Excavations:
 - [1] Utilities installed by a trenchless excavation method (directional drilling, jacking, slick boring, etc.) shall be reviewed by Buckeye on a **case-by-case basis**.
 - [2] Buckeye reserves the right to select the method of crossing for the proposed utility.
 - [3] A minimum clearance of 60 inches (5 feet) below the pipeline is required.
 - [4] For directional drilling operations, a surface wire tracking system is required to verify the exact location of the drill head.
 - [5] A 4 feet by 4 feet excavation window, 24 inches below the pipeline is required for visual inspection of the pipeline to ensure the drill (or bore) does not impact the pipeline.
 - [6] Blind boring is not permitted within Buckeye's right-of-way.

3.4.2 **Metallic Utilities:**

- a. Bonds and test leads shall be installed at the expense of and by the Crossing Party where Buckeye deems necessary.
- b. Utilities shall be coated with a non-conductive coating for a distance of 50 feet on either side of the pipeline crossing.

- c. Ductile water pipe shall include nitrile gaskets within 50 feet of the pipeline crossing or anywhere within 25 feet of horizontal offset locations.

3.4.3 Non-Metallic Utilities:

- a. Utilities shall be wrapped with tracer wire within the width of the right-of-way.
- b. Natural gas (or other industrial gases) lines shall be encased in a 6-inch envelope of yellow 2,000 psi concrete across the right-of-way.
- c. PVC water pipe shall include nitrile gaskets within 50 feet of the pipeline crossing or anywhere within 25 feet of horizontal offset locations.

3.5 Electrical, Fiber-Optic, and Communications Cables

3.5.1 General Requirements:

- a. Cables shall cross perpendicular to the pipeline.
- b. Cables installed parallel to the pipeline shall be reviewed by Buckeye on a **case-by-case basis**. If approved, the cable shall be no closer than 15 feet from the pipeline.
- c. Splice boxes, service risers, energized equipment, etc., are not permitted within the right-of-way.

3.5.2 Buried Cables:

- a. Cables are required to cross beneath the pipeline with a minimum clearance of 24 inches. Exceptions to Buckeye's clearance requirements for underground service entrances to single family dwellings will be reviewed on a **case-by-case basis**.
- b. Sand or select fill shall be placed between the pipeline and cable (see Section 2.8).
- c. All cables shall be installed in Schedule 80 PVC pipe and encased in a 6-inch envelope of red 2,000 psi concrete (orange for fiber) across the right-of-way.
- d. Warning tape, in accordance with A.P.W.A. Uniform Color Code, shall be placed above the utility, 12 inches below ground, for a distance of 25 feet on either side of the crossing.
- e. Signage for the crossing shall be placed as determined appropriate by Buckeye.
- f. Trenchless Excavations:
 - [1] Utilities installed by a trenchless excavation method (directional drilling, jacking, slick boring, etc.) shall be reviewed by Buckeye on a **case-by-case basis**.
 - [2] Buckeye reserves the right to select the method of crossing for the proposed utility.
 - [3] A minimum clearance of 60 inches (5 feet) below the pipeline is required.
 - [4] For directional drilling operations, a surface wire tracking system is required to verify the exact location of the drill head.
 - [5] A 4 feet by 4 feet excavation window, 24 inches below the pipeline is required for visual inspection of the pipeline to ensure the drill (or bore) does not impact the pipeline.
 - [6] Blind boring is not permitted within Buckeye's right-of-way.

3.5.3 Aboveground Cables:

- a. A minimum of 20 feet of above-grade clearance for a distance of 25 feet on each side of the pipeline is required.
- b. Mechanical supports and service drops including poles, towers, guy wires, ground rods, anchors, etc., are not permitted within 25 feet of the pipeline.

3.6 Temporary Access Roads and Heavy/Construction Vehicle Crossings

3.6.1 **General Requirements:**

- a. Trucks carrying a maximum axle load up to 15,000 pounds may cross the right-of-way after Buckeye has confirmed a minimum cover of 48 inches over the pipeline.
- b. For all other cases, earthen ramps (see Attachment 6), swamp mats, reinforced-concrete slabs (see Attachment 5), or steel plates may be required. Loading conditions and protection measures will be evaluated and dictated by Buckeye's Engineering Department.
- c. During the use of an approved temporary construction road, Buckeye may require that the Crossing Party provide additional protective measures deemed necessary to prevent damage to the pipeline.
- d. Buckeye will limit the number of temporary construction roads constructed by the Crossing Party.

3.7 Railroad Crossings

3.7.1 **General Requirements:**

- a. A minimum clearance of 72 inches is required between railroad tracks and the pipeline.
- b. A minimum cover of 36 inches is required between the bottom of drainage ditches on either side of a railroad and the pipeline.
- c. For railroad main lines, the pipeline crossing must comply with local railroad guidelines that delineate the requirements for carrier pipe, casing pipe, and clearances. Buckeye shall be consulted for the review of any State submittals.
- d. For private spur crossings, Buckeye will determine the railroad entity having jurisdictional authority to dictate crossing requirements.

3.8 Farming and Field Tile

3.8.1 **General Requirements:**

- a. Field tile running parallel to the pipeline shall be spaced 10 feet from the centerline of the pipeline.
- b. Field tile shall cross the pipeline perpendicularly with a clearance of 12 inches above or below the pipeline.
- c. Buckeye will approve the total number of crossings of the pipeline on a **case-by-case basis**.
- d. Deep plowing or "ripping" operations shall be approved by and coordinated with Buckeye.

3.9 Construction-Induced Vibrations

3.9.1 **General Requirements:**

- a. Construction activities that generate ground vibrations, including, but without limitation, pile driving, sheet driving, soil compaction work, jackhammering, or ramming, shall be reviewed by Buckeye on a **case-by-case basis**.
- b. If the Crossing Party anticipates such an activity within 300 feet of the pipeline, then continuous testing monitored by a seismograph located directly over the pipeline at its closest point to the activity must be conducted. The Crossing Party shall provide, at their expense, the monitoring service which must be approved by Buckeye.

- c. The particle velocity of any one component of a three-component seismograph must not exceed 2.0 inches per second as recorded on the seismograph placed directly over the pipeline.

3.10 Blasting Operations

3.10.1 **Blasting within 500 feet of the pipeline right-of-way:**

- a. The Crossing Party must submit a blast plan to Buckeye for review and approval. Verbal and written notice will be given 14 and 21 days respectively.
- b. Blasting plans must include the following information:
 - Dates blasting to occur
 - Explosives type
 - Maximum shot hole depth and diameter
 - Number of holes and spacing
 - Delay pattern
 - Delay types and intervals
 - Depth of overburden
 - Depth of blast area
 - Maximum charge per hole, per delay
 - Show drilling/blasting pattern plan and profile in relation to Buckeye facilities
 - Calculated radiant peak particle velocity (PPV) at varying distances from the pipeline and at the pipeline itself
 - State permit (copy)
 - Blasting contractor qualifications and insurance certificate (copy)
 - Blasting Safety Plan (copy)

The Crossing Party shall complete Attachment 7, "Blasting Plan Submission Form", and include this form with their submission to Buckeye.

- c. The Crossing Party shall make arrangements for a Buckeye On-site Inspector to be present to witness the blasting operation.

3.10.2 **Blasting within 300 feet of the pipeline right-of-way:** (Adds to or replaces items in Section 3.10.1)

- a. Blasting shall be monitored by a seismograph located directly over the pipeline at its closest point to the blast hole(s). The Crossing Party shall provide, at their expense, the monitoring service which must be approved by Buckeye.
- b. The particle velocity of any one component of a three-component seismograph must not exceed 2.0 inches per second as recorded on the seismograph placed on the ground directly over the pipeline.
- c. For blast testing, an initial test blast using a maximum charge of one pound shall be performed. The Crossing party shall detonate the first test blast with all necessary monitoring equipment in place to observe the results of the proposed blast design. Each subsequent test blast may be set and detonated only after the seismograph reading from the previous test blast indicates that further blasting can be safely conducted.
- d. Routine production blasting may be initiated after completion of a successful test blast, with allowable charge based on the seismographic vibration recordings of test blasts. However, all blasting must be continuously monitored by a seismograph. The velocity recorded must not exceed the 2.0 inches per second limit noted above.

3.10.3 Blasting within 50 feet of the pipeline right-of-way:

(Adds to or replaces items in Section 3.10.2)

- a. The Crossing Party shall hire a consulting firm that specializes in underground blasting to conduct the seismograph survey and certify the results.
- b. Buckeye will approve the Crossing Party's selection of consulting firms that will conduct the seismographic surveys before starting any blasting operation.

3.10.4 Special Requirements:

- a. For multiple-delay blasting, the Crossing Party shall begin the blasting sequence at the charge closest to the pipeline and progress away from the pipeline.
- b. If seismographic readings above the limit stated in item 3.10.2.d of this section are recorded, the pipeline must be exposed and inspected for possible damage and/or product release. The Crossing Party conducting blasting operations is responsible for all expenses related to the exposure and any subsequent repairs necessitated by the operation.
- c. At Buckeye's request, the Crossing Party shall install sheet piling, open trench channels, and/or matting to protect the pipeline during blasting operations.

3.11 Seismic Vibrating Operations

3.11.1 Seismic vibrating within 500 feet of the pipeline right-of-way:

- a. The Crossing Party must submit a seismic vibrating plan to Buckeye for review and approval. Verbal and written notice will be given 14 and 21 days respectively.
- b. Seismic vibrating plans, when using Vibroseis System Vibrators to radiate ground vibrations, must include information on soil conditions and depth of exploration, the anticipated number and type of vibrations, type and weight of vehicle, and peak force of equipment.
- c. The peak force by vehicle weight shall not exceed 45,000 pounds.
- d. The Crossing Party shall also make arrangements for a Buckeye On-Site Inspector to be present to witness the seismic vibrating operation.

3.11.2 Seismic vibrating within 100 feet of the pipeline right-of-way:

- a. Vibration shall be monitored by a seismograph located directly over the pipeline at its closest point to the vibrator(s). The Crossing Party shall provide, at their expense, the monitoring service which must be approved by Buckeye.
- b. The Crossing party shall determine and limit the maximum peak force allowed under continuous seismographic vibration monitoring such that the peak particle velocity will not exceed 2.0 inches per second.
- c. Seismic vibration surveys shall not be conducted closer than 100 feet to the pipeline.

3.11.3 Special Requirements:

- a. If seismographic readings above the limit stated in item 3.11.2.b of this section are recorded, the pipeline must be exposed and inspected for possible damage and/or product release. The Crossing Party conducting seismic vibrating operations is responsible for all expenses related to the exposure and any subsequent repairs necessitated by the operation.
- b. At Buckeye's request, the Crossing Party shall install sheet piling and/or open trench channels to protect the pipeline during seismic vibrating operations.

4.0 Deviations and Exceptions

- 4.1 When and where special circumstances dictate, deviation from these requirements must be formally approved by Buckeye in writing prior to commencement of any excavation or other construction activity that may impact the pipeline. Any such deviations must be explained and documented and provided to Buckeye for review and approval.

5.0 Additional Information and Buckeye Contacts

- 5.1 Should you have any questions regarding pipeline rights-of-way or your specific easement, contact Buckeye's Right of Way Department at the applicable phone number listed in Attachment 2.
- 5.2 Should you have any questions regarding Buckeye's engineering requirements, contact Buckeye's Encroachment Design Reviewer at the phone number also listed in Attachment 2.

Attachment 1: Buckeye Facility Locations and Phone Numbers

Alabama	Birmingham	(205) 369-0179
	Montgomery	(334) 309-4710
California	Lodi	(209) 368-9277
	San Diego	(714) 269-9028
Connecticut & Massachusetts	Wethersfield	(860) 529-7781
	New Haven	(203) 469-3479
Florida	Port Everglades	(954) 522-8464
Georgia	Birmingham (AL)	(205) 369-0179
Illinois	Argo	(708) 259-1352
	Lemont (West Shore)	(708) 227-0962
	Mazon	(815) 448-2491
	Hartford	(618) 255-1102
Indiana	Hammond	(219) 989-8601
	Hammond (West Shore)	(708) 227-0962
	Huntington	(260) 356-5802
Iowa	Cedar Rapids	(708) 259-1352
	Council Bluffs	(765) 516-3404
Louisiana	Liberty (TX)	(936) 336-5773
Maine	South Portland	(207) 767-2672
Michigan	Wayne	(734) 721-8834
Missouri	St. Louis	(618) 225-1102
	Milan	(708) 259-1352
	Liberty	(765) 516-3404
Nevada	Reno	(760) 802-1535
New Jersey	Linden	(908) 374-5301
New York	Auburn	(315) 253-5395
	New York City	(718) 656-5746
North Carolina	Goldsboro	(919) 778-2712
Ohio	Lima	(419) 993-8025
	Mantua	(330) 274-2234
	Toledo	(419) 698-8190
Pennsylvania	Boothwyn	(610) 459-3441
	Coraopolis	(412) 264-7432
	Duncansville	(814) 695-4852
	Mechanicsburg	(717) 766-7633
	Malvern	(610) 695-8000
	Macungie	(484) 232-4218
Tennessee	Memphis	(901) 395-0122
Texas	Liberty	(936) 336-5773
Wisconsin	Milwaukee (West Shore)	(708) 227-0962
	Madison (West Shore)	(815) 964-3727

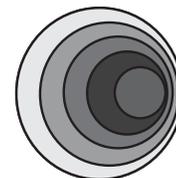
Attachment 2: Right of Way & Engineering Contacts

Name	Responsibility	Phone / Address / Email
David Boone	Manager, Right of Way, Permits & One Call	(610) 904-4401 5 TEK Park, 9999 Hamilton Blvd. Breinigsville, PA 18031 DBoone@buckeye.com
Chris McPike	Sr. Specialist, Right of Way <i>Central District:</i> Eastern Ohio, Pennsylvania (Central & Western)	(412) 299-7019 469 Moon Clinton Road Coraopolis, PA 15108 CMcPike@buckeye.com
Marty White	Sr. Specialist, Right of Way <i>West/Central District:</i> Michigan, Ohio (except for Eastern Ohio), Indiana (except for Northwestern Indiana)	(419) 993-8008 940 Buckeye Road Lima, OH 45804 MWhite@buckeye.com
Michael Norris	Sr. Specialist, Right of Way <i>West District:</i> Northern Illinois, Northwestern Indiana, Wisconsin	(219) 397-3656 EX.2118 3823 Indianapolis Blvd. East Chicago, IN 46312 MRNorris@buckeye.com
Wesley Pekarek	Specialist, Right of Way <i>West District:</i> Iowa, Missouri, Central & Southern Illinois	(816) 836-6096 1315 N. Sterling Ave. Sugar Creek, MO 64054 WPekarek@buckeye.com
Ronald Bates	Sr. Specialist, Right of Way <i>East District:</i> Northeastern Pennsylvania, New York, New Jersey, Connecticut, Maine, Massachusetts	(484) 232-4482 5002 Buckeye Road Emmaus, PA 18049 RBates@buckeye.com
Daniel Mangum	Sr. Specialist, Right of Way & Development <i>Gulf Coast District:</i> Texas, Louisiana, Tennessee, Alabama, Georgia, California, Nevada, Florida, North Carolina	(832) 325-1626 One Greenway Plaza, Suite 600 Houston, Texas 77046 DMangum@buckeye.com
Beth Auman	Sr. Specialist, Right of Way <i>Encroachment Design Review:</i> East, Central, and West Districts <i>East District:</i> Southeastern Pennsylvania	(610) 904-4409 5 TEK Park, 9999 Hamilton Blvd. Breinigsville, PA 18031 BAuman@buckeye.com
Teriann Williams Jeannette Fluke	Right of Way Coordinators <i>Easements and Records:</i> Supporting East, Central, and West Districts	(610) 904-4418 (610) 904-4404 5 TEK Park, 9999 Hamilton Blvd. Breinigsville, PA 18031 TEWilliams@buckeye.com JFluke@buckeye.com

Attachment 3: State One Call Systems (National One Call System - Dial 811)

State	One Call Program	Phone No.	Website
Alabama	Alabama 811	(800) 292-8525	www.al811.com
California - North	USA North of Central / Northern California & Nevada	(800) 227-2600	www.usanorth.org
- South	Dig Alert & Underground Service Alert South	(800) 422-4133	www.digalert.org
Connecticut	Call Before You Dig	(800) 922-4455	www.cbyd.com
Florida	Sunshine State One Call	(800) 432-4770	www.callsunshine.com
Georgia	Georgia 811	(800) 282-7411	www.georgia811.com
Illinois - Non-Chicago	Julie, Inc.	(800) 892-0123	www.illinois1call.com
- Chicago	DIGGER - Chicago Utility Alert Network	(312) 744-7000	www.cityofchicago.org/transportation
Indiana	Indiana 811	(800) 382-5544	www.indiana811.org
Iowa	Iowa One Call	(800) 292-8989	www.iowaonecall.com
Louisiana	Louisiana One Call System, Inc.	(800) 272-3020	www.laonecall.com
Maine	Dig Safe System Inc.	(888) 344-7233	www.digsafe.com
Massachusetts	Dig Safe System Inc.	(888) 344-7233	www.digsafe.com
Michigan	MISS Dig System, Inc.	(800) 482-7171	www.missdig.net
Missouri	Missouri One Call System, Inc.	(800) 344-7483	www.mo1call.com
Nevada	USA North of Central / Northern California & Nevada	(800) 227-2600	www.usanorth.org
New Jersey	New Jersey One Call	(800) 272-1000	www.nj1-call.org
New York	Dig Safely New York	(800) 962-7962	www.digsafelynewyork.com
New York City & Long Island	New York 811, Inc.	(800) 272-4480	www.newyork-811.com
North Carolina	North Carolina 811	(800) 632-4949	www.nc811.org
Ohio	Ohio Utilities Protection Service	(800) 362-2764	www.oups.org
Pennsylvania	Pennsylvania One Call System, Inc.	(800) 242-1776	www.pa1call.org
Tennessee	Tennessee 811	(800) 351-1111	www.tnonecall.com OR www.tennessee811.com
Texas	Texas 811 OR Lone Star Notification Center	(800) 344-8377 (800) 669-8344	www.texas811.org www.lsnconecall.com
Wisconsin	Wisconsin Diggers Hotline	(800) 242-8511	www.diggershotline.com





Attachment 4:

Requirements for Submission of Design Plans Buckeye Partners, L.P. and Affiliates

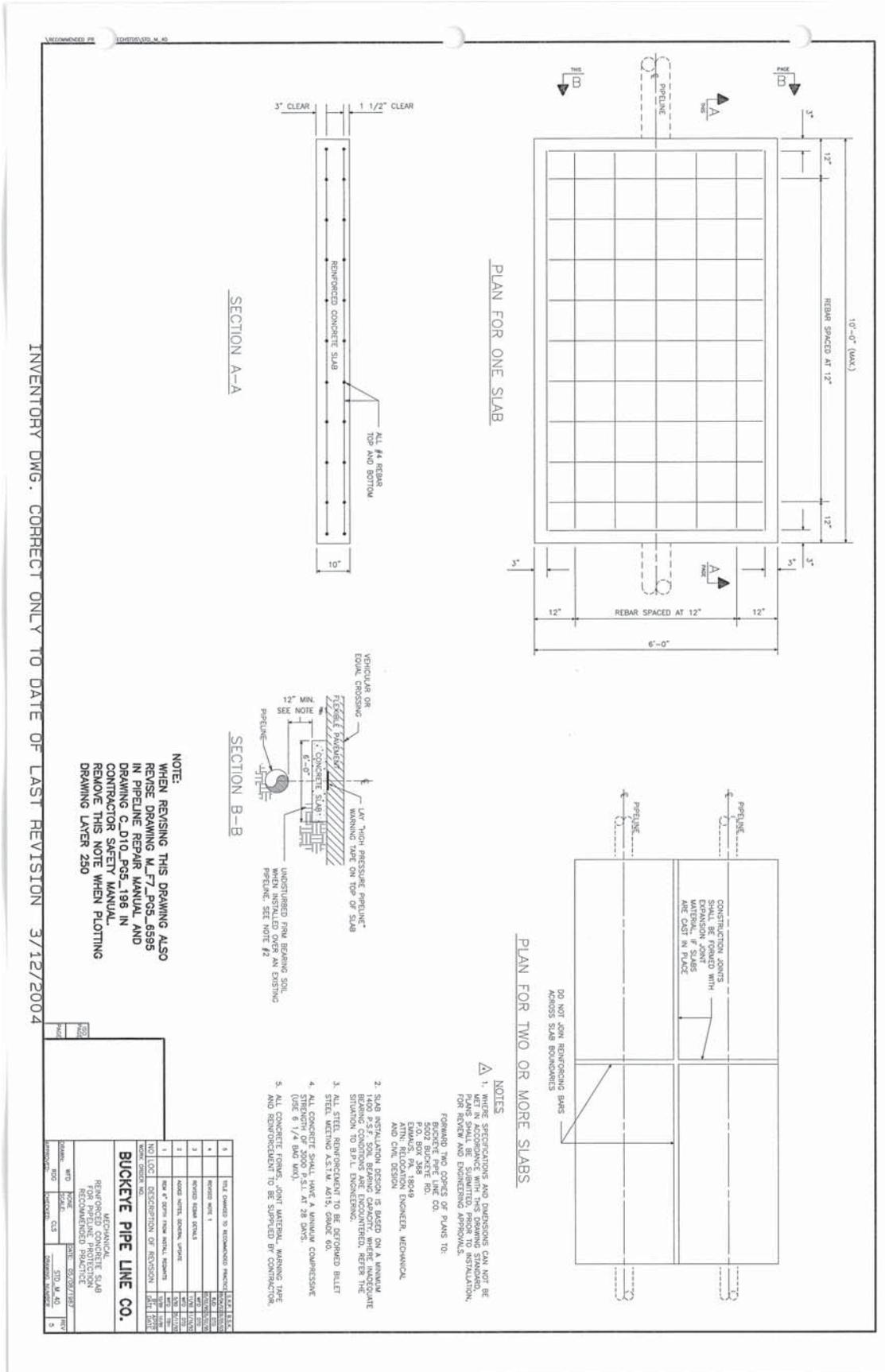
1. Contact Buckeye's local Field Operations Manager to arrange for a field determination by probe hole(s) of the vertical and horizontal locations of the pipeline(s). Arrange for your Surveyor to meet with Buckeye's Field Representative on-site in order to record this information for incorporation into your design plans. This locating service can be scheduled by contacting the Buckeye facility near your location (see Attachment 1).

Note: At Buckeye's request, you will be required to provide excavation equipment (at your expense) in order to assist Buckeye's Field Representative in accurately locating the pipeline.

2. The location of each probe hole along with the corresponding depth of the pipeline(s) shall be recorded by your Surveyor. Buckeye's local Field Representative will consider site conditions and pipeline(s) location to determine the number of and distance between probe holes. As a minimum, the pipeline(s) shall be located at each proposed road or utility crossing, drainage channel or ditch, and other areas of proposed grade change within the pipeline right-of-way.
3. Using the probe hole data, accurately show Buckeye's pipeline(s) on your design plans. Include all reference and location information for each probe hole on your design plan, including the date and name of Buckeye's Field Representative who performed the field work.
4. The pipeline and probe hole data must be shown on individual drawings depicting the existing site conditions and the proposed site conditions. Highlight the pipeline(s) in yellow. In your plan transmittal letter, identify/list all of the drawing sheets that show the pipeline(s).
5. Buckeye's pipeline shall be indicated on all applicable plan sheets by pipe diameter and labeled, "High Pressure Petroleum Products Pipeline".
6. Add Buckeye to the Utilities List and include the Buckeye ROW Agent's name and phone number on the plans.
7. Indicate the following information on your design plans: [1] ground disturbances (blasting, seismic testing, pile driving, jackhammering, etc.) within 1,500 feet of the pipeline(s); [2] proposed location(s) where construction equipment will cross the pipeline right-of-way; [3] structure setback distances from the pipeline right-of-way; [4] proposed landscaping within 25 feet of either side of the pipeline(s); and [5] any permanent fencing that will limit/encumber Buckeye's access to the pipeline right-of-way.

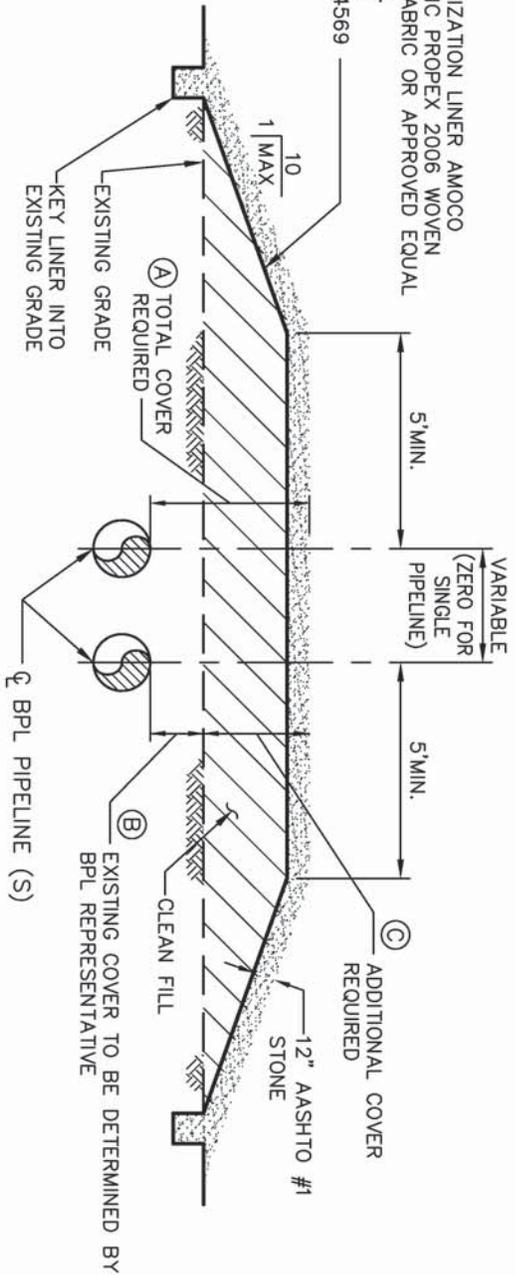
8. If the drainage pattern of the existing site will be altered in any way that impacts the pipeline right-of-way because of your project, submit a drainage plan that specifically identifies new flow paths and all inlet/outfall/collection points.
9. Include/incorporate Buckeye's Right-of-Way Use Restrictions specifications (attached hereto) as a part of your final design plans. This can be done by adding a drawing sheet to your plans and appending (cut and paste) the Specification onto this sheet.
10. For property improvements that involve grade/pavement alterations, road work (new construction or improvements of existing), utility crossings (buried and overhead), or other subsurface or on-surface structure installations within Buckeye's right-of-way:
 - a. Prepare a separate plan and profile drawing of Buckeye's pipeline(s) for the existing and the proposed conditions for your project.
 - b. Include subgrade details that show materials and the thickness of each layer/course.
 - c. Indicate the amount of existing cover that will be removed from the pipeline(s). Indicate the amount of cover that will be added over the pipeline(s). Indicate the proposed finished/final grade amount of cover over the pipeline(s).
 - d. Show the clearances between Buckeye's pipeline(s) and any existing and new buried or overhead utilities that cross the pipeline right-of-way.
 - e. Show the clearances between Buckeye's pipeline(s) and each proposed substructure at the two closest reference points.
 - f. For any utility to be installed via boring, drilling, or tunneling, include a detailed procedure of this work with your design plans. Note: "Blind" boring is not permitted. Buckeye's pipeline(s) must be exposed during the bore operation to ensure that the bore head crosses safely underneath the pipeline(s).
 - g. Indicate any areas of disturbance or other work that will require Buckeye's pipeline(s) to be exposed in order to perform your work.
11. Complete the following "Design Plans Submission Checklist", sign, date, and include with your design plans submittal. Mail **three full sized sets** of design plans to Beth Auman, Senior Specialist, Right-of-Way (see Attachment 2).

Attachment 5: Reinforced-Concrete Slab Detail



Project/Inquiry:	Loading:	Date:
System:	Pipe Data:	Revision:

GEOTEXTILE STABILIZATION LINER AMOCO
ENGINEERING FABRIC PROPEX 2006 WOVEN
POLYPROPYLENE FABRIC OR APPROVED EQUAL
AMOCO FABRIC CO.
ATLANTA, GEORGIA
PHONE: (770)944-4569



**TEMPORARY (WET CONDITIONS) CONSTRUCTION RAMP
OVER BPL PIPELINE (S)**

- NOTES:
NO SCALE
1. RAMP SHALL BE 15 FOOT PLUS/MINUS WIDE WITH SIDES TAPERED ON A MINIMUM 1:1 SLOPE.
 2. IF DRY CONDITIONS PREVAIL AT CROSSING SITE LINER AND STONE CAN BE REPLACED WITH FILL MATERIAL.

* Indicates item supplied by Buckeye Pipe Line Company.

- Legend & Notes:**
- A. Required pipeline cover must be a minimum of: * feet
 - B. Existing pipeline cover is currently: TBD feet
 - C. Earthen ramp height above existing grade: * feet

Buckeye Pipe Line Company
Earthen Ramp Detail



Attachment 7: Blasting Plan Submission Form

INFORMATION SECTION	
<p>Blasting Contractor -</p> <p>Company Name: _____</p> <p>Phone: _____</p> <p>Email Address: _____</p> <p>Contact Person: _____</p>	<p>Contracted by -</p> <p>Company Name: _____</p> <p>Address: _____</p> <p>Contact Person: _____</p>
<p>Project Name: _____</p> <p>Address: _____</p> <p>*Latitude: _____</p> <p>*Longitude: _____</p>	
<p>Location and Distance (in feet) to Nearest Buckeye Pipeline: _____</p> <p>_____</p>	
<p>Date of Blasting: _____</p>	

EXPLOSIVES SECTION	
<p>Type of Explosives: _____</p>	
<p>Max. Charge / Hole (lbs): _____</p>	
<p>Charge Delay (ms): _____</p>	
<p>Charge Weight / Delay (lbs): _____</p>	
<p>Max. Depth of Charge (ft): _____</p>	
<p>Max. Diameter of Charge (in): _____</p>	
<u>Calculated Particle Velocity at a point -</u>	
<p>Depth of Blast Area (ft): _____</p>	<p>300 feet from pipeline (in/sec): _____</p>
<p>Depth of Overburden (ft): _____</p>	<p>200 feet from pipeline (in/sec): _____</p>
<p>Type of Rock to be Blasted: _____</p>	<p>100 feet from pipeline (in/sec): _____</p>
<p>Density of Rock (lbs/cu-ft): _____</p>	<p>Directly above pipeline (in/sec): _____</p>

ATTACHMENT CHECKLIST
<ul style="list-style-type: none"> <input type="checkbox"/> Drilling/Blasting Pattern Sketch - include all depths, measurements, and delay patterns relative to Buckeye facility involved and each charge. <input type="checkbox"/> State Approval Letter <input type="checkbox"/> Blasting Contractor's Qualifications <input type="checkbox"/> Blasting Contractor's Insurance Certificate <input type="checkbox"/> Blasting Contractor's Safety Plan
<p style="text-align: center;">OMMISSION OF ANY INFORMATION REQUESTED ABOVE WILL DELAY YOUR BLASTING PLAN REVIEW</p> <p style="text-align: center;">Buckeye requires a minimum of 14 days for technical review upon receipt of complete and accurate blasting plans</p>

Attachment 8: Excavation Safety Checklist

195 F-09, FORM A – EXCAVATION SAFETY CHECKLIST

The information noted on this form is intended to communicate general information about our pipeline(s) and is not intended to be solely relied upon by any party for the purpose of excavation or any similar purpose.

By law, to enable all participating utilities time to mark their facilities, the **One Call Center** in your state requires notification by calling 811 prior to any excavation. Buckeye Partners, L.P. is a member of this One Call enterprise and will automatically be notified through this system. In addition, a Buckeye inspector will perform and/or review with the excavator representative the applicable checklist items below.

Pipeline Locate Activity:

- If plans are available, requested a copy of the written project plans and drawings for review with the excavator and/or engineer. Had the excavator and/or engineer explain the extent of the work area, location and depth of the excavation, type of proposed utilities, location of proposed utilities, number of utility crossings, etc.
- Established the pipeline(s) location and marked the line(s) per state One Call requirements throughout the entire work area.
- Photographed all established pipeline markings throughout the work area.

Communication with the Excavator and/or Engineer:

- The excavator and/or engineer was advised that a Buckeye inspector must:**
 - **Monitor the excavation site daily when work is performed within 25 feet of a Buckeye pipeline.**
 - **Observe continuously all excavation and backfill activity performed within 10 feet of a Buckeye pipeline or during the installation of any utility across a Buckeye pipeline facility.**
 - **In addition, the excavator was instructed to call 800-331-4115 if they were ready to excavate within either above distance of a Buckeye pipeline and a Buckeye inspector was not present. When called a Buckeye inspector will be sent to perform the inspection, which is free of charge.**
- The excavator was advised that only backhoes or trackhoes with a steel plate welded across the teeth of the bucket are permitted to be used during excavation work around a Buckeye pipeline.
- The excavator was advised that the Buckeye inspector is required by law to perform an external inspection of any Buckeye pipeline exposed during excavation activity. The excavator understands that he/she is responsible to provide an OSHA compliant excavation, allowing the Buckeye inspector safe ingress and egress to examine our exposed pipeline.
- Walked through the work area with the excavator and communicated the locations of all Buckeye pipelines in the planned work area.
- Discussed the number of pipelines, pipe size(s), approximate pressures, approximate depths, excavation tolerance zones, hand digging requirements, and the hazards and characteristics of product(s) in the pipeline system(s) located in the planned work area.
- The excavator was advised to call the One Call Center 811 or contact Buckeye, if the Buckeye markings are destroyed or need to be refreshed in the planned work area. This service is provided free of charge.
- The excavator was advised that before any exposed Buckeye pipeline can be backfilled, the Buckeye inspector will direct the placement of an orange warning mesh over the pipeline.
- The excavator was advised that **any contact** with the pipeline, pipeline coating, test station wiring, or anode beds **must be reported to Buckeye prior to backfilling the excavation** to permit further inspection of the damage to assure continued safe pipeline operations.
- The excavator was advised that failure to comply with the conditions outlined above would result in Buckeye requiring the excavator to expose the pipeline again to allow an examination of the pipeline at the excavator's expense. If damage to the pipeline is discovered, Buckeye may seek monetary compensation for all repair costs. Buckeye may also report this activity to all concerned parties (State One Call Center, Regulatory Agencies, Principal Contractor, Excavator's Insurance Company, etc.).

If you are unable to reach the representative designated below, or **in case of an emergency**, request assistance as follows:

For excavation activities in CT, FL, IL, IA, IN, MA, ME, MI, MO, NJ, NY, OH, PA, and WI, please call 1-800-331-4115.

For excavation activities in LA, NV, TN, TX, AL, GA, NC, and Southern California, please call 1-866-514-8380.

For excavation activities in Northern California, please call 1-800-307-1107.

One Call Ticket:		Line Segments:		
Work Order:		Mile Posts:		
Nearest Street				

Buckeye Information		Property Owner / Excavator /Engineer	
Date:		Name:	
Name:		Phone:	
Cell Phone:		Signature:	