



Janet T. Mills
GOVERNOR

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Dale F. Doughty
ACTING COMMISSIONER

December 23, 2025
Subject: Highway Improvements
WIN: 01895.11
Location: **Bangor**
Amendment No. 1

Dear Sir/Ms.:

Existing Bridge Plans have been posted.

Make the following changes to the Bid Documents:

In the Plan Set:

CHANGE on SHEET 1 of 485, "TITLE SHEET", the FEDERAL PROJECT NO. from "1859511" to read "**1859510**". Make this change in pen and ink.

REMOVE sheet 3, titled "ESTIMATED QUANTITIES (1 OF 2)", 1 sheet, dated, November 25, 2025, and **REPLACE** with the attached "ESTIMATED QUANTITIES (1 OF 2)", 1 sheet, dated December 22, 2025.

REMOVE sheet 5, titled "EARTHWORK SCHEDULE", 1 sheet, dated, November 25, 2025, and **REPLACE** with the attached "EARTHWORK SCHEDULE", 1 sheet, dated December 22, 2025.

In the Bid Book:

CHANGE On page 14 "NOTICE TO CONTRACTORS", the bid opening date in the first paragraph from "January 14, 2026" to read "**January 28, 2026**". Make this change in pen and ink.

REMOVE pages 17-38, titled "Proposal Schedule of Items", 22 pages, dated November 25, 2025, and **REPLACE** with the attached "Proposal Schedule of Items", 22 pages, dated December 23, 2025

INSERT the attached "SPECIAL PROVISION, SECTION 106 - HOT MIX ASPHALT PAVEMENT", 1 page, dated December 11, 2025.

REMOVE pages 96 – 122, titled “SECTION 401 - HOT MIX ASPHALT PAVEMENT”, 27 pages, dated January 23, 2024, and pages 123 – 124, titled “SECTION 400 - HOT MIX ASPHALT PAVEMENT - (Weather and Seasonal Limitations), 2 pages, dated November 12, 2024, and **REPLACE** with the attached “SECTION 401 - HOT MIX ASPHALT PAVEMENT”, 28 pages, dated December 11, 2025.

REMOVE pages 125 –126, titled “SPECIAL PROVISION, SECTION 401, HOT MIX ASPHALT PAVEMENT, 401 HOT MIX ASPHALT LONGITUDINAL JOINT DENSITY”, 2 pages, dated November 6, 2019, and **REPLACE** with the attached “SPECIAL PROVISION, SECTION 401, HOT MIX ASPHALT PAVEMENT, 401 HOT MIX ASPHALT LONGITUDINAL JOINT DENSITY”, 2 pages, dated December 8, 2025.

REMOVE pages 127 –130, titled “SPECIAL PROVISION, DIVISION 400, PAVEMENTS, SECTION 401 - HOT MIX ASPHALT PAVEMENT, (HMA Hamburg Wheel Tracker Specification)”, 4 pages, dated September 14, 2021, and **REPLACE** with the attached “SPECIAL PROVISION, DIVISION 400, PAVEMENTS, SECTION 401 - HOT MIX ASPHALT PAVEMENT, (HMA Hamburg Wheel Tracker Specification)”, 5 pages, dated December 15, 2025.

INSERT the attached “SPECIAL PROVISION, SECTION 401, HOT MIX ASPHALT PAVEMENTS, (High Polymer 76E-28 HMA)”, 4 pages, dated November 20, 2025.

REMOVE pages 133 –135, titled “SPECIAL PROVISION, SECTION 403 - HOT MIX ASPHALT”, 3 pages, dated November 20, 2025, and **REPLACE** with the attached “SPECIAL PROVISION, SECTION 403 - HOT MIX ASPHALT”, 3 pages, dated December 11, 2025.

INSERT the attached “SPECIAL PROVISION, SECTION 602, FLOWABLE CONCRETE FILL”, 3 pages, dated December 22, 2025.

INSERT the attached “SPECIAL PROVISION, SECTION 607 FENCES, (Chain Link Snow Fence)”, 2 pages, dated September 19, 2025.

The following questions have been received:

Question: Please tell me what material and finish is required for the Light Standard Poles 634.206 & 634.2042?

Response: All light poles for Items 634.206 and 634.2042 shall be aluminum with natural aluminum finish.

Question: Can we please get a spreadsheet of the Earthwork Quantities broken down per section/stationing of roadway & ramps? (i.e. grub, cuts, fills, & ulfga)

Response: Yes, see the attached earthwork spreadsheets which are provided for informational purposes only. Unit prices within the supplied bids shall be based on the quantities shown within the bid tabs.

Question: Section 652 states, "This work shall also include designing, constructing, grading, maintaining, and dismantling of temporary slopes for the purpose of supporting the ramps and roadways during staged construction." Our question is, does the Earthwork Summary provided on Sheet G-5 include any temporary grading work as indicated in some cross sections? Please clarify the method of payment for this anticipated earthwork.

Response: This work shall be considered incidental to Item 652.61 – Stage Construction and Traffic Control. In the Earthwork Summary on Sheet G-5 a value of 700 CY of reused material for traffic control was assumed when determining the required amount of common borrow.

Question: Section 5.a states, "I-95 Northbound traffic under the Exit 187 bridges shall provide two through lanes between 5am and 8pm from July 1st to September 12th throughout construction." Our question is, are there any similar limitations for I-95 Southbound traffic?

Response: No, I-95 Southbound traffic may be reduced to a single lane at any time throughout construction.

Question: Section 524: Temporary Structural Support - Approaches. Please confirm this specification is specific to the support of excavation required for existing and proposed piers/abutments.

Response: This special provision is specific to the work noted in the description section. Any other temporary support of excavation will be considered incidental to related Contract items.

Question: Section 5.a. in Section 107 states, "I-95 Northbound traffic under the Exit 187 bridges shall provide two through lanes between 5am and 8pm from July 1st to September 12th throughout construction." Sheet P-17 indicates a single through lane on NB I-95 during Phase 1. Please provide a phasing drawing to indicate where traffic needs to be on NB I-95 from July 1st to September 12th.

Response: There shall be two travel lanes available along I-95 Northbound from 5 AM to 8 PM from July 1st to September 12th throughout construction. Outside of these time restrictions, the Contractor may provide a single northbound travel lane as shown in the Phase 1 plan. The Contractor shall provide a traffic control plan and schedule that maintains two through lanes under the bridges from July 1st to September 12th from 5 AM to 8 PM.

Question: Ref. Sheet H-151: The cross section at Station 1005+00.00 indicates removal of an existing 24" pipe culvert. Please confirm this pipe is to be abandoned in place, not removed, and provide a pay item for this work.

Response: This pipe shall be capped, filled, and abandoned in place please make this change in pen and ink. Payment will be made under Item 602.30 – Flowable Concrete Fill. See the attached Flowable Fill Special Provision, updated estimated quantities sheet, and updated schedule of items for more information.

Question: Ref. Section 502 - Mass Concrete: Are there any mass concrete pour considerations required on this project?

Response: No.

Question: Ref. Sheet B-18: Section A-A indicates, "Retain and Protect Existing Transverse Reinforcement (Typ.)". Our question is, will drilling and epoxying new reinforcement or using barlock-type mechanical couplers be an allowable alternative to salvaging the existing reinforcement?

Response: No. The existing reinforcement shall be retained and protected as called for in the plans.

Question: Due to the holidays, a significant number of subs and vendors are out of the office for up to 2 weeks of the solicitation period. Due to this overlap with the holiday season, we respectfully request a 3-week bid date postponement from 1/14/26 to 2/4/26, which should allow adequate time to turn around pricing.

Response: MaineDOT will move the new bid date to January 28, 2026

Question: Can the bid date be extended to 1/28/26 due to the timing of the upcoming holidays? Many vendors/contractors will be closed during this time. Thank you.

Response: MaineDOT will move the new bid date to January 28, 2026

Question: In the list of major traffic signal work items and in the bid book under item 643, integration into the Centracms mobility system is referenced. If SPAT data can be provided via the Miovision detection system, and an Econolite controller is supplied, is the Centracms license still required?

Response: The Centracms mobility license is still required for integration into MaineDOT's cloud hosted system.

Question: For the advance detection dilemma zones - will these be used only to place a call or will the desired output be specified for speed ranges in each zone?

Response: Advance detections zones will be used to place a call, but different call types will not be specified for various speed ranges detected. The advanced detection will be set up for signal performance measures (SPM), but not for dynamic all red extension (DARE).

Consider these changes and information prior to submitting your bid on **January 28, 2026**.

Sincerely,



George M. A. Macdougall P.E.
Contracts & Specifications Engineer

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 018595.11

Project(s): 018595.11

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0010	107.51 PROSECUTION OF WORK - INITIAL SCHEDULE	LUMP SUM	LUMP	SUM	_____	_____
0020	107.531 BI-WEEKLY UPDATES	1.000 LS	_____	_____	_____	_____
0030	201.11 CLEARING	3.000 AC	_____	_____	_____	_____
0040	201.23 REMOVING SINGLE TREE TOP ONLY	5.000 EA	_____	_____	_____	_____
0050	201.24 REMOVING STUMP	5.000 EA	_____	_____	_____	_____
0060	202.12 REMOVING EXISTING STRUCTURAL CONCRETE	179.000 CY	_____	_____	_____	_____
0070	202.15 REMOVING EXISTING MANHOLE OR CATCH BASIN	10.000 EA	_____	_____	_____	_____
0080	202.19 REMOVING EXISTING BRIDGE 959 CY	LUMP SUM	LUMP	SUM	_____	_____
0090	202.202 REMOVING PAVEMENT SURFACE	24,010.000 SY	_____	_____	_____	_____
0100	202.21 REMOVING EXISTING SUBSTRUCTURE	265.000 CY	_____	_____	_____	_____
0110	202.30 REMOVING EXISTING CONCRETE WEARING SURFACE BRIDGE 5823 (1540 SY)	LUMP SUM	LUMP	SUM	_____	_____
0120	203.20 COMMON EXCAVATION	27,400.000 CY	_____	_____	_____	_____

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			Dollars	Cents	Dollars	Cents
0130	203.24 COMMON BORROW	29,900.000 CY	_____	_____	_____	_____
0140	203.25 GRANULAR BORROW	20,830.000 CY	_____	_____	_____	_____
0150	203.4338 LIGHTWEIGHT FILL FOAMED GLASS AGGREGATE	19,600.000 CY	_____	_____	_____	_____
0160	203.4340 ELASTIC INCLUSION	136.000 SY	_____	_____	_____	_____
0170	206.082 STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	2,490.000 CY	_____	_____	_____	_____
0180	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	26,600.000 CY	_____	_____	_____	_____
0190	403.2081 12.5 MM POLYMER MODIFIED HOT MIX ASPHALT	5,500.000 T	_____	_____	_____	_____
0200	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	420.000 T	_____	_____	_____	_____
0210	403.2111 9.5 MM POLYMER MODIFIED HMA (SHIM)	720.000 T	_____	_____	_____	_____
0220	403.2131 12.5 MM POLYMER MODIFIED HMA BASE	10,370.000 T	_____	_____	_____	_____
0230	409.15 BITUMINOUS TACK COAT - APPLIED	4,960.000 G	_____	_____	_____	_____
0240	461.131 TEMPORARY PAVEMENT	2,500.000 T	_____	_____	_____	_____

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			Dollars	Cents	Dollars	Cents
0250	501.231 DYNAMIC LOADING TEST	10.000 EA	_____	 _____	_____	 _____
0260	501.50 STEEL H-BEAM PILES 89 LBS/FT, DELIVERED	4,950.000 LF	_____	 _____	_____	 _____
0270	501.501 STEEL H-BEAM PILES 89 LBS/FT, IN PLACE	2,920.000 LF	_____	 _____	_____	 _____
0280	501.502 ROCK SOCKETED H-PILES	1,460.000 LF	_____	 _____	_____	 _____
0290	501.804 DRILLING EQUIPMENT MOBILIZATION BRIDGE 5823	LUMP SUM		LUMP SUM	_____	 _____
0300	501.804 DRILLING EQUIPMENT MOBILIZATION BRIDGE 6787	LUMP SUM		LUMP SUM	_____	 _____
0310	501.90 PILE TIPS	86.000 EA	_____	 _____	_____	 _____
0320	501.91 PILE SPLICES	10.000 EA	_____	 _____	_____	 _____
0330	501.92 PILE DRIVING EQUIPMENT MOBILIZATION BRIDGE 5823	LUMP SUM		LUMP SUM	_____	 _____
0340	501.92 PILE DRIVING EQUIPMENT MOBILIZATION BRIDGE 6787	LUMP SUM		LUMP SUM	_____	 _____
0350	502.219 STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS BRIDGE 5823	LUMP SUM		LUMP SUM	_____	 _____

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			Dollars	Cents	Dollars	Cents
0360	502.219 STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS BRIDGE 6787	LUMP SUM	LUMP	SUM	_____	_____
0370	502.239 STRUCTURAL CONCRETE PIERS BRIDGE 5823	LUMP SUM	LUMP	SUM	_____	_____
0380	502.239 STRUCTURAL CONCRETE PIERS BRIDGE 6787	LUMP SUM	LUMP	SUM	_____	_____
0390	502.26 STRUCTURAL CONCRETE ROADWAY AND SIDEWALK SLABS ON STEEL BRIDGES BRIDGE 5823	LUMP SUM	LUMP	SUM	_____	_____
0400	502.26 STRUCTURAL CONCRETE ROADWAY AND SIDEWALK SLABS ON STEEL BRIDGES BRIDGE 6787	LUMP SUM	LUMP	SUM	_____	_____
0410	502.31 STRUCTURAL CONCRETE APPROACH SLABS BRIDGE 5823	LUMP SUM	LUMP	SUM	_____	_____
0420	502.31 STRUCTURAL CONCRETE APPROACH SLABS BRIDGE 6787	LUMP SUM	LUMP	SUM	_____	_____
0430	502.453 STRUCTURAL CONCRETE MOMENT SLAB	LUMP SUM	LUMP	SUM	_____	_____
0440	502.454 STRUCTURAL CONCRETE SLEEPER SLAB BRIDGE 5823	LUMP SUM	LUMP	SUM	_____	_____
0450	502.454 STRUCTURAL CONCRETE SLEEPER SLAB BRIDGE 6787	LUMP SUM	LUMP	SUM	_____	_____

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			Dollars	Cents	Dollars	Cents
0460	502.49 STRUCTURAL CONCRETE CURBS AND SIDEWALKS BRIDGE 5823	LUMP SUM	LUMP	SUM	_____	_____
0470	502.49 STRUCTURAL CONCRETE CURBS AND SIDEWALKS BRIDGE 6787	LUMP SUM	LUMP	SUM	_____	_____
0480	502.77 FIBER REINFORCED POLYMER BRIDGE DRAIN - TYPE: A MODIFIED	4.000 EA	_____	_____	_____	_____
0490	502.77 FIBER REINFORCED POLYMER BRIDGE DRAIN - TYPE: E	5.000 EA	_____	_____	_____	_____
0500	502.77 FIBER REINFORCED POLYMER BRIDGE DRAIN - TYPE: F	8.000 EA	_____	_____	_____	_____
0510	503.12 REINFORCING STEEL, FABRICATED AND DELIVERED	250,300.000 LB	_____	_____	_____	_____
0520	503.13 REINFORCING STEEL, PLACING	250,300.000 LB	_____	_____	_____	_____
0530	503.19 LOW-CARBON, CHROMIUM REINFORCEMENT - FABRICATED & DELIVERED	331,800.000 LB	_____	_____	_____	_____
0540	503.20 LOW-CARBON, CHROMIUM REINFORCEMENT - PLACING	331,800.000 LB	_____	_____	_____	_____
0550	504.70 STRUCTURAL STEEL FABRICATED AND DELIVERED	LUMP SUM	LUMP	SUM	_____	_____
0560	504.702 STRUCTURAL STEEL FABRICATED AND DELIVERED, WELDED	LUMP SUM	LUMP	SUM	_____	_____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0570	504.71 STRUCTURAL STEEL ERECTION	LUMP SUM	LUMP	SUM	_____	_____
0580	504.73 REMOVING, MODIFYING, AND RESETTING EXISTING STRUCTURAL STEEL	LUMP SUM	LUMP	SUM	_____	_____
0590	505.08 SHEAR CONNECTORS	LUMP SUM	LUMP	SUM	_____	_____
0600	506.144 FIELD PAINTING NEW AND EXISTING STRUCTURAL STEEL	LUMP SUM	LUMP	SUM	_____	_____
0610	506.17 SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL	LUMP SUM	LUMP	SUM	_____	_____
0620	506.18 CONTAINMENT AND POLLUTION CONTROL	LUMP SUM	LUMP	SUM	_____	_____
0630	506.191 DISPOSAL OF SPECIAL WASTE OR HAZARDOUS WASTE MATERIAL	LUMP SUM	LUMP	SUM	_____	_____
0640	506.9104 THERMAL SPRAY COATING - SHOP APPLIED	LUMP SUM	LUMP	SUM	_____	_____
0650	507.0821 STEEL BRIDGE RAILING, 3 BAR BRIDGE 5823	LUMP SUM	LUMP	SUM	_____	_____
0660	507.0821 STEEL BRIDGE RAILING, 3 BAR BRIDGE 6787	LUMP SUM	LUMP	SUM	_____	_____
0670	507.0822 STEEL APPROACH RAILING, 3-BAR	1.000 EA	_____	_____	_____	_____

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			Dollars	Cents	Dollars	Cents
0680	507.0822 STEEL APPROACH RAILING, 3-BAR MODIFIED	7.000 EA	_____	 _____	_____	 _____
0690	508.14 HIGH PERFORMANCE WATERPROOFING MEMBRANE BRIDGE 5823	LUMP SUM	LUMP	 SUM	_____	 _____
0700	508.14 HIGH PERFORMANCE WATERPROOFING MEMBRANE BRIDGE 6787	LUMP SUM	LUMP	 SUM	_____	 _____
0710	512.081 FRENCH DRAINS BRIDGE 5823	LUMP SUM	LUMP	 SUM	_____	 _____
0720	512.081 FRENCH DRAINS BRIDGE 6787	LUMP SUM	LUMP	 SUM	_____	 _____
0730	515.21 PROTECTIVE COATING FOR CONCRETE SURFACES BRIDGE 5823	LUMP SUM	LUMP	 SUM	_____	 _____
0740	515.21 PROTECTIVE COATING FOR CONCRETE SURFACES BRIDGE 6787	LUMP SUM	LUMP	 SUM	_____	 _____
0750	518.50 REPAIR OF UPWARD FACING SURFACES - TO REINFORCING STEEL < 8 IN.	670.000 SF	_____	 _____	_____	 _____
0760	518.70 REPAIR OF OVERHEAD SURFACES < 8 IN.	220.000 SF	_____	 _____	_____	 _____
0770	522.06 MODULAR EXPANSION DEVICE	4.000 EA	_____	 _____	_____	 _____
0780	523.52 BEARING INSTALLATION	84.000 EA	_____	 _____	_____	 _____

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			Dollars	Cents	Dollars	Cents
0790	523.5402 LAMINATED ELASTOMERIC BEARINGS, EXPANSION	84.000 EA	_____	 _____	_____	 _____
0800	524.301 TEMPORARY STRUCTURAL SUPPORT APPROACHES	LUMP SUM	LUMP	 SUM	_____	 _____
0810	524.301 TEMPORARY STRUCTURAL SUPPORT SUPERSTRUCTURE	LUMP SUM	LUMP	 SUM	_____	 _____
0820	524.40 PROTECTIVE SHIELD BRIDGE 5823 (780 SY)	LUMP SUM	LUMP	 SUM	_____	 _____
0830	524.40 PROTECTIVE SHIELD BRIDGE 6787 (1600 SY)	LUMP SUM	LUMP	 SUM	_____	 _____
0840	526.302 PORTABLE CONCRETE BARRIER	2,800.000 LF	_____	 _____	_____	 _____
0850	526.322 PERMANENT CONCRETE BARRIER TYPE III MODIFIED	756.000 LF	_____	 _____	_____	 _____
0860	526.502 PRECAST CONCRETE MEDIAN BARRIER	LUMP SUM	LUMP	 SUM	_____	 _____
0870	527.305 QUADGUARD CRASH CUSHION	1.000 UN	_____	 _____	_____	 _____
0880	527.34 WORK ZONE CRASH CUSHIONS	10.000 UN	_____	 _____	_____	 _____
0890	530.30 GFRP, REINFORCEMENT BARS, FABRICATED & DELIVERED	187,400.000 LF	_____	 _____	_____	 _____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0900	530.31 GFRP, REINFORCEMENT BARS, PLACING	187,400.000 LF	_____	 _____	_____	 _____
0905	602.30 FLOWABLE CONCRETE FILL	63.000 CY	_____	 _____	_____	 _____
0910	603.04 4" PVC DRAIN SERVICE	4.000 LF	_____	 _____	_____	 _____
0920	603.155 12 INCH REINFORCED CONCRETE PIPE CLASS III	430.000 LF	_____	 _____	_____	 _____
0930	603.159 12 INCH CULVERT PIPE OPTION III	680.000 LF	_____	 _____	_____	 _____
0940	603.165 15 INCH REINFORCED CONCRETE PIPE CLASS III	120.000 LF	_____	 _____	_____	 _____
0950	603.169 15 INCH CULVERT PIPE OPTION III	20.000 LF	_____	 _____	_____	 _____
0960	603.175 18 INCH REINFORCED CONCRETE PIPE CLASS III	230.000 LF	_____	 _____	_____	 _____
0970	603.179 18 INCH CULVERT PIPE OPTION III	400.000 LF	_____	 _____	_____	 _____
0980	603.195 24 INCH REINFORCED CONCRETE PIPE CLASS III	420.000 LF	_____	 _____	_____	 _____
0990	603.55 CONCRETE PIPE TIES	9.000 GP	_____	 _____	_____	 _____
1000	603.93 DIRECTIONAL BORE STA 1005+35	170.000 LF	_____	 _____	_____	 _____

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			Dollars	Cents	Dollars	Cents
1010	604.072 CATCH BASIN TYPE A1-C	11.000 EA	_____	 _____	_____	 _____
1020	604.09 CATCH BASIN TYPE B1	3.000 EA	_____	 _____	_____	 _____
1030	604.092 CATCH BASIN TYPE B1-C	35.000 EA	_____	 _____	_____	 _____
1040	604.247 CATCH BASIN TYPE F5-C	10.000 EA	_____	 _____	_____	 _____
1050	604.249 CATCH BASIN TYPE F6-C	1.000 EA	_____	 _____	_____	 _____
1060	605.09 6 INCH UNDERDRAIN TYPE B	2,000.000 LF	_____	 _____	_____	 _____
1070	605.11 12 INCH UNDERDRAIN TYPE C	2,100.000 LF	_____	 _____	_____	 _____
1080	605.12 15 INCH UNDERDRAIN TYPE C	350.000 LF	_____	 _____	_____	 _____
1090	605.13 18 INCH UNDERDRAIN TYPE C	78.000 LF	_____	 _____	_____	 _____
1100	606.1301 31" W-BM GR, MID-WAY SPLICE-SGL FACED	5,100.000 LF	_____	 _____	_____	 _____
1110	606.1304 31" W-BM GR, MID-WAY SPLICE-OVER 15' RAD	190.000 LF	_____	 _____	_____	 _____
1120	606.1305 31" W-BM GR, MID-WAY SPLICE FLARED TERMINAL	4.000 EA	_____	 _____	_____	 _____

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			Dollars	Cents	Dollars	Cents
1130	606.1307 BRIDGE TRANSITION (ASYMMETRICAL) - TYPE 1A	8.000 EA	_____	 _____	_____	 _____
1140	606.1721 BRIDGE TRANSITION - TYPE 1	8.000 EA	_____	 _____	_____	 _____
1150	606.259 ANCHORAGE ASSEMBLY	4.000 EA	_____	 _____	_____	 _____
1160	606.353 REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	12.000 EA	_____	 _____	_____	 _____
1170	606.356 UNDERDRAIN DELINEATOR POST	19.000 EA	_____	 _____	_____	 _____
1180	607.09 WOVEN WIRE FENCE - METAL POSTS	180.000 LF	_____	 _____	_____	 _____
1190	607.16 CHAIN LINK FENCE - 4 FOOT	1,900.000 LF	_____	 _____	_____	 _____
1200	607.183 CHAIN LINK SNOW FENCE 33 INCH BRIDGE 5823	LUMP SUM		 LUMP SUM	_____	 _____
1210	607.183 CHAIN LINK SNOW FENCE 33 INCH BRIDGE 6787	LUMP SUM		 LUMP SUM	_____	 _____
1220	607.33 BRACING ASSEMBLY TYPE II - METAL POSTS	2.000 EA	_____	 _____	_____	 _____
1230	608.07 PLAIN CONCRETE SIDEWALK	44.000 SY	_____	 _____	_____	 _____
1240	608.26 CURB RAMP DETECTABLE WARNING FIELD	420.000 SF	_____	 _____	_____	 _____

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			Dollars	Cents	Dollars	Cents
1250	609.11 VERTICAL CURB TYPE 1	2,500.000 LF	_____	 _____	_____	 _____
1260	609.12 VERTICAL CURB TYPE 1 - CIRCULAR	120.000 LF	_____	 _____	_____	 _____
1270	609.221 TERMINAL CURB TYPE 1	160.000 LF	_____	 _____	_____	 _____
1280	609.222 TERMINAL CURB TYPE 1 - CIRCULAR	88.000 LF	_____	 _____	_____	 _____
1290	609.312 SPECIAL CURB WHEEL STOP	77.000 LF	_____	 _____	_____	 _____
1300	609.34 CURB TYPE 5	5,400.000 LF	_____	 _____	_____	 _____
1310	609.35 CURB TYPE 5 - CIRCULAR	150.000 LF	_____	 _____	_____	 _____
1320	610.08 PLAIN RIPRAP	1,602.000 CY	_____	 _____	_____	 _____
1330	610.16 HEAVY RIPRAP	440.000 CY	_____	 _____	_____	 _____
1340	613.319 EROSION CONTROL BLANKET	2,190.000 SY	_____	 _____	_____	 _____
1350	615.07 LOAM	6,400.000 CY	_____	 _____	_____	 _____
1360	615.081 COMPOST BLANKET	110.000 CY	_____	 _____	_____	 _____
1370	615.27 UNDERDRAIN SOIL FILTER 5 EACH	LUMP SUM	LUMP SUM		_____	 _____

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			Dollars	Cents	Dollars	Cents
1380	617.35 COMPOST	40.000 CY	_____	 _____	_____	 _____
1390	618.13 SEEDING METHOD NUMBER 1	58.000 UN	_____	 _____	_____	 _____
1400	618.14 SEEDING METHOD NUMBER 2	370.000 UN	_____	 _____	_____	 _____
1410	618.143 SPECIAL SEED MIX: A LOW GROWTH MEADOW MIX	85.000 UN	_____	 _____	_____	 _____
1420	618.146 HGM BIOTIC SOIL HYDROMULCH MEDIA	21.000 UN	_____	 _____	_____	 _____
1430	619.12 MULCH	520.000 UN	_____	 _____	_____	 _____
1440	619.13 BARK MULCH	40.000 CY	_____	 _____	_____	 _____
1450	620.58 EROSION CONTROL GEOTEXTILE	2,950.000 SY	_____	 _____	_____	 _____
1460	621.031 EVERGREEN TREES (4 FOOT - 5 FOOT) GROUP A	40.000 EA	_____	 _____	_____	 _____
1470	621.401 EVERGREENS (2 FOOT - 2.50 FOOT) GROUP A	30.000 EA	_____	 _____	_____	 _____
1480	621.54 DECIDUOUS SHRUBS (18 INCH - 24 INCH) GROUP A	80.000 EA	_____	 _____	_____	 _____
1490	621.546 DECIDUOUS SHRUBS (2 FOOT - 3 FOOT) GROUP A	50.000 EA	_____	 _____	_____	 _____

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			Dollars	Cents	Dollars	Cents
1500	621.552 DECIDUOUS SHRUBS (3 FOOT - 4 FOOT) GROUP A	60.000 EA	_____	 _____	_____	 _____
1510	626.11 PRECAST CONCRETE JUNCTION BOX	121.000 EA	_____	 _____	_____	 _____
1520	626.21 METALLIC CONDUIT	1,000.000 LF	_____	 _____	_____	 _____
1530	626.22 NON-METALLIC CONDUIT 2-INCH, LIGHTING	11,000.000 LF	_____	 _____	_____	 _____
1540	626.22 NON-METALLIC CONDUIT 3-INCH, SIGNALS	3,400.000 LF	_____	 _____	_____	 _____
1550	626.221 NON-METALLIC CONDUIT CONCRETE ENCASED	455.000 LF	_____	 _____	_____	 _____
1560	626.251 NON-METALLIC UNDER PAVEMENT CONDUIT (SCHEDULE 80 OR GREATER RATING)	1,500.000 LF	_____	 _____	_____	 _____
1570	626.35 CONTROLLER CABINET FOUNDATION	4.000 EA	_____	 _____	_____	 _____
1580	626.36 REMOVE OR MODIFY CONCRETE FOUNDATION	28.000 EA	_____	 _____	_____	 _____
1590	626.421 24 INCH DIAMETER FOUNDATION	168.000 LF	_____	 _____	_____	 _____
1600	626.46 48 INCH DIAMETER FOUNDATION	158.000 LF	_____	 _____	_____	 _____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1610	626.48 60 INCH DIAMETER FOUNDATION	45.000 LF	_____	 _____	_____	 _____
1620	626.49 GREATER THAN 60-INCH DIAMETER FOUNDATION 72 INCH	20.000 LF	_____	 _____	_____	 _____
1630	627.311 8 INCH WHITE PAVEMENT MARKING LINE	2,300.000 LF	_____	 _____	_____	 _____
1640	627.407 REFLECTORIZED PLASTIC WHITE OR YELLOW PAVEMENT MARKING	60.000 SF	_____	 _____	_____	 _____
1650	627.511 TEMPORARY PAVEMENT LINE TAPE, YELLOW OR WHITE	1,775.000 SF	_____	 _____	_____	 _____
1660	627.512 REMOVABLE BLACK LINE MASKING TAPE	2,500.000 SF	_____	 _____	_____	 _____
1670	627.55 12" TEMPORARY PAVEMENT TAPE, WHITE	250.000 LF	_____	 _____	_____	 _____
1680	627.733 4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	28,000.000 LF	_____	 _____	_____	 _____
1690	627.744 6" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	15,500.000 LF	_____	 _____	_____	 _____
1700	627.75 WHITE OR YELLOW PAVEMENT & CURB MARKING	5,600.000 SF	_____	 _____	_____	 _____
1710	627.752 TEMPORARY WHITE OR YELLOW PAVEMENT & CURB MARKING	1,125.000 SF	_____	 _____	_____	 _____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1720	627.77 REMOVING PAVEMENT MARKINGS	5,200.000 SF	_____	 _____	_____	 _____
1730	627.78 TEMPORARY 4 INCH PAINTED PAVEMENT MARKING LINE, WHITE OR YELLOW	96,000.000 LF	_____	 _____	_____	 _____
1740	627.781 TEMPORARY 6 INCH PAINTED PAVEMENT MARKING LINE, WHITE OR YELLOW	39,000.000 LF	_____	 _____	_____	 _____
1750	629.05 HAND LABOR, STRAIGHT TIME	50.000 HR	_____	 _____	_____	 _____
1760	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	100.000 HR	_____	 _____	_____	 _____
1770	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	200.000 HR	_____	 _____	_____	 _____
1780	631.32 CULVERT CLEANER (INCLUDING OPERATOR)	10.000 HR	_____	 _____	_____	 _____
1790	634.160 HIGHWAY LIGHTING	LUMP SUM		 LUMP SUM	_____	 _____
1800	634.2042 LED LUMINARIES	7.000 EA	_____	 _____	_____	 _____
1810	634.206 LIGHT STANDARD FOR POST TOP LUMINAIRE	58.000 EA	_____	 _____	_____	 _____
1820	634.25 SERVICE POLE COMPLETE WITH CABINET AND CONTROLS	2.000 EA	_____	 _____	_____	 _____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1830	639.18 FIELD OFFICE TYPE A	1.000 EA				
1840	643.21 NON-INVASIVE DETECTION - STOP LINE: HOGAN RD & I-95 SOUTHBOUND RAMPS	LUMP SUM	LUMP	 SUM		
1850	643.21 NON-INVASIVE DETECTION - STOP LINE: HOGAN RD & HASKELL RD / SYLVAN RD	LUMP SUM	LUMP	 SUM		
1860	643.21 NON-INVASIVE DETECTION - STOP LINE: HOGAN RD & I-95 NORTHBOUND RAMPS	LUMP SUM	LUMP	 SUM		
1870	643.21 NON-INVASIVE DETECTION - STOP LINE: HOGAN RD & SPRINGER DR / BANGOR MALL BLVD	LUMP SUM	LUMP	 SUM		
1880	643.22 NON-INVASIVE DETECTION - ADVANCE: HOGAN RD & I-95 SOUTHBOUND RAMPS	LUMP SUM	LUMP	 SUM		
1890	643.22 NON-INVASIVE DETECTION - ADVANCE: HOGAN RD & HASKELL RD / SYLVAN RD	LUMP SUM	LUMP	 SUM		
1900	643.22 NON-INVASIVE DETECTION - ADVANCE: HOGAN RD & I-95 NORTHBOUND RAMPS	LUMP SUM	LUMP	 SUM		
1910	643.22 NON-INVASIVE DETECTION - ADVANCE: HOGAN RD & SPRINGER DR / BANGOR MALL BLVD	LUMP SUM	LUMP	 SUM		

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1920	643.621 RECTANGULAR RAPID FLASHING BEACON ASSEMBLY	2.000 EA	_____	 _____	_____	 _____
1930	643.71 TRAFFIC SIGNAL MODIFICATION HOGAN RD & MT HOPE AVE	LUMP SUM	LUMP	 SUM	_____	 _____
1940	643.71 TRAFFIC SIGNAL MODIFICATION HOGAN RD & EMCC / DRIVEWAY	LUMP SUM	LUMP	 SUM	_____	 _____
1950	643.71 TRAFFIC SIGNAL MODIFICATION HOGAN RD & HASKELL RD / SYLVAN RD	LUMP SUM	LUMP	 SUM	_____	 _____
1960	643.71 TRAFFIC SIGNAL MODIFICATION HOGAN RD & SPRINGER DR / BANGOR MALL RD	LUMP SUM	LUMP	 SUM	_____	 _____
1970	643.711 TRAFFIC SIGNAL MODIFICATION (TEMPORARY)	LUMP SUM	LUMP	 SUM	_____	 _____
1980	643.72 TEMPORARY TRAFFIC SIGNAL HOGAN RD & I-95 NORTHBOUND RAMPS	LUMP SUM	LUMP	 SUM	_____	 _____
1990	643.72 TEMPORARY TRAFFIC SIGNAL HOGAN RD & I-95 SOUTHBOUND RAMPS	LUMP SUM	LUMP	 SUM	_____	 _____
2000	643.80 TRAFFIC SIGNALS AT HOGAN RD & I-95 NORTHBOUND RAMPS	LUMP SUM	LUMP	 SUM	_____	 _____
2010	643.80 TRAFFIC SIGNALS AT HOGAN RD & I-95 SOUTHBOUND RAMPS	LUMP SUM	LUMP	 SUM	_____	 _____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2020	643.81 TRAFFIC SIGNAL CONTROL SYSTEM	LUMP SUM	LUMP	SUM	_____	_____
2030	643.90 INTERCONNECT WIRE	LUMP SUM	LUMP	SUM	_____	_____
2040	643.91 MAST ARM POLE W/15' ARM	2.000 EA	_____	_____	_____	_____
2050	643.91 MAST ARM POLE W/35' ARM	1.000 EA	_____	_____	_____	_____
2060	643.91 MAST ARM POLE W/40' ARM	1.000 EA	_____	_____	_____	_____
2070	643.91 MAST ARM POLE W/55' ARM	1.000 EA	_____	_____	_____	_____
2080	643.92 PEDESTAL POLE	20.000 EA	_____	_____	_____	_____
2090	643.93 STRAIN POLE	4.000 EA	_____	_____	_____	_____
2100	643.94 DUAL PURPOSE POLE W/30' ARM	1.000 EA	_____	_____	_____	_____
2110	643.94 DUAL PURPOSE POLE W/45' ARM	1.000 EA	_____	_____	_____	_____
2120	643.94 DUAL PURPOSE POLE W/50' ARM	1.000 EA	_____	_____	_____	_____
2130	643.94 DUAL PURPOSE POLE W/55' ARM	1.000 EA	_____	_____	_____	_____
2140	643.94 DUAL PURPOSE POLE W/60' ARM	3.000 EA	_____	_____	_____	_____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2150	645.103 DEMOUNT GUIDE SIGN	5.000 EA	_____	 _____	_____	 _____
2160	645.106 DEMOUNT REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	79.000 EA	_____	 _____	_____	 _____
2170	645.109 REMOVE AND SALVAGE HIGHWAY SIGNS	5.000 EA	_____	 _____	_____	 _____
2180	645.1095 REMOVE OVERHEAD SPAN WIRE SYSTEM WITH SIGNS STA 14+60	LUMP SUM		LUMP SUM	_____	 _____
2190	645.1095 REMOVE OVERHEAD SPAN WIRE SYSTEM WITH SIGNS STA 220+10	LUMP SUM		LUMP SUM	_____	 _____
2200	645.1096 REMOVE MAST ARM POLE WITH SIGNS STA 21+05	LUMP SUM		LUMP SUM	_____	 _____
2210	645.1096 REMOVE MAST ARM POLE WITH SIGNS STA 27+15	LUMP SUM		LUMP SUM	_____	 _____
2220	645.116 REINSTALL REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	6.000 EA	_____	 _____	_____	 _____
2230	645.12 OVERHEAD GUIDE SIGN: STA 219+25	LUMP SUM		LUMP SUM	_____	 _____
2240	645.121 OVERHEAD LANE USE SIGN ASSEMBLY	2.000 EA	_____	 _____	_____	 _____
2250	645.15 CANTILEVER GUIDE SIGN STA 17+40	LUMP SUM		LUMP SUM	_____	 _____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2260	645.15 CANTILEVER GUIDE SIGN STA 900+15	LUMP SUM	LUMP	SUM	_____	_____
2270	645.251 ROADSIDE GUIDE SIGNS, TYPE I	815.000 SF	_____	_____	_____	_____
2280	645.271 REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGNS, TYPE I	400.000 SF	_____	_____	_____	_____
2290	652.35 CONSTRUCTION SIGNS	1,730.000 SF	_____	_____	_____	_____
2300	652.361 MAINTENANCE OF TRAFFIC CONTROL DEVICES 1400 CD	LUMP SUM	LUMP	SUM	_____	_____
2310	652.38 FLAGGER	9,750.000 HR	_____	_____	_____	_____
2320	652.41 PORTABLE CHANGEABLE MESSAGE SIGN	8.000 EA	_____	_____	_____	_____
2330	652.61 STAGED CONSTRUCTION AND TRAFFIC CONTROL	LUMP SUM	LUMP	SUM	_____	_____
2340	654.351 CONNECTED ROADSIDE UNIT (RSU)	4.000 EA	_____	_____	_____	_____
2350	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP SUM	LUMP	SUM	_____	_____
2360	658.20 ACRYLIC LATEX COLOR FINISH, GREEN	560.000 SY	_____	_____	_____	_____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2370	659.10 MOBILIZATION	LUMP SUM			_____	
2380	660.21 ON-THE-JOB TRAINING (BID)	3,000.000 HR	_____		_____	
Section: 1			Total:		_____	
			Total Bid:		_____	

SPECIAL PROVISION
SECTION 106 - HOT MIX ASPHALT PAVEMENT

The following subsections of the most current version of Specification 100 – General Conditions have been revised and amended by the following:

106.7.3 Early Termination of Lots

In the event a Lot in progress is terminated prematurely before the Department is able to take the number of acceptance samples required by the test method specified in the Contract, the following will apply as applicable unless otherwise detailed in the specifications for the item:

1. For items under statistical acceptance where payfactors are generated
 - a. If three or more samples have been taken, then payfactors will be generated using the available samples results for the lot.
 - b. If the termination was requested by the Contractor and approved by the Department prior to three samples being taken, then each property's payfactor will be set to 0.80.
 - c. If the termination was initiated by the Department prior to three samples being taken, then each property's payfactor will be set to 1.00 for each property.
2. For items not under statistical acceptance
 - a. If initiated by the contractor and no random sample has been reached the entire lot shall be subject to a penalty of 20% of the item's price.
 - b. If initiated by the contractor and only the most recent sample tonnage has not been reached only the tonnage for that subplot will be subject to a penalty of 20% of the items price.

An HMA mix design aim change request from the Contractor with open Lots in progress will constitute a contractor initiated lot termination. For methods A & C, the minimum samples required to generate a pay factor prior to termination will be three. If a minimum of three samples have not been obtained, then each property's payfactor will be set to 0.80. For methods B & D the minimum number of samples (sublots) required prior to an aim change will be the total tonnage of the lot, or a minimum of three, whichever is less. If the minimum number of samples have not been obtained then the pay adjustment for each of the subplot's properties will be set to 0.80.

SECTION 401 - HOT MIX ASPHALT PAVEMENT

401.01 Description The Contractor shall furnish a uniformly blended, homogeneous mixture placed as one or more courses of Hot Mix Asphalt Pavement (HMA) using a single approved design for each item on an approved base in accordance with the contract documents and in reasonably close conformity with the lines, grades, thickness, and typical cross sections shown on the plans or established by the Resident. The Department will accept this work under Quality Assurance provisions, in accordance with these specifications and the requirements of Section 106 – Quality, the provisions of AASHTO M 323 except where otherwise noted in sections 401 and 703 of these specifications, and the MaineDOT Policies and Procedures for HMA Sampling and Testing.

401.02 Materials Materials shall meet the requirements specified in Section 700 - Materials:

Asphalt Cement	702.01
Aggregates for HMA Pavement	703.07
RAP for HMA Pavement	703.08
HMA Mixture Composition	703.09

401.03 Composition of Mixtures The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), approved antistrip, warm mix additive, and/or mineral filler if required. HMA shall be designed and tested according to AASHTO R 35 and the volumetric criteria in Table 1. The Contractor shall size, uniformly grade, and combine the aggregate fractions in proportions that provide a mixture meeting the grading requirements of the Job Mix Formula (JMF). Unless otherwise noted in Special Provision 403 - Hot Mix Asphalt Pavement, the design, verification, Quality Control, and Acceptance tests for this mix will be performed at 65 gyrations.

TABLE 1: VOLUMETRIC DESIGN CRITERIA

Design ESAL's (Millions)	Required Density (Percent of G _{mm})			Voids in the Mineral Aggregate (VMA) (Minimum Percent)					Voids Filled with Binder (VFB) (Minimum %)	Fines/Eff . Binder Ratio
				Nominal Maximum Aggregate Size (mm)						
	N _{initial}	N _{design}	N _{max}	25.0	19.0	12.5	9.5	4.75		
< 3.0	≤90.5	96.0	≤98.0	13.0	14.0	15.0	16.0	16.0	65-80*	0.6-1.2
3 to <10	≤89.0									
≥ 10	≤89.0									

*For 9.5 mm nominal maximum aggregate size mixtures, the maximum VFB is 82. For 4.75 mm nominal maximum aggregate size mixtures, the maximum VFB is 84.

The Contractor shall submit a JMF to the Department for each mixture to be supplied. The JMF will be approved by the Department in accordance with the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual. At the time of JMF submittal, the Contractor shall identify and make available the stockpiles of all proposed aggregates at the plant site. There must be a minimum of 150 ton for coarse aggregate stockpiles and 75 ton for fine aggregate stockpiles before

the JMF may be submitted. The Contractor shall provide aggregate samples to the Department unless otherwise required. The Contractor shall also make available to the Department the PGAB proposed for use in the mix in sufficient quantity to test the properties of the asphalt and to produce samples for testing of the mixture. The first day’s production shall be monitored, and the approval may be withdrawn if the mixture exhibits undesirable characteristics such as checking, shoving or displacement. The Contractor shall be allowed to submit aim changes for a JMF as outlined in the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual: Mix Design Approval Section.

The Contractor shall submit a new JMF for approval each time a change in material source or materials properties is proposed. The same approval process shall be followed. The cold feed percentage of any aggregate may be adjusted up to 10 percentage points from the amount listed on the JMF, however no aggregate listed on the JMF shall be eliminated. The cold feed percentage for RAP may be reduced up to 10 percentage points from the amount listed on the JMF and shall not exceed the percentage of RAP approved in the JMF or for the specific application under any circumstances.

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

401.04 Temperature Requirements The temperature of the mixture shall conform to the tolerances in Table 2 as measured at the truck at the mixing plant and at the paver unless otherwise authorized by the Department.

TABLE 2: ALLOWABLE TEMPERATURE RANGES

PGAB Grade(s)	Temperature Range (°F)
PG58-28 / PG64-28	275-325
PG64E-28 / PG70E-28	285-335

401.05 Performance Graded Asphalt Binder The Contractor shall utilize either a PG58-28, PG64-28, PG64E-28, PG70E-28, or other grade as specified in the 403 Special Provision. The Contractor shall utilize a PG64-28 if no liquid grade is specified within the 403 Special Provision.

401.06 Weather and Seasonal Limitations The State is divided into two paving zones as follows:

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

TABLE 3: SEASONAL AND TEMPERATURE LIMITATIONS

Description	Zone 1 Allowable Placement Dates	Zone 2 Allowable Placement Dates	Minimum Ambient Air Temperature
HMA Surface Course greater than or equal to 1” (Travelway)	May 1 to Saturday following October 1	April 15 to Saturday following October 15	50°F
HMA Surface Course less than 1” (Travelway)	May 15 to Saturday following September 15	May 15 to Saturday following October 1	
HMA Surface Course less than 1” considered to be “ Night Work ” (Travelway)	June 1 to the Saturday following September 1		
HMA Surface Course less than 1” (Shoulders)	May 15 to the Saturday following October 15		
HMA for Surface Course on Bridge Decks	May 1 to Saturday following October 1	April 15 to Saturday following October 15	
HMA for Base or Shim Course on Bridge Decks	April 15 to November 15		
HMA for use other than Travelway Surface Course (Shoulders greater than or equal to 1”, Intermediate, Base, Shim)	April 15 to November 15		40°F
HMA for curb, driveways, sidewalks, islands, or other incidentals	N/A		
With Use of Approved Warm Mix Technology as Compaction Aid (Surface Course Ambient Air Temperature Allowances)			
HMA Surface Course greater than or equal to 1” (Travelway)	May 1 to Saturday following October 1	April 15 to Saturday following October 15	Begin at 50°F and pave down to 45°F
HMA Surface Course less than 1” (Travelway)	May 15 to Saturday following October 1	May 15 to Saturday following October 15	
HMA Surface Course less than 1” considered to be “ Night Work ” (Travelway)	June 1 to the Saturday following September 15		
HMA Surface Course less than 1” (Shoulders)	May 15 to the Saturday following October 15		
With Use of Approved Warm Mix Technology as Compaction Aid (Seasonal Limitation Extensions)			
HMA Surface Course greater than or equal to 1” (Travelway)	Saturday following October 1 to Saturday following October 15	Saturday following October 15 to Saturday following October 29	50°F
HMA Surface Course less than 1” (Shoulders)	Saturday following October 15 to Saturday following October 29		
HMA for use other than Travelway Surface Course (Shoulders greater than or equal to 1”, Intermediate, Base, Shim)	April 15 to Saturday following November 15		35°F

1. Shoulders paved with the travelway pass shall meet travelway ambient air temperatures

2. Refer to the 461 SP for UTBWC for seasonal and temperature requirements.

3. The minimum ambient air temperature for placement of HMA for curbs, driveways, sidewalks, islands, and other incidental work shall be 40°F, regardless of whether the mixture is produced using an approved WMA technology.

The ambient air temperature shall be determined by an approved thermometer placed in the shade at the paving location. Unless otherwise specified, the Contractor shall not place Hot Mix Asphalt Pavement on a wet or frozen surface regardless of the ambient air temperature. The Hot Mix Asphalt Pavement produced with an approved WMA technology shall meet the requirements of section 401.04 - Temperature Requirements, unless otherwise approved by the Department. For the purposes of this Section, the traveled way includes truck lanes, ramps, approach roads and auxiliary lanes.

401.07 Hot Mix Asphalt Plant

401.071 General Requirements HMA plants shall conform to AASHTO M 156, Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures with exception of Section 4.2.1, 4.2.2, 4.3.4, 4.3.5, and 4.12.2.

All HMA plants will be inspected annually by the Department prior to producing HMA for Department projects. The Contractor shall provide the Department at least 72 hours' notice that the plant is ready for inspection. The Contractor shall equip the plant with ladders and platforms that are accessible and safe to obtain samples of PGAB, aggregate and mix from the relevant tanks, collector belts and haul units. Silo storage time of mixtures shall not exceed 36 hours.

401.072 Stockpiles The Contractor shall provide sufficient space for stockpiles and maintain a minimum of supply for 2 days production of all aggregate products used in MaineDOT approved mix designs currently under production. A minimum stockpile supply of 100 ton (70 yards) shall be maintained at all times. The Contractor shall construct stockpiles to prevent intermingling and to minimize segregation. All stockpiles used in MaineDOT mixes shall be identified with weatherproof signs at least 12" high and 24" wide, with reflective lettering at least 2" high.

401.073 Cold Feeds Cold Feed Bins will have bin dividers to keep aggregate products separated. Adequate means must be provided for obtaining samples of the combined flow of all Cold feed bins.

401.074 Dryer Dryer shall be capable of heating aggregate to required mixing temperature and shall be in good operation and condition. Dryer shall be subject to annual inspection prior to start-up. The Contractor shall dry and heat the aggregates for the HMA to the required temperature, adjusting flames to avoid damaging the aggregates. The Contractor shall provide the Department a minimum period of 72 hours to inspect the dryer and provide at least 24 hours' notice that the dryer is ready for inspection.

401.075 Asphalt Binder The plant shall include a heating system and insulation to maintain the asphalt binder at a uniform temperature for proper mixing and compaction. A thermometer shall be provided in the asphalt binder line. No direct flame may come in contact with tank. A sampling valve shall be provided in the circulation line downstream of any binder additive used unless otherwise approved by the Department. The Contractor shall drain down the asphalt as low as safely possible in any tank that will be switched to a new source or grade prior to adding the new PGAB.

401.076 Additives Additives (WMA, anti-strip, etc.) introduced into the binder at the HMA plant shall be introduced per the supplier's recommendations and shall be approved by the Department. The system for introducing additives shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all production rates and batch sizes. Additive introduction systems shall be controlled by a proportioning device to the amount required on the JMF plus or minus 0.1% of the target. Additive introduction systems shall be interlocked with the plant and the recordation (batch tickets or drum recordation) shall display the additive and the weight and percentage added. A means for sampling the PG binder with additive introduced will be provided. The sampling point shall be after the additive is mixed with the PGAB before entering the drum or mixer unit.

401.077 Batch Plants

Hot Bins Hot bins shall provide uniform continuous operation and be in good working condition. The plant shall be able to provide samples of hot bins upon request. Overflow shall be provided for each hot bin. Hot bin gates shall close without leaking. Bin walls must prevent intermingling between bins. Each hot bin shall have low level indicators which will alert the operator when the bin is empty.

Mixer Unit Clearance between blades and liner shall be 1" maximum, unless the aggregate exceeds 1 ¼" then the clearance shall be 1 ½". The spray bar length shall be at least 75% of the mixer length. The mixer unit shall be a twin pug mill-type mixer capable of mixing continuously for at least 45 seconds after all materials have been introduced into the mixer. The blades in the mixer shall be capable of producing a homogenous mixture. If the mixer is not enclosed, it shall be equipped with an adjustable hood to prevent loss of dust by dispersion. The mixer unit shall be subject to annual inspection prior to removal of safety features and being readied for service. The Contractor shall provide the Department the opportunity to inspect the mixer unit prior to the annual inspection. The Contractor shall provide the Department a minimum period of 72 hours to inspect the mixer unit and provide at least 24 hours' notice that the mixer unit is ready for inspection.

Mineral Filler Mineral filler and fiber shall utilize separate bins and feed systems to store and proportion the required quantity into the mixture. The feed systems shall be accurate to no more than 10% of the required weight with a convenient and accurate means of calibration. Mineral filler and fiber shall be introduced in the weigh hopper and uniformly distributed prior to the injection of the asphalt binder.

Automation The HMA batch plant shall automatically batch, mix and discharges mixes. The batch plant shall accurately proportion the various materials in the proper order by weight. The entire batching and mixing cycle shall be continuous and shall not require any manual operations. The batch plant shall use auxiliary interlock circuits to trigger an audible alarm whenever an error exceeding the acceptable tolerance occurs. Along with the alarm, the printer shall print an asterisk on the delivery slip in the same row containing the out-of-tolerance weight. The automatic proportioning system shall be capable of consistently delivering material within the full range of batch sizes. When RAP is being used, the plant must be capable of automatically compensating for the moisture content of the RAP.

The HMA batch plant shall be operated within the following tolerances:

Each aggregate component	+/- 1.5% cumulative, per bin
Mineral Filler	+/- 0.5%
Bituminous Material	+/- 0.1%
Zero return (aggregate)	+/- 0.5%
Zero Return (AC)	+/- 0.1%
Additives	+/- 0.1%

Recordation All plants shall be equipped with an approved digital recording device. The printer shall mark any weight on the ticket that exceeds tolerance. The delivery slip shall contain information required under Section 108.1.3 - Provisions Relating to Certain Measurements, Mass and paragraphs a, b, and c of Section 401.078.

401.078 Drum Plants

Cold Feeds and Delivery System A scalper screen shall be used to remove oversize material. The accuracy of the belt scale shall be within +/- 1.0% of the actual weight being measured. The plant shall be capable of correcting for aggregate moisture. Mineral filler and fiber shall utilize separate bin(s) and feeder systems to store and proportion the required quantity into the mixture. The feed systems shall be accurate to no more than +/- 10% of the required weight with a convenient and accurate means of calibration. The plant shall be equipped with a single control to change all feed rates. Mineral filler and fiber shall be introduced such that dry mixing is accomplished no less than 18 inches prior to the injection of the asphalt binder. The Contractor shall ensure that the mineral filler does not become entrained in the exhaust stream of the dryer.

Binder System The flow of asphalt binder shall adjust automatically with dry aggregate weights. The Department will conduct an asphalt flow meter check annually and after each change of plant location. The flow meter check must be performed prior to producing mix for Department projects. The plant must be configured to provide a convenient means to check accuracy of the flow meter. The flow meter will be considered accurate if the measured weight is within 1% of actual weight.

Drum Mixer The plant shall be equipped with a diversion system where mix can be diverted at startup/shutdown and any time. The drum mixer shall be subject to annual inspection prior to removal of safety features and being readied for service. The Contractor shall provide the Department a minimum period of 72 hours to inspect the drum mixer while providing at least 72 hours' notice that the drum mixer is ready for inspection.

Recordation An approved automatic ticket printer system shall be used to print delivery slips. The requirements for delivery slips for payment of materials measured by weight, as given in the following Sections, shall be waived: 108.1.3 a., 108.1.3 b., 108.1.3 c., and 108.1.3 d. The automatic printed ticket will be considered as the Weight Certificate. The dry aggregate weights and binder flow shall be recorded as well as mineral filler and all binder additives. The recordation of materials shall be printed a minimum of every ten minutes while in production.

The requirements of Section 108.1.3 f. - Delivery Slips, shall be met by the delivery slip printed by the automatic system, which accompanies each truckload, except for the following changes:

- a. The quantity information required shall be individual weights of each batch or total net weigh of each truckload.
- b. Signatures (legible initials acceptable) of Weighmaster (required only in the event of a malfunction as described in 401.074 c.).
- c. The MaineDOT designation for the JMF.

401.079 Scales and Weight Checks Scales shall meeting the requirements of Section 108 - Payment. The scales shall be inspected and sealed by the State Sealer (or approved alternative) as often as the Department deems necessary to verify their accuracy. Plant scales shall be checked prior to the start of the paving season, and each time a plant is moved to a new location. Subsequent checks will be made as determined by the Resident. The Contractor will have at least ten 50 pound masses for scale testing at batch plants. At Contractor's option, the Contractor can use one single test weight that has been checked on sealed scales. This weight shall be 1,000 lbs. or greater. At least twice during each 5 days of production either of the following checks will be performed:

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

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

- b. Where platform scales are not readily available, a check will be made to verify the accuracy and sensitivity of each scale within the normal weighing range and to assure that the interlocking devices and automatic printer system are functioning properly. If platform scales are not readily available, a weight with a known mass-verified and sealed annually by a licensed scale company, may be used by hanging weight from silo or surge hopper, at lower middle and upper third levels upon request to verify scale accuracy.
- 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 Units hauling HMA shall have tight, clean, and smooth metal bodies, which have been thinly coated with a small amount of approved release agent to prevent the mixture from adhering to the bodies. Release agents that dissolve or strip asphalts, including diesel fuel, will not be allowed.

All mix haul units shall have a cover of water repellent material capable of heat retention, which completely covers the mixture. The cover shall be securely fastened on the truck, unless unloading. Haul units shall have an opening on both sides near the midpoint of the body, at least 12 in above the bed, which will accommodate a thermometer stem.

401.09 Pavers The Contractor shall use pavers meeting the requirements of this section unless otherwise authorized by the Department. Pavers shall meet the requirements of Table 4: Paver Requirements.

TABLE 4: PAVER REQUIREMENTS

Use	Paver Requirement
Traveled Way & Auxiliary Lanes	Equipped with a 10 ft minimum main screed with activated extensions. The minimum tractor weight shall be 30,000 pounds.
	Equipped with automatic grade and slope controls that automatically adjust the screed and increase or decrease the layer thickness to compensate for irregularities in the preceding course. The controls shall maintain the proper transverse slope and be readily adjustable so that transitions and superelevated curves can be properly paved. The controls shall operate from a fixed or moving reference such as a grade wire or ski type device (floating beam) with a minimum length of 30 ft, a non-contact grade control with a minimum span of 24 ft, except that a 40 ft reference shall be used on interstate and divided highway projects.
All HMA Placement	Self-contained, self-propelled units of sufficient class and size to place Hot Mix Asphalt Pavement in full lane widths specified in the contract on the main line, shoulder, or similar construction.
	Equipped with a free-floating activated heated main screed with activated extensions. Pavers with extendible screeds shall have auger extensions and tunnel extenders as per the manufacturer's recommendations, a copy of which shall be available if requested.
	Equipped with a receiving hopper with sufficient capacity for a uniform spreading operation and a distribution system to place the mixture uniformly, without segregation in front of the screed.
	Operated in such a manner as to produce a visually uniform surface texture and a thickness within the requirements of Section 401.11 - Surface Tolerances. The screed assembly shall produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.

The Contractor shall have the paver at the project site sufficiently before the start of paving operations to be inspected and approved by the Department. The Contractor shall repair or replace any paver found worn or defective, either before or during placement, to the satisfaction of the Department. Pavers that produce an unevenly textured or non-uniform mat will be repaired or replaced before continuing to place HMA on MaineDOT projects. On a daily basis, the Contractor shall perform density testing across that mat as detailed in Section 401.191 Quality Control - Method A, B & C.

401.10 Rollers Rollers shall be static steel, pneumatic tire, oscillatory, or approved vibrator type. Rollers shall be in good mechanical condition, capable of starting and stopping smoothly, and be free from backlash when reversing direction. Rollers shall be equipped and operated in such a way as to prevent the picking up of hot mixed material by the roller drums or tires. Crushing of the aggregate or displacement of the HMA during rolling will not be permitted. Any HMA Pavement that becomes loose, broken, contaminated, shows an excess or deficiency of PGAB, or is in any other way defective shall be removed and replaced at no additional cost with fresh material which shall be immediately compacted to conform to the adjacent area.

The Contractor shall repair or replace any roller found to be worn or defective, either before or during placement, to the satisfaction of the Department. Rollers that produce grooved, unevenly textured or non-uniform mat will be repaired or replaced before continuing to place HMA. The type of rollers to be used and their relative position in the compaction sequence shall generally be the Contractor's option unless otherwise specified in the contract, provided specified density is attained and with the following requirements:

- a. On variable-depth courses, the first lift of pavement over gravel, reclaimed pavement, on irregular or milled surfaces, or on bridges, at least one roller shall be 16 ton pneumatic-tired. Pneumatic-tired rollers shall be equipped with skirting to minimize the pickup of HMA materials from the paved surface. When required by the Resident, the roller shall be ballasted to 20 ton.
- b. Compaction with a vibratory or steel wheel roller shall precede pneumatic-tired rolling, unless otherwise authorized by the Department.
- c. Vibratory rollers shall not be operated in the vibratory mode on bridge decks.
- d. Any method, which results in cracking or checking of the mat, will be discontinued and corrective action taken.
- e. The use of an oscillating steel roller shall be required to compact all mixtures placed on bridge decks.

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

401.11 Surface Tolerances The Department will check the following surface tolerances:

- a. Longitudinally: The pavement surface profile shall be free of deviations in excess of +/- ¼ inches from the required pavement surface profile grade. To verify the surface tolerance a straight plane shall be established using 16 foot straight edge or a taught string line placed parallel to the direction of travel and checked continuously across the width of the lane.
- b. Transversely: The pavement surface profile shall be free of deviations in excess of 0 inches below and ¼ inches above the required cross-sectional profile grade. To verify the surface tolerance a straight plane shall be established using a 10 foot straight edge or taught string line placed perpendicular to the direction of travel and checked continuously along the length of the lane.

The Contractor shall correct defective areas by removing defective work and replacing it with new material as directed by the Department. The Contractor shall furnish a 10 foot straightedge for the Department's use.

401.12 Preparation of Existing Surface The Contractor shall thoroughly clean the surface upon which Hot Mix Asphalt Pavement is to be placed of all objectionable material. When the surface of the existing base or pavement is irregular, the Contractor shall bring it to uniform grade and cross section. All surfaces shall have a tack coat applied prior to placing any new HMA course.

When covering portland cement concrete surfaces (concrete slabs or concrete backfill), as a minimum, a triple application of tack coat shall be applied on the surface prior to pavement being placed over the concrete.

Tack coat shall conform to the requirements of Section 409 – Bituminous Tack Coat, Section 702 – Bituminous Material, and all applicable sections of the contract.

401.13 Spreading and Finishing In areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the Contractor shall spread, rake, and lute the HMA with hand tools to provide the required compacted thickness. Release agents that dissolve or strip asphalts, including diesel fuel, will not be allowed. On roadways with adjoining lanes carrying traffic, the Contractor shall place each course per the conditions in Table 5, unless otherwise noted by the Department in Section 403 - Hot Mix Asphalt Pavement.

TABLE 5: PLACEMENT CONDITIONS FOR ADJOINING LANES

Depth (at centerline)	Placement Conditions
Vertical Longitudinal Joint	
¾" and less (incl. shim)	The Contractor may place the HMA course over the full single travel lane width for each production day.
1" to 1 ¼"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before weekend or holiday suspension. A maximum unmatched centerline joint of the project's 1 days' average production will be permitted over the weekend.
1 ½" to 2"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before the end of the following calendar day.
Greater than 2"	The Contractor shall place each course over the full width of the traveled way section being paved that day.
Notched-Wedge Longitudinal Joint	
1 ½" to 2"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before weekend or holiday suspension. A maximum unmatched centerline joint of the project's 1 days' average production will be permitted over the weekend.
Greater than 2"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before the end of the following calendar day.
Longitudinal Joints (<45 mph) *	
Greater than 2"	With use of a Notch-Wedge device, the Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before weekend or holiday suspension. A maximum unmatched centerline joint of the project's 1 days' average production will be permitted over the weekend.

* Longitudinal joint allowances for segments under 45 mph will only be permitted if the segment length is continuous for one mile or greater or the total length of the project is one mile or less.

Constructed wedge joints that degrade or break off will not qualify for the open joint duration as described above. The impacted area shall be matched up within 48 hours of notification by the Department. Prior to matching, the Contractor shall trim off the impacted area and construct a vertical joint. Failure to comply will result in an automatic Traffic Control Violation as per section 652.8.

The Contractor shall place the specified course over the full width of the mainline traveled way being paved, regardless of use, depth, or longitudinal joint type prior to Memorial Day, July 4th, Labor Day, paving suspensions exceeding three days, or other dates as specified by special provision.

The Contractor shall install additional warning signage that clearly defines the centerline elevation differential hazard. Unless otherwise addressed in the contract, the Contractor shall install additional centerline delineation such as a double application of raised pavement markers at 100 foot intervals, or temporary painted line. For any exposed vertical edge between the shoulder and traveled way, at a minimum, the use of temporary painted line, or RPMs placed along the edge of traveled way at 200 foot intervals is required. The Traffic Control Plan shall be amended to include this option and the additional requirements. All signs and traffic control devices will conform to Section 719.01, and Section 652, and will be installed prior to the work, at a maximum spacing of 0.50 mile for the entire length of effected roadway section. If this option is utilized, all additional signing, labor, traffic control devices, or incidentals will not be paid for directly, will be considered incidental to the appropriate 652 items.

When covering a portland cement concrete surface (concrete slabs or concrete backfill) a minimum of 3 inches of HMA pavement will be required over the concrete.

401.14 Hot Mix Asphalt Placement on Bridge Decks Hot mix asphalt pavement placed on bridges shall also conform to Section 508.04 and the following requirements:

- a. The minimum production and placement temperature for the Hot Mix Asphalt placed over membrane shall conform to the manufacturer's recommendations.
- b. The bottom course shall be placed with an approved rubber mounted paver of such type and operated in such a manner that the membrane waterproofing will not be damaged in any way.
- c. The top course shall not be placed until the bottom course has cooled sufficiently to provide stability.
- d. The Contractor will not be required to cut sample cores from the compacted pavement on the bridge deck, unless otherwise directed by Special Provision.
- e. After the top course has been placed, the shoulder areas shall be sealed 3 ft wide with two applications of an emulsified bituminous sealer meeting the requirements of Section 612.03 - Sealing and Section 702.12 - Emulsified Bituminous Sealing Compound. The first application shall be pre-mixed with fine, sharp sand, similar to mortar sand, as needed to fill all voids in the mix in the area being sealed. The second application may be applied without sand. The sealer shall be carried to the curb at the gutter line in sufficient quantity to leave a bead or fillet of material at the face of the curb. The area to be sealed shall be clean, dry and the surface shall be at ambient temperature. The furnishing and applying of the required quantity of sealer for the bridge shoulder areas shall be incidental to placing the hot mix asphalt pavement.
- f. The area between the edge of the membrane and the vertical surface of bridge curbing and concrete bridge headers shall be completely sealed with hot-applied asphaltsealant material, meeting the requirements of Type 4 or mastic crack seal. Sealant shall be applied to form a complete seal between the membrane and the vertical surface and shall extend up the vertical surface to within ½ inch of the top of the HMA wearing surface. This work shall be considered incidental to the contract pavement items unless 508 membrane items are included in the contract.

401.15 Compaction Immediately after the Hot Mix Asphalt Pavement has been spread, struck off, and any surface irregularities adjusted, the Contractor shall thoroughly and uniformly compact the HMA by rolling.

The Contractor shall roll the surface when the mixture is in the proper condition and when the rolling does not cause undue displacement, cracking, or shoving. The Contractor shall prevent adhesion of the HMA to the rollers or vibrating compactors without the use of fuel oil or other petroleum-based release agents. Solvents designed to strip asphalt binders from aggregates will not be permitted as release agents on equipment, tools, or pavement surfaces.

The Contractor shall immediately correct any displacement occurring as a result of the reversing of the direction of a roller or from other causes to the satisfaction of the Department. Any operation other than placement of variable depth shim course that results in breakdown of the aggregate shall be discontinued. Any new pavement that shows obvious cracking, checking, or displacement shall be removed and replaced for the full lane width as directed by the Resident at no cost to the Department.

Along forms, curbs, headers, walls, and other places not accessible to the rollers, the Contractor shall thoroughly compact the HMA with mechanical vibrating compactors. The Contractor shall only use hand tamping in areas inaccessible to all other compaction equipment. On depressed areas, the Contractor may use a trench roller or cleated compression strips under a roller to transmit compression to the depressed area.

Any HMA that becomes unacceptable due to cooling, cracking, checking, segregation or deformation as a result of an interruption in mix delivery shall be removed and replaced with material that meets contract specifications at no cost to the Department.

For all items requiring pavement density testing, the Contractor shall cut 6-inch diameter cores at no additional cost to the Department by the end of the working day following paving. Cores shall be cut such that the nearest edge at least 9 inches from any joint. Pre-testing of the cores will not be allowed. If the Contractor and the Department mutually determine that a core is damaged, the Contractor shall cut new core(s) at the same offset and within 3 ft of the initial sample. The Contractor and the Department will mutually determine if underlying material is adhered to the core and if so will mark the core at the point where sawing is needed. The Department will place the cores in a secure container and the Contractor shall transport the cores to the designated MaineDOT lab. The cores will be saw cut by the Department to remove underlying layers. No recuts are allowed at a test location after the core has been tested.

On all sections of overlay with wearing courses designed to be 1 in or less in thickness, there shall be no pay adjustment for density otherwise noted in Section 403 - Hot Mix Asphalt Pavement. For overlays designed to be 1 in or less in thickness, density shall be obtained by the same rolling train and methods as used on mainline travelway surface courses with a pay adjustment for density, unless otherwise directed by the Department.

There shall be no pay adjustment for density on shoulders unless otherwise noted in Section 403 - Hot Mix Asphalt Pavement. Density for shoulders shall be obtained by the same rolling train and methods as used on mainline travelway, unless otherwise directed by the Department. Efforts to obtain optimum compaction will not be waived by the Department unless it is apparent during construction that local conditions make densification to this point detrimental to the finished pavement surface course.

401.16 Joints The Contractor shall construct wearing course transverse and longitudinal joints in such a manner that minimum tolerances shown in Section 401.11 - Surface Tolerances are met when measured with a straightedge. The paver screed shall maintain a uniform head of HMA during transverse and longitudinal joint construction. The HMA shall be free of segregation and meet temperature requirements outlined in Section 401.04. Transverse joints of the wearing course shall be straight and neatly trimmed. The Contractor may form a vertical face exposing the full depth of the course by inserting a header, by breaking the bond with the underlying course, or by cutting back with hand tools. The Contractor shall apply a coating of emulsified asphalt immediately before paving all joints to the vertical face and 3 in of the adjacent portion of any pavement being overlaid except those formed by pavers operating in echelon. The Contractor shall use an approved spray apparatus designed for covering a narrow surface. The Department may approve application by a brush for small surfaces, or in the event of a malfunction of the spray apparatus, but for a period of not more than one working day.

Where pavement under this contract joins an existing pavement, or when the Department directs, the Contractor shall cut the existing pavement along a smooth line, producing a neat, even, vertical joint. The Department will not permit broken or raveled edges. The cost of all work necessary for the preparation of joints is incidental to related contract pay items. Longitudinal joints shall be generally straight to the line of travel and constructed in a manner that best ensure joint integrity. Methods or activities that prove detrimental to the construction of straight, sound longitudinal joints will be discontinued.

The Contractor may utilize an approved notched wedge joint device on all HMA layers 1 ½ inches in depth or greater. A notched wedge joint shall be constructed as shown in Figure 1 using a device that is attached to the paver screed and is capable of independently adjusting the top and bottom vertical notches.

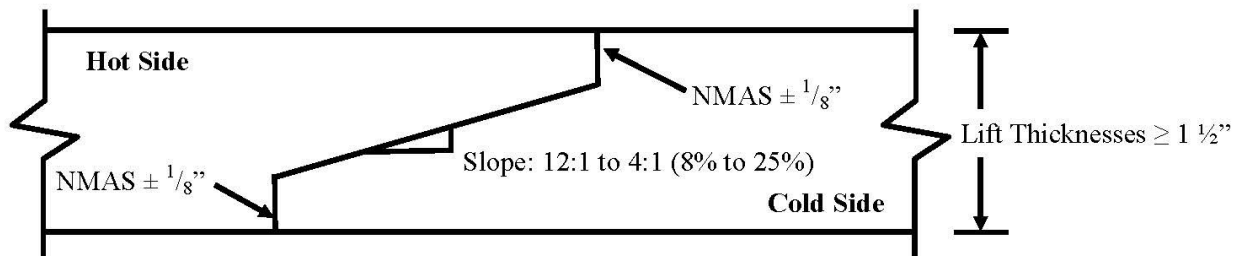


FIGURE 1: Notched Wedge Joint

Notes

1. An emulsified tack coat shall be applied to the vertical edges and the wedge surface so that the total rate is 0.05 G/SY plus the normal specified rate prior to placing the adjacent layer. The Contractor may elect to apply the emulsified tack coat in one or multiple passes.
2. Dimensions shown are compacted depths (after rolling is complete).

The Department reserves the right to have centerline cores cut by the Contractor's QC personnel for informational purposes to monitor the density along the joint. Informational cores at the centerline joint will be taken centered over the tapered part of the wedge joint.

Any notched wedge joint constructed areas that become cracked or broken shall be trimmed back to the limits affected prior to placing the adjoining lane. Any materials that become unbound or separated from the wedge or tapered joint section, or contaminated by materials determined by the Department as being detrimental to the construction of a sound construction joint, shall be removed by sweeping, compressed air and lance, or by hand tools as required. This work, if necessary, will not be paid for directly, but shall be considered incidental to the related contract items.

The Contractor shall apply a coating of emulsified asphalt on the vertical and tapered surface of the longitudinal centerline joint immediately before paving if the notched wedge joint device is used.

The total rate of application shall be 0.050 G/SY plus the normal specified tack coat rate. The Contractor shall use an approved spray apparatus designed for covering a narrow surface. The Department may approve application by a brush for small surfaces.

401.17 Hot Mix Asphalt Documentation The Contractor and the Department shall agree on the amount of Hot Mix Asphalt Pavement that has been placed each day. All delivery slips shall conform to the requirements of 401.078.

401.18 Prepave Meeting Prior to placing any mix, the Department and the Contractor shall hold a Pre-paving conference to discuss the paving schedule, source of mix, type and amount of equipment to be used, sequence of paving pattern, rate of mix supply, random sampling, project lots and sublots and traffic control. A copy of the density QC random numbers to be used on the project shall be provided to the Resident. The Departments' random numbers for Acceptance testing shall be generated and on file with the Resident and the Project Manager. All personnel of the Department and the Contractor who have significant information relevant to the paving items shall attend, including the responsible onsite paving supervisor for the Contractor. The Resident will prepare minutes of the conference and distribute them to all attendees. Any requests to revise the minutes must be made to the Resident within 7 Days of Receipt. These minutes will constitute the final record of the Pre-paving conference. On the first day of paving and whenever there is a change in the onsite paving foreman or paving inspector, the Department and the Contractor shall hold an informal onsite meeting to review the minutes of the Pre-paving conference, Project Specific QCP, Plans, Typical, Special Provisions and communication process. This meeting shall be held prior to placing any mix and, at minimum, shall occur yearly for multi-year contracts. The onsite paving supervisor, QCT, Superintendent, Resident and/or paving inspector shall attend.

401.19 Contractor Quality Control – Method A, B, C & D

The Contractor shall operate in accordance with the approved Quality Control Plan (QCP) to assure a product meeting the contract requirements. The Contractor shall not begin paving operations until the Department approves the QCP in writing.

401.191 Quality Control The QCP shall meet the requirements of Section 106.6 – Acceptance and this Section. The QCP shall address any items that affect the quality of the Hot Mix Asphalt Pavement, and shall include the following personnel meeting these minimum requirements:

- a. QCP Administrator – The QCP Administrator must be a full-time employee of or a consultant engaged by the Contractor or paving subcontractor. The QCP Administrator shall have full authority to institute any and all actions necessary for the successful operation of the QCP. The QCP Administrator (or their designee in the QCP Administrator's absence) shall be available to communicate with the Department at all times.

- For items accepted under Methods A and B, the QCP Administrator shall be certified as a Quality Assurance Technologist (QAT) by NETTCP.
 - For items accepted under Methods C and D, the QCP Administrator shall be certified by NETTCP as a Quality Assurance Technologist (QAT), Plant Technician, or Paving Inspector.
- b. Process Control Technician(s) (PCT) shall utilize test results and other quality control practices to assure the quality of aggregates and other mix components and control proportioning to meet the JMF(s). The PCT shall inspect all equipment used in mixing to assure it is operating properly and that mixing conforms to the mix design(s) and other Contract requirements, and that delivery slips and plant recordation accurately reflects the mix being produced with all the required information. The QCP shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one PCT is required. The Plan shall include the criteria to be utilized by the PCT to correct or reject unsatisfactory materials. The PCT shall be certified as a Plant Technician by the NETTCP.
- c. Quality Control Technician(s) (QCT) shall perform and utilize quality control tests at the job site to assure that delivered materials meet the requirements of the JMF(s). The QCT shall inspect all equipment utilized in transporting, laydown, and compacting to assure it is operating properly and that all laydown and compaction conform to the Contract requirements. The QCP shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one QCT is required. The QCP shall include the criteria utilized by the QCT to correct or reject unsatisfactory materials. The QCT shall be certified as a Paving Inspector by the NETTCP.

The QCP shall detail the coordination of the activities of the Plan Administrator, the PCT and the QCT. The Project Superintendent shall be named in the QCP, and the responsibilities for successful implementation of the QCP shall be outlined.

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

a. General Requirements:

- Job Mix Formulas (JMFs)
- Name of QCP Administrator, and certification number
- Description of corrective action process
- Disposition of defective material
- A procedure to take immediate possession of acceptance samples once released by MaineDOT and deliver said samples to the designated acceptance laboratory.
- Type of release agent to be used on haul units, tools and rollers.
- A note stating that the use of petroleum-based fuel oils, such as diesel or kerosene, or asphalt stripping solvents will not be permitted.

b. Process Control Requirements: Each Hot Mix Asphalt plant shall have a Plant Specific Process Control Plan. At minimum the plan shall include:

- Name of Plant Specific Process Control Technician(s) and certification number(s)
- Hot mix asphalt plant details
- Stockpile Management
- Mixing & transportation
- Silo management and details
- A detailed description of RAP processing, stockpiling and introduction into the plant
- PG Binder management:
 - Tanks and storage (including polymer modified binders if applicable)
 - Binder temperature
 - Sample points
 - Method to ensure mixture contains the specified binder grade
 - Additive introduction details if introduced at the plant
- Testing and inspection plan for control of aggregates and RAP
- Mix Testing and inspection plan

c. Quality Control Requirements – Method A & B:

- Name of Quality Control Technicians(s) and certification number(s)
- Laydown operations
- Longitudinal joint construction including the tacking of all joints.
- Procedures for avoiding paving in inclement weather
- Compaction of shoulders
- Methods to ensure that segregation is minimized
- Procedures to determine the maximum rolling and paving speeds based on best engineering practices and past experience in achieving acceptable pavement smoothness.
- Sequence for paving around drainage structures, under guard rail, around curb, at bridges, intersections, drives and minor approaches to ensure proper compaction, finish, and drainage.

d. Quality Control Requirements – Method C and D:

- Name of QCP Administrator and certification number(s) as specified in Section 401.19.
- Name of Process Control Technicians(s) and certification number(s).
- Name of Quality Control Technicians(s) and certification number(s).
- Anticipated Compaction Temperature Zones for each roller zoneduring placement.
- Mix TMD to be used for density gauge setting for method spec density work
- Procedures for avoiding paving in inclement weather.

The Contractor shall also supply a Laydown Operation Plan that addresses sequence of work, layout of work, longitudinal joint construction, compaction of shoulders, methods to minimize segregation, and procedures to achieve acceptable pavement smoothness.

For each production day, a summary of each day's results, including a daily paving report, summarizing the mixture type, mixture temperature, equipment used, environmental conditions, and the number of roller passes, shall be recorded and signed by the QCT and presented to the Department's representative by 1 PM the following working day.

Unless otherwise noted in Section 403 – Hot Mix Asphalt Pavement, the Contractor shall submit a modified QC Plan every year detailing, how the mix is to be placed, what equipment is to be used, and what HMA plant is to be used for Items covered under the Plan. All mix designs (JMF) shall be approved and verified by MaineDOT prior to use.

The Contractor shall certify the mix and the test results for each item by a Certificate of Compliance.

The Contractor shall have a testing lab at the plant site, equipped with all testing equipment necessary to complete the tests in Table 6. The Contractor shall generate QC sampling random numbers for each approved mix design every year. A copy of the random numbers shall be emailed to the QC.mainedot@maine.gov email address and remain on-file (in print) and be available for inspection at the QC laboratory. The Contractor shall sample, test, and evaluate Hot Mix Asphalt Pavement in accordance with the minimum frequencies per each approved mix design.

TABLE 6: MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Temperature of mix	6 per day at street and plant	-
Temperature of mat	4 per day	-
%TMD (In-Place Density - Surface)	1 per 125 ton	AASHTO T 355 or AASHTO T 343
%TMD (In-Place Density - Base)	1 per 250 ton	AASHTO T 355 or AASHTO T 343
Fines / Effective Binder	1 per 500 ton	AASHTO T 312*
Gradation	1 per 500 ton	AASHTO T 30
PGAB Content	1 per 500 ton	AASHTO T 164 or AASHTO T 308
Voids at N_{design}	1 per 500 ton	AASHTO T 312*
VMA at N_{design}	1 per 500 ton	AASHTO T 312*
Rice Specific Gravity	1 per 500 ton	AASHTO T 209
Percent Fractured Particles	1 per 5,000 ton	AASHTO T 335
Flat and Elongated Particles	1 Per 5,000 ton	ASTM D4791
Fine Aggregate Angularity	1 Per 5,000 ton	AASHTO T 304

The Contractor shall monitor plant production on each approved mix design using running average of three control charts as specified in Section 106 - Quality. Control limits shall be as noted in Table 7 below. The UCL and LCL, shall not exceed the allowable gradation control points for the particular type of mixture as outlined in Table 1 of Section 703.09.

TABLE 7: CONTROL LIMITS

Property	UCL and LCL
Percent Passing 4.75 mm and larger sieves	Target +/- 4.0
Percent Passing 2.36 mm sieve	Target +/- 2.5
Percent Passing 0.075 mm sieve	Target +/- 1.0
PGAB Content	Target +/- 0.25
VMA at N_{design}	LCL = LSL + 0.2
Voids at N_{design}	JMF Target +/- 1.2
Theoretical Maximum Specific Gravity	JMF Target +/- 0.020

The Contractor shall submit all QC test and inspection reports and updated control charts to the Resident and QC.mainedot@maine.gov by email. The reports and updated control charts shall be signed by the appropriate technician and be submitted to the Department by 1:00 P.M. on the next working day, except when otherwise noted in the QCP and approved by the Department.

The Contractor shall also retain splits of the previous 5 QC tests, with QC results enclosed for random selection and testing by the Department. Test results of splits that do not meet the Dispute Resolution

Variance Limits in Table 18 shall trigger an investigation by the MaineDOT Independent Assurance Unit and may result in that lab losing NETTCP certification and the ability to request a dispute [Section 401.50 - Process for Dispute Resolution].

The Contractor shall make density test results, including randomly sampled densities, available to the Department onsite. Summaries of each day's results, including a daily paving report summarizing the mixture type, mixture temperature, equipment used, environmental conditions, and the number of roller passes, shall be recorded and signed by the QCT and provided to the QC.mainedot@maine.gov email address and Resident in writing by 1:00 p.m. the next working day. The Contractor shall fill all holes in the pavement resulting from cutting cores by the Contractor or the Department with a properly compacted, acceptable mixture no later than the following working day. Before filling, the Contractor shall carefully clean the holes and apply a coating of emulsified asphalt. The Contractor may only cut additional cores for verification of the densometer, at a rate not to exceed 3 per day or 2 per 1000 ton placed.

If the Contractor's control chart shows the process for a given mix design to be out of control (defined as a single point outside of the control limits on the running average of three chart) on any property listed in Table 7: Control Limits, the Contractor shall notify the Resident of all affected projects in writing of the corrective action by 1:00 PM the next working day. The written description shall detail what action is being taken by the Contractor to bring the property in question back within control limits. Subsequent quality control results are expected to demonstrate an improvement and regression towards the aim. The Department reserves the right to take action, to include cessation of production, in the case of repeated results outside the Table 7 control chart control limits.

On a daily basis, or whenever equipment type or sequence is modified, the Contractor shall perform density testing across the mat being placed, prior to being compacted by equipment at 12 in intervals. If the density values vary by more than 2.0% from the mean, the Contractor shall make adjustments to the screed until the inconsistencies are remedied. Failure to replace or repair defective placement equipment may result in a letter of suspension of work and notification of a quality control violation resulting in possible monetary penalties as governed by Section 106 – Quality.

The Contractor shall cease paving operations whenever one of the following occurs:

- a. The quality level for density using all quality control tests for the current Lot is less than 60 PWL.
- b. The Coarse Aggregate Angularity or Fine Aggregate Angularity value falls below the requirements of Section 703.07, Table 3: Aggregate Consensus Properties Criteria for the design traffic level.
- c. The Flat and Elongated Particles value exceeds 10% by ASTM D4791.
- d. There is any visible damage to the aggregate due to over-densification other than on variable depth shim courses.
- e. The Contractor fails to follow the approved QCP.

The Contractor shall notify the Resident in writing as to the reason for shutdown, as well as the corrective action, by the end of the workday. Failure to do so will be treated as a second incident under 106.4.6 QCP Non-compliance. The Department will only allow the continuation of paving operations when it is satisfied the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production. The Department

retains the exclusive right, with the exception of the first day's production of a new JMF, to determine whether the resumption of production involves a significant change to the production process. If the Department so determines, then the current lot will be terminated, a pay factor established, and a new lot will begin.

The Contractor may utilize innovative equipment or techniques not addressed by the Contract documents to produce or monitor the production of the mix, subject to approval by the Department.

401.192 Quality Control and Acceptance for Item 403.209 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size, (sidewalks, drives, islands & incidentals) and visual acceptance items Item 403.209 will be accepted under method D acceptance unless otherwise noted in the 403 special provision. A QCP, certified QC personnel, or Prepave Meeting shall not be required for Item 403.209 - Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals) when accepted under either visual acceptance or under Method D acceptance unless otherwise specified in the 403 SP. An approved JMF shall be provided to the Resident prior to placement.

401.20 Acceptance Method A & C These methods utilize Quality Level Analysis and pay factor specifications. For Hot Mix Asphalt Pavement designated for acceptance under Quality Assurance provisions, the Department will sample once per subplot on a statistically random basis, test, and evaluate in accordance with the Acceptance Properties as outlined in Table 8:

TABLE 8: ACCEPTANCE PROPERTIES – METHOD A & C

Properties	Point of Sampling	Test Method
Gradation	Paver Hopper	AASHTO T 30
PGAB Content	Paver Hopper	AASHTO T 308
% TMD (In-Place Density)	Mat behind all Rollers	AASHTO T 269
Voids at N_{design}	Paver Hopper	AASHTO T 312
VMA at N_{design}	Paver Hopper	AASHTO T 312
Fines to Effective Binder	Paver Hopper	AASHTO T 312
VFB	Paver Hopper	AASHTO T 312

The Department will obtain samples of Hot Mix Asphalt Pavement in conformance with AASHTO R 97, Sampling Asphalt Mixtures, and the MaineDOT Policies and Procedures for HMA Sampling and Testing. The Contractor shall transport the samples in containers provided by the Department to the designated MaineDOT Laboratory within 48 hours except when otherwise noted in the project specific QCP or as directed by the Resident. Failure to deliver an acceptance sample to the designated acceptance laboratory will be considered the second incident under 106.4.6–QCP Non-Compliance.

Target values shall be as specified in the JMF. The Department will withhold reporting of the test results for the Acceptance sample until 7:00 AM, on the second working day of receipt of the sample, or after receipt of the Contractors results of the Acceptance sample split. Upon conclusion of each lot being evaluated under quality level analysis, where there is a minimum of four sublots, results shall be examined for statistical outliers, as stated in Section 106.7.2 - Statistical Outliers.

Lot sizes and subplot sizes shall be determined as outlined in Table 9.

TABLE 9: LOT AND SUBLOT SIZES – METHOD A & C

Lot Size*	Entire production per item per contract per year up to 6000 ton
Maximum Sublot Size – Mix	750 ton
Maximum Sublot Size – Density	Surface Layers – 250 ton Base / Intermediate Layers – 500 ton
Minimum Number of Samples – Mix	Four
Minimum Number of Samples – Density	Five

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

If there is less than one-half of a subplot remaining at the end of production for the year, then it shall be combined with the previous subplot. If there is more than one-half subplot remaining at the end of production for the year, then it shall constitute the last subplot and shall be represented by test results. If it becomes apparent partway through a Lot that, due to an underrun, there will be insufficient mix quantity to obtain the minimum number of sublots needed, the Resident may adjust the size of the remaining sublots and select new sample locations based on the estimated quantity of material remaining in the Lot. Unanticipated over-runs of up to 1500 ton shall be rolled into the last lot. Cases where the lot is terminated prior to reaching completion shall be handled in accordance with Section 106.7.3 Early Termination of Lots. In cases where a density incentive/disincentive provision apply, additional cores shall be taken to attain a minimum of three for the Lot.

Isolated Areas During the course of inspection, should it appear that there is an isolated area that is not representative of the lot based on a lack of observed compactive effort, excessive segregation, a change in process or any other questionable practice, that area may be isolated and tested separately.

An area so isolated that has a calculated pay factor below 0.80 for Method A, based on three random tests shall be removed and replaced at the expense of the Contractor for the full lane width and a length not to be less than 150 ft.

TABLE 10: ACCEPTANCE LIMITS – METHOD A & C

Property	USL and LSL	
	Method A	Method C
Percent Passing 4.75 mm and larger sieves	Target +/- 7%	Target +/- 7%
Percent Passing 2.36 mm to 1.18 mm sieves	Target +/- 4%	Target +/- 5%
Percent Passing 0.60 mm sieve	Target +/- 3%	Target +/- 4%
Percent Passing 0.30 mm to 0.075 mm sieve	Target +/- 2%	Target +/- 2%
PGAB Content	Target +/- 0.4%	Target +/- 0.4%
Voids at N_{design}	4.0% +/- 1.5%	N/A
Fines to Effective Binder	0.9 +/- 0.3	N/A
VMA at N_{design}	LSL from Table 1	N/A
VFB	Table 1 plus a 4% production tolerance for USL	N/A
% TMD (In-place Density)	94.5% +/- 2.5%	94.5% +/- 2.5%

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

TABLE 11: CEASE PRODUCTION – METHOD A & C

Property	Percent Within Limits (PWL)	
	Method A	Method C
Percent Passing NMAS sieve*	<60 PWL	<60 PWL
Percent Passing 2.36 mm sieve*		
Percent Passing 0.30 mm sieve*		
Percent Passing 0.075 mm sieve*		
PGAB Content		
Voids at N_{design}	N/A	
Fines to Effective Binder*		
VMA at N_{design}		
VFB		
% TMD (In-place Density)	<60 PWL	

*Paving operations shall not be required to cease if the mean test value is equal to the LSL or USL and $s = 0$.

In cases where the Contractor is to cease paving operations based upon an Acceptance result or payfactor, the Contractor will submit a corrective action plan to the Department. The Department will only allow the continuation of paving operations when it is satisfied the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production.

401.201 Pay Adjustment - Method A & C The Department will use the following criteria for pay adjustment at the completion of the Lot using the pay adjustment factors under Section 106.7 - Quality Level Analysis.

Density Upon conclusion of each lot, density results shall be examined for statistical outliers as stated in Section 106.7.2. If the pay factor for Density falls below 0.80, all of the cores will be randomly re-cut by Sublot. A new pay factor will be calculated that combines all initial and retest results. If the resulting pay factor is below 0.80, the entire Lot shall be removed and replaced with material meeting the specifications at no additional cost to the Department, except that the Department may, when it appears that there is a distinct pattern of defective material, isolate any defective material by investigating each mix sample subplot and require removal of defective mix sample sublots only, leaving any acceptable material in place if it is found to be free of defective material. Pay factors equal to or greater than the reject level will be paid accordingly.

Mix Properties The Department will determine a pay factor (PF) using the applicable Acceptance Limits. If all three pay factors for PGAB Content, VMA at N_{design} , and Voids at N_{design} fall below 0.80 for Method A, then the composite pay factor for PGAB Content, VMA at N_{design} , and Voids at N_{design} shall be 0.50.

The following variables will be used for pay adjustment:

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

The Department will determine a pay adjustment using Table 12: Pay Adjustment Calculations as follows:

TABLE 12: PAY ADJUSTMENT CALCULATIONS – METHOD A & C

Acceptance Method	Mix Properties / Gradation	Density
Method A	$PA = (\text{Voids @ } N_d \text{ PF} - 1.0)(Q)(P)x0.20 + (\text{VMA @ } N_d - 1.0)(Q)(P)x0.20 + (\text{PGAB Content PF} - 1.0)(Q)(P)x0.10$	$PA = (\text{density PF} - 1.0)(Q)(P)x0.50$
Method C	$PA = (\% \text{ Passing Nom. Max PF} - 1.0)(Q)(P)x0.05 + (\% \text{ passing 2.36 mm PF} - 1.0)(Q)(P)x0.05 + (\% \text{ passing 0.30 mm PF} - 1.0)(Q)(P)x0.05 + (\% \text{ passing 0.075 mm PF} - 1.0)(Q)(P)x0.10 + (\text{PGAB Content PF} - 1.0)(Q)(P)x0.25$	$PA = (\text{density PF} - 1.0)(Q)(P)x0.50$

In addition, for 9.5 mm NMA mixtures the following pay adjustment shall also apply:

The average percent passing for the 0.075 mm sieve shall be evaluated for each Lot. If the average is greater than 6.5%, a pay adjustment according to Table 13 below shall apply in addition to the other pay adjustments for the given method of testing.

TABLE 13: 0.075 MM SIEVE PAY ADJUSTMENT

Average Percent Passing 0.075 mm Sieve	Pay Adjustment
6.6% - 7.0%	-5%
> 7.0%	-10%

The Department shall notify the Contractor whenever the average of at least three samples in a given Lot is greater than 6.5%.

401.21 Acceptance Method B & D Unless otherwise stated in the 403 special provision, the Lot shall be the entire mix quantity per item per contract per year. The Department will sample once per subplot per pay item on a statistically random basis, test, and evaluate in accordance with the Acceptance Properties in Table 14. The Department will obtain samples of Hot Mix Asphalt Pavement in conformance with AASHTO R 97, Sampling Asphalt Mixtures, and the MaineDOT Policies and Procedures for HMA Sampling and Testing. The Contractor shall transport the samples in containers provided by the Department to the designated MaineDOT Laboratory within 48 hours except when otherwise noted in the project specific QCP or as directed by the Resident. Failure to deliver an acceptance sample to the designated acceptance laboratory will be considered the second incident under 106.4.6–QCP Non-Compliance. Target values shall be as specified in the JMF. The Department will withhold reporting of the test results for the Acceptance sample until 7:00 AM, on the second working day of receipt of the sample, or after receipt of the Contractors results of the Acceptance sample split.

TABLE 14: ACCEPTANCE PROPERTIES – METHOD B & D

Properties	Point of Sampling		Test Method
	Method B	Method D	
Gradation	Paver Hopper	Paver Hopper or Truck	AASHTO T 30
PGAB Content	Paver Hopper	Paver Hopper or Truck	AASHTO T 308
% TMD (In-Place Density)	Mat behind all Rollers	Mat behind all Rollers	AASHTO T 269
Voids at N_{design}	Paver Hopper	N/A	AASHTO T 312
VMA at N_{design}	Paver Hopper	N/A	AASHTO T 312
Fines to Effective Binder	Paver Hopper	N/A	AASHTO T 312
VFB	Paver Hopper	N/A	AASHTO T 312

TABLE 15: LOT AND SUBLOT SIZES – METHOD B & D

Lot Size*	Entire mix quantity per item per contract per year
Maximum Sublot Size – Mix	250 ton (Max 4 Sublots)
Sublot Size – Density	125 ton (Max 5 Sublots)

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

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

TABLE 16: ACCEPTANCE LIMITS – METHOD B & D

Property	USL and LSL	
	Method B	Method D
Percent Passing 4.75 mm and larger	Target +/- 7%	Target +/- 7%
Percent Passing 2.36 mm sieve	Target +/- 5%	Target +/- 7%
Percent Passing 1.18 mm sieve	Target +/- 5%	Target +/- 5%
Percent Passing 0.60 mm sieve	Target +/- 4%	Target +/- 4%
Percent Passing 0.30 mm sieve	Target +/- 3%	Target +/- 3%
Percent Passing 0.075 mm sieve	Target +/- 3%	Target +/- 3%
PGAB Content	Target +/- 0.5%	Target +/- 0.5%
Voids at N_{design}	4.0% +/- 2.0%	N/A
Fines to Effective Binder	0.9 +/- 0.3	N/A
VMA at N_{design}	LSL from Table 1	N/A
VFB	Table 1 plus a 4% production tolerance for USL	N/A
% TMD (In-place Density)	94.5% +/- 2.5%	LSL of 92.0%

The Contractor shall cease paving operations whenever two consecutive Method B or D tests fall outside specification limits on the same property. The Contractor will submit a corrective action plan to the Department. The Department will only allow the continuation of paving operations when it is satisfied the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production.

401.211 Pay Adjustment - Method B & D For items accepted under Method B or D, if the mix is within the tolerances listed in Table 16, the Department will pay the contract unit price. Otherwise, pay adjustments as shown in Table 17 shall be applied to the quantity of mix represented by the test. The Contractor shall cut one 6 in core per subplot unless otherwise noted in Section 403 - Hot Mix Asphalt Pavement. If the density result is not within the specified limits the disincentive shall apply. If the subplot density is less than 88.5 percent or greater than 99.0 percent of the subplot TMD, two additional cores shall be cut at random locations determined by the Department. If either of the additional cores has a density less than 88.5 percent or greater than 99.0 percent of the subplot TMD, the subplot shall be removed and replaced at no cost to the Department; otherwise, the average of the three cores will be used to determine the subplot pay adjustment.

TABLE 17: PAY ADJUSTMENTS – METHOD B & D

Property	Method B		Method D	
Percent Passing 2.36 mm sieve	N/A		-2.0%	
Percent Passing 0.30 mm sieve	N/A		-1.0%	
Percent Passing 0.075 mm sieve	-2.0%		-2.0%	
PGAB Content	-5.0%		-5.0%	
Voids at N_{design}	-3.0%		N/A	
% TMD (In-place Density)	91.5% - 91.9% or 97.1% - 97.5%	-5.0%	91.5% - 91.9%	-5.0%
	90.5% - 91.4% or 97.6% - 98.5%	-10.0%	90.5% - 91.4%	-10.0%
	89.5% - 90.4% or 98.6% - 99.0%	-20.0%	89.5% - 90.4%	-20.0%
	88.5% - 89.4%	-30.0%	88.5% - 89.4%	-30.0%
	<88.5% or >99.0%	Reject	<88.5% or >99.0%	Reject

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

401.40 Basis of Payment The Department will pay for the work, in place and accepted, in accordance with the applicable sections of this Section, for each type of HMA specified.

The Department will pay for the work specified in Section 401.12, for the HMA used, except that cleaning objectionable material from the pavement and furnishing and applying bituminous material to joints and contact surfaces is incidental. Payment for this work under the appropriate pay items shall be full compensation for all labor, equipment, materials, and incidentals necessary to meet all related contract requirements, including design of the JMF, implementation of the QCP, obtaining core samples, transporting cores and samples, filling core holes, applying emulsified asphalt to joints, and providing testing facilities and equipment. The Department will make a pay adjustment for quality as specified in Section 401.20 Acceptance Method A & B or 401.21 Acceptance Method C & D.

401.50 Process for Dispute Resolution At the time of Hot-Mix Asphalt sampling, the Department will obtain a split sample of each Acceptance test random sample for possible dispute resolution testing. The Contractor shall also obtain a split sample of the HMA at this same time. If the Contractor wishes to retain the option of requesting dispute testing of the initial Acceptance sample, the Contractor will test their split of the Acceptance sample in accordance with applicable AASHTO procedure and accepted supplemental practice as described in the Department's HMA Sampling and Testing Policies and Procedures manual. The Contractor shall report their results to the Resident, with a copy to Contractor.mainedot@maine.gov by 7:00 AM, on the second working day from time of QA sampling, otherwise dispute resolution will not be initiated. The Department's dispute resolution split sample will be properly labeled and stored for a period of at least two weeks after it has been reported, or until the sample is tested. The properties eligible for dispute and the respective variances are shown in Table 18.

The Contractor may dispute the Department's Acceptance results and request that the dispute resolution split sample be tested by notifying the Department's Resident and QA Engineer in writing within two working days after the results of the Acceptance test are reported. The following shall be provided in the request:

- Acceptance sample reference number
- The specific test result(s) or property(ies) being disputed, and
- The complete, signed report of the Contractor's testing (In a lab certified by the NETTCP and MaineDOT) of their split of the Acceptance sample indicating that the variances in Table 18 for the specific test result(s) or property(ies) were met or exceeded.

TABLE 18: DISPUTE RESOLUTION VARIANCE LIMITS

Property	Method A & B	Method C & D*	Variance Limits
PGAB Content	Yes	Yes	+/- 0.4%
G_{mb}	Yes	No	+/- 0.030
G_{mm}	Yes	Only if referenced to a Core	+/- 0.020
Voids at N_{design}	Only if G_{mb} or G_{mm} is not disputable	No	+/- 0.8%
VMA at N_{design}	Only if G_{mb} or G_{mm} is not disputable	No	+/- 0.8%
Percent Passing 4.75 mm and larger sieves	No	Yes^	+/- 4.0%
Percent Passing 2.36 mm to 0.60 mm sieves	No	Yes^	+/- 3.0%
Percent Passing 0.30 mm to 0.15 mm sieves	No	Yes^	+/- 2.0 %
0.075 mm sieve	Only for 9.5 mm NMAS mixes	Yes	+/- 0.8%

*Disputes will not be allowed on Item 403.209

^Disputes will only be allowed on Sieve Sizes used for pay adjustment calculations

The value of any disputed result or property reported for the initial Acceptance sample shall stand if the value reported for the dispute resolution sample is not closer to the value the Contractor reported for their split sample than to the value reported for the initial Acceptance sample. If the value reported for the dispute resolution falls precisely half-way between the other two values the value reported for the dispute resolution will replace the original acceptance value. Otherwise, the value reported for the dispute resolution sample will replace the value reported for the initial Acceptance sample and will be used to re-calculate any other affected results or properties.

SECTION 402 - PAVEMENT SMOOTHNESS

402.00 Smoothness Projects Projects to have their pavement smoothness analyzed in accordance with this Specification will be so noted in Special Provision 403 - Hot Mix Asphalt Pavement.

402.01 Pavement Smoothness The final pavement surface shall be evaluated for smoothness using a Class I or Class II profiler as defined by ASTM E950 (94). Smoothness measurements will be expressed in terms of the International Roughness Index (IRI) as defined by the World Bank, in units of inches/mile.

402.02 Lot Size Lot size for smoothness will be 3000 lane-feet. A subplot will consist of 50 lane-feet. Partial lots will be included in the previous lot if less than one-half the size of a normal lot. If equal to or greater than one-half the normal lot size, it will be tested as a separate lot.

402.03 Acceptance Testing The Department will conduct Acceptance testing following completion of the surface course. Sections to be excluded from testing include the following:

- Bridge decks and joints (no smoothness measurements will be taken within 100 ft of bridge joints)
- Acceleration and deceleration lanes
- Shoulders and ramps
- Side streets and roads
- Within 100 ft of transverse joints at the beginning and end of the project
- Within 100 ft of railroad crossings
- Urban areas with speed limits of 30 mph or lower

Each lot shall have 2 measurements made in each wheel path. The average of the 4 measurements will determine the smoothness for that lot. The smoothness measurements will be statistically evaluated for pay factors as described in Subsection 106.7 - Quality Level Analysis, using the specification limits shown below.

TABLE 1: ACCEPTANCE LIMITS

Level	USL
I	55 in/mile
II	65 in/mile
III	75 in/mile

Computation of Smoothness Pay Adjustment:

PA = (PF-1.0)(Q)(P) where:

Q = Quantity of surface course in the Lot (excluding shoulders, side streets, bridge decks, ramps, acceleration and deceleration lanes)

PF = smoothness pay factor for the Lot

P = Contract unit price for surface pavement

PA = pay adjustment

402.04 Unacceptable Work In the event that any Lot is found to have a pay factor less than 0.80, the Contractor shall take whatever remedial action is required to correct the pavement surface in that Lot at no additional expense to the Department. Such remedial action may include but is not limited to removal and replacement of the unacceptable pavement. In the event remedial action is necessary, the Contractor shall submit a written plan to the Resident outlining the scope of the remedial work. The Resident must approve this plan before the remedial work can begin. Following remedial work, the Lot shall be retested, and will be subject to the specification limits listed above. The resulting pay factor, if within the acceptable range, will be used in the final pay adjustment. The Contractor shall pay the cost of retesting the pavement following corrective action.

Localized surface tolerance defects will be subject to the provisions outlined in Section 401.11 Surface Tolerances.

Payment will be made under:

Pay Item

402.10 Incentive/Disincentive - Pavement Smoothness

Pay Unit

Lump Sum

SECTION 403 - HOT MIX ASPHALT PAVEMENT

403.01 Description This work shall consist of constructing one or more courses of Hot Mix Asphalt pavement on an approved base in accordance with these specifications, and in reasonably close conformity with the lines, grades, thickness and typical cross sections shown on the plans or established. The HMA pavement shall be composed of a mixture of aggregate, filler if required, and asphalt material.

403.02 General The materials and their use shall conform to the requirements of Section 401 - Hot Mix Asphalt Pavement.

403.03 Construction The construction requirements shall be as specified in Section 401 - Hot Mix Asphalt Pavement.

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

403.05 Basis of Payment The accepted quantities of hot mix asphalt pavement will be paid for at the contract unit price per ton for the mixtures, including hot mix asphalt material complete in place. Method A, Method B, Method C and Method D shall be used for acceptance as specified in Section 401 - Hot Mix Asphalt Pavements. (See Complementary Notes, Section 403 - Hot Mix Asphalt Pavement, for Method location).

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
403.102 Hot Mix Asphalt Pavement for Special Areas	Ton
403.206 Hot Mix Asphalt, 25 mm Nominal Maximum Size	Ton
403.207 Hot Mix Asphalt, 19.0 mm Nominal Maximum Size	Ton
403.2071 Hot Mix Asphalt, 19.0 mm Nominal Maximum Size (Polymer Modified)	Ton
403.2072 Asphalt Rich Hot Mix Asphalt, 19.0 mm Nominal Maximum Size (Asphalt Rich Base and Intermediate course)	Ton
403.208 Hot Mix Asphalt, 12.5 mm Nominal Maximum Size	Ton
403.2081 Hot Mix Asphalt - 12.5 mm Nominal Maximum Size (Polymer Modified)	Ton
403.209 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Sidewalks, Drives, Islands & Incidentals)	Ton
403.210 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size	Ton
403.2101 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Polymer Modified)	Ton
403.2104 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Thin Lift Surface Treatment)	Ton
403.211 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Shimming)	Ton
403.2111 Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Shimming, Polymer Modified)	Ton
403.212 Hot Mix Asphalt, 4.75 mm Nominal Maximum Size	Ton
403.213 Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base course)	Ton
403.2131 Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base course, Polymer Modified)	Ton
403.2132 Asphalt Rich Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base course)	Ton
403.214 Hot Mix Asphalt, 4.75 mm Nominal Maximum Size (5/8" Surface Treatment)	Ton

SPECIAL PROVISION
SECTION 401
HOT MIX ASPHALT PAVEMENTS
(High Polymer 76E-28 HMA)

The Special Provision 400 – Pavements; Section 401 – Hot Mix Asphalt Pavements; the following subsections have been modified with the following:

Description The Contractor shall furnish and place one or more courses of High Polymer 76E-28 Asphalt Pavement (HP76E) on an approved base in accordance with the contract documents and in reasonably close conformity with the lines, grades, thicknesses and typical cross sections shown on the plans or established. The Department will accept this work under Quality Assurance provisions, in accordance with these specifications and the requirements of Section 106 – Quality, the provisions of AASHTO M 323 except where otherwise noted in sections 401 and 703 of these specifications, and the MaineDOT Policies and Procedures for HMA Sampling and Testing. The Highly Modified Asphalt Pavement shall meet all of the Materials, Seasonal Limitations, Equipment, and Construction requirements of Special Provision Section 401, with the following additions and changes.

401.03 Composition of Mixtures The Contractor shall submit for Department approval a JMF to the Asphalt Pavement Engineer for each mixture to be supplied. The Contractor may forgo the test strip required under section 401.20 Acceptance of this specification if the Contractor submits a JMF from a manufacturer that has successfully designed and produced a HP76E mixture and it has been successfully placed on a Department project within the current or within the previous construction season (within the past year) resulting in a finished product meeting the requirements of this specification. Asphalt percentage, aggregate sources, and gradation percentages must not have been adjusted from a previously approved design in order to forgo submitting samples for HWT approval or construction of a new a test strip.

The JMF will be approved by the Department in accordance with the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual. The specimens shall be prepared in accordance with AASHTO M323 and R35. The Contractor shall not use RAP in the HP76E mixture at any percentage.

The mix design will satisfy the following criteria:

TABLE 1: HP76E VOLUMETRIC DESIGN CRITERIA

Property		Criteria
Required Density (Percent of Gmm)	$N_{initial}$	≤ 89.0
	N_{design}	97.0
	N_{max}	≤ 99.0
Voids in Mineral Aggregates (VMA)		15% minimum
Voids Filled with Binder (VFB)		65-85%
Fines/Effective Binder Ratio		0.5-1.1
HWT, Rut Depth (20,000 passes) @ 50°C		12.5mm maximum
HWT, Stripping Inflection Point (SIP)		15,000 minimum

401.032 Warm Mix Technology The HP76E shall be modified using an approved Warm-Mix Asphalt (WMA) additive that may reduce compactive effort and emissions. No WMA foaming technology will be permitted which requires the mechanical injection of steam or water into the liquid asphalt. The WMA additive must be compatible with polyphosphoric acid modified and polymer modified asphalts. The WMA additive shall be introduced in accordance with the Manufacturer's dosing rates and approved blending methods.

401.04 Temperature Requirements After the JMF is established, the temperatures of the mixture shall conform to the following tolerances unless otherwise authorized by the Department:

In the truck at the mixing plant – allowable range 290° to 340°F
At the Paver – allowable range 290° to 340°F

401.05 Performance Graded Asphalt Binder The Performance Graded Asphalt Binder (PGAB) shall comply with AASHTO M 332 and R 92 and have a PG Grading of **PG 76E-28** with a minimum 6% SBS Polymer. The Multiple Stress Creep Recovery (MSCR) shall have a $J_{nr,3.2}$ maximum value of 0.1 kPa^{-1} when tested according to AASHTO T 350. The minimum MSCR % recovery at 3.2 kPa shall be 85%. The MSCR test for J_{nr} and % recovery shall be run at 76°C. The viscosity shall be less than or equal to 3.0 Pa-s, however the Department may increase this limit to 5.0 Pa-s if the binder supplier and contractor agree that the binder is suitably workable.

401.10 Rollers Section 401.10 shall apply, with the following exceptions; a Pneumatic roller will not be required. A 3-5 ton dual drum vibratory shall be required to replace the pneumatic roller in the required roller train, and to aid in compaction in areas inaccessible to larger rollers.

401.19 Quality Control - Method A, B, C & D The Contractor shall have a testing lab at the plant site equipped with all testing equipment necessary to complete the tests in Table 2. The Contractor shall locate an approved Gyratory Compactor at the plant testing lab. The Contractor shall generate QC sampling random numbers for each approved mix design. A copy of the random numbers shall be emailed to the QC.mainedot@maine.gov email address and remain on-file (in print) and be available for inspection at the QC laboratory. The Contractor shall sample, test, and evaluate Hot Mix Asphalt Pavement in accordance with the following minimum frequencies per each approved mix design:

TABLE 2: MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Temperature of mix	6 per day at street and plant	-
Temperature of mat	4 per day	-
%TMD (Surface)	1 per 125 ton	AASHTO T 355 or AASHTO T 343
%TMD (Base)	1 per 250 ton	AASHTO T 355 or AASHTO T 343
Fines / Effective Binder	1 per 500 ton	AASHTO T 312
Gradation	1 per 500 ton	AASHTO T 30
PGAB content	1 per 500 ton	AASHTO T164 or AASHTO T 308
Voids at N_{design}	1 per 500 ton	AASHTO T 312

Voids in Mineral Aggregate at N _{design}	1 per 500 ton	AASHTO T 312
Rice Specific Gravity	1 per 500 ton	AASHTO T 209
Coarse Aggregate Angularity	1 per 5,000 ton	ASTM D5821
Flat and Elongated Particles	1 Per 5,000 ton	ASTM D4791
Fine Aggregate Angularity	1 Per 5,000 ton	AASHTO T 304
<u>Hamburg Wheel Tracker</u>	<u>1 Per 4,000 ton and at least once per Acceptance Lot</u>	<u>AASHTO T 324</u>

The Contractor shall monitor plant production on each approved mix design using running average of three control charts as specified in Section 106 - Quality. Control limits shall be as noted in Table 3 below. The UCL and LCL, shall not exceed the allowable gradation control points for the particular type of mixture as outlined in Table 1 of Section 703.0

The Contractor shall sample the HMA on the first day of production and test the sample in the Hamburg Wheel Tracker according to AASHTO T324. This sample will not count towards the minimum quality control frequency specified in Table 2. The Contractor shall submit all Hamburg Wheel Tracker test reports in writing, signed by the appropriate technician and present them to the Department within ten working days of initial sampling, except when otherwise noted in the project specific QCP due to local restrictions. The Contractor shall make the raw Hamburg Wheel Tracker data from QC samples available to the Department upon request. If a QC sample fails to meet the criteria in Table 1, the Contractor will be required to submit a corrective action letter to the Resident, Materials Engineer, Pavement Quality Manager, and Pavement Quality Engineer by the end of the following working day with the proposed changes to bring the mixture back into compliance. The Department will respond and either accept or reject the Contractor's proposed corrective action by the end of the following working day from when the letter was received.

401.20 Acceptance Method The HP76E will be evaluated by the acceptance limits specified in Table 3 and in accordance with Section 106.6 Acceptance, (1) Method A as specified Section 401.20 - Quality Assurance Methods A and C of the most recent Special Provision 400 - Pavements.

The Department will sample the HP76E on the first day of production and at the acceptance frequencies specified in Table 2 to verify the compliance with the HWT. For all QA samples identified as a HWT sample, the Department will collect four additional boxes of the HMA mixture to verify compliance with the HWT requirements. The minimum sampling shall be as specified in Table 3A.

If an acceptance sample fails to meet the criteria in Table 1, the Contractor will be required cease production and submit a corrective action letter to the Resident, Materials Engineer, Pavement Quality Manager, and Pavement Quality Engineer by the end of the following working day with the proposed changes to bring the mixture back into compliance. Failure to do so will be treated as a second incident under 106.4.6 QCP Non-compliance.

TABLE 3: ACCEPTANCE LIMITS

Property	USL and LSL
Passing 4.75 mm and larger sieves	Target +/-7%
Passing 2.36 mm to 1.18 mm sieves	Target +/-4%
Passing 0.60 mm	Target +/-3%
Passing 0.30 mm to 0.075 mm sieve	Target +/-2%
PGAB Content	Target +/-0.4%
Voids at N _{design}	3.0% +/- 1.5%
Fines to Effective Binder	0.8 +/-0.3
Voids in the Mineral Aggregate	LSL from Table 1
Voids Filled with Binder	401.03 Composition of Mixtures Table 1 values plus a 4% production tolerance for USL only
% TMD (In place density)	94.5% +/- 2.5%

TABLE 3A: MINIMUM HWT ACCEPTANCE FREQUENCIES

Test or Action	Frequency	Test Method
<u>Hamburg Wheel Tracker</u>	1 per 4,000 ton and at least once per Acceptance Lot	<u>AASHTO T 324</u>

Test Strip If the Contractor is submitting a new JMF, a test strip of a minimum 60 tons placed at a nominal depth of 1 ¾ inch, full lane width, shall be required. The Department shall take at a minimum a single sample consisting of eight boxes and three cores stratified over the length of the test strip. The mixture will be evaluated under the Method B and HWT testing requirements. The exact location of the test strip will be at the discretion of Contractor unless otherwise stated in the contract.

A leveling course (Item 403.211) shall be placed at the chosen location prior to placement of the test strip unless the area is constructed of other freshly placed hot mix asphalt mix that would represent a prepared a satisfactory base on which to placed the HP76E mixture. 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 Department 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, adjust plant settings prior to mainline plant production, and obtain a HWT and production sample for the final approval of the JMF.

403.05 Basis of Payment The accepted quantities of HP76E will be paid for at the contract unit price per ton for the mixture in place.

Payments will be made under the appropriate mixture type used:

Pay Item

403.2081 12.5mm Nominal Maximum Size (Polymer Modified)

Pay Unit
Ton

SPECIAL PROVISION
SECTION 401
SECTION 401 - HOT MIX ASPHALT PAVEMENT
(HMA Hamburg Wheel Tracker Specification)

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). Unless otherwise noted in Special Provision 403 - Hot Mix Asphalt Pavement, the design, verification, Quality Control, and Acceptance tests for this mix will be performed at 65 gyrations.

TABLE 1: VOLUMETRIC DESIGN CRITERIA

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

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

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

The Contractor shall submit for Department approval a JMF to the Pavement Materials Engineer for each mixture to be supplied including the PG binder grade/supplier and the intended test temperature for the HWT approval. The JMF will be approved by the Department in accordance with the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual. If the Contractor is submitting a new JMF, the Contractor shall identify and make available the stockpiles of all proposed aggregates at the plant site at the time of JMF submittal. There must be a minimum of 150 ton for coarse aggregate stockpiles and 75 ton for fine aggregate stockpiles before the JMF may be submitted. The Contractor shall provide aggregate samples to the Department unless otherwise required. The Contractor shall also make available to the Department the PG Binder 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. If the Contractor is submitting a new JMF the first day's production shall be monitored, and approval may be withdrawn if the mixture exhibits undesirable characteristics such as checking, shoving or displacement. The Contractor shall be allowed to submit aim changes for a JMF as outlined in the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual: Mix Design Approval Section.

The Contractor shall submit a new JMF for approval each time a change in material source or materials properties is proposed. The same approval process shall be followed. The cold feed percentage of any aggregate may be adjusted up to 10 percentage points from the amount listed on the JMF, however no aggregate listed on the JMF shall be eliminated. The cold feed percentage for RAP may be reduced up to 10 percentage points from the amount listed on the JMF and shall not exceed the percentage of RAP approved in the JMF or for the specific application under any circumstances.

If submitting a new JMF, the Contractor shall provide the Department with eight boxes of plant produced HMA before the start of paving. 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 MaineDOT Policies and Procedures for HMA Sampling and Testing). If the results are found to be acceptable, the Contractor will forward their results to the Department’s Lab, which will test the Department’s split of the sample. The results of the two split samples will be compared and shared between the Department and the Contractor. If the HMA meets the requirements for mix design verification, the mixture will be tested for rutting and moisture sensitivity in the Hamburg Wheel Tracker according to AASHTO T324, “Hamburg Wheel-Track Testing of Hot Mix Asphalt (HMA).” The Department will not test the mixture for HWT until the HMA meets the mix design verification requirements.

The sample will be required to meet the applicable requirements of Table 1A below for approval and will be dependent on the test temperature submitted by the Contractor. The minimum PG Binder grade required shall be as specified by the 403 Special Provision. The Contractor may submit a design with a binder grade exceeding the minimum specified to meet the HWT requirements of the 403. If the sample meets the requirements of Table 1A, an approved JMF listing the approved PG Binder Grade to meet the HWT requirements will be forwarded to the Contractor and paving may commence. The Department will have five business days from receipt of the sample at the Central Laboratory to process, test, and report the Hamburg Wheel Tracker sample. 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.

TABLE 1A: HAMBURG WHEEL TRACKER REQUIREMENTS

Specified PG Binder Grade	Test Temperature (°C)	Maximum Rut Depth (mm)	Minimum Number of Passes	Minimum Allowable SIP*
PG 64-28	45	12.5	20,000	15,000
PG 64E-28	48	12.5	20,000	15,000
PG 70E-28 (or greater)	50	12.5	20,000	15,000

* As calculated by the most recently published version of the MaineDOT HWT worksheet, which is available online at <https://www.maine.gov/dot/doing-business/hma-resources>

Should the Contractor choose to change their PG Binder source and/or modify the PG Binder grade after initial approval, the Department will take an additional verification sample and test the HMA to verify compliance with the Hamburg Wheel Tracker Requirements. If this sample fails to meet the criteria in Table 1A, the Contractor will be required cease production and submit a corrective action letter to the Department. HWT approval of the JMF will be suspended until the Department can verify that the submitted sample meets the requirements of Table 1A. Failure to notify the Department of a change in supplier will be treated as a second incident under 106.4.6 QCP Non-compliance.

401.19 Contractor Quality Control - Method A, B, C & D The following language has been added to Section 401.19:

The project specific QCP shall address the PG Binder source and grade, sampling, transport, and testing of Hamburg Wheel Tracker QC samples and what potential steps will be taken if QC samples do not meet the requirements in Table 1A. The project-specific QCP shall also contain a sample Hamburg Wheel Tracker test report for approval. The Contractor shall sample and test HMA Pavement in the Hamburg Wheel Tracker according to AASHTO T324 in accordance with the following minimum frequencies:

TABLE 2A: MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Hamburg Wheel Tracker	1 per 6,000 ton and at least once per Acceptance Lot	AASHTO T 324

If the Contractor is submitting a new JMF the Contractor shall sample the HMA on the first day of production and test the sample in the Hamburg Wheel Tracker according to AASHTO T324. This sample will not count towards the minimum quality control frequency specified in Table 2A.

The Contractor shall submit all Hamburg Wheel Tracker test reports in writing, signed by the appropriate technician and present them to the Department within ten working days of initial sampling, except when otherwise noted in the project specific QCP due to local restrictions. The Contractor shall make the raw Hamburg Wheel Tracker data from QC samples available to the Department upon request. If a QC sample fails to meet the criteria in Table 1A, the Contractor will be required to submit a corrective action letter to the Resident, Materials Engineer, Pavement Quality Manager, and Pavement Quality Engineer by the end of the following working day with the proposed changes to bring the mixture back into compliance. The Department will respond and either accept or reject the Contractor's proposed corrective action by the end of the following working day from when the letter was received.

401.20 & 401.21 Acceptance Method(s) A, B, C & D The following language has been added to Section(s) 401.20 & 401.21

First Day Production HWT Verification Sample for Acceptance The Department will sample the HMA on the first day of production. This sample will be considered a first day of production HWT verification sample and will not count towards the minimum HWT acceptance frequencies specified in Table 3A unless otherwise determined by the Department. This sample may be taken in conjunction with the first mix acceptance sample. The number of boxes required will be as specified in Table 3B.

If the first day of production HWT verification sample fails to meet the criteria in Table 1A or yields an inconclusive result, the Contractor shall cease paving operations and submit a verification sample to the Department. HWT approval of the JMF will be suspended until the Department can verify that the submitted sample meets the requirements of Table 1 and Table 1A.

A first day production sample will not be required for a previously approved JMF that has met HWT requirements listed in Table 1A if the following criteria have been met:

1. A minimum of one passing HWT Department issued acceptance results within the calendar year (Construction Season) of production.
2. A minimum of three consecutive passing HWT Department issued acceptance results within the past year of production (365 days). These results shall be the three most recent Department issued acceptance samples.
3. No changes in the source of the PG Binder and/or modifications to the PG Binder grade from the initial HWT approval have been made.

As part of the QCP, the Contractor shall provide in writing the request to waive the first day production sample and will include the necessary supporting documentation as specified above.

Acceptance Sampling The Department will sample at the HWT acceptance frequencies specified in Table 3A to verify the compliance with the Hamburg Wheel Tracker Requirements. The number of boxes required will be as specified in Table 3B, with two boxes reserved for retesting of inconclusive results. A mix acceptance sample within an acceptance lot will be selected at random by the Department for HWT acceptance sampling. Depending on daily production rates, the first day of production HWT verification sample and the first acceptance sample may be taken on the same day, but shall not be from the same acceptance sample unless otherwise determined by the Department.

If a HWT acceptance sample fails to meet the criteria in Table 1A and fails to exceed an average of 15,000 cycles, the Contractor shall cease paving operations and submit a verification sample to the Department. HWT approval of the JMF will be suspended until the Department can verify that the submitted sample meets the requirements of Table 1 and Table 1A. A pay factor will be determined using Table 4.

If a HWT acceptance sample fails to meet the criteria in Table 1A, but exceeds an average of 15,000 cycles, the Contractor shall cease paving operations and submit a Corrective Action to the Department. A pay factor for the failing sample will be determined using Table 4.

Inconclusive Results If a HWT acceptance sample indicates an “inconclusive result” the Department will immediately retest the sample using the additional retained 2 boxes. Should the second sample also yield an inconclusive result, the Contractor shall cease paving operations and submit a verification sample to the Department. HWT approval of the JMF will be suspended until the Department can verify that the submitted sample meets the requirements of Table 1 and Table 1A.

Informational Sampling At the Resident’s discretion, the Department may take additional informational samples and test the HMA to verify compliance with the Hamburg Wheel Tracker Requirements. If an informational sample fails to meet the criteria in Table 1 or Table 1A, the Contractor will be required to submit a corrective action letter to the Department.

TABLE 3A: MINIMUM HWT ACCEPTANCE FREQUENCIES

Test or Action	Frequency
Hamburg Wheel Tracker	1 per 6,000 ton or at least once per Acceptance Lot

TABLE 3B: MINIMUM NUMBER OF BOXES

Sample Type	Number of Boxes
First Day Production (Taken without Mix Acceptance)	4
First Day Production (Take w/ Mix Acceptance)	8 (4 Additional)
HWT Acceptance Sample	8 (4 Additional)

Cease For ALL occurrences of cease described in the sections above, the Contractor shall submit a corrective action letter to the Resident, Materials Engineer, Pavement Quality Manager, and Pavement Quality Engineer by the end of the work day with the proposed changes to bring the mixture back into compliance. Failure to do so will be treated as a second incident under 106.4.6 QCP Non-compliance. The Department will only allow the continuation of paving operations when it is satisfied that the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production.

401.201 & 401.211 Pay Adjustments Method(s) A, B, C & D The following language has been added to Section(s) 401.201 & 401.211

For items accepted under Method(s) A, B, C & D, if the mix is within the tolerances listed in Table 1A, the Department will pay the contract unit price, otherwise pay adjustments as shown in Table 4 shall be applied to the quantity of mix represented by the test. The average passes to failure will be used to determine the number of passes.

TABLE 4: HWT PAY ADJUSTMENT

Number of Passes	Pay Adjustment
< 20,000	-1.0% for every 1000 passes below target

SPECIAL PROVISION
SECTION 401
HOT MIX ASPHALT PAVEMENT

401 HOT MIX ASPHALT LONGITUDINAL JOINT DENSITY

401.30 Description The Department will measure the pavement density of longitudinal joints constructed between adjoining travel lanes; turn lanes, truck (climbing) lanes, passing lanes, and any other areas considered mainline travelway for conventional density testing will be considered travel lanes for longitudinal joint density testing as noted in Section 403 – Hot Mix Asphalt Pavement. Core samples shall be tested according to AASHTO T-166. The Contractor shall cut 6-inch diameter cores at no additional cost to the Department by the end of the working day following paving. Pre-testing of the acceptance cores will not be allowed. If the Contractor and the Department mutually determine that a core is damaged, the Contractor shall cut new core(s) at the same offset and within 3 ft of the initial sample. The Contractor and the Department will mutually determine if underlying material is adhered to the core and if so will mark the core at the point where sawing is needed. The Department will place the cores in a secure container and the Contractor shall transport the cores to the designated MaineDOT lab. The cores will be saw cut by the Department to remove underlying layers. No recuts are allowed at a test location after the core has been tested.

For vertical longitudinal joints, cores shall be taken directly centered over the construction joint. For notch-wedge longitudinal joints, the cores shall be cut directly over the center of the tapered portion of the wedge.

As part of the project specific QCP, the Contractor shall include details as to methods of construction, rolling and compaction efforts, and action plan to adjust methods or equipment should the Quality level fall below 50 percent within limits. The Contractor shall be required to measure the joint density at randomly selected locations with a minimum frequency of one measurement per 750 linear feet. The Contractor shall have the option to cut calibration/verification cores at a rate not to exceed 1 per day.

If the Quality level for density falls below 50 percent within limits, the Contractor shall cease placement operations and submit a corrective action letter to the Department before proceeding with the Lot or before starting a new Lot. The Department will respond and either accept or reject the Contractor's proposed corrective action. If the Department accepts the corrective action, three stratified verification cores will be taken from the first 1500 foot section of longitudinal joint constructed for the purpose of evaluating the corrective action. These cores will be in addition to any Acceptance cores that may be designated in this area. The results from these cores shall be combined with the cores from the Lot in progress. Should the combined Quality level for density show an improvement, the Department will accept the corrective action and normal Acceptance sampling frequency shall resume. If an improvement has not been made to the combined Quality level for density, the Contractor shall cease production and submit an additional corrective action letter for consideration.

401.31 Acceptance This method utilizes Quality Level Analysis and pay factor specifications as described in Section 106. For Hot Mix Asphalt Pavement designated for acceptance under Quality Assurance provisions, the Department will sample once per subplot on a statistically random basis, test, and evaluate in accordance with the following Acceptance Properties:

The Lot size will be the total length of eligible longitudinal joint(s) for the given HMA layer for the project, or equal Lots of a size agreed upon at the Pre-paving conference. The maximum subplot size shall be 2000 linear feet of longitudinal joint for density and the minimum number of sublots for any Lot shall be five. The Lot will be divided up into sublots of equal length. There shall be a separate Lot for each lift of HMA pavement and Lots shall not be comprised of results from more than one HMA layer. For tracking purposes, the method of testing shall be “C”.

The Department will determine a pay factor using acceptance limits from Table 1.

TABLE 1: LONGITUDNAL JOINT DENSITY ACCEPTANCE LIMITS

PROPERTY	LSL
% TMD (In-Place Density)*	91.0%

* The Theoretical Maximum Density will be determined from the average of the G_{mm} values used to determine the percent compaction of the nearest acceptance cores on either side of the Longitudinal Joint Core from each adjacent mat.

The Department will calculate the Pay Adjustment for Longitudinal Joint Density as follows:

$$\text{PA} = (\text{joint density PF} - 1.0)(Q)(P) \times 0.40$$

Where

- PA = Pay Adjustment
- Q = Quantity of traveled way pavement represented by PF in tons
- P = Contract price per ton
- PF = Pay Factor

If the joint density Pay Factor is less than 0.88, the Pay Adjustment shall be:

$$\text{PA} = (-0.05)(Q)(P)$$

SPECIAL PROVISION

SECTION 403

HOT MIX ASPHALT

Desc. Of Course	Grad Design.	Item Number	Total Thick	No. Of Layers	Comp. Notes
<u>Hogan Road & Ramps - 6" HMA - Full Construction Areas</u>					
<u>Travelway, Auxiliary Lanes & Shoulders (As Indicated)</u>					
Wearing	12.5 mm	403.2081	1 ½"	1	2,5,7,22,23,24,26,42,43,55
Intermediate	12.5 mm	403.2131	2"	1	1,4,7,22,23,24,41,42,43,55
Base	12.5 mm	403.2131	2 ½"	1	1,4,7,23,24,25,41,42,55
<u>3" HMA - Bridge Deck</u>					
<u>Travelway & Shoulders (As Indicated)</u>					
Wearing	12.5 mm	403.2081	1 ½"	1	2,5,7,23,24,25,26,30,42
Base	12.5 mm	403.2131	1 ½"	1	1,4,7,23,24,25,30,42,50
<u>I-95 NB & SB - 2" Mill & 1 ½" HMA Overlay w/ Variable Depth Shim</u>					
<u>Travelway & Shoulders (As Indicated)</u>					
Wearing	12.5 mm	403.2081	1 ½"	1	2,5,7,22,23,24,26,27,42,52
Shim	9.5 mm	403.2111	variable	1/more	1,4,7,20,27,30,42
<u>Reverse Direction Loop & Parking Lot - 4" HMA - Full Construction Areas</u>					
<u>Travelway & Shoulders (As Indicated)</u>					
Wearing	12.5 mm	403.2081	1 ½"	1	2,5,8,23,24,26,42
Base	12.5 mm	403.2131	2 ½"	1	1,4,8,23,42
<u>4" HMA - Temporary Pavement (As Indicated)</u>					
Temporary	12.5 mm	461.131	4"	2	28
<u>Drives, Islands, Sidewalk, Misc. (As Indicated or Directed)</u>					
Wearing	9.5 mm	403.209	2-3"	1/more	3,20,30,32

COMPLEMENTARY NOTES

1. The required PGAB shall be a storage-stable, homogeneous, polymer modified asphalt binder that meets or exceeds **PG 64E-28** grading requirements in AASHTO M 332. All polymer modified asphalt grades utilized on the Project shall be treated with an approved liquid anti-strip. PG binders shall be treated either at the asphalt source terminal with the required dose rate on the delivery documentation, or at the hot mix asphalt plant utilizing a system integrated with the plants controls that will introduce a minimum 0.50 percent anti-strip by weight of asphalt binder used unless a rate is otherwise recommended by the anti-strip manufacturer. The PGAB and anti-strip blend shall meet or exceed the **PG 64E-28** requirements. The Contractor shall provide supporting test data showing the PGAB and anti-strip blend meet the required criteria.
2. The required PGAB shall be a storage-stable, homogeneous, polymer modified asphalt binder that meets or exceeds **PG 76E-28** grading requirements in AASHTO M 332. All polymer modified asphalt grades utilized on the Project shall be treated with an approved liquid anti-strip. PG binders shall be treated either at the asphalt source terminal with the required dose rate on the delivery documentation, or at the hot mix asphalt plant utilizing a system integrated with the plants controls that will introduce a minimum 0.50 percent anti-strip by weight of asphalt binder used unless a rate is otherwise recommended by the anti-strip manufacturer. The PGAB and anti-strip blend shall meet or exceed the **PG 76E-28** requirements. The Contractor shall provide supporting test data showing the PGAB and anti-strip blend meet the required criteria.

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3. The aggregate qualities shall meet the design traffic level of <3 million ESALS for mix placed under this contract. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **65 gyrations**.
4. The aggregate qualities shall meet the design traffic level of 3 to <10 million ESALS for mix placed under this contract. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **65 gyrations**.
5. The aggregate qualities shall meet the design traffic level of >10 million ESALS for mix placed under this contract. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **65 gyrations**.
7. Section 106.6 Acceptance, (1) **Method A** as specified Section 401.20 - Quality Assurance Methods A and C.
8. Section 106.6 Acceptance, (2) **Method B** as specified Section 401.21 - Quality Assurance Methods B and D.
20. The combined aggregate gradation required for this item shall be classified as a 9.5mm Thin Lift Mixture (TLM) mixture, using the Aggregate Gradation Control Points as defined in 703.09.
22. Longitudinal joint density testing shall be applied to the specified HMA layer. See Special Provision 401 – Hot Mix Asphalt Longitudinal Joint Density for project specifics.
23. The mixture shall meet the minimum requirements of Special Provision 401 - HMA Hamburg Wheel Tracker Specification.
24. See Special Provision 401 - HMA with Fine Micro-Deval Requirement for project specifics.
25. A notch wedge apparatus as per section 401.16 shall be required on all joints between travel lanes. Longitudinal Joint Density incentive/disincentives will not apply, however the Department may require cores for informational purposes.
26. See Special Provision 401 - HMA with High Polymer 76E for project specifics. A test strip is required and may be performed in the Reverse Direction Loop area.
27. The use of a Material Transfer Vehicle (MTV) shall be required on this layer. See Special Provision 401 – Material Transfer Vehicle for specifics.
28. See Special Provision 461 - Temporary Pavement for project specifics
30. The incentive/disincentive provisions for density shall not apply. Rollers shall meet the requirements of this special provision. The use of an oscillating steel roller shall be required to compact all mixtures pavements placed on bridge decks.
32. In areas inaccessible to a **10 ton** roller, compaction of the new Hot Mix Asphalt Pavement will be obtained using a minimal roller train consisting of a **3-5 ton** vibratory roller. Areas less than 2 feet wide shall be compacted with a minimum of a **150 pound** plate compactor. An approved release agent is required to ensure the mixture does not adhere to hand tools, rollers, pavers, and truck bodies. The use of petroleum based fuel oils, or asphalt stripping solvents will not be permitted.
41. The entire HMA pavement section (consisting of **2 inches intermediate** and **2 ½ inches base** layers) shall be completed before winter suspension. Any surface or base HMA placed after the seasonal limitations shall be considered temporary and removed and replaced the following construction season. The Department will not be responsible for costs or time related to the placement, removal or replacement of temporary pavement
42. The Contractor shall plan its construction sequencing so that no longitudinal joints fall within the mainline travelway lanes (excluding center turn lanes)

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43. The contractor shall mill a stepped butt joint into the existing pavement at both the beginning and end joints for each pavement layer excluding the bottom base layer. For each layer, the stepped joint shall be cut to the depth and width of the pavement layer being placed and extend 5 feet beyond the immediate underlying layer. The **butt joint** for the overlying layer shall be **completed prior** to placing the adjacent layer. The Resident may extend this length as determined by the condition of the match point. No additional payment will be made for the milling of the butt joints but will instead be considered incidental to associated paving items.
50. The depth of the HMA 403.2131 base layer shall be at least **2 ½ inches for winter suspension**, or as thick as necessary to match the scupper elevation to insure proper drainage during winter suspension. Before paving the HMA 403.2081 surface course, the HMA 403.2131 base layer shall be **milled an average depth of 1 inch** to reestablish the intended **1 ½ inch** layer thickness. Any surface or base HMA placed after the seasonal limitations shall be considered temporary and removed and replaced the following construction season. The Department will not be responsible for costs or time related to the placement, removal or replacement of temporary pavement.
52. A tack coat of a RS-1, Item #409.15 shall be applied along the longitudinal centerline construction joint, on the horizontal surface immediately adjacent to the construction joint, and in a minimum width of one foot. The rate of application shall be approximately 0.050 to 0.075 G/SY. This application shall be in addition to the normal application of tack coats to the construction joint face and horizontal surfaces prior to placing a new lift.
55. The vertical surface of the longitudinal joint between the edge of the existing I-95 HMA and the proposed HMA on ramps shall be completely sealed with hot-applied asphalt sealant material, meeting the requirements of Type 4 or mastic crack seal. Sealant shall be applied to form a complete seal between the existing and proposed HMA and shall extend up the vertical surface to within ½ inch of the top of the HMA base layers (**5.5 inches**). This work shall be considered incidental to the contract pavement items.

Tack Coat

A tack coat of emulsified asphalt, RS-1, RS-1h, CRS-1 or CRS-1h, Item 409.15 shall be applied to any existing pavement at a rate of approximately 0.030 gal/yd², and on milled pavement approximately 0.050 gal/yd² prior to placing a new course. A fog coat of emulsified asphalt shall be applied between shim /base courses and surface course as well as to any bridge membrane prior to the placement of HMA layers at a rate not to exceed 0.030 gal/yd². Tack used will be paid for at the contract unit price for Item 409.15 Bituminous Tack Coat.

SPECIAL PROVISION
SECTION 602
FLOWABLE CONCRETE FILL

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

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
Fine Aggregate	703.01
FlyAsh	701.10
Water Reducing Admixtures	701.04
Accelerating Admixtures	AASHTO M-194 Type “C”

CONSTRUCTION REQUIREMENTS

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 110 psi [760 kPa].

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

Air content of 5 to 15% 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 Department for approval. No flowable concrete fill shall be placed on the project until the mix design is approved by the Department. 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

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 [75 mm x 150 mm] 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 5/8 in [15 mm]. A spread of 9 to 14 in [225-350 mm] is considered flowable.

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

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

Cold Weather Placement The requirements of Standard Specification 502 Structural Concrete, Section 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 [4.40°C]. No housing framework or heating will be required when placed under approved cold weather conditions.

Forms and Containment Berms When necessary to contain flowable concrete fill within a defined area; berms shall be constructed of compacted granular material

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

All flowable concrete fill shall be placed before it has taken its initial set. Flow able 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.

Flow able 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. Flow able 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.

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

Method of Measurement Flow able concrete fill satisfactorily placed and accepted will be measured by the cubic meter, in accordance with the pay limits established, if such limits have been established, 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 expense. In the absence of pay limits, the Resident may use discretion to accept the delivered quantity as the measurement for payment.

Basis of Payment The accepted work done under flowable concrete fill will be paid for at the contract unit price per cubic meter. 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:

Pav Item

602.30 Flowable Concrete Fill

Pav Unit

Cubic Yard

SPECIAL PROVISION
SECTION 607
FENCES
(Chain Link Snow Fence)

607.01 Description The following paragraph is added:

This work consists of furnishing all materials for, and the construction of a chain link snow fence. The chain link snow fence shall be 33 inches tall and made from chain link materials as shown in the Plans and as specified herein.

607.02 Materials The following paragraphs are added:

Posts, rails, and braces shall be manufactured by one of the following methods with the steel conforming to ASTM A1011 or ASTM A1008 and A1011/A1011M with minimum yield strength 50 ksi:

- Furnace butt welded, continuous welded
- Cold rolled and electric resistance welded
- Seamless

The Piping shall conform to the details provided in this Special Provision.

Hardware shall be hot dipped galvanized in accordance with AASHTO M 232 (ASTM A 153) or AASHTO M 298 Class 50 (ASTM B 695 Class 50).

The chain link fabric shall be 9-gauge steel, zinc coated conforming to AASHTO M 181 Type 1 Class D (ASTM A 392), aluminum-coated conforming to AASHTO M181 Type II (ASTM A 491), or 6-gauge aluminum alloy conforming to AASHTO M 181 Type III (ASTM F1183). Chain-link fabric shall be knuckled on top and bottom. Wire ties shall be standard round 9-gauge zinc or aluminum coated steel or 6-gauge aluminum alloy conforming to ASTM F 626. All ties shall be wrapped around chain-link fabric twice (double-pigtailed) at both ends. Space ties at 6" on center to bottom rail and at 12" on center at all posts and other rails. Mechanical or power fastened ties are acceptable.

607.06 Method of Measurement The following paragraph is added:

Chain link snow fence will be measured for payment as one unit, accepted in place and in conformity with the details shown on the Plans or as directed by the Resident.

607.07 Basis of Payment The following paragraph is added:

Chain Link Snow Fence will be paid for at the Contract unit price, complete and accepted in place. Such price will be compensation for furnishing all materials, labor, equipment, coatings, and incidentals to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
607.183 Chain Link Snow Fence 33"	Lump Sum

EARTHWORK TABLES

I-95 EXIT 187 / HOGAN RD DIVERGING DIAMOND INTERCHANGE

WIN: 18595.11

12/22/2025

Note:

All earthwork tables are provided for informational purposes only and shall be verified by the Contractor.



WIN 18595.11
FINAL PSE EARTHWORK SUMMARY TABLE
 I-95 Exit 187 / Hogan Rd Interchange

12/21/2025

EARTHWORK SUMMARY TABLE

Section Desc.	Start Station	End Station	Area (SF)	Depth(FT)	Cut (CY)	Fill (CY)	Gravel (CY)	Grub Fill (CY)	Grub Cut (CY)	Remove Pavement (CY)	Gran Borrow (CY)
Hogan Rd (EB)	100+00.00	124+78.09	-	-	2,517.33	7,334.86	4,349.83	1,078.63	295.99	268.35	8,300.02
Hogan Rd (WB)	200+00.00	225+11.58	-	-	4,072.99	4,015.74	5,472.18	842.23	106.75	108.39	3,757.62
Ramp A	700+00.00	706+84.40	-	-	1,280.56	3,937.42	1,557.66	155.39	90.44	34.17	-
Spur A	600+00.00	603+95.61	-	-	841.89	181.22	882.38	45.27	111.45	0.00	-
Ramp B	801+50.72	822+36.72	-	-	1,972.60	23,948.80	4,372.96	656.12	445.23	446.97	836.32
Spur B	900+00.00	902+06.99	-	-	196.32	5,386.80	581.45	328.02	0.00	57.19	1,020.49
Ramp C	1001+50.00	1008+39.94	-	-	1,268.93	1,436.87	1,559.00	468.32	183.20	25.08	768.69
Spur C	1100+00.00	1101+99.93	-	-	79.24	1,226.35	372.10	175.63	7.90	0.00	3,215.74
Ramp D	401+68.86	412+93.69	-	-	2,398.94	4,740.17	3,520.28	493.52	278.46	237.95	-
Spur D	500+00.00	502+36.55	-	-	260.60	462.99	628.14	166.51	35.49	14.21	-
Haskell Dr	50+20.00	54+90.00	-	-	2,538.94	6.90	1,325.51	0.00	0.00	0.00	-
Reverse Loop	15+14.80	18+11.17	-	-	1,523.43	0.00	944.33	0.00	486.52	0.00	-
Swetts Dr	1+95.21	3+47.07	-	-	693.73	3.66	419.45	0.00	195.22	0.00	-
Swetts Dr Park.	0+15.00	1+46.25	-	-	310.90	13.21	217.88	0.00	210.39	0.00	-
Drives	ALL	ALL	1,232.55	1.50	68.48	-	68.48	-	-	-	-
Small Island	12+17.50	12+51.80	420.54	1.00	15.58	-	15.58	-	-	-	-
Shldr Reconstr.	ALL	ALL	3,971.41	2.50	367.72	-	294.18	-	-	-	-
Maintaninace of Traffic Control			-	-	-	-	-	-	-	-	700.00
Total					20,408.17	52,694.99	26,581.36	4,409.65	2,447.04	1,192.30	18,598.87

Cut =	20,408.17	52,694.99	= Fill
Remove Pavement (In Fill)=	1,192.30	1,192.30	= Remove Pavement (In Fill)
Grub In Fill =	4,409.65	4,409.65	= Grub In Fill
Excavation for LWF =	1,300.00	-	
BMPs =	5,600.00	770.00	= BMPs
Common Excavation =	32,910.12	59,066.94	= Total Fill
		(25,554.09)	= 90% of Cut
		(2,230.00)	= Granular Borrow for Bridge
BMP Cut (Incidental to 615.27) =	(5,600.00)	(700.00)	= Granular Borrow for Bridge
Pay Common Excavation =	27,310.12	30,582.85	= Common Borrow
		(770.00)	= BMP Fill (Incidental to 615.27)
		29,812.85	= Pay Common Borrow



EARTHWORK SUMMARY

ROAD: HOGAN RD (EB)

CALC. BY: KGW

DATE: 10/1/2025

CHECK BY: JBD

DATE: 12/20/2025

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	REMOVE PAVE	GRANULAR BORROW	
TOTAL	2517.33	7334.86	4349.83	1078.63	295.99	268.35	8300.02	CY
100+00.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	CY
100+50.00	80.1	20.5	51.0	0.0	0.0	0.0	0.0	CY
101+00.00	81.3	15.6	52.6	0.0	0.0	0.0	0.0	CY
101+50.00	80.2	22.7	53.9	0.0	0.0	0.0	0.0	CY
102+00.00	79.6	28.5	55.1	0.0	0.0	0.0	0.0	CY
102+50.00	80.6	23.9	55.9	0.0	0.0	0.0	0.0	CY
103+00.00	82.4	38.8	59.1	0.0	1.6	0.0	0.0	CY
103+50.00	85.8	70.7	64.0	0.0	6.4	0.0	0.0	CY
104+00.00	93.3	116.8	73.5	0.0	12.9	0.0	0.0	CY
104+50.00	119.2	170.8	111.6	0.0	17.9	0.0	0.0	CY
105+00.00	133.1	251.0	151.7	10.7	20.0	0.0	0.0	CY
105+50.00	117.2	381.1	172.6	25.8	18.1	0.0	0.0	CY
106+00.00	106.2	460.0	185.2	33.2	15.2	0.0	0.0	CY
106+50.00	102.7	231.7	150.4	18.1	7.3	0.0	0.0	CY
107+00.00	97.9	10.0	127.1	0.0	0.0	0.0	0.0	CY
107+50.00	82.3	61.5	139.7	19.2	12.5	0.0	0.0	CY
108+00.00	82.0	55.3	128.8	36.2	20.3	0.0	0.0	CY
108+50.00	84.2	3.9	115.5	20.7	13.0	0.0	0.0	CY
109+00.00	80.9	8.8	116.7	3.8	9.7	0.0	0.0	CY
109+22.90	0.0	23.2	0.0	0.0	0.0	0.0	0.0	CY
BRIDGE								
114+17.24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	CY
114+50.00	0.0	150.3	0.0	0.0	0.0	24.0	0.0	CY
115+00.00	0.0	159.7	127.1	6.5	0.0	32.8	0.0	CY
115+50.00	0.0	233.4	139.2	6.4	0.0	51.5	0.0	CY
116+00.00	0.6	198.4	143.2	18.7	0.0	52.0	0.0	CY
116+50.00	0.9	158.7	132.0	28.4	0.0	32.9	0.0	CY
117+00.00	0.8	85.0	107.2	12.9	0.0	24.1	0.0	CY
117+50.00	1.9	55.1	119.6	0.0	0.0	27.8	0.0	CY
118+00.00	18.2	106.5	140.3	0.0	29.2	16.2	0.0	CY
118+50.00	16.8	389.4	124.9	32.8	29.2	0.0	291.4	CY
119+00.00	0.0	384.8	109.7	91.2	0.0	0.0	1543.4	CY
119+50.00	0.0	84.1	123.0	150.2	0.0	0.0	2330.0	CY
120+00.00	0.0	52.5	138.7	178.1	0.0	0.0	1950.3	CY
120+50.00	3.5	32.2	138.7	164.7	3.5	0.0	1528.6	CY
121+00.00	26.8	456.9	149.3	94.0	6.5	3.5	656.3	CY
121+50.00	88.4	681.9	173.7	25.0	8.3	3.5	0.0	CY
122+00.00	114.9	249.3	136.8	9.5	11.2	0.0	0.0	CY
122+50.00	107.8	15.2	86.8	45.3	12.0	0.0	0.0	CY
123+00.00	109.8	129.9	87.4	45.3	12.3	0.0	0.0	CY



EARTHWORK SUMMARY

SHEET 2 OF 2
12/20/2025

ROAD: HOGAN RD (EB)

CALC. BY: KGW

DATE: 10/1/2025

CHECK BY: JBD

DATE: 12/20/2025

123+50.00	104.5	377.8	87.3	0.0	11.0	0.0	0.0	CY
124+00.00	101.4	538.2	87.1	0.8	8.5	0.0	0.0	CY
124+50.00	96.1	533.5	86.6	0.8	5.7	0.0	0.0	CY
124+77.41	56.2	267.4	46.9	0.3	3.8	0.0	0.0	CY



EARTHWORK SUMMARY

SHEET 1 OF 2
12/20/2025

ROAD: HOGAN RD (WB)

CALC. BY: KGW

DATE: 10/1/2025

CHECK BY: JBD

DATE: 12/20/2025

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	REMOVE PAVE	GRANULAR BORROW	
TOTAL	4072.99	4015.74	5472.18	842.23	106.75	108.39	3757.62	CY
200+00.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	CY
200+50.00	156.4	0.1	86.3	0.0	0.0	0.0	0.0	CY
201+00.00	141.2	2.1	85.6	0.0	0.0	0.0	0.0	CY
201+50.00	123.8	19.0	85.6	0.0	0.0	0.0	0.0	CY
202+00.00	106.7	40.1	85.6	0.0	0.0	0.0	0.0	CY
202+50.00	96.3	69.1	87.1	0.0	0.0	0.0	0.0	CY
203+00.00	96.9	48.8	90.3	0.0	0.0	0.0	0.0	CY
203+50.00	85.8	2.9	71.5	0.0	0.0	0.0	0.0	CY
204+00.00	76.8	0.0	52.1	0.0	0.0	0.0	0.0	CY
204+50.00	164.1	1.3	141.4	0.0	7.0	0.0	0.0	CY
205+00.00	240.2	28.1	221.9	0.0	14.5	0.0	0.0	CY
205+50.00	236.9	32.2	205.6	0.0	15.4	0.0	0.0	CY
206+00.00	216.1	46.3	184.2	0.0	7.9	0.0	0.0	CY
206+50.00	180.8	61.8	167.4	0.0	0.0	0.0	0.0	CY
207+00.00	167.3	33.1	163.3	0.0	0.0	4.5	0.0	CY
207+50.00	164.5	16.4	160.6	0.0	0.0	6.5	0.0	CY
208+00.00	122.9	9.6	142.0	8.1	9.9	2.0	0.0	CY
208+50.00	40.7	417.7	129.5	20.7	9.9	0.0	0.0	CY
209+00.00	0.0	432.9	153.4	79.8	0.0	0.0	331.3	CY
209+50.00	0.0	130.3	183.2	136.3	0.0	0.0	665.9	CY
210+00.00	0.0	130.3	191.3	132.2	0.0	0.0	613.4	CY
210+24.87	0.0	519.1	0.0	0.0	0.0	0.0	0.0	CY
BRIDGE						0.0	0.0	
215+31.13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	CY
215+50.00	0.0	753.6	0.0	0.0	0.0	0.0	0.0	CY
216+00.00	0.0	252.9	246.9	187.8	0.0	0.0	1008.5	CY
216+50.00	0.0	227.4	208.3	123.7	0.0	0.0	727.9	CY
217+00.00	0.0	60.2	181.4	98.4	0.0	0.0	332.5	CY
217+50.00	8.6	30.2	191.4	55.2	0.0	8.1	78.2	CY
218+00.00	39.8	35.7	194.6	0.0	0.0	12.5	0.0	CY
218+50.00	86.0	43.5	185.9	0.0	0.0	4.4	0.0	CY
219+00.00	113.9	72.5	170.1	0.0	0.0	3.8	0.0	CY
219+50.00	123.6	85.2	155.8	0.0	0.0	9.9	0.0	CY
220+00.00	172.7	139.3	200.3	0.0	0.0	14.0	0.0	CY
220+50.00	215.6	156.2	233.2	0.0	0.0	15.9	0.0	CY
221+00.00	208.3	84.6	210.8	0.0	0.0	13.5	0.0	CY
221+50.00	193.2	26.7	187.9	0.0	0.0	8.4	0.0	CY
222+00.00	129.9	2.6	116.5	0.0	2.3	3.8	0.0	CY
222+50.00	69.4	1.0	56.9	0.0	2.3	1.0	0.0	CY
223+00.00	58.5	0.3	55.2	0.0	0.0	0.0	0.0	CY



EARTHWORK SUMMARY

SHEET 2 OF 2
12/20/2025

ROAD: HOGAN RD (WB)

CALC. BY: KGW

DATE: 10/1/2025

CHECK BY: JBD

DATE: 12/20/2025

223+50.00	49.0	0.3	47.5	0.0	9.4	0.0	0.0	CY
224+00.00	45.2	0.0	40.6	0.0	18.7	0.0	0.0	CY
224+50.00	50.5	0.9	40.5	0.0	9.3	0.0	0.0	CY
225+00.00	70.4	1.5	47.6	0.0	0.0	0.0	0.0	CY
225+11.58	20.8	0.1	13.0	0.0	0.0	0.0	0.0	CY



EARTHWORK SUMMARY

**SHEET 1 OF 1
12/20/2025**

ROAD: RAMP A

CALC. BY: KGW

DATE: 10/1/2025

CHECK BY: JBD

DATE: 12/20/2025

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	REMOVE PAVE
TOTAL	1280.56	3937.42	1557.66	155.39	90.44	34.17

CY

700+00.00	0.0	0.0	0.0	0.0	0.0	0.0
700+50.00	80.4	0.0	101.5	0.0	8.5	0.0
701+00.00	135.4	0.0	102.6	0.0	17.7	0.0
701+50.00	121.2	5.5	108.3	4.5	18.6	0.0
702+00.00	86.9	33.7	118.5	20.6	19.6	0.0
702+50.00	35.2	163.2	122.3	50.3	10.1	12.0
703+00.00	3.0	477.0	119.8	34.2	0.0	17.1
703+50.00	0.0	810.6	119.1	0.0	0.0	5.1
704+00.00	0.0	920.2	119.1	0.0	0.0	0.0
704+50.00	0.0	773.5	119.2	12.0	0.0	0.0
705+00.00	38.6	467.3	120.1	22.9	7.9	0.0
705+50.00	150.5	171.0	128.2	10.9	7.9	0.0
706+00.00	283.9	25.6	139.4	0.0	0.0	0.0
706+50.00	270.3	0.0	103.7	0.0	0.0	0.0
706+82.48	75.2	89.9	35.9	0.0	0.0	0.0

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EARTHWORK SUMMARY

**SHEET 1 OF 1
12/20/2025**

ROAD: SPUR A

CALC. BY: KGW

DATE: 10/1/2015

CHECK BY: JBD

DATE: 12/20/2025

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	
TOTAL	841.89	181.22	882.38	45.27	111.45	CY

600+00.00	0.0	0.0	0.0	0.0	0.0	CY
600+50.00	68.8	0.7	46.9	3.1	5.4	CY
601+00.00	101.3	0.8	95.0	6.1	11.6	CY
601+50.00	96.0	0.9	101.8	5.7	13.5	CY
602+00.00	104.8	3.9	123.5	5.1	17.8	CY
602+50.00	130.6	4.8	140.0	3.9	19.7	CY
603+00.00	130.0	76.1	143.0	1.5	16.2	CY
603+50.00	109.7	83.2	137.4	8.4	14.6	CY
603+94.77	100.5	10.8	94.7	11.4	12.6	CY



EARTHWORK SUMMARY

SHEET 1 OF 2
12/20/2025

ROAD: RAMP B

CALC. BY: KGW

DATE: 11/5/2025

CHECK BY: JBD

DATE: 12/20/2025

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	REMOVE PAVE	GRANULAR BORROW
TOTAL	1972.60	23948.80	4372.96	656.12	445.23	446.97	836.32

CY

801+50.72	0.0	0.0	0.0	0.0	0.0	0.0	0.0
802+00.00	8.9	415.4	82.1	27.2	4.5	0.0	0.0
802+50.00	14.2	385.9	99.8	21.7	4.5	0.0	0.0
803+00.00	5.3	458.2	121.8	25.6	0.0	16.0	0.0
803+50.00	0.0	672.1	127.8	24.8	0.0	31.5	0.0
804+00.00	0.0	874.5	119.3	23.6	0.0	30.7	88.1
804+50.00	0.0	1012.3	116.1	32.8	0.0	30.3	211.6
805+00.00	114.2	1073.9	114.8	38.9	0.0	30.5	273.9
805+50.00	137.9	884.1	108.5	20.4	0.0	22.8	206.5
806+00.00	23.8	767.8	97.6	0.0	0.0	14.9	56.2
806+50.00	0.0	859.6	93.0	0.0	0.0	12.0	0.0
807+00.00	2.7	1583.0	130.9	0.0	0.0	19.8	0.0
807+50.00	5.2	2405.0	168.9	0.0	0.0	30.7	0.0
808+00.00	2.5	2675.7	168.9	0.0	0.0	30.7	0.0
808+50.00	0.1	2692.9	171.7	0.0	0.0	30.0	0.0
809+00.00	0.1	2333.4	178.4	0.0	0.0	29.5	0.0
809+50.00	0.0	1801.9	182.2	5.2	0.0	29.6	0.0
810+00.00	0.0	1207.7	179.1	16.5	0.0	29.2	0.0
810+50.00	3.8	668.0	169.7	23.9	0.0	28.9	0.0
811+00.00	18.0	332.3	157.3	31.4	0.0	22.4	0.0
811+50.00	31.8	174.3	135.6	34.9	1.9	7.8	0.0
812+00.00	56.8	85.8	120.0	26.3	8.9	0.0	0.0
812+50.00	78.5	51.5	100.9	17.8	14.9	0.0	0.0
813+00.00	77.5	32.0	76.2	13.0	16.1	0.0	0.0
813+50.00	70.8	13.9	63.4	8.8	14.3	0.0	0.0
814+00.00	77.2	3.8	56.2	5.0	15.7	0.0	0.0
814+50.00	97.3	0.0	56.7	2.0	21.1	0.0	0.0
815+00.00	102.1	0.0	49.8	0.6	19.9	0.0	0.0
815+50.00	87.3	0.0	40.4	0.0	15.4	0.0	0.0
816+00.00	74.1	0.0	39.6	0.0	14.5	0.0	0.0
816+50.00	68.4	0.0	41.7	1.3	14.7	0.0	0.0
817+00.00	61.1	0.0	43.6	3.9	14.0	0.0	0.0
817+50.00	55.5	0.4	47.1	6.5	14.4	0.0	0.0
818+00.00	54.0	4.0	57.5	9.6	18.2	0.0	0.0
818+50.00	56.9	15.1	69.1	12.5	22.9	0.0	0.0
819+00.00	55.6	27.1	68.8	14.8	23.2	0.0	0.0
819+50.00	53.5	30.6	69.2	16.4	21.9	0.0	0.0
820+00.00	53.1	60.1	85.8	28.6	20.6	0.0	0.0
820+50.00	49.9	82.1	90.2	34.9	18.4	0.0	0.0

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EARTHWORK SUMMARY

SHEET 2 OF 2
12/20/2025

ROAD: **RAMP B**

CALC. BY: **KGW**

DATE: **11/5/2025**

CHECK BY: **JBD**

DATE: **12/20/2025**

821+00.00	51.4	64.6	78.8	26.1	17.5	0.0	0.0	CY
821+50.00	61.9	47.9	73.3	21.4	17.3	0.0	0.0	CY
822+00.00	57.9	38.9	70.7	19.8	17.2	0.0	0.0	CY
822+50.00	46.2	36.7	67.5	18.8	16.8	0.0	0.0	CY
823+00.00	45.5	34.3	62.0	16.5	16.4	0.0	0.0	CY
823+50.00	45.0	26.6	54.7	13.1	16.2	0.0	0.0	CY
824+00.00	44.5	12.9	45.8	8.5	16.1	0.0	0.0	CY
824+50.00	22.2	2.4	20.6	3.0	8.1	0.0	0.0	CY



EARTHWORK SUMMARY

**SHEET 1 OF 1
12/20/2025**

ROAD: SPUR B

CALC. BY: KGW

DATE: 10/1/2025

CHECK BY: JBD

DATE: 12/20/2025

	CUT	FILL	GRAVEL	GRUB	REMOVE PAVE	GRANULAR BORROW
TOTAL	196.32	5386.80	581.45	328.02	57.19	1020.49

CY

900+00.00	0.0	0.0	0.0	0.0	0.0	0.0
900+50.00	0.0	749.0	123.3	140.4	0.0	594.3
901+00.00	98.2	1031.0	181.5	133.3	10.2	347.7
901+50.00	98.2	1452.3	149.9	54.4	21.1	78.4
902+00.00	0.0	1790.6	106.6	0.0	21.3	0.0
902+10.87	0.0	363.9	20.1	0.0	4.6	0.0

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EARTHWORK SUMMARY

**SHEET 1 OF 1
12/19/2025**

ROAD: RAMP C

CALC. BY: KGW DATE: 11/5/2025
CHECK BY: JBD DATE: 12/19/2025

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	REMOVE PAVE	GRANULAR BORROW	
TOTAL	1268.93	1436.87	1559.00	468.32	183.20	25.08	768.69	CY
1001+50.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	CY
1002+00.00	60.4	0.0	41.1	0.6	10.1	0.0	0.0	CY
1002+50.00	118.6	0.0	90.8	2.0	23.4	0.0	0.0	CY
1003+00.00	115.5	54.5	96.4	8.2	24.3	0.0	0.0	CY
1003+50.00	95.7	76.1	84.1	11.5	20.9	0.0	0.0	CY
1004+00.00	77.6	41.8	72.7	12.1	18.1	0.0	0.0	CY
1004+50.00	74.9	32.5	73.1	12.9	17.9	0.0	0.0	CY
1005+00.00	78.1	121.8	75.5	12.3	19.2	0.0	0.0	CY
1005+50.00	141.0	201.4	142.6	14.0	19.8	0.0	0.0	CY
1006+00.00	157.4	118.2	169.4	13.4	15.7	0.0	0.0	CY
1006+50.00	84.9	79.4	131.1	15.6	8.9	0.0	0.0	CY
1007+00.00	43.3	285.4	147.1	25.1	4.1	1.6	0.0	CY
1007+50.00	11.4	301.6	161.3	87.6	0.8	12.5	174.5	CY
1008+00.00	93.8	77.6	162.4	149.1	0.0	10.9	329.6	CY
1008+23.29	70.3	16.4	71.1	65.8	0.0	0.0	155.6	CY
1008+40.72	45.9	30.1	40.4	38.2	0.0	0.0	109.1	CY



EARTHWORK SUMMARY

SHEET 1 OF 1
12/19/2025

ROAD: **SPUR C**

CALC. BY: **KGW**

DATE: **10/1/2025**

CHECK BY: **JBD**

DATE: **12/19/2025**

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	REMOVE PAVE	GRANULAR BORROW	
TOTAL	79.24	1226.35	372.10	175.63	7.90	0.00	3215.74	CY

1100+00.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	CY
1100+50.00	50.7	283.3	92.3	13.5	5.0	0.0	0.0	CY
1101+00.00	24.0	683.6	126.2	22.4	1.9	0.0	0.0	CY
1101+25.00	3.4	246.5	76.5	49.9	0.6	0.0	327.0	CY
1101+50.00	1.1	12.9	77.1	90.0	0.4	0.0	734.2	CY
1102+00.00	0.0	0.0	0.0	0.0	0.0	0.0	1701.3	CY
1102+12.90	0.0	0.0	0.0	0.0	0.0	0.0	453.3	CY



EARTHWORK SUMMARY

SHEET 2 OF 2
12/19/2025

ROAD: **RAMP D**

CALC. BY: **KGW**

DATE: **10/1/2025**

CHECK BY: **JBD**

DATE: **12/19/2025**

418+50.00	82.0	45.9	50.6	3.5	18.4	0.0
419+00.00	70.5	99.4	61.6	6.3	19.3	0.0
419+50.00	57.2	127.4	61.6	10.0	21.0	0.0
420+00.00	45.3	174.2	61.6	14.1	21.6	0.0
420+50.00	42.0	191.1	60.7	15.3	20.8	0.0
421+00.00	44.1	171.8	58.8	14.4	18.5	0.0
421+50.00	46.4	137.1	57.0	12.9	16.1	0.0
422+00.00	50.9	95.6	55.1	9.9	15.3	0.0
422+50.00	56.1	74.3	53.3	5.7	14.9	0.0
423+00.00	29.3	34.9	26.2	1.7	7.3	0.0

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EARTHWORK SUMMARY

SHEET 1 OF 1
12/19/2025

ROAD: **SPUR D**

CALC. BY: **KGW**

DATE: **10/1/2025**

CHECK BY: **JBD**

DATE: **12/19/2025**

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	REMOVE PAVE
TOTAL	260.60	462.99	628.14	166.51	35.49	14.21

CY

500+00.00	0.0	0.0	0.0	0.0	0.0	0.0
500+50.00	147.1	6.7	132.3	0.0	0.0	14.2
501+00.00	85.7	23.0	147.4	29.4	17.7	0.0
501+50.00	7.9	109.6	139.8	57.9	17.7	0.0
502+00.00	6.7	172.3	119.6	46.2	0.0	0.0
502+50.00	13.2	151.3	89.0	33.0	0.0	0.0

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EARTHWORK SUMMARY

**SHEET 1 OF 1
12/22/2025**

ROAD: HASKELL DR

CALC. BY: KGW DATE: 8/24/2023
CHECK BY: JBD DATE: 8/21/2025

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	MUCK
TOTAL	2538.94	6.90	1325.51	0.00	0.00	0.00

CY

50+20.00	0.0	0.0	0.0	0.0	0.0	0.0
50+25.00	0.0	0.0	0.0	0.0	0.0	0.0
50+50.00	272.4	0.0	117.9	0.0	0.0	0.0
50+75.00	331.6	0.0	73.4	0.0	0.0	0.0
51+00.00	314.8	0.0	68.6	0.0	0.0	0.0
51+25.00	249.7	0.0	68.6	0.0	0.0	0.0
51+50.00	182.6	0.0	68.6	0.0	0.0	0.0
51+75.00	120.7	0.0	68.6	0.0	0.0	0.0
52+00.00	70.1	0.0	68.6	0.0	0.0	0.0
52+25.00	33.2	0.1	68.6	0.0	0.0	0.0
52+50.00	11.7	1.3	68.6	0.0	0.0	0.0
52+75.00	9.1	3.4	68.6	0.0	0.0	0.0
53+00.00	22.3	2.1	68.6	0.0	0.0	0.0
53+25.00	40.2	0.0	68.6	0.0	0.0	0.0
53+50.00	52.7	0.0	68.6	0.0	0.0	0.0
53+75.00	72.5	0.0	68.6	0.0	0.0	0.0
54+00.00	112.0	0.0	68.6	0.0	0.0	0.0
54+25.00	158.5	0.0	68.6	0.0	0.0	0.0
54+50.00	188.9	0.0	68.6	0.0	0.0	0.0
54+75.00	184.4	0.0	62.4	0.0	0.0	0.0
55+00.00	111.5	0.0	43.2	0.0	0.0	0.0

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EARTHWORK SUMMARY

**SHEET 1 OF 1
12/20/2025**

ROAD: REVERSE LOOP

CALC. BY: BRT

DATE: 4/4/2025

CHECK BY: JBD

DATE: 12/20/2025

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	REMOVE PAVE
TOTAL	1523.43	0.00	944.33	0.00	486.52	0.00

CY

15+14.80	0.0	0.0	0.0	0.0	0.0	0.0
15+25.00	95.9	0.0	70.6	0.0	16.1	0.0
15+50.00	215.1	0.0	131.6	0.0	69.4	0.0
15+75.00	160.9	0.0	101.7	0.0	56.6	0.0
16+00.00	131.4	0.0	93.6	0.0	52.5	0.0
16+25.00	104.9	0.0	82.3	0.0	45.5	0.0
16+50.00	81.2	0.0	71.4	0.0	38.6	0.0
16+75.00	98.2	0.0	70.3	0.0	39.5	0.0
17+00.00	111.5	0.0	63.7	0.0	37.5	0.0
17+25.00	111.6	0.0	54.6	0.0	32.9	0.0
17+50.00	120.3	0.0	50.3	0.0	30.6	0.0
17+75.00	124.5	0.0	49.0	0.0	30.1	0.0
18+00.00	110.4	0.0	58.3	0.0	30.5	0.0
18+11.17	57.5	0.0	47.0	0.0	6.8	0.0

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EARTHWORK SUMMARY

**SHEET 1 OF 1
12/20/2025**

ROAD: SWETTS DR

CALC. BY: BRT

DATE: 9/18/2505

CHECK BY: JBD

DATE: 12/20/2025

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	MUCK
TOTAL	693.73	3.66	419.45	0.00	195.22	0.00

CY

1+95.21	0.0	0.0	0.0	0.0	0.0	0.0
2+00.00	12.6	0.1	9.3	0.0	0.0	0.0
2+25.00	69.3	1.9	41.2	0.0	0.0	0.0
2+50.00	95.8	1.6	52.3	0.0	17.5	0.0
2+75.00	104.9	0.0	64.5	0.0	35.3	0.0
3+00.00	111.0	0.0	72.2	0.0	40.4	0.0
3+25.00	148.7	0.1	84.4	0.0	48.2	0.0
3+47.07	151.5	0.0	95.6	0.0	53.9	0.0

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EARTHWORK SUMMARY

**SHEET 1 OF 1
12/20/2025**

ROAD: SWETTS DR PARKING

CALC. BY: BRT

DATE: 9/17/2025

CHECK BY: JBD

DATE: 12/20/2025

	CUT	FILL	GRAVEL	GRUB	GRUB CUT	REMOVE PAVE
TOTAL	310.90	13.21	217.88	0.00	210.39	0.00

CY

20+15.00	0.0	0.0	0.0	0.0	0.0	0.0
20+50.00	89.9	1.0	70.3	0.0	56.4	0.0
21+00.00	132.3	1.9	86.1	0.0	89.3	0.0
21+46.25	88.8	10.2	61.4	0.0	64.7	0.0

CY

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EARTHWORK SUMMARY

COMMON EXCAVATION FOR ESTIMATE

COMMON EXCAVATION (FROM MODEL OR PLANS)	20,339	
DRIVES	69	
BMP (Incidental to 615.27)	5,600	
EXCAVATION FOR UL-FGA	1,300	
REMOVE PAVEMENT (IN FILL)	1,192	
GRUBBING IN FILL	4,410	
TOTAL COMMON EXCAVATION		32,910

FILL FOR BORROW CALCULATIONS

COMMON FILL (FROM MODEL OR PLANS)	52,695	
DRIVES	0	
BMP (Incidental to 615.27)	770	
REMOVE PAVEMENT (IN FILL)	1,192	
GRUBBING IN FILL	4,410	
TOTAL FILL		59,067

AVAILABLE COMMON EXCAVATION FOR BORROW CALCULATIONS

ALL DEDUCTIONS:		
GRUBBING IN CUT	2,447	
GRUBBING IN FILL	4,410	
TOTAL DEDUCTIONS		6,857
TOTAL AVAILABLE COMMON EXCAVATION (-) TOTAL DEDUCTIONS	26,053	
TOTAL AVAILABLE STRUCTURAL EXCAVATION	2,340	
TOTAL AVAILABLE NON-ROCK EXCAVATION		28,393

COMPUTATION OF WASTE STORAGE & WASTE MATERIAL

TOTAL AVAILABLE WASTE STORAGE AREA (FROM CROSS SECTIONS)	0	
GRUBBING IN CUT	2,447	
GRUBBING IN FILL	4,410	
TOTAL WASTE MATERIAL	6,857	
TOTAL WASTE MATERIAL TO BE UTILIZED	0	
TOTAL WASTE MATERIAL TO BE WASTED	6,857	

COMPUTATION FOR GRANULAR BORROW FOR ESTIMATE

GRANULAR BORROW FOR TRAFFIC MAINTAINANCE CONTROL	700	
GRANULAR BORROW FOR BRIDGE	2,230	
GRANULAR BORROW FOR UL-FGA	9,600	
GRANULAR BORROW FOR PRELOAD	8,300	
TOTAL GRANULAR BORROW	20,830	

COMPUTATION FOR LIGHT WEIGHT FILL FOR ESTIMATE

TOTAL LIGHT WEIGHT FILL	19,600	
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COMPUTATION FOR SURPLUS MATERIAL OR COMMON BORROW FOR ESTIMATE

TOTAL AVAILABLE NON-ROCK EXCAVATION	28,393	x 0.90	=	25,554
TOTAL AVAILABLE ROCK EXCAVATION	0	x 1.30	=	0
TOTAL AVAILABLE STRUCTURAL ROCK EXCAVATION	0	x 1.30	=	0
TOTAL WASTE MATERIAL TO BE UTILIZED	0	x 1.00	=	0
TOTAL AVAILABLE EXCAVATION				25,554
BORROW NEEDED = TOTAL FILL (-) TOTAL AVAILABLE EXCAVATION				33,513

GRANULAR BORROW FOR BRIDGE	2,230	
GRANULAR BORROW TO MAINTAIN TRAFFIC	700	
BMP FILL (Incidental to 615.27)	770	
BORROW NEEDED (-) REQUIRED GRANULAR BORROW WITHIN FILL	29,813	
COMMON BORROW	29,813	



PROJ. MANAGER	L. ROWE	BY	DATE
DESIGN-DETAILED	ECF	JRD	2/22/2025
CHECKED-REVIEWED	ECF	AG	2/22/2025
DESIGN-DETAILED2			
DESIGN-DETAILED3			
REVISIONS 1	ADDENDUM NO. 1		
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

BANGOR
I-95 EXIT 187
EARTHWORK SCHEDULE