CONTRACT DOCUMENTS

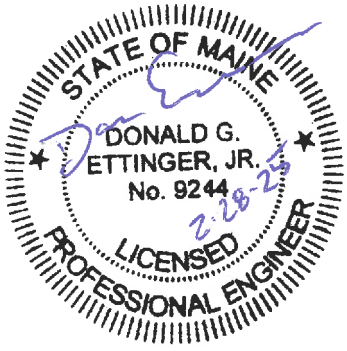
FOR

MERROW ROAD RECONSTRUCTION PROJECT

AUBURN, MAINE

BID NUMBER: 2025-020

March 3, 2025



Kris Bennett P.E., *City Engineer*
Cy Wilkinson, *Project Manager*

City of Auburn, Maine
Engineering Department
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

March 3, 2025

Dear Bidder:

The City of Auburn is accepting written proposals for the Engineering Department's **Merrow Road Reconstruction Project.** The City reserves the right to accept or reject all proposals in whole or in part and waive any informality the City may determine necessary. The City also reserves to itself the exclusive right to accept any proposal when it is deemed by the City to be in its best interest. The City of Auburn is governed by Title 1 M.R.S.A. § 401-410, or the Freedom of Information Act, which considers bid specifications public documents. In awarding any proposal, the City may consider, but not be limited to, any of the following factors: Bidder qualifications, price, experience, financial standing with the City, warranties, references, bonding, delivery date, and service of Bidder. Vendors/Contractors shall be current on all amounts due to the City of Auburn prior to the City entering into any contract agreement. All proposals must include FOB to Auburn, Maine, unless otherwise specified.

Proposals will not receive consideration unless submitted in accordance with the following instructions to bidders. Please mark **sealed** envelopes plainly: **"Merrow Road Reconstruction Project" – Bid Number 2025-020.**

Bid packages will be available beginning on Monday, March 3, 2025. Documents can be obtained from the City of Auburn's website: www.auburnmaine.gov/business/bid-notices. Questions regarding this Request for Bids should be directed to Kris Bennett, City Engineer, at kbennett@auburnmaine.gov by Friday, March 14th, at 4:00 p.m. A mandatory pre-bid will be held on **Tuesday, March 11, 2025, at 2:00 p.m., in the Community Room, Auburn City Hall.**

Please submit your proposal to the City of Auburn by 2:00 p.m. **Thursday, March 20, 2025.** Proposals must be delivered to **Purchasing, 60 Court Street, Auburn, Maine 04210,** on or before the date and time appointed. No proposals will be accepted after the time and date listed above. Proposals will be opened at 2:00 p.m. on that date in Room 206 (Community Room), Auburn City Hall.

Sincerely,

Purchasing, City of Auburn

TABLE OF CONTENTS

CONDITIONS AND INSTRUCTIONS TO BIDDERS

1. Bidders shall use the enclosed bid form for quotations. Whenever, in bid forms, an article is defined by using a trade name or catalog number, the term "or approved equal", if not inserted, shall be implied.
2. Submit a separate unit price for each item unless otherwise specified in the bid request. Award will be made on a basis of each item, or as a group, whichever is in the best interest of the City. Prices stated are to be "delivered to destination".
3. Bid proposals must be completed in full, in ink and must be signed by firm official. Bid proposal **must be notarized** prior to bid being sealed and will be disqualified if not notarized. Bids may be withdrawn prior to the time set for the official opening.
4. Bids will be opened publicly. Bidders or representatives may be present at bid opening.
5. Awards will be made to the lowest responsible bidder, considering the quality of the materials, date of delivery, cost which meets specification and is in the best interest to the City of Auburn.
6. All transportation charges, including expense for freight, transfer express, mail, etc. shall be prepaid and be at the expense of the vendor unless otherwise specified in the bid.
7. The terms and cash discounts shall be specified. Time, in connection with discount offered, will be computed from date of delivery at destination after final inspection and acceptance or from date of correct invoice, whichever is later.
8. The City is exempt from payment of Federal Excise Taxes on the articles not for resale, Federal Transportation Tax on all shipments and Maine Sales Tax and Use Taxes. Please quote less these taxes. Upon application, exemption certificate will be furnished with the Purchase Order when required.
9. No contract may be assigned without the written consent of the Purchasing Director or his designate. The contract shall not be considered valid until a purchase order has been issued to the successful bidder.
10. Please state "Merrow Road Reconstruction Project – Bid # 2025-020", on submitted, sealed envelope.
11. The City of Auburn reserves the right to waive any formality and technicality in bids whichever is deemed best for the interest of the City of Auburn.
12. All work must be completed from 7:00 AM to 7:00 PM. The completion date for this project is December 5, 2025. Liquidated damages of $500/calendar day will be assessed on uncompleted work.
13. Auburn Water and Sewerage District (AWSD) utilities have been included under Bid Alternate #1 of this project. If accepted, the Contractor shall be responsible for lowering and raising their respective utilities.
14. Unitil will be responsible for lowering and raising their respective shutoffs.
15. See Supplemental Specification 105, Limitations of Operations, regarding the timeline for the large culvert work.

GENERAL CONDITIONS

1. Equal Employment Opportunity

The City of Auburn is an Equal Opportunity Employer and shall not discriminate against an applicant for employment, and employee or a citizen because of race, color, sex, marital status, physical and/or mental handicap, religion, age, ancestry or natural origin, unless based upon a bona-fide occupation qualification. Vendors and contractor or their agents doing business with the City shall not violate the above clause or the Civil Rights Acts of 1964. Violations by vendors shall be reviewed on a case-by-case basis and may mean an automatic breach of contract or service to the City of Auburn.

2. Save Harmless

The Bidder agrees to protect and save harmless the owner from all costs, expenses or damages that may arise out of alleged infringement of patents of materials used.

3. Subcontracting

The Bidder shall not subcontract any part of the work or materials or assign any monies due it without first obtaining the written consent of the municipality. Neither party shall assign or transfer its interest in the contract without the written consent of the other party.

4. Warranty

The Bidder warrants that all work will be of good quality and free from faults and defects, and in conformance with the specifications. All work not so conforming to these standards may be considered defective. The Bidder agrees to be responsible for the acts and omissions of all its employees and all subcontractors, their agents and employees, and all other persons performing any of the work under a contract with the Bidder.

5. Bonds, Retainage and Payments

A bid bond shall be submitted with appropriate bid forms in the amount of 5% of the total contract value. Also, payment and performance bonds will be required from the contractor who is awarded this contract. Retainage in the amount of 10% will be held from each progress payment and shall be released at the discretion of the Project Engineer. Payments shall be made by the City to the Contractor 30 days after receipt of the request for payment.

BID PROPOSAL FORM

Due: Thursday, March 20, 2025

To: Purchasing, City of Auburn
60 Court Street
Auburn, ME 04210

The undersigned individual/firm/business guarantees this price for Thirty days (30) from the bid due date. The undersigned submits this proposal without collusion with any other person, individual, or firm or agency. The undersigned ensures the authority to act on behalf of the corporation, partnership or individual they represent; and has read and agreed to all the terms, requests, or conditions written herein by the City of Auburn, Maine. By signing this bid form, the firm listed below hereby affirms that its bid meets the minimum specifications and standards as listed above.

Signature _____Name (print) _____

Title_____Company_____

Address_____

Telephone No._____Fax No. _____

Email Address:_____

STATE OF MAINE
_____, SS. Date: _____

Personally appeared and acknowledged the foregoing instrument to be his/her free act and deed in his/her capacity and the free act and deed of said company.

Notary Public_____

Print Name_____
Commission Expires_____

Addendum Acknowledged:
#_____ Date_____
#_____ Date_____
#_____ Date_____

City of Auburn

Merrow Road Reconstruction Project - Bid Form

BASE BID – MERROW ROAD – ROADWAY RECONSTRUCTION					
ITEM NO.	DESCRIPTION	UNIT	QNTY	UNIT COST	TOTAL COST
201.11	CLEARING	AC	0.51		
201.23	REMOVING SINGLE TREE TOP ONLY	EA	6		
201.24	REMOVING STUMP	EA	7		
203.20	COMMON EXCAVATION	CY	17500		
203.21	ROCK EXCAVATION	CY	1000		
203.25	GRANULAR BORROW	CY	10		
203.35	CRUSHED STONE ¾-INCH	CY	2		
206.07	STRUCTURAL ROCK EXCAVATION – DRAINAGE & MINOR STRUCTURES	CY	175		
304.10	AGGREGATE SUBBASE COURSE - GRAVEL	T	9600		
304.14	AGGREGATE BASE COURSE - TYPE A	T	1600		
403.208	HOT MIX ASPHALT, 12.5 MM NOMINAL MAXIMUM SIZE	T	2000		
403.209	HOT MIX ASPHALT, 9.5 MM NOMINAL MAXIMUM SIZE (SIDEWALKS, DRIVES, ISLANDS & INCIDENTALS)	T	380		
403.213	HOT MIX ASPHALT, 12.5 MM NOMINAL MAXIMUM SIZE (BASE AND INTERMEDIATE BASE COURSE)	T	3785		
409.15	BITUMINOUS TACK COAT, APPLIED	G	1200		
534.71	PRECAST CONCRETE BOX CULVERT	LS	1		
603.159	12 INCH CULVERT PIPE OPTION III	LF	61		
603.16	15 INCH CULVERT PIPE OPTION I	LF	334		
603.169	15 INCH CULVERT PIPE OPTION III	LF	66		
603.179	18 INCH CULVERT PIPE OPTION III	LF	383		
603.19	24 INCH CULVERT PIPE OPTION I	LF	214		
603.199	24 INCH CULVERT PIPE OPTION III	LF	36		
604.09	CATCH BASIN TYPE B1 (WITH SOLID COVER)	EA	2		
604.092	CATCH BASIN TYPE B1-C	EA	8		
604.164	REBUILDING CATCH BASIN	EA	1		
604.18	ADJUSTING MANHOLE OR CATCH BASIN TO GRADE	EA	1		
604.243	CATCH BASIN TYPE F3-C	EA	1		
604.245	CATCH BASIN TYPE F4-C	EA	1		
604.247	CATCH BASIN TYPE F5-C	EA	1		
604.262	CATCH BASIN TYPE B5-C	EA	1		
605.06	8 INCH UNDERDRAIN TYPE B	LF	360		
605.09	6 INCH UNDERDRAIN TYPE B	LF	7256		

ITEM NO.	DESCRIPTION	UNIT	QNTY	UNIT COST	TOTAL COST
605.10	6 INCH UNDERDRAIN OUTLET	LF	230		
605.11	12 INCH UNDERDRAIN TYPE C	LF	944		
606.1301	31" W-BEAM GUARDRAIL – MID-WAY SPLICE-SINGLE FACED	LF	160		
606.1303	31” W-BEAM GUARDRAIL – MID -WAY SPLICE - 15’ RADIUS AND LESS	LF	50		
606.1304	31” W-BEAM GUARDRAIL – MID -WAY SPLICE - OVER 15’ RADIUS	LF	37.50		
606.1305	31" W-BEAM GUARDRAIL – MID-WAY SPLICE - FLARED TERMINAL	EA	1		
606.259	ANCHORAGE ASSEMBLY	EA	2		
606.265	TERMINAL END - SINGLE RAIL – GALVANIZED STEEL	EA	3		
606.353	REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	EA	8		
606.356	UNDERDRAIN DELINEATOR POST	EA	13		
606.47	SINGLE WOOD POST	EA	15		
606.51	MULTIPLE MAILBOX SUPPORT	EA	6		
607.24	REMOVE AND RESET FENCE	LF	45		
608.08	REINFORCED CONCRETE SIDEWALK	SY	7		
609.11	VERTICAL CURB TYPE 1	LF	10		
609.21	CONCRETE SLIPFORM CURB	LF	4600		
609.22	CONCRETE SLIPFORM CURB TERMINAL	LF	292		
610.08	PLAIN RIPRAP	CY	175		
610.18	STONE DITCH PROTECTION	CY	412		
613.319	EROSION CONTROL BLANKET	SY	1970		
615.08	LOAM, SEED, AND MULCH	SY	18000		
620.58	EROSION CONTROL GEOTEXTILE	SY	1900		
627.733	4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	LF	20800		
627.75	WHITE OR YELLOW PAVEMENT & CURB MARKING	SF	336		
631.32	CULVERT CLEANER (INCLUDING OPERATORS)	HR	8		
634.72	RELOCATE ORNAMENTAL LIGHTING	EA	2		
645.290	REMOVE AND RESET EXISTING SIGNAGE	SF	148		
645.292	REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGNS TYPE II	SF	95		
652.38	FLAGGERS	HR	3000		
652.39	WORK ZONE TRAFFIC CONTROL	LS	1		
656.75	TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LS	1		
658.20	ACRYLIC LATEX COLOR FINISH	SY	57		
659.10	MOBILIZATION	LS	1		
672.11	REMOVE AND RESET CONCRETE BLOCK RETAINING WALL	SF	80		
801.141	4” PVC SANITARY SEWER (SDR-35)	LF	10		

ITEM NO.	DESCRIPTION	UNIT	QNTY	UNIT COST	TOTAL COST
801.16	6” PVC SANITARY SEWER (SDR-35)	LF	10		
801.4715	STEEL BOLLARD, REMOVE AND RESET	EA	1		
TOTAL AMOUNT OF BID WRITTEN AND IN NUMBERS BASED ON ESTIMATE OF QUANTITIES					
(Written)					

BID ALTERNATE #1 – MERROW ROAD – UTILITY ADJUSTMENTS					
ITEM NO.	DESCRIPTION	UNIT	QNTY	UNIT COST	TOTAL COST
830.21	ADJUST CURB STOPS TO GRADE	EA	7		
830.22	ADJUST WATER VALVES TO GRADE	EA	6		
830.23	ADJUST SEWER MANHOLES TO GRADE	EA	8		
TOTAL AMOUNT OF BID WRITTEN AND IN NUMBERS BASED ON ESTIMATE OF QUANTITIES					
(Written)					

Company Name: _____
Signed by: _____
Title: _____
Print Name: _____
Address: _____
Tel. # _____Fax # _____
Date: _____

Individual Bid Forms

TOTAL AMOUNT OF PROPOSAL, WRITTEN AND IN FIGURES BASED ON ESTIMATE OF QUANTITIES (BASE BID ONLY = TOTAL AMOUNT):

_____

_____
(Bid Amount in Writing)

$ _____

_____ _____

Signature Date

TOTAL AMOUNT OF PROPOSAL, WRITTEN AND IN FIGURES BASED ON ESTIMATE OF QUANTITIES (BID ALTERNATE #1 ONLY = TOTAL AMOUNT):

_____

_____
(Bid Amount in Writing)

$ _____

_____ _____

Signature Date

Total Bid Form

TOTAL AMOUNT OF PROPOSAL, WRITTEN AND IN FIGURES BASED ON ESTIMATE OF QUANTITIES (BASE BID + BID ALTERNATE #1 = TOTAL AMOUNT):

_____

_____
(Bid Amount in Writing)

$ _____

_____ _____

Signature Date

BASIS OF AWARD WILL BE BASED UPON THE BASE BID OR ANY COMBINATION OF BASE BID AND ALTERNATE (#1). WHICHEVER IS IN THE BEST INTEREST OF THE CITY.

BID BOND

KNOW ALL BY THESE PRESENTS, that we, the undersigned, _____as Principal, and _____ as Surety, are hereby held and firmly bound unto _____as OWNER in the penal sum of _____for payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____day of _____, 2025.

The Condition of the above obligation is such that whereas the principal has submitted to _____a certain BID,

attached hereto and hereby made a part hereof to enter into a contract in writing, for the _____

NOW, THEREFORE,

(a) If said BID shall be rejected, or

(b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for all and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____ (L.S)
Principal

Surety

By: _____
IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

SAMPLE AGREEMENT

THIS AGREEMENT is made this ## day of Month Year, by and between the CITY OF AUBURN, a municipal corporation existing under the laws of the State of Maine and located in the County of Androscoggin, State of Maine (hereinafter "CITY"), Company Name, Address, EIN, (hereinafter "CONTRACTOR"),

WITNESSETH:
In consideration of the mutual covenants and conditions contained herein, the CITY and the CONTRACTOR agree as follows:

SPECIFICATIONS:

1. The CONTRACTOR shall furnish all of the material and perform all of the work shown on the drawings and described in the specifications entitled: Bid Number: XXXX-XXX Bid Title, which are attached hereto and made a part hereof, and the CONTRACTOR covenants that it shall do everything required by this Agreement, the Special Provisions of the Agreement, the Invitation to Bid and the Specifications in return for payment as provided herein.

COMPLETION DATE:

2. The work to be performed under this Agreement shall be commenced by Month day, year and fully completed on or before Month day, year.

CONTRACT PRICE:

3. The CITY shall pay the CONTRACTOR for the performance of the Agreement the sum of $XXX

PERFORMANCE BOND:

4. If required by the City, the CONTRACTOR shall furnish to the CITY at the time of the execution of this Agreement a performance bond and a labor and material payment bond each in the amount of $Dollar amount or N/A (whichever applies) executed by a surety company satisfactory to the CITY, guaranteeing the performance and payment by the CONTRACTOR.
❑ Yes, Required (Initials: ____) ❑ No, Waived (Initials ___)

GUARANTEE:

5.The CONTRACTOR shall guarantee his work against any defects in workmanship and materials for a period of one year from the date of the CITY’s written acceptance of the project.

PERMITS AND LICENSES:

6. Permits and licenses necessary for the prosecution of the work shall be secured and paid by the CONTRACTOR.

CITY'S RIGHT TO TERMINATE CONTRACT:

7. If the CONTRACTOR should be adjudged a bankrupt, or if it should make a general assignment for the benefit of creditors, or if a receiver should be appointed on account of its insolvency, or if it should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if it should fail to make prompt payment to subcontractors or for material or labor, or persistently disregard laws, and ordinances, or otherwise be guilty of a substantial violation of any provision of the Agreement, then the CITY when sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the CONTRACTOR, and his surety, seven (7) days written notice, terminate the employment of the CONTRACTOR and take possession of the premises and of all materials, tools and appliances thereon and finish the work by whatever method it may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the Agreement price shall exceed the expense of the finishing the work, including compensation for additional architectural, managerial and administrative services, such excess shall be paid to the CONTRACTOR. If such expense shall exceed such unpaid balance, the CONTRACTOR shall pay the difference to the CITY.

CONTRACTOR'S LIABILITY INSURANCE:

8. The CONTRACTOR shall not commence work under this Agreement until he has obtained all insurance required under this paragraph and such insurance has been approved by the CITY, nor shall the CONTRACTOR allow any subcontractor to commence work on his subcontract until all similar insurance required of subcontractor has been so obtained and approved. It is a requirement that the CITY be named as an Additional Insured on the General Liability and Automobile Liability policies.

Commercial General Liability to include products and completed operations, and blanket contractual. The limits of liability shall be as follows:

Bodily Injury and Property Damage	$1,000,000
Personal Injury and Advertising Injury	$1,000,000
Per Project Aggregate	$1,000,000
General Aggregate	$2,000,000
Products and Completed Operations Aggregate	$2,000,000
Medical Payments	$10,000

(b) Business Automobile Liability

The CONTRACTOR shall maintain and cause all sub-contractors and lower tier contractors to maintain business automobile liability insurance covering all owned non-owned, leased, rented or hired automobiles (symbol 1). The limits of liability shall be as follows:

Bodily Injury and Property Damage	$1,000,000

Automobile physical damage coverage shall be at the option of the CONTRACTOR, all sub-contractors and lower tier contractors. The CITY shall not be liable for physical loss or damage to any owned, non-owned, leased, rented or hired automobile.

Workers' Compensation Insurance

The CONTRACTOR shall maintain and cause all sub-contractors and lower tier contractor's to maintain Workers' Compensation and Employers Liability in accordance with the laws and regulations of the State of Maine. The limits of liability provided shall be as follows:

Coverage A:	Statutory
Coverage B:	$100,000/$500,000/$100,000

Professional Liability

If the CONTRACTOR is an Architect, Engineer or Surveyor, they shall maintain a policy of insurance to pay on their behalf whatever amounts that may become legally required to pay on account of an error, omission or negligent act.

Limits of Liability shall be as follows:

$1,000,000 per occurrence and in the aggregate site specific.

It is a requirement that this policy be maintained for a period of three (3) years following completion of the project.

Certificates of Insurance of the types and in the amounts required shall be delivered to the CITY prior to the commencement of any work by the CONTRACTOR, subcontractor or lower tier contractor or any person or entity working at the direction or under control of the CONTRACTOR. The CONTRACTOR shall assume the obligation and responsibility to confirm insurance coverage for all sub-contractors or lower tier contractors who will participate in the project.

The Certificate of Insurance and the policies of insurance shall include a sixty (60) day notice to the CITY of cancellation, non-renewal or material change in coverage or form.

The CONTRACTOR and his surety shall indemnify and save harmless the CITY, his officers and employees from all suits, actions or claims of any character brought because of any injuries or damage received or sustained by any person, persons or property on account of the operations of the said CONTRACTOR; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in construction of the work; or because of any act or omission, neglect, or misconduct of said CONTRACTOR; or because of any claims or amounts recovered from any infringements or patent trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act" or of any other law, ordinance, order or decree; and so much of the money due to the said CONTRACTOR under and by virtue of his/her contract as shall be considered necessary by the CITY for such purpose, may be retained; or in case no money is due, his surety may be held until such suit or suits, action or actions, claim or claims, for injuries or damages as aforesaid shall have been settled and suitable evidence to that effect furnished to the CITY.

Waiver of Subrogation

Payment of any claim or suit including any expenses incurred in connection therewith by the CITY, or any insurance company on behalf of the CITY shall not constitute a waiver of subrogation against the CONTRACTOR, sub-contractors or any lower tier contractor in the event that such claim or suit was caused by

or contributed to as a result of the negligent acts of the CONTRACTOR, any sub-contractors or lower tier contractors.

Construction Agreement

The CONTRACTOR shall and does hereby agree to indemnify, save harmless and defend the CITY from the payment of any sum or sums of money to any person whomsoever on account of claims or suits growing out of injuries to persons, including death, or damages to property, caused by the CONTRACTOR, his employees, agents or sub-contractors or in any way attributable to the performance and execution of the work herein contracted for, including (but without limiting the generality of the foregoing), all claims for service, labor performed, materials furnished, provisions and suppliers, injuries to persons or damage to property, liens, garnishments, attachments, claims, suits, costs, attorney's fees, costs of investigation and defense. It is the intention of this paragraph to hold the CONTRACTOR responsible for the payment of any and all claims, suits, or liens, of any nature character in any way attributable to or asserted against the CITY, or the CITY and the CONTRACTOR, which the City may be required to pay. In the event the liability of the CONTRACTOR shall arise by reason of the sole negligence of the CITY and/or the sole negligence of the CITY's agents, servants or employees, then and only then, the CONTRACTOR shall not be liable under the provisions of this paragraph.

DAMAGES:

9.The CONTRACTOR shall defend, indemnify and save harmless the CITY and all persons acting for or in behalf of it against all claims for injuries (including death), loss or damage, arising out of the performance out this contract.

LIENS:

10.Neither the final payment nor any part of the retained percentage shall become due until the CONTRACTOR, if required, shall deliver to the CITY a complete release of all liens arising out of the Agreement, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as it has knowledge or information the releases and receipts include all the labor and material for which a lien could be filed; but the CONTRACTOR may, if any SUB-CONTRACTOR refuses to furnish a release or receipt in full, furnish a bond satisfactory to the CITY to indemnify it against any lien. If any lien remains unsatisfied after all payment are made, the CONTRACTOR shall refund to the CITY all moneys that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

ASSIGNMENT:

11. Neither party to the Agreement shall assign the Agreement or sublet it as a whole without the written consent of the other, nor shall the CONTRACTOR assign any moneys due or to become due to it hereunder, without the previous written consent of the CITY.

SUBCONTRACTS:

12. The CONTRACTOR shall not sublet any part of this Agreement without the written permission of the CITY. The CONTRACTOR agrees that it is as fully responsible to the CITY for the acts and omissions of its SUB-CONTRACTORS and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

USE OF PREMISES:

13. The CONTRACTOR shall confine its apparatus, the storage of materials and operations of its workers to limits indicated by law, ordinance and permits and shall not otherwise unreasonably encumber the premises with its materials. If any part of the project is completed and ready for use, the CITY may, by written and mutual consent, without prejudice to any of its rights or the rights of the CONTRACTOR, enter in and make use of such completed parts of the project. Such use or occupancy shall in no case be construed as an acceptance of any work or materials.

CLEANING UP:

14. The CONTRACTOR shall at all times keep the premises free from accumulation of waste materials or rubbish caused by its employees or work, and at the completion of the work it shall remove all its rubbish from and about the project, and all its tools, scaffolding and surplus materials and shall leave its work "broom-clean" or its equivalent, unless more exactly specified. In case of dispute, the CITY may remove the rubbish and charge the cost to the CONTRACTOR.

PAYMENTS:

15. Unless otherwise agreed to, the CITY shall make payments on account of the Agreement as follows:

Within 30 days, as invoices are submitted for work completed to the satisfaction of the CITY.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

BY:_____ BY:_____
Witness Finance Director

BY:_____ BY:_____
Witness Contractor

SCOPE OF WORK

The following scope of work is being proposed for the Merrow Road Reconstruction Project for the City of Auburn. The scope of work is a brief overview of the expected extent of work included in this contract.

Merrow Road Reconstruction Project – **Base Bid**

- The construction of approximately 1.3 miles of full-depth roadway reconstruction.
  - Work includes provisions for a right-turn lane on Merrow Rd at its intersection with Hotel Road.
- The installation of an 8’ (span) x 6’ (rise) x 65’ (length) precast concrete box culvert (clamshell style) and associated grading.
  - Culvert construction is subject to USACE Self Verification Notification Permit requirements, and all instream work must be completed between July 15 and September 30.
- Provide slipform concrete curb with appropriate curb tip downs.
- Install new guardrail over the proposed precast concrete box culvert.
- Provide drainage improvements, including new catch basins, pipes, underdrain, and ditches.
- Provide new striping and updated signage within the project limits.
- Loam, seed, and mulch as directed.

Merrow Road Reconstruction Project – **Bid Alternate #1**

- Adjustment of water and sewer structures within the project limits.

SPECIAL PROVISIONS

The following Supplemental Specifications shall amend the “Maine, Department of Transportation Standard Specifications, **March 2020 Edition**" including all applicable revisions and special provisions. In case of conflicts, these Supplemental Specifications (1) shall take precedence and shall govern.

(1) Supplemental Specifications - modifications, additions and deletions to the existing Standard Specifications and new specifications for additional items not covered in the Standard Specifications.

F-1 Work Hours

No work shall proceed on this project prior to the hour of 7:00 AM or after 7:00 PM (prevailing time) on any working day unless the City has granted prior approval. The definition of work for this specification shall include starting or moving of equipment, machinery, or materials. Any day worked for four hours or more will be considered a full working day.

F-2 Notification of Residents

Residents shall be notified sufficiently in advance of any construction affecting the driveway and sidewalk to allow adequate time for their removal of personal vehicles. Locations of cuts for drive access affecting individual residents shall be brought to their attention.

F-3 Traffic Signs

All existing traffic signs, which are to be removed during construction, shall be dismounted and the posts removed and shall be stacked in an area approved by the Engineer. The contractor shall protect the signs from damage while in his possession and shall repair, at no additional cost to the City, any damages caused by his operations.

Stop signs are to be always maintained at their original locations during the progress of work.

Prior to the start of any construction work, the Contractor shall prepare an acceptable inventory of all signs within the project limits which shall be used as a guide for replacement should signs be removed for construction purposes.

This work shall be considered as a subsidiary obligation of the contract for which no special payment will be made.

F-4 Protection of Trees

The Contractor shall be responsible for the preservation of all trees on the project, which are not to be removed. Any trees damaged by the Contractor's operations shall be repaired as approved by tree dressing or paint in accordance with the appropriate provisions of Section 201 of Standard Specifications.

F-5 Maintenance and Protection of Traffic

The Contractor shall be responsible for the maintenance and protection of all vehicular and pedestrian traffic at all times during construction and shall erect suitable warning signs, flashing barriers or temporary lighting devices of sufficient size and number to afford protection to the traveling public in accordance with the most recent edition of "Manual on Uniform Traffic Control Devices for Streets Highways" published by the Department of Transportation of the Federal Highway Administration.

The Contractor shall be held responsible for all damage to the work due to any failure of the warning devices to properly protect the work from the traffic, pedestrians or other causes. Traffic control shall be in accordance with the City of Auburn's Traffic Detail Policy effective April 1, 2006.

F-5A Materials

Materials shall meet the requirements specified for the various subsections of the Specifications. Equals shall be approved only prior to the bid opening.

F-6 Survey

The City of Auburn, Department of Public Services will establish, at their discretion, a benchmark location and one construction baseline. The Contractor shall be responsible for maintaining these controls during construction and providing all additional survey required, which shall be done by a competent Engineer or Surveyor.

F-7 Waste Areas

The disposal of waste and surplus material and slash from tree cutting shall be as outlined in Section 203.06 - Waste Areas.

F-8 Occupational Safety and Health

The Contractor is hereby advised that all work to be furnished to the City shall be performed with equipment, methods, and use of personnel in conformance with the pertinent Occupational Safety and Health Act requirements of the State of Maine and with the regulations for construction as specified by the Department of Labor and Occupational Safety and Health Administration (OSHA) as currently amended.

F-9 Pre-Construction Conference

A conference will be held at 60 Court Street, Auburn, Maine within ten (10) days after the awarding of the contract. At this time, the contractor will be required to submit a graphically illustrated schedule and a plan showing project activity. City officials and representatives of the various utility companies involved in the project will be present at this meeting.

This meeting's purpose is to inform the various agencies of the proposed work schedule, give them the opportunity to discuss any difficulties, and offer suggestions to the Contractor concerning his proposed schedule so that full cooperation may be reached.

F-10 Schedule of Operations

The above-mentioned schedule of operations in Section F-9 shall consist of a bar chart detailing the activities included in the contract. Although a bar chart is acceptable as a minimum, more complex and detailed schedules (i.e., flow charts, critical paths, etc.) are encouraged and will be accepted by the City. Updates will be required.

F-11 Traffic Officers

Traffic control shall be the responsibility of the Contractor and as directed. Traffic control officers will be employed by the Contractor. City of Auburn police officers may be required in certain traffic situations and will be paid for by the City of Auburn.

F-12 Limitation of Operations

The Contractor shall always conduct the work in such a manner and in such sequence as will assure the least interference with traffic. The Contractor shall not open work to the prejudice or detriment of work already started. The Engineer may require the Contractor to finish a section on which work is in progress before work is started on any additional sections if finishing such section is essential to public convenience.

Waste and surplus material shall not be stockpiled but shall be disposed of in areas as designated in Section 203.06, Waste Areas, of the Standard Specifications.

F-13 Questions Regarding Plans and Documents

Questions from prospective bidders relative to this Contract shall be submitted no later than five days before bid opening and directed to:

Kris Bennett P.E.
City Engineer
Engineering Division
Tel. 333-6601 ext. 1134

F-14 Record Drawings

The Contractor shall keep daily records of all changes in the work and records of underground infrastructure. Upon completion of the project, the Contractor shall deliver to the Engineer copies of daily records. Final payment will not be made until Engineer receives copies of daily records.

F-15 Waste Material

All waste material shall be removed from the site and the area left clean upon completion of work. Any equipment or structures damaged by the Contractor shall be repaired or replaced at no additional cost to the City.

F-16 Quality Assurance

The Contractor shall be always responsible for maintaining top quality assurance during performance of his work.

F-17 Bids

No bids shall be withdrawn within a period of sixty -(60)- days after the opening of the bids.

F-18 Manhole Structures

The contractor shall be responsible for removing the frame and cover of sewer manholes during construction. Steel plates shall be used to cover the existing manhole opening. Offsets shall be installed to determine location. This work shall be considered incidental to the contract. If Bid Alt #1 is rejected, then the Auburn Water & Sewer District will be responsible for adjusting sewer manhole frames and covers to grade, including water shutoffs.

F-19 Aggregate Base Courses

All gravel products shall meet Maine DOT specifications and shall also be produced from quarry rock.

F-20 Pipe Stubs

Any pipe stubs required to connect existing pipes to proposed catch basins shall be considered incidental to the item.

F- 21 Pipe Materials

All pipe supplied on this project shall be High Density Polyethylene (HDPE) pipe unless otherwise specified.

F- 22 Weekly Quantity Reports

The Contractor shall submit weekly electronic reports of daily quantities by the end of the day the following Monday. These reports shall be emailed to kbennett@auburnmaine.gov.

SUPPLEMENTAL SPECIFICATIONS
SECTION 100 - GENERAL PROVISIONS

1. SCOPE

The work covered by this section includes furnishing all labor, equipment, materials, incidentals, and the performing of all operations in connection with the work encompassed by these contract documents. All work shall be subject to the terms and conditions of the contract documents.

2. STANDARD SPECIFICATIONS

The City of Auburn, Maine, has adopted for this project the "State of Maine, Department of Transportation, Standard Specifications, March 2020 Edition" and the Standard Details (March 2020) and the following Supplemental Specifications, including all current additions or modifications thereof. In the case of conflict with the following Supplemental Specifications, the addenda shall take precedence and govern.

The contract also adopts the current edition of the Maine DOT Standard Specifications and Standard Details - Corrections, Additions & Revisions. These documents are in Appendix C at the back of the Bid Book.

Wherever in the Specifications and in this Contract the term "Department", "the Department of Transportation", "MDOT", or any reference to the "State of Maine, Department of Transportation" or its "Engineers" is mentioned, the intent and meaning shall be interpreted to refer to the CITY OF AUBURN, MAINE, or their authorized representative.

SUPPLEMENTAL SPECIFICATIONS
SECTION 101 – CONTRACT INTERPRETATION

The provisions of Section 101 of the Standard Specifications, "Contract Interpretation," shall apply with the following modifications:

101.2 Definitions.

Chief Engineer.

REPLACE: "The Chief Engineer of the Department."

With: "The Engineer of Record for the Project, Donald G. Ettinger, Jr."

Commissioner.

REPLACE: "The Commissioner of Transportation established by 23 MRSA §4205."

With: "The Auburn City Engineer"

Department.

REPLACE: "The Department of Transportation of the State of Maine, as established by 23 MRSA §4205 et. seq. for the administration of Highway, Bridge, and other Public Works …"

With: "The Municipality of Auburn, Maine," acting through its City Engineer and this person's duly authorized representatives."

Project Manager.

REPLACE: "The Department's duly authorized representative for overall coordination of the Project."

With: "The Municipality of Auburn's duly authorized representative for overall coordination of the Project."

Resident.

REPLACE: "The Department's on-site representative."

With: "The City's on-site representative."

SUPPLEMENTAL SPECIFICATIONS
SECTION 104 – UTILITIES

UTILITY COORDINATION

The contractor has primary responsibility for coordinating their work with utilities after the contract award. The contractor shall communicate directly with the utilities regarding any utility work necessary to maintain the contractor's schedule and prevent project construction delays. The contractor shall notify the City of Auburn of any issues.

THE CONTRACTOR SHALL PLAN AND CONDUCT WORK ACCORDINGLY.

MEETING

A Preconstruction Utility Conference, as defined in Subsection 104.4.6 of the Standard Specifications, **is** required and will be held simultaneously at the Preconstruction Meeting between the City and the Contractor.

GENERAL INFORMATION

These Special Provisions outline the arrangements the City of Auburn made for utility work to be undertaken in conjunction with this project. The following list identifies all known utilities having facilities presently located within the limits of this project or intending to install facilities during project construction.

Overview:

Utility/Railroad	Aerial	Underground	Railroad
Auburn Water & Sewerage District		X	
Central Maine Power Company	X		
Charter Communications, (Spectrum)	X		
Consolidated Communications	X		
Firstlight	X		
NECEC Transmission LLC	X		
Unitil Corp.		X	

Utility Contact Information		
Utility/Railroad	**Contact Person**	**Contact Phone**
Auburn Water & Sewer District	Matt Waite	mwaite@awsd.org
Central Maine Power Company	Craig Bate	craig.bate@cmpco.com
Charter Communications, (Spectrum)	Jon Bickford	(207) 253-2210
Consolidated Communications	Martin Pease	mpease@fairpoint.com
Firstlight	Mike Ellingwood	(207) 333-3471
NECEC Transmission LLC	Caleb Gauvin	(207) 233-9759
Unitil Corp.	Derick Giroux	(207) 536-5663

Temporary utility adjustments are **not** anticipated. However, should the contractor choose to have any poles temporarily relocated, all work will be done by the pole owner at the contractor's request and expense at no additional cost to the City.

Unless otherwise specified, any underground utility facilities shown on the project plans represent approximate locations gathered from available information. The City cannot certify the level of accuracy of this data. Underground facilities indicated on the topographic sheets (plan views) have been collected from historical records and/or on-site designations provided by the respective utility companies. Underground facilities indicated on the cross-sections have been carried over from the plan view data and may also include further approximations of the elevations (depths) based upon straight-line interpolation from the nearest manholes, gate valves, or test pits.

Unless otherwise specified herein, all adjustments are to be made by the respective utility.

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

All clearing and tree removal in areas where utilities are involved must be completed before the utilities can relocate their facilities.

In collaboration with the Utility Pole owner, the Contractor is responsible for laying out all of the proposed pole locations in the field prior to the start of utility relocations. Should any adjustments be needed, the Utility will document them and inform the City of Auburn before utility relocations.

The Contractor shall provide the utilities access to the new pole locations. Construction of any spot cuts or fills in excess of 2 feet must be completed prior to utility relocations. The Contractor shall prepare a plan for how access and the spot cuts and fills will be accomplished and what the schedule will be for performing the work. This plan will be discussed at the pre-construction utility meeting.

***** Specific information regarding the line voltage can be requested from* Central Maine Power Company****

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

AERIAL

Summary:

Utility	Pole Set	New Wires/ Cables	Trans. Wires/ Cables	Remove Poles	Estimated Working Days
Central Maine Power Company	X		X	X	10
Charter Communications, Inc.			X		5
Consolidated Communications of Northern New England Company, LLC			X		5
Firstlight			X		5
Total:					25

Utility Specific Issues:

Central Maine Power Company
Central Maine Power Company (CMP) has overhead wires that run the length of the project. CMP will be responsible for the following tasks: the removal of approximately twenty-nine (29) existing poles, the installation of approximately eighteen (18) new utility poles, the transfer of the existing lines from the existing utility poles to the new utility poles, and the re-guying of the existing poles as required to fit the new layout. The contractor shall complete all clearing and major earthwork in the vicinity of the pole relocations before CMP's work in the field. CMP will require **two (2) weeks' notice** to schedule work. Once work is scheduled, CMP estimates **ten (10) working days to complete.**

Charter Communications, Inc.
Charter Communications has aerial utilities attached to CMP poles. Charter will be responsible for transferring its lines from the existing utility poles to the new utility poles. They will need to complete transfers on approximately eighteen (18) poles. Charter will require **two (2) weeks' notice** to schedule work. Once work is scheduled, Charter estimates **five (5) working days to complete.**

Consolidated Communications of Northern New England Company, LLC
Consolidated Communications (CCI) has aerial utilities attached to CMP poles. CCI will be responsible for transferring its lines from the existing utility poles to the new utility poles. They will need to complete transfers on approximately eighteen (18) poles. CCI will require **two (2) weeks' notice** to schedule work. Once work is scheduled, CCI estimates **five (5) working days to complete.**

Firstlight
Firstlight has aerial utilities attached to CMP poles. Firstlight will be responsible for transferring its lines from the existing utility poles to the new utility poles. They will need to complete transfers on approximately eighteen (18) poles. Firstlight will require **two (2) weeks' notice** to schedule work. Once work is scheduled, Firstlight estimates **five (5) working days to complete.**

Pole List:

Existing Pole #	Existing Station	Left/ Right		Existing Offset *	Proposed Station	Left/ Right		Proposed Offset *	Within Proposed Clear Zone	Acceptable per the Utility Accommodation Rules - 2018	Condition at Pole Face	Comments
		LT	RT			LT	RT					
Auburn, Merrow Road												
NO NUM	201+29.40	-	X	44.11'					No	Yes	Fill <1'	To Remain
NETT111	202+33.90	-	X	17.45'					Yes	Yes	Cut 3'	To Remain
BA2 2	204+20.12	X	-	18.53'					Yes	Yes	Cut 1.5'	To Remain
NETT111 3	206+70.99	X	-	15.90'	206+70.00	X		20.00'	Yes	Yes	N/A	Relocate
BA4	209+20.97	-	X	19.91'	209+30.00	X		20.00'	Yes	Yes	N/A	Relocate
111 5	211+72.47	X	-	20.45'					No	Yes	Fill 3'	To Remain
CMP29 BA6	214+40.70	-	X	19.21'					Yes	Yes	Fill 3'	To Remain
CMP28 BA7	216+38.48	-	X	18.66'					Yes	Yes	Fill 3'	To Remain
CMP27 BA8	218+14.92	X	-	26.87'					No	Yes	No Impact	To Remain
CMP26S	219+89.80	X	-	17.92'	219+90.00	X		20.00'	Yes	Yes	N/A	Relocate Brace Pole
CMP26	220+19.55	-	X	19.27'	220+25.00		X	20.00'	Yes	Yes	N/A	Relocate
CMP25 BA111	222+65.29	-	X	17.30'	222+65.00		X	20.00'	Yes	Yes	N/A	Relocate
CMP53 36	223+01.60	-	X	53.36'	223+03.34		X	48.69'	No	Yes	N/A	Relocate

CMP53 35	223+44.81	X	-	57.62’	223+42.92	X		52.97’	No	Yes	N/A	Relocate
CMP24 BA11	224+68.44	X	-	16.28’	224+70.00	X		20.00’	Yes	Yes	N/A	Relocate
CMP23	226+48.89	X	-	15.00’	226+50.00	X		20.00’	Yes	Yes	N/A	Relocate
BA12	226+51.49	X	-	15.12’					Yes	Removed	N/A	Remove
CMP22 BA13	228+65.30	X	-	17.14’	228+65.00	X		20.00’	Yes	Yes	N/A	Relocate
CMP21 BA14	230+55.20	-	X	16.51’					Yes	Yes	Fill <1’	To Remain
BA111 15	232+22.93	-	X	16.82’					Yes	Removed	N/A	Remove
CMP 2B	232+25.81	-	X	19.35’					Yes	Yes	Cut <1’	To Remain
19.5	233+49.85	-	X	17.51’	233+50.00		X	20.00’	Yes	Yes	N/A	Relocate
CMP19	234+72.87	-	X	15.14’	234+75.00		X	20.00’	Yes	Yes	N/A	Relocate
9S 15S	234+74.92	X	-	22.93’					No	Yes	Fill <1’	To Remain
18.5	236+83.44	-	X	19.94’					Yes	Yes	Fill <1’	To Remain
CMP 18 20 14	237+17.27	-	X	18.79’					Yes	Removed	N/A	Remove
CMP 18	237+18.20	-	X	20.20’					No	Yes	Fill 2’ at Pole	To Remain
CMP 17S	238+49.77	X	-	22.29’					No	Yes	Fill 1’	To Remain
CMP 17.5	238+66.52	-	X	20.35’					No	Yes	Fill <1’	To Remain **(1)**
17	238+83.03	-	X	18.73’					Yes	Removed	N/A	Remove **(1)**
CMP 17 13 FP	238+86.49	-	X	18.68’					Yes	Removed	N/A	Remove **(1)**
CMP 16 W/2UE DROPS	240+42.02	-	X	23.63’					No	Yes	Cut <1’	To Remain
CMP 16 18	240+46.14	-	X	18.73’					Yes	Removed	N/A	Remove
CMP 15	241+79.09	-	X	19.72’					Yes	Yes	Cut <1’	To Remain
CMP 15 11 NETT	241+79.16	-	X	15.42’					Yes	Removed	N/A	Remove
CMP 14 16 10.5	243+36.10	-	X	15.85’					Yes	Removed	N/A	Remove
CMP 14	243+38.35	-	X	17.28’	243+40.00		X	19.00’	Yes	Yes	N/A	Relocate
CMP 13 15 115	245+02.22	-	X	16.26’	245+00.00		X	19.00’	Yes	Yes	N/A	Relocate **(2)**
12 9.5 14 W/UE DROP	246+21.62	-	X	16.62’	246+25.00		X	19.00’	Yes	Yes	N/A	Relocate **(2)**
CMP 11.5 9 13 W/UTDR O	246+96.09	-	X	16.70’	247+00.00		X	19.00’	Yes	Yes	N/A	Relocate **(3)**
12	248+43.51	-	X	15.15’	248+50.00		X	19.00’	Yes	Yes	N/A	Relocate
NO NUM W/UE DROP	249+80.23	X	-	28.24’					No	Yes		To Remain
CMP 10 8 11	250+44.31	-	X	16.74’	250+50.00		X	19.00’	Yes	Yes	N/A	Relocate
CMP 9.5 7.5 10 W/DROP	251+80.76	-	X	23.39’					No	Yes	Fill <1’	To Remain
CMP 9	252+66.15	-	X	22.00’					No	Yes	Fill 1.5’	To Remain
CMP 8.5	253+29.05	-	X	21.43’					No	Yes	Cut <1’	To Remain
CMP 8 9 W/DROP	254+87.15	-	X	19.25’					Yes	Yes	Fill <1’	To Remain
6.5 8	256+61.39	-	X	21.46’					No	Yes	Fill <1’	To Remain
CMP 7 6 7	257+93.96	-	X	20.77’					No	Yes	Cut <1’	To Remain
SUPPOR T 5.5S	258+87.45	X	-	18.33’					Yes	Yes	Cut <1’	To Remain
CMP 6 5.5 6	259+11.93	-	X	19.27’					Yes	Yes	Cut <1’	To Remain
CMP 5 5 115 W	261+05.92	-	X	19.54’					Yes	Yes	Cut <1’	To Remain
CMP 4.5	261+94.09	-	X	18.90’					Yes	Yes	Cut <1’	To Remain

NO NUM. 3 UE DROPS	261+94.82	X	-	25.84'					No	Yes	Fill <1'	To Remain
no number	263+34.38	X	-	28.14'					No	Yes	Cut 3'	To Remain
CMP4 1 TRAN	263+97.40	-	X	19.12'					Yes	Yes	Fill <1'	To Remain
CMP 3	265+53.83	-	X	17.97'					Yes	Yes	Cut 1'	To Remain
CMP 3	265+55.98	-	X	18.72'					Yes	Removed	N/A	Remove
1	266+28.51	-	X	107.08'					No	N/A	N/A	Outside Project Limits
2 115	267+08.78	X	-	14.99'					Yes	Removed	N/A	Remove
CMP 2	267+12.39	X	-	17.98'					Yes	Yes	Cut <1'	To Remain
2 632	268+52.50	X	-	23.00'					No	Yes	N/A	Remove
CMP1 115	268+56.54	X	-	23.27'					No	Yes	Fill <1'	To Remain

* Existing and proposed utility pole offsets are measured to the face of the existing pole.
(1) All equipment and infrastructure from poles "CMP 17 13 FP" and "17" shall be moved to pole "17.5".
(2) Extend underground services to new pole.
(3) Remove abandoned underground service.

Site Visits to Review the Proposed Pole List:
Pole locations were determined through email and via two site visits as noted below:

1) December 19, 2024 – Site Visit
    a. Attendees: Gorrill Palmer, Central Maine Power Company
2) January 10, 2025 – Site Visit
    a. Attendees: City of Auburn, Gorrill Palmer, Central Maine Power Company, Consolidated Communications, and Charter Communications (Spectrum).

SUBSURFACE

Summary:

Utility	Summary of Work	Estimated Working Days
Auburn Water & Sewerage District	Adjust 6 curb stops to grade.	Bid Alt #1
	Adjust 7 water valves to grade.	Bid Alt #1
	Adjust 8 sewer manholes to grade.	Bid Alt #1
	Relocate sewer force main at Sta. 252+50, Lt. (Large Culvert Crossing)	2
	Relocate water main at Sta. 252+50, Lt. (Large Culvert Crossing)	2
	Replace 50 linear feet of existing sewer force main	1
Consolidated Communications of Northern New England Company, LLC	Extend underground services to new poles (2).	2
Charter Communications, (Time Warner)	Extend underground services to new poles (2).	2
Central Maine Power Company	Extend underground services to new poles (2).	2
Unitil Corp.	Adjust gas valve boxes (Quantity Unknown)	2
	Relocate gas main at Sta. 252+50, Lt. (Large Culvert Crossing)	1
Total:		**13 Days**

Subsurface utility adjustments are anticipated as part of this project. If any unexpected utility relocations become necessary, they will be scheduled in compliance with section 104 of the Standard Specifications and will be done by the utilities in conjunction with the work by the contractor.

Temporary utility adjustments are not anticipated as part of this project. If any unexpected utility relocations become necessary, they will be scheduled in compliance with Section 104 of the Standard Specifications and will be done by the utilities in conjunction with the work by the Contractor. All work will be done at the contractor's request and expense with no additional cost or schedule impacts to the City of Auburn.

Utility Specific Issues:

Auburn Water and Sewerage District

Please note: The Auburn Water and Sewerage District (the District) has included utility adjustments to its facilities under Bid Alternate #1 of this contract. If Bid Alternate #1 is accepted, the Contractor will be responsible for adjusting AWSD utilities during construction. If Bid Alternate #1 is rejected, the District will be responsible for lowering and raising their utilities as outlined below:

The District has **7** curb stops to adjust in the project area. The District will inspect, loosen, and lower all their curb stops, if necessary, before any roadway work by the contractor. Once adjusted, the contractor shall locate and provide offsets so they can find them during paving. The Contractor will notify the District before surface paving to verify that the curb stops are still loose and to arrange oversight needs. The Contractor shall raise all curb stops during surface paving operations with District oversight. **The payment for this work will be considered incidental to the paving item.** The Contractor will notify the District **10 business days** before any roadway work in the vicinity of the curb stops and will notify the District again **10 business days** before surface paving to arrange oversight needs. **Additional days may be required for repairs to any structures that are found to be broken or not operating correctly.**

The District has **6** water valves to adjust in the project area. The District will inspect, loosen, and lower all their water valves, if necessary, before any roadway work by the contractor. Once adjusted, the contractor shall locate and provide offsets so they can find them during paving. The Contractor will notify the District before surface paving to verify that the water valves are still loose and to arrange oversight needs. The Contractor shall raise all water valves during surface paving operations with District oversight. **The payment for this work will be considered incidental to the paving item.** The Contractor will notify the District **10 business days** before any roadway work in the vicinity of the valves and will notify the District again **10 business days** before surface paving to arrange oversight needs. **Additional days may be required for repairs to any structures that are found to be broken or not operating properly.**

The District has **8** sewer manholes to adjust to grade in the project area. The District will inspect and adjust the sewer manholes to grade, if necessary, before any paving work by the contractor. Once adjusted, the contractor shall locate and provide offsets so they can find them during paving. The Contractor will notify the District before surface paving to arrange oversight needs. The Contractor will notify the District **10 business days** before any roadway work in the vicinity of the manhole and notify the District again **10 business days** before surface paving to arrange oversight needs.

The District will need to alter its water line and sewer force main to avoid the proposed precast concrete box culvert located at approximately Sta. 252+50 (Merrow Road). The District will complete this work at its expense; no separate payment will be made regarding this work. The Contractor shall coordinate scheduling the

precast concrete box culvert installation with the District. The District will require **two (2) weeks' notice** to schedule work. Once work is scheduled, the District estimates **four (4) working days to complete the work.**

The District plans on replacing approximately 50 linear feet of sewer force main between the pipe elbow and the sewer gate valve (as noted on the plans) located at approximately Sta. 269+10, Lt. The Contractor shall coordinate the scheduling of the proposed drainage work and box cut in this area with the District. The District will require **two (2) weeks' notice** to schedule work. Once work is scheduled, the District estimates **one (1) working days to complete the work.**

Unitil Corporation
Unitil Corp. has an unknown amount of gas valve boxes in the project area. If found, Unitil Corp. will inspect, loosen, and lower all their gas valve boxes, if necessary, before any roadway work by the contractor. Once adjusted, the contractor shall locate and provide offsets so they can find them during paving. The Contractor will notify Unitil Corp. before surface paving to verify that the gas valve boxes are still loose and to arrange oversight needs. The Contractor shall raise all gas valve boxes during surface paving operations with Unitil Corp. oversight. **The payment for this work will be considered incidental to the paving item.** The Contractor will notify Unitil Corp. **10 business days** before any roadway work in the vicinity of the gates and will notify Unitil Corp. again **10 business days** before surface paving to arrange oversight needs. **Additional days may be required for repairs to any structures that are found to be broken or not operating correctly.**

In addition to adjusting the gas valves, Unitil Corp. will need to make alterations to their existing gas line to avoid the proposed precast concrete box culvert located at approximately Sta. 252+50 (Merrow Road). Unitil Corp. will complete this work at their expense; no separate payment will be made. The Contractor shall coordinate scheduling the precast concrete box culvert installation with Unitil Corp. Unitil Corp. will require **two (2) weeks' notice** to schedule work. Once work is scheduled, Unitil Corp. estimates **two (2) working days to complete their work.**

Central Maine Power Company
Central Maine Power Company (CMP) has underground cables attached to the utility poles located at Sta. 245+02.22, Rt. (that feeds the Pepsi building), and Sta. 246+21.62, Rt. (that feeds the Paychex building). Both utility poles are set to be relocated due to this project. CMP will need to extend its underground infrastructure to the new proposed poles. The contractor shall complete all clearing and major earthwork near the pole relocations before CMP's fieldwork. CMP will require **two (2) weeks' notice** to schedule work. Once work is scheduled, CMP estimates **two (2) working days to complete the work.**

Charter Communications, Inc.
Charter Communications has underground cables attached to the utility poles located at Sta. 245+02.22, Rt. (that feeds the Pepsi building), and Sta. 246+21.62, Rt. (that feeds the Paychex building). Both utility poles are set to be relocated due to this project. Charter will need to extend their underground infrastructure to the new proposed poles. The contractor shall complete all clearing and major earthwork near the pole relocations before Charter's fieldwork. Charter will require **two (2) weeks' notice** to schedule work. Once work is scheduled, Charter estimates **two (2) working days to complete the work.**

Consolidated Communications of Northern New England Company, LLC
Consolidated Communications (CCI) has underground cables attached to the utility poles located at Sta. 245+02.22, Rt. (that feeds the Pepsi building), and Sta. 246+21.62, Rt. (that feeds the Paychex building). Both utility poles are set to be relocated due to this project. CCI will need to extend its underground infrastructure to

the new proposed poles. The contractor shall complete all clearing and major earthwork near the pole relocations prior to CCI's fieldwork. CCI will require **two (2) weeks' notice** to schedule work. Once work is scheduled, CCI estimates **two (2) working days to complete the work.**

ADDITIONAL UTILITY INFORMATION

Auburn Water and Sewerage District (AWSD):
AWSD is completing test pits within the project limits at several locations (noted below). The final test pit information (once received) will be made available to the Contractor post-bid and/or as an addendum.

AWSD is completing utility test pits at the following locations:

- +/- Sta. 246+75, Rt. – Fire Service.
- +/- Sta. 251+25, Rt. – Fire Service.
- +/- Sta. 252+00, Rt. – Private Sewer Service.
- +/- Sta. 252+50, Lt. – 12" Water Main.
- +/- Sta. 252+50, Rt. – Sewer Force Main.
- +/- Sta. 254+20, Rt. – Fire Service.
- +/-Sta. 259+65, Rt. – Fire Service & Water Service.
- +/-Sta. 262+00, Rt. – Private Sewer Service.
- +/-Sta. 262+85, Lt. – 12" Water Main.
- +/-Sta. 262+85, Rt. – Sewer Force Main.
- +/-Sta. 264+50, Rt. – Water Service.
- +/-Sta. 265+75, Rt. – Water Service.
- +/-Sta. 266+00, Rt. – Private Sewer Service.
- +/-Sta. 267+75, Rt. – 8" Water Main.

Unitil:
Unitil currently has a 4" HDPE gas main on Merrow Road that is fed from Hotel Road and continues to Kassbohrer Way. Their system shows they have seven (7) services off the 4" main. Most of the services will be 1 ¼ or 2". The main in the ROW will have about 36" of cover, and services will have 36" tied into the main but will gradually get to about 24" of cover more towards the property line.

RAILROAD

There are no known railroad facilities within the immediate vicinity of the project.

MAINTAINING UTILITY LOCATION MARKINGS

The Contractor will be responsible for maintaining the buried utility location markings following the initial locating by the appropriate utility or their designated representative.

UTILITY SIGNING

Any utility working within the construction limits of this project shall ensure that the traveling public is always adequately protected. All work areas shall be signed and lit, and traffic flaggers shall be employed as determined by field conditions. All traffic controls shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, as issued by the Federal Highway Administration.

SUPPLEMENTAL SPECIFICATIONS
SECTION 105 – General Scope of Work
(Limitations of Operations)

1. The Contractor shall, at a minimum, maintain one 11-foot-wide lane of alternating traffic. The City of Auburn will consider traffic control alternatives as proposed by the Contractor. Traffic control alternatives include but are not limited to:
    a. Closing Merrow Road to two-way traffic from Fletcher Road (west) to Fletcher Road (east). Merrow Road would become one-way in either the eastbound or westbound direction, with opposing traffic detoured onto Fletcher Road.

   If any of the proposed approaches create traffic issues (as determined by the City) within the corridor, the City has the right to remove the proposed traffic control alternative from service.

2. During the construction of the Precast Concrete Culvert, the Contractor will be allowed to close Merrow Road (in the immediate vicinity of the culvert crossing) for one week between July 15th and September 30th, 2025. Traffic will be detoured onto Fletcher Road during this time.

3. Access to businesses will remain open at all times.

4. Unless otherwise approved by the city, only one paving operation will be allowed at a time, excluding hand-placed paving.

SUPPLEMENTAL SPECIFICATIONS
SECTION 107 – CONTRACT TIME

1) The specified contract completion date is December 5, 2025.

2) Clearing in the vicinity of the large culvert replacement (from Sta. 251+96 to Sta. 252.65 Lt. and from Sta. 252+31 to Sta. 253+32, Rt.) must be completed before April 15, 2025.

3) Clearing for the remainder of the project shall be completed before May 15, 2025.

4) This project is subject to an Army Corps of Engineers Self-Verification Notification Permit. All instream work shall be completed between **July 15 and September 30, 2025.**

SUPPLEMENTAL SPECIFICATIONS
SECTION 201 – CLEARING THE RIGHT OF WAY

The provisions of Section 201 of the Standard Specifications shall apply with the following additions and modifications.

201.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 201.01.

201.09 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 201.09.

201.10 BASIS OF PAYMENT

The Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 201.10.

Payment will be made under:

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

SUPPLEMENTAL SPECIFICATIONS
SECTION 203 – EXCAVATION AND EMBANKMENT

The provisions of Section 203 of the Standard Specifications shall apply with the following additions and modifications.

203.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 203.01.

203.042 ROCK EXCAVATION AND BLASTING

Rock Excavation and Blasting shall be in accordance with Maine DOT Standard Specifications Subsection 203.042. This subsection shall be amended by the addition of the following:

Any proposed blasting operations shall meet all Maine DOT requirements and follow requirements outlined in the City of Auburn's blasting ordinance (see Appendix B attached). Pre-blasting surveys will be required, as noted in the ordinance. The City shall waive any permits required by the City of Auburn for blasting permits.

203.18 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 203.18.

203.19 BASIS OF PAYMENT

The Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 203.19.

Payment will be made under:

Pay Item		Pay Unit
203.20	Common Excavation	Cubic Yard
203.21	Rock Excavation	Cubic Yard
203.25	Granular Borrow	Cubic Yard
203.35	Crushed Stone ¾-Inch	Cubic Yard

SUPPLEMENTAL SPECIFICATIONS
SECTION 206 – STRUCTURAL EXCAVATION

The provisions of Section 206 of the Standard Specifications shall apply with the following additions and modifications.

206.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 206.01.

206.04 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 206.04.

206.05 BASIS OF PAYMENT

The Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 206.05.

Payment will be made under:

Pay Item		Pay Unit
206.07	Structural Rock Excavation – Drainage & Minor Structures	Cubic Yard

SUPPLEMENTAL SPECIFICATIONS
SECTION 304 – AGGREGATE BASE AND SUBBASE COURSE

The provisions of Section 304 of the Standard Specifications shall apply with the following additions and modifications.

304.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 304.01. This subsection shall be amended by the addition of the following:

Aggregate course material shall be a crushed stone product sourced from a quarry. This surface shall be graded with 2.0% slopes in a normal crowned cross section unless otherwise directed.

The contractor shall employ dust control measures to minimize the creation of airborne dust during the construction process. As a minimum, standard dust control techniques shall be employed where heavy equipment and the public will be traveling. These methods may include techniques such as watering-down the site of spreading hydroscopic salts.

304.06 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 304.06. This subsection shall be amended by the addition of the following:

Aggregate base and subbase course gravel shall be measured by the Ton, complete in place.

304.07 BASIS OF PAYMENT

The Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 304.07. This subsection shall be amended by the addition of the following:

The accepted quantities of base and subbase course material will be paid for at the respective contract unit price per ton, complete in place. The contract will pay for gravel based on the scale tickets.

Payment will be made under:

Pay Item		Pay Unit
304.10	Aggregate Subbase Course – Gravel	Ton
304.14	Aggregate Base Course – Type A	Ton

SECTION 400
HOT MIX ASPHALT PAVEMENT
(Weather and Seasonal Limitations)

The following section of Special Provision Section 400 – Weather and Seasonal Limitations Table3: SEASONAL AND TEMPERATURE LIMITATIONS has been replaced by the following Table 3: SEASONAL AND TEMPERATURE LIMITATIONS. All other requirements not amended or replaced by Table3 by this special provision shall be considered unchanged.

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		50°F
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.

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.

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) 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										

*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

Use	Minimum Ambient Air Temperature	Zone 1 Allowable Placement Dates	Zone 2 Allowable Placement Dates
Surface course (travelway & adjacent shoulders*) less than 1 in. thick placed during conditions defined as "night work"	50°F	June 1 to Saturday following September 1	
Surface course (travelway & adjacent shoulders*) less than 1 in. thick	50°F	May 15 to Saturday following September 15	
Travelway surface course greater than or equal to 1 in. thick	50°F	May 1 to Saturday following October 1	April 15 to Saturday following October 15
HMA for surface course on bridge decks	50°F	May 1 to Saturday following October 1	April 15 to Saturday following October 15
HMA for base or shim course on bridge decks	50°F	April 15 to November 15	
HMA for use other than travelway surface course	40°F	April 15 to November 15	
HMA for curb, driveways, sidewalks, islands, or other incidentals	40°F	N/A	N/A
HMA produced with an approved WMA technology for base or shim course	35°F	April 15 to November 15	
*Adjacent shoulders shall be considered shoulders paved in the same operation as the travelway.			

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. 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 On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the Contractor shall spread, rake, and lute the HMA with hand tools to provide the required compacted thickness. 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.
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 length of 0.5 miles 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.

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.

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 shall be completely sealed with hot-applied rubberized asphalt material, meeting the requirements of Type 4 crack seal; 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.

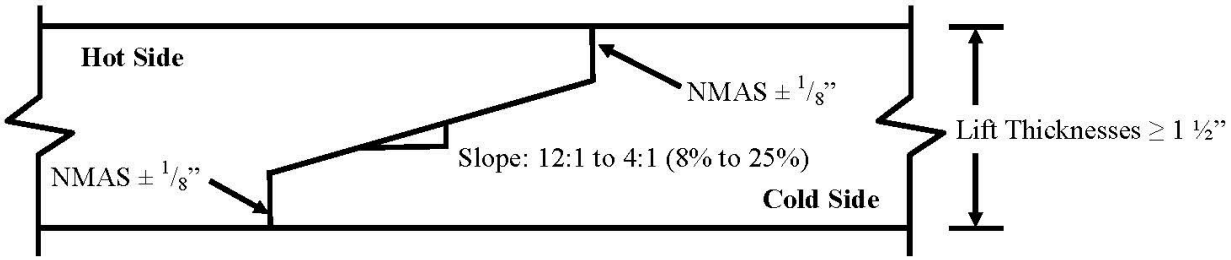


FIGURE 1: Notched Wedge Joint

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, Typicals, 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.
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.
- Type of release agent to be used on haul units, tools and rollers.

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 pass during placement.
   - Mix TMD to be used for density gauge setting for method spec density work
   - Procedures for avoiding paving in inclement weather.
   - 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.

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.

A QCP, certified QC personnel, and a Prepave Meeting shall not be required for Item 403.209 - Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals) accepted under visual or Method D. An approved JMF shall be provided to the Resident prior to placement.

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

*Method A and B only

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 for Method D, (sidewalks, drives, islands & incidentals) and visual acceptance items 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) accepted under visual or Method D. 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 sublot 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 sublot 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 sublot remaining at the end of production for the year, then it shall be combined with the previous sublot. If there is more than one-half sublot remaining at the end of production for the year, then it shall constitute the last sublot and shall be represented by test results. If it becomes apparent partway through a Lot that, due to an underrun, there will be insufficient mix quantity to obtain the minimum number of sublots needed, the Resident may adjust the size of the remaining sublots and select new sample locations based on the estimated quantity of material remaining in the Lot. 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 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 sublot and require removal of defective mix sample sublots only, leaving any acceptable material in place if it is found to be free of defective material. Pay factors equal to or greater than the reject level will be paid accordingly.

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 = (Voids @ N_d PF - 1.0)(Q)(P)x0.20 + (VMA @ N_d -1.0)(Q)(P)x0.20 + (PGAB Content PF- 1.0)(Q)(P)x0.10	PA = (density PF-1.0)(Q)(P)x0.50
Method C	PA = (% Passing Nom. Max PF-1.0)(Q)(P)x0.05+(% passing 2.36 mm PF-1.0)(Q)(P)x0.05+(%passing 0.30 mm PF-1.0)(Q)(P)x0.05+(%passing 0.075 mm PF-1.0)(Q)(P)x0.10+(PGAB Content PF-1.0)(Q)(P)x0.25	PA = (density PF-1.0)(Q)(P)x0.50

In addition, for 9.5 mm NMAS 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 sublot 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	(Lot size ≤ 1000 tons)	(Lot size > 1000 tons)
	250 ton	750 ton
Sublot Size – Density	125 ton (Max 5 Sublots)	250 ton

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

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 sublot 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 sublot density is less than 88.5 percent or greater than 99.0 percent of the sublot 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 sublot TMD, the sublot shall be removed and replaced at no cost to the Department; otherwise, the average of the three cores will be used to determine the sublot 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 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 sublot 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	Pay Unit
402.10 Incentive/Disincentive - Pavement Smoothness	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:

Pay Item		Pay Unit
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 Nominal Maximum Size (5/8” Surface Treatment)	Ton

SUPPLEMENTAL SPECIFICATIONS
SECTION 403 - HOT MIX ASPHALT

The provisions of Section 403 of the Standard Specifications shall apply with the following additions and modifications.

403.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 403.01. This subsection shall be amended by the addition of the following:

This work shall include machine placing hot mix asphalt (HMA) as indicated in the Scope of Work. Materials and their use shall conform to the requirements of all related and applicable sections of this contract. HMA shall be placed and compacted with a minimum of two lifts where the total thickness of pavement to be placed exceeds 2". The **most recently** revised special provision Section 108 using the New England Selling Price shall apply to this contract.

The City of Auburn will have a third-party consultant on-site during paving operations to take pavement densities and random samples.

403.04 METHOD OF MEASUREMENT

Measurement shall be in accordance with MaineDOT Standard Specifications Subsection 403.04.

403.05 BASIS OF PAYMENT

The Basis of Payment shall be in accordance with MaineDOT Standard Specifications Subsection 403.05.

Payment will be made under:

Pay Item		Pay Unit
403.208	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size	Ton
403.209	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Sidewalks, Drives, Islands & Incidentals)	Ton
403.213	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base Course)	Ton

SUPPLEMENTAL SPECIFICATIONS
SECTION 409 - BITUMINOUS TACK COAT

The provisions of Section 409 of the Standard Specifications shall apply with the following additions and modifications.

409.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 409.01.

409.07 APPLICATION OF BITUMINOUS MATERIAL

Application of Bituminous Material shall be in accordance with Maine DOT Standard Specifications Subsection 409.07. This subsection shall be amended by the addition of the following:

The rate of application shall be 0.03 gallons per square yard on recently placed pavement and 0.05 gallons per square yard on milled and existing pavement surfaces, or as directed by the Engineer. During application, care shall be taken to assure areas outside of the work area shall not be discolored. Tack coat shall be required between all layers of Hot Mix Asphalt. **Tack coat shall also be required on all longitudinal and transverse joints.**

409.08 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 409.08.

409.09 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 409.09.

Payment will be made under:

Pay Item		Pay Unit
409.15	Bituminous Tack Coat, Applied	Gallon

SUPPLEMENTAL SPECIFICATIONS
SECTION 534 – PRECAST STRUCTURAL CONCRETE

The provisions of Section 534 of the Standard Specifications shall apply with the following additions and modifications.

534.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 534.01. This subsection shall be amended by the addition of the following:

This work shall consist of the following:

- Remove and dispose of existing 30-inch and 36-inch corrugated metal culverts.
- Install new 8-foot (span) x 6-foot (rise) x 65-foot (length) precast concrete box culvert clamshell style.
- Embed the proposed culvert 1.5’ with a mixture of existing streambed material and riprap as shown on the culvert section.
    - The contractor shall stockpile the removed streambed material during the removal of the existing culvert and the excavation of the new culvert for reuse within the new culvert.
    - The contractor shall ensure the embedment material is not transporting excess fines.
- All excavation, embankment grading, backfilling, compacting, and any other work associated with installing the new culvert. The culvert shall be installed per the manufacturer’s specifications.

534.03 DRAWINGS

Drawings shall be in accordance with Maine DOT Standard Specifications Subsection 534.03. This subsection shall be amended by the addition of the following:

Contractor shall provide shop drawings for review and approval.

534.045 CONSTRUCTION REQUIREMENTS

This subsection shall be added:

Materials used for Precast Concrete Box Culvert (Clamshell) shall meet Maine DOT Specifications, 2020 Edition, Section 534 – Precast Structural Concrete.

Verify that the trench cut is ready to receive work and that excavations, dimensions, and elevations are as indicated on the layout drawings.

Install box culvert, fittings, and accessories in accordance with manufacturer's instructions; seal watertight.

Lay box culvert to slope gradients noted on layout drawings; with maximum variation from true slope of 1/8 inch in 10 feet

Grout lifting holes after installation with non-shrink grout.

Protect box culvert and bedding cover from damage or displacement until backfilling operation is in progress.

Divert, pump, or other
wise contain stream flow during box culvert installation. The contractor shall provide a stream bypass method that will conform to the traffic control requirements described in the specifications. The stream bypass method must maintain aquatic organism passage. Stream bypass method shall be sized to convey at minimum the 7 day 10 year low flow volume of 0.004 cfs provided by the United States Geological Survey StreamStats program. The contractor should be cautioned that during rainfall events stream flow volumes may be greatly increased from the low flow volume. Any unanticipated weather events will need to be accommodated. A Stream Bypass Plan shall be submitted and approved by the City and Engineer prior to the commencement of any work.

Dewatering of the work zone will be required to allow excavation for the culvert installation. Sediment-laden water pumped from the work zone shall be filtered through a dirt bag or approved equivalent before being discharged to the watercourse. The drainage course downstream of the dirt bag shall be monitored for erosion. The drainage course shall be repaired and reinforced immediately if erosion is observed.

The Contractor shall submit a Dewatering Plan for approval by the City and Engineer before the commencement of any work. The Dewatering Plan, at a minimum, shall include:

1. Material, description, and location of cofferdams.
2. Description, locations, and plans for dewatering pump and associated piping.
3. Dewatering discharge location and outfall stabilization.

534.21 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 534.21.

534.22 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 534.22. This subsection shall be amended by the addition of the following:

Payment for Precast Concrete Box Culvert (8’X6’X65’) installation shall also include stream dewatering, bypass pumping, erosion control, culvert design stamped by a professional engineer, removal of existing culverts, excavation, backfill material, providing granular borrow, void-filled riprap, and stream bed material for culvert infill, filter fabric, replacement of any existing utilities damaged during construction of the box culvert, and all labor, equipment, or material required to complete the work.

Payment for 2” rigid insulation over the existing sewer main (gravity) shall be considered incidental to item 534.71 Precast Concrete Box Culvert.

Payment will be made under:

Pay Item		Pay Unit
534.71	Precast Concrete Box Culvert (8’X6’X65’)	Lump Sum

SUPPLEMENTAL SPECIFICATIONS
SECTION 603 – PIPE CULVERTS AND STORM DRAINS

The provisions of Section 603 of the Standard Specifications shall apply with the following additions and modifications.

603.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 603.01.

603.031 GENERAL

General shall be in accordance with Maine DOT Standard Specifications Subsection 603.031. This subsection shall be amended by the addition of the following:

The Contractor shall furnish the following pipe under Option I and Option III:

- High-Density Polyethylene Pipe

603.11 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 603.11.

603.12 BASIS OF PAYMENT

The Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 603.12. This subsection shall be amended by the addition of the following:

Payment for 2" rigid insulation between the proposed pipe and the existing water main and/or sewer force main located between CB 11 and CB 12 shall be considered incidental to item 603.159, 12 Inch Culvert Pipe Option III.

Payment will be made under:

Pay Item		Pay Unit
603.159	12 Inch Culvert Pipe Option III	Linear Foot
603.16	15 Inch Culvert Pipe Option I	Linear Foot
603.169	15 Inch Culvert Pipe Option III	Linear Foot
603.179	18 Inch Culvert Pipe Option III	Linear Foot
603.19	24 Inch Culvert Pipe Option I	Linear Foot
603.199	24 Inch Culvert Pipe Option III	Linear Foot

SUPPLEMENTAL SPECIFICATIONS
SECTION 604 – MANHOLES, INLETS, AND CATCH BASINS

The provisions of Section 604 of the Standard Specifications shall apply with the following additions and modifications.

604.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 604.01. This subsection shall be amended by the addition of the following:

This work consists of constructing catch basins and manholes in accordance with the requirements of Section 604 of the Standard Specifications and as shown in the Standard Details.

604.05 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 604.05. This subsection shall be amended by the addition of the following paragraph:

Installation of proposed catch basins as shown on the contract plans shall be measured per each, complete in place, regardless of overall depth.

604.06 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 604.06.

Payment will be made under:

Pay Item		Pay Unit
604.09	Catch Basin Type B1 (with Solid Cover)	Each
604.092	Catch Basin Type B1-C	Each
604.164	Rebuilding Catch Basin	Each
604.18	Adjusting Manhole or Catch Basin to Grade	Each
604.243	Catch Basin Type F3-C	Each
604.245	Catch Basin Type F4-C	Each
604.247	Catch Basin Type F5-C	Each
604.262	Catch Basin Type B5-C	Each

SUPPLEMENTAL SPECIFICATIONS
SECTION 605 – UNDERDRAINS

The provisions of Section 605 of the Standard Specifications shall apply with the following additions and modifications.

605.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 605.01. This subsection shall be amended by the addition of the following paragraph:

6" and 8" Underdrain Type B shall be perforated with a soil sock filter.

605.08 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 605.08. This subsection shall be amended by the addition of the following paragraph:

8 Inch Underdrain Type B shall be measured per the linear foot complete in place and accepted.

605.09 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 605.09. This subsection shall be amended by the addition of the following paragraph:

The accepted quantities of underdrains and underdrain outlets will be paid for at the contract unit price per linear foot of each type and size specified complete in place.

Payment for 2" rigid insulation between the proposed 6" underdrain and existing sewer force main (as noted in the cross sections) running from Sta. 263+50 to Sta. 268+68, Rt. shall be considered incidental to item 605.09, 6 Inch Underdrain Type B.

Payment will be made under:

Pay Item		Pay Unit
605.06	8 Inch Underdrain Type B	Linear Foot
605.09	6 Inch Underdrain Type B	Linear Foot
605.10	6 Inch Underdrain Outlet	Linear Foot
605.11	12 Inch Underdrain Type C	Linear Foot

SUPPLEMENTAL SPECIFICATIONS
SECTION 606 – GUARDRAIL

The provisions of Section 606 of the Standard Specifications shall apply with the following additions and modifications.

606.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications and Supplemental Specifications Subsection 606.01.

606.08 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications and Supplemental Specifications Subsection 606.08.

606.09 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection and Supplemental Specifications 606.09.

Payment will be made under:

Pay Item		Pay Unit
606.1301	31” W-Beam Guardrail – Mid-Way Splice – Single Faced	Linear Foot
606.1303	31” W-Beam Guardrail – Mid-Way Splice, 15’ Radius and Less	Linear Foot
606.1304	31” W-Beam Guardrail – Mid-Way Splice, Over 15’ Radius	Linear Foot
606.1305	31” W-Beam Guardrail – Mid-Way Splice – Flared Terminal	Each
606.259	Anchorage Assembly	Each
606.265	Terminal End – Single Rail – Galvanized Steel	Each
606.353	Reflectorized Flexible Guardrail Marker	Each
606.356	Underdrain Delineator Post	Each
606.47	Single Wood Post	Each
606.51	Multiple Mailbox Support	Each

SUPPLEMENTAL SPECIFICATIONS
SECTION 607 – FENCES

The provisions of Section 607 of the Standard Specifications shall apply with the following additions and modifications.

607.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 607.01.

607.06 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 607.06.

607.07 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 607.07.

Payment will be made under:

Pay Item		Pay Unit
607.24	Remove and Reset Fence	Linear Foot

SUPPLEMENTAL SPECIFICATIONS
SECTION 608 – SIDEWALKS

The provisions of Section 608 of the Standard Specifications shall apply with the following additions and modifications.

608.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 608.01.

608.05 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 608.05.

608.06 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 608.06.

Payment will be made under:

Pay Item		Pay Unit
608.08	Reinforced Concrete Sidewalk	Square Yard

SUPPLEMENTAL SPECIFICATIONS
SECTION 609 – CURB

The provisions of Section 609 of the Standard Specifications shall apply with the following additions and modifications.

609.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 609.01.

609.02 MATERIALS

Materials shall be in accordance with Maine DOT Standard Specifications Subsection 609.02.
This subsection shall be amended by the addition of the following paragraph:

Canadian sourced granite curbing (Caledonia Type), which contains pink quartz, shall not be used on the project. All granite curbing shall be predominately gray in color.

609.09 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 609.09.

609.10 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 609.10.

Payment will be made under:

Pay Item		Pay Unit
609.11	Vertical Curb Type 1	Linear Foot

Revised March 14, 2024

SPECIAL PROVISION
SECTION 609 – CURB
STRUCTURAL CONCRETE
(Slipform Concrete Curb)

609.01-Description This work shall consist of furnishing and placing Slipform Concrete Curb in close conformity with the plans, or as authorized by the Resident.

609.02 Materials - Except as provided below, the materials used shall meet the requirements specified in Section 700 – Materials:

Portland Cement and Portland Pozzolan Cement	701.01
Water	701.02
Fine Aggregate for Concrete	703.01
Coarse Aggregate for Concrete	703.02
Air Entraining Admixtures	703.03

A mix design for the Portland Cement Concrete shall be submitted to the Resident meeting the requirements below:

Class A with the exception that permeability requirements shall be waived.
Entrained air content of Slipform curbing shall be 4.0% to 7.0%.
Concrete temperature prior to discharge shall not exceed 90 F.
Proposed mix designs may contain polypropylene fibers.

Partially discharged loads may be retempered with water provided the maximum water to cement ratio is not exceeded.

609.03-General

a. Preparation of Base Before placing the curb, the foundation course shall be thoroughly cleaned of all foreign and objectionable material. The Contractor shall not place Slipform Concrete Curb on a wet or frozen base. Base pavement for placing epoxy resin binder and slipform curbing may be in an SSD condition but no standing water shall be allowed. String or chalk lines shall be positioned on the prepared base to provide guidelines. For HMA or PCC base the foundation shall be uniformly painted with an epoxy resin adhesive from the Departments QPL. The Contractor shall submit the adhesive that they propose to utilize with the concrete mix design. The adhesive must be approved prior to placement and used in accordance with manufacturers recommendations.

b. Placing Concrete shall be placed with an approved Slipform machine that will produce a finished product according to the design specified in the plans. For cold weather slip forming, the outside temperature must be at least 36°F (2.2°C) and rising. The curb shall be placed on a firm, uniform bearing surface, shall conform to the section profile specified in the plans, and shall match the appropriate grade. Expansion joints the curb meets rigid structures such as but not limited to building foundations, catch basin headers or fire hydrants. Contraction joints will be placed at 10 foot (3 m) intervals using sawing methods, which shall cut 1-3" into the concrete. Contraction joints shall be cut between 1 and 7 days after placement. Joints shall be constructed perpendicular to the subgrade and match other joints in roadways, sidewalks, or other structures when applicable.

c. Curing and Sealing Proper curing shall be insured through the use of either a combination curing/sealing compound spray that meets ASTM 1315Type 1-Class A, or a curing compound spray that meets ASTM 309 type 1-D – Class A. Curing may also be accomplished by the methods specified in Section 502.15 of the Specifications.

If a combination curing/sealing compound spray is not used, a separate sealing compound from the MaineDOT Qualified Products List for a Type 2 sealer shall be applied after the concrete has cured.

d. Protection Slipform curb must be adequately protected after placement. The concrete shall be allowed to cure for at least 72 hours. During cold weather conditions, when temperatures drop below the required temperature of 36°F (2.2°C) after placement, curbing shall be protected by concrete blankets or a combination of plastic sheeting and straw. After any placement of Slipform curb, regardless of weather conditions, the placed curb shall be adequately protected by traffic control devices as necessary.

e. Marking When required, the curb shall be painted and coated with glass beads in accordance with Section 627 - Pavement Marking. Curb designated to be painted shall not be sealed unless a combination curing/sealing compound is used.

f. Acceptance Curb shall be accepted or rejected based on finish, alignment, entrained air content, and compressive strength. Acceptance testing for air content and compressive strength will be under 502 Method C. All damaged curb shall be removed and replaced at the Contractor's expense.

609.04-Method of Measurement Concrete Slipform curb will be measured by the linear foot along the front face of the curb at the elevation of the finished pavement, complete in place and accepted.

609.05 Basis of Payment The accepted quantities of curb will be paid for at the contract unit price per linear foot as specified.

There will be no separate payment for concrete, sealing, incidental materials, or labor needed to install the curb, but these will be considered included in the work of the related curb.

Removal of existing curb and necessary excavation for installing curb will not be paid for directly, but shall be considered to be included in the curb pay item. Base and Subbase material will be paid for under Section 304 - Aggregate Base and Subbase Course. Backing up machine laid curb is incidental to the curb items. Loam, as directed, will be paid under 615 – Loam.

Payment will be made under:

Pay Item		Pay Unit
609.21	Concrete Slipform Curb	Linear Foot
609.22	Concrete Slipform Curb Terminal	Linear Foot

SUPPLEMENTAL SPECIFICATIONS
SECTION 610 – STONE FILL, RIPRAP, STONE BLANKET, AND STONE DITCH PROTECTION

The provisions of Section 610 of the Standard Specifications shall apply with the following additions and modifications.

610.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 610.01.

610.01 MATERIAL

Description shall be in accordance with Maine DOT Standard Specifications Subsection 610.02. This subsection shall be amended by the addition of the following paragraph:

At least fifty percent of the stones by volume within the Large Culvert (534.71) shall have an average dimension greater than 9 inches. The riprap within the culvert shall be void filled.

610.05 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 610.05.

610.06 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 610.06. This subsection shall be amended by the addition of the following paragraph:

Void filled riprap within the Large Culvert shall be incidental to pay item 534.71 Precast Concrete Box Culvert (8’x6’x65’).

Payment will be made under:

Pay Item		Pay Unit
610.08	Plain Riprap	Cubic Yard
610.18	Stone Ditch Protection	Cubic Yard

SUPPLEMENTAL SPECIFICATIONS
SECTION 613 – EROSION CONTROL BLANKETS

The provisions of Section 613 of the Standard Specifications shall apply with the following additions and modifications.

613.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 613.01.

613.08 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 613.08.

613.09 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 613.09.

Payment will be made under:

Pay Item		Pay Unit
613.319	Erosion Control Blanket	Square Yard

SUPPLEMENTAL SPECIFICATIONS
SECTION 615 – LOAM

The provisions of Section 615, 618, and 619 of the Standard Specifications shall apply with the following additions and modifications.

615.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications for both Loam (615.01), Seed (618.01), and Mulch (619.01). This subsection shall be amended by the addition of the following paragraph:

This work shall consist of loaming and seeding areas adjacent to existing lawn areas or areas disturbed by construction activities. Loam and its applications shall conform to the requirements of section 615 of the Standard Specifications. Loam shall have a finished depth of six (6") inches and shall be screened through a one (1") inch square mesh screen. **Loam areas shall be rolled (compacted) prior to placement of seed and mulch.**

Seeding shall be seeding Method Number 1 and shall conform to the requirements of Section 618 of the Standard Specifications. The Contractor shall be required to continually seed areas of loam and seed until satisfactory growth of grass is established. All areas to be loamed and seeded shall be mulched with an approved wood cellulose fiber compatible with recommended hydro-seeding practices. This mulch shall be applied simultaneously with the seed and shall be of sufficient quantity to protect the seed and hold moisture in to insure a satisfactory growth of grass.

The specifications for the wood cellulose fiber proposed to be used shall be presented to the Engineer for acceptance at least ten (10) days (working days) prior to application the road.

The Contractor shall also be responsible for mowing all areas loamed and seeded. The mowing will be required if deemed necessary to insure and maintain a satisfactory growth of grass and shall not exceed two mows.\

After a sample of loam has been submitted to the Engineer, he/she may require that a sample be submitted to a testing agency to determine its organic content, characteristics, and potential use as loam suited to the site.

615.05 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications for both Loam (615.05), Seed (618.11), and Mulch (619.06). This subsection shall be amended by the addition of the following paragraph:

Loam and Seed shall be measured by each square yard, complete, in place, and accepted. Seeding Method Number 1 shall be utilized for this project.

615.06 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications for both Loam (615.06), Seed (618.12), and Mulch (619.07). This subsection shall be amended by the addition of the following paragraph:

The accepted quantity of Loam, Seed, and Mulch shall be paid for at the contract unit price by each square yard, such payment being full compensation for all labor, materials, equipment, watering, mowing, and incidentals necessary to complete the work.

Mulch shall be applied after seeding is placed. Mulch shall match the requirements of Section 618 of the Standard Specifications. Mulch is considered incidental to the 615.08 pay item and no separate payment for mulch will be made.

Payment will be made under:

Pay Item		Pay Unit
615.08	Loam, Seed, and Mulch	Square Yard

SUPPLEMENTAL SPECIFICATIONS
SECTION 620 – GEOTEXTILES

The provisions of Section 620 of the Standard Specifications shall apply with the following additions and modifications.

620.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 620.01.

620.09 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 620.09.

620.10 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 620.10.

Payment will be made under:

Pay Item		Pay Unit
620.58	Erosion Control Geotextile	Square Yard

SUPPLEMENTAL SPECIFICATIONS
SECTION 627 – PAVEMENT MARKINGS

The provisions of Section 627 of the Standard Specifications shall apply with the following additions and modifications.

627.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 627.01.

627.09 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 627.09.

627.10 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 627.10.

Payment will be made under:

Pay Item		Pay Unit
627.733	4” White or Yellow Painted Pavement Marking Line	Linear Foot
627.75	White or Yellow Pavement & Curb Marking	Square Foot

SUPPLEMENTAL SPECIFICATIONS
SECTION 631 – EQUIPMENT RENTAL

The provisions of Section 631 of the Standard Specifications shall apply with the following additions and modifications.

631.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 631.01. This subsection shall be amended by the addition of the following paragraph:

The catch basins and manholes shall be cleaned of any debris that has accumulated during construction. This work shall be billed under the applicable equipment rental item.

631.07 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 631.07.

631.08 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 631.08.

Payment will be made under:

Pay Item		Pay Unit
631.32	Culvert Cleaner (Including Operators)	Hour

SUPPLEMENTAL SPECIFICATIONS
SECTION 634 – HIGHWAY LIGHTING

The provisions of Section 634 of the Standard Specifications shall apply with the following additions and modifications.

634.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 634.01. This subsection shall be amended by the addition of the following paragraph:

This work shall consist of removing the existing light pole, and concrete foundation (if present/required), storing, protecting, and reinstalling them as noted on the plans. The contractor shall complete all drainage and grading changes to the area prior to re-installing the light pole and foundation.

634.092 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 634.07. This subsection shall be amended by the addition of the following paragraph:

Item 634.72 Relocate Ornamental Lighting shall be measured by each light pole removed and reset as noted on the plans.

634.093 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 634.08. This subsection shall be amended by the addition of the following paragraph:

Item 634.72 Relocate Ornamental Lighting shall be paid for at the contract unit price per each light pole removed and reset as noted on the plans. The unit price will include removing, storing, protecting, and re-installing the light pole, as well as all equipment, labor, and tools required to complete the work. Work shall include any coordination with the resident homeowner as well as any conduit, wiring, or electrical work required to remove and reset the light pole.

Payment will be made under:

Pay Item		Pay Unit
634.72	Relocate Ornamental Lighting	Each

SUPPLEMENTAL SPECIFICATIONS
SECTION 645 – HIGHWAY SIGNING

The provisions of Section 645 of the Standard Specifications shall apply with the following additions and modifications.

645.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 645.01. This subsection shall be amended by the addition of the following paragraph:

The Contractor shall demount, stockpile, protect, and reinstall (if required) all existing signage within the project limits as noted on the plans. Any signs that are not designated to be reinstalled under this project shall become the property of the Contractor.

Existing stop signs (regardless of designation) shall remain in place during construction or be replaced by an approved equal. At no point during construction shall an existing stop-controlled section of roadway be without a stop sign.

The Contractor shall be informed that one large wooden sign at the business entrance approximately located at Sta. 234+00, Rt. has lights and an electrical outlet that must be removed and reset along with the sign.

Existing signs that are set to be removed and reset shall be installed on new posts, and the old posts shall become the property of the contractor.

645.08 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 645.08. This subsection shall be amended by the addition of the following paragraph:

Remove and Reset Existing Signage shall be measured per square foot along the face of the sign that is to be removed and reset.

645.09 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 645.09. This subsection shall be amended by the addition of the following paragraph:

Demolition of existing signs and poles shall be considered incidental to the project.

Remove and Reset Existing Signage shall be paid for at the contract unit price per square foot, complete in place, and accepted. The square foot price shall include demounting, stockpiling, protecting, and re-installing existing signs on new poles (and include the new pole). This will include all work associated with installing flags, electrical outlets, and lights, as well as all labor, tools, and equipment necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
645.290	Remove and Reset Existing Signage	Square Foot
645.292	Regulatory, Warning, Confirmation, and Route Marker Assembly Signs Type II	Square Foot

SUPPLEMENTAL SPECIFICATIONS
SECTION 652 – MAINTENANCE OF TRAFFIC
(WORK ZONE TRAFFIC CONTROL)

The provisions of Section 652 of the Standard Specifications shall apply with the following additions and modifications.

652.3.6 TRAFFIC CONTROL

Traffic Control shall be in accordance with Maine DOT Standard Specifications Subsection 652.3.6. This subsection shall be amended by the addition of the following:

The Contractor must submit a written Traffic Control Plan before the Preconstruction Meeting to the City Engineer for approval.

652.7 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 652.7. This subsection shall be amended by the addition of the following:

Work Zone Traffic Control shall be measured as a percentage of work completed to date relative to the total work as shown on the Contract Plans.

Flaggers will be measured per hour worked.

652.8 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 652.8. This subsection shall be amended by the addition of the following:

This work shall consist of providing and maintaining all equipment, labor, and materials necessary to provide a safe work zone for the traveling public, including all transportation modes. Traffic control items include but are not limited to construction signs, barrels, cones, barricades, flashing lights, raised plastic markers, etc. All work shall be in accordance with the MUTCD. Payment for all related work will be Lump Sum.

Flaggers will be paid separately at the contract unit price per hour.

Traffic Officers (if required) will be paid separately at a rate of $101 per hour by the City of Auburn.

Payment will be made under:

Pay Item		Pay Unit
652.38	Flaggers	Hour
652.39	Work Zone Traffic Control	Lump Sum

SUPPLEMENTAL SPECIFICATIONS
SECTION 656 – TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL

The provisions of Section 656 of the Standard Specifications shall apply with the following additions and modifications.

656.3.2 STANDARDS

Standards shall be in accordance with Maine DOT Standard Specifications Subsection 656.3.2. This subsection shall be amended by the addition of the following paragraph:

Work shall include the development and implementation of erosion control plans to be submitted and approved by the City of Auburn.

656.5.1 IF PAY ITEM 656.75 PROVIDED

If Pay Item is Provided shall be in accordance with Maine DOT Standard Specifications Subsection 656.5.1. This subsection shall be amended by the addition of the following paragraph:

The development, submittals, and all coordination related to the development and implementation of the erosion control plans shall be considered as incidental to Item 656.75, Temporary Soil Erosion and Water Pollution Control.

Payment will be made under:

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

SUPPLEMENTAL SPECIFICATIONS
SECTION 658 – ACRYLIC LATEX COLOR FINISH

The provisions of Section 658 of the Standard Specifications shall apply with the following additions and modifications.

658.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 658.01. This subsection

658.05 Method of Measurement

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 658.05.

658.06 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 658.06.

Payment will be made under:

Pay Item		Pay Unit
658.20	Acrylic Latex Color Finish	Square Yard

SUPPLEMENTAL SPECIFICATIONS
SECTION 659 – MOBILIZATION

The provisions of Section 659 of the Standard Specifications shall apply with the following additions and modifications.

659.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 659.01. This subsection shall be amended by the addition of the following paragraph:

This item shall consist of preparatory work and operations including, but not limited to those necessary to the movement of personnel, equipment, supplies and incidentals to the project site; and for all other work and operations which must be performed, or costs incurred prior to beginning work on the various items on the project site.

659.02 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 659.02. This subsection shall be amended by the addition of the following paragraph:

Partial payments will be made in accordance with Section 108.2.3 Mobilization of the Standard Specifications.

Payment will be made under:

Pay Item		Pay Unit
659.10	Mobilization	Lump Sum

SUPPLEMENTAL SPECIFICATIONS
SECTION 672 – PRECAST CONCRETE BLOCK GRAVITY WALL

The provisions of Section 672 of the Standard Specifications shall apply with the following additions and modifications.

672.01 DESCRIPTION

Description shall be in accordance with Maine DOT Standard Specifications Subsection 672.01. This subsection shall be amended by the addition of the following paragraph:

This work shall include removing the portion of the existing wall that is impacted by the changes in grade at the driveway. The contractor shall remove, store, protect, and re-install the existing blocks to match the original height of the retaining wall. Any additional blocks that are required to be purchased to maintain the original height of the retaining wall shall be included in the final SF price under item 672.11 Remove and Reset Concrete Block Retaining Wall.

672.07 METHOD OF MEASUREMENT

Method of Measurement shall be in accordance with Maine DOT Standard Specifications Subsection 672.07. This subsection shall be amended by the addition of the following:

Item 672.11 Remove and Reset Concrete Block Retaining Wall shall be measured by the square foot of the final retaining wall removed and replaced (or added) during the project. The square footage shall be measured along the face of the wall and include any blocks that have been buried for support.

672.08 BASIS OF PAYMENT

Basis of Payment shall be in accordance with Maine DOT Standard Specifications Subsection 659.02. This subsection shall be amended by the addition of the following paragraph:

Item 672.11 Remove and Reset Concrete Block Retaining Wall shall be paid for at the contract unit price per square foot complete in place and accepted. The square foot price shall include removing the existing blocks, storing, protecting, and reinstalling them as called for on the plans as well as all labor, equipment, geo-fabric or geogrid, and tools required to complete the work. Work shall also include purchasing and installing any additional blocks that may be required to address the increased reveal of the retaining wall due to the change in adjacent roadway/driveway elevations.

Payment will be made under:

Pay Item		Pay Unit
672.11	Remove and Reset Concrete Block Retaining Wall	Square Foot

June 1, 2011

SPECIAL PROVISION
SECTION 801
SANITARY SEWER

Description This work shall consist of constructing cellar drain inspection standpipes, in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans and as directed by the resident in the field.

Materials Meet Sections:

Sewer Line Bedding and Initial Backfilling	703.02 for class AA
Stone PVC Pipes & Fittings	ASTM D3034 (SDR 35)

Construction Requirements

Excavation Trenches shall be excavated in accordance with the requirements of Section 206 - Structural Excavation and wide enough to allow joining the pipe and compacting the bedding and backfill material under and around the pipe. Unless otherwise designated, trench walls shall be as nearly vertical as possible and the trench width no greater than necessary for installation of the pipe.

Bedding The inspection standpipe and pipe line shall be bedded in original material.

Laying The Contractor shall not install nor backfill cellar drain inspection standpipes between December 15th and April 1st without written permission. Installing shall begin at the downhill end of the cellar drain line. Bell or groove ends shall be placed facing uphill.

Joining The pipe ends shall be thoroughly cleaned before the joint is made. Joints shall be made in accordance with the manufacturer's recommended procedures.

Backfilling After the inspection standpipe and pipe are installed, it will be inspected before any backfill material is placed. All pipe found to be out of alignment, unduly settled or damaged to the extent that full performance is impaired, shall be taken up and re-laid or replaced. One bag of concrete mix shall be installed around the foot of the standpipe, placement as per manufacturer's recommendations.

Trenches shall be backfilled in accordance with Section 206.03 and as follows. The backfill shall be original excavation in 300 mm [12 in] maximum lifts and shall be thoroughly compacted with power tampers or vibratory compactors or other approved equipment or combination of equipment.

Method of Measurement PVC pipe will be measured by the length in meter [foot] along the invert, horizontally and vertically, including fittings and caps, laid as directed, complete

June 1, 2011

in place, and accepted. Pipe laid in excess of the authorized length will not be included. Pipe installed inside a manhole will not be measured for payment.

Basis of Payment The accepted quantities of pipe will be paid for at the contract unit price per meter [linear foot], for the types and sizes specified, complete in place and shall be full compensation for all labor, materials, equipment, excavation, dewatering, bedding, furnishing and installing pipe, removal and disposal of existing pipes, connecting to manholes, connecting to existing cellar drain, concrete footing, backfill, compacting, cleaning, testing, maintaining existing flows, and all other incidental required.

No payment will be made for pipe ordered without written approval of the Resident when such pipe is not required to be installed for completion of the work.

Payment will be made under:

Pay Item		Pay Unit
801.141	100 mm [4 in] PVC Sanitary Sewer (SDR-35)	meter [Linear Foot]
801.16	150 mm [6 in] PVC Sanitary Sewer (SDR-35)	meter [Linear Foot]

SUPPLEMENTAL SPECIFICATIONS
SECTION 801 – BOLLARDS

801.01 DESCRIPTION

This item shall include removing, storing, protecting, and reinstalling the existing bollard, protective casing, and foundation, as noted in the plans. The contractor shall take care not to damage the bollard, casing, or foundation during construction.

Bollards that are set to be removed and not relocated shall be fully excavated (including the protective sleeve and concrete foundation) and left on the lawn of the adjacent property. The Contractor shall notify the City of Auburn once the bollard and foundation have been successfully removed and placed, as noted previously. The contractor shall take care not to damage the bollard or foundation during construction. This work will be considered incidental to Item 203.20 Common Excavation.

Bollards set to remain shall be protected during construction.

801.02 METHOD OF MEASUREMENT

Item 801.4715 Steel Bollard, Remove and Reset shall be measured per each bollard removed and reset as noted above.

801.03 BASIS OF PAYMENT

Item 801.4715 Steel Bollard, Remove and Reset shall be paid for at the contract unit price for each bollard removed and reset as noted in the plans. The price per each bollard removed and reset includes removing the existing bollard, protective case, and foundation, and storing, protecting, and reinstalling them as called for on the plans as well as all labor, equipment, and tools required to complete the work. The existing foundations and the bollard shall be excavated as one unit. No separate payment will be issued for foundation work that is required due to damage caused during the excavation process.

All work and coordination regarding the removal of existing bollards not noted to be reset shall be considered as incidental to Item 203.20 Common Excavation.

Payment will be made under:

Pay Item		Pay Unit
801.4715	Steel Bollard, Remove and Reset	Each

Appendix A

1) Exploration Data Report for Roadway Evaluation – Merrow Road, Auburn, Maine

December 9, 2020
Summit #20394

Attn: Don G. Ettinger, P.E.
Gorrill Palmer
707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106

Reference: Exploration Data Report for Roadway Evaluation
Roadway Evaluation – Merrow Road, Auburn, Maine

Dear Mr. Ettinger;

Thank you for the opportunity to provide geotechnical engineering services in connection with the proposed roadway evaluation along Merrow Road in Auburn, Maine. The scope of services included performing subsurface explorations along the roadway and preparing this report summarizing our findings.

1.0 Project and Site Description

The project consists of conducting explorations to evaluate the existing gravel for Merrow Road in Auburn. The roadway extends approximately 1.3 miles between Minot Avenue and Hotel Road. Currently, the bituminous pavement surface of the roadways exhibits various degrees of cracking, along with localized deformation in the form of rutting and pot holes.

2.0 Explorations & Laboratory Testing

Summit Geoengineering Services (SGS) explored the subsurface conditions along the roadway with the drilling of 14 test borings on November 19, 2020 using a truck mounted AMS Power Probe. The borings were advanced using a 3.5-inch direct push sampler (gravel punch) to a depth of 3.5 feet below ground surface or refusal. Borings were spaced at 500-foot intervals along the roadway from the entrance of Minot Avenue to Hotel Road. The locations of the explorations are shown on the attached Exploration Location Plan. An Exploration Summary Table is also attached.

Five samples of existing fill were tested for grain size analyses in accordance with ASTM D6913. Results of the laboratory tests are provided in Appendix C. Summary of the gradation results are presented below and compared to current specifications for Maine Department of Transportation (MDOT) Type D subbase gravel (2014):

GRADATION SUMMARY TABLE							
Boring Number	Sample Depth	USCS Classification[1]	Percent Passing (%)[2]				Moisture Content
			½ inch Sieve	¼ Inch Sieve	#40 Sieve	#200 Sieve	
B-1	0.3'-2.7'	SP-SM	74	**66**	24	6	2.5%
B-9	0.5'-0.8'	SM	**89**	**83**	**57**	**23**	8.2%
B-10	0.4'-2.0'	SW-SM	**85**	**81**	**31**	**8**	4.2%
B-12	0.4'-2.5'	SW-SM	**84**	**78**	**32**	**10**	7.0%
B-14	0.6'-3.5'	SW-SM	**82**	**78**	**32**	**9**	4.6%
MDOT 703.06 Type D Aggregate (2014)			**35 to 80**	**25 to 65**	**0 to 30**	**0 to 7**	--

[1]Unified Soil Classification System.
[2]Accuracy using Method A is to the nearest 1% based on particle size in accordance with ASTM D6913. **Bold** numbers indicate the percent passing the designated sieve for that sample falls outside the range specified for MDOT Type D aggregate.

3.0 Subsurface Conditions

A total of 14 borings were performed along Merrow Road at approximate 500-foot spacing. Results of the borings are summarized as follows:

- Pavement Thickness Range = 3 to 7 inches (Average = 4 inches)
- Granular Fill (gravelly sand) Thickness Range = 18 to 37 inches (Average = 28 inches)

The bituminous pavement consists of an intact layer 3 to 7 inches in thickness averaging 4 inches. The pavement is 3 to 4 inches thick on the northwestern end of the road near Minot Avenue, boring B-1 through B-7, and 5 to 7 inches thick on the remainder of the road, boring B-8 through B-14. In borings B-10 through B-13, on the southeastern portion of the road, is a 1 inch thick old pavement layer located at a depth of 2 to 3 feet below ground surface.

Thickness of the granular fill (gravelly sand) varied from 18 to 37 inches, averaging 28 inches. Gradation results of samples collected of the upper fill from borings B-1, B-9, B-10, B-12 and B-14 indicate a fines content range of 6 to 23 percent passing the #200 sieve. The granular fill is predominantly described as gravelly sand with little silt. Based on the gradation results, the fill is classified as SW-SM, SP-SM, and SM in accordance with the Unified Soil Classification System (USCS).

The granular fill on the northwest end of the roadway section consists of two layers: a 16 to 24 inch layer located below the pavement layer consisting of sand with little gravel mixed with reclaimed bituminuous pavement overlying brown gravelly sand with little silt.

The granular fill on the southeast end of the roadway section also consists of two layers: the upper gravel (gravelly sand, little silt) with a thickness ranging from 18 to 31 inches and the lower gravel (gravelly sand little to some silt) ranging from a depth of 10 to 12 inches below ground surface. The two layers are separated by a 1-inch old pavement layer.

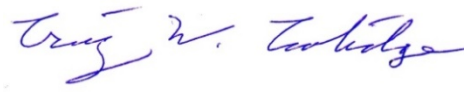
As shown in the table above, the sample of granular fill from B-1 tested for grain size analysis generally meets specifications for MDOT 703.06 Type D Gravel. The samples of granular fill from B-9 through B-14 tested for grain size analysis does not meet specifications for MDOT 703.06 Type D Gravel due to low gravel content and/or high fines content.

Native subgrade encountered in the borings on Merrow Road consists of glacial till and glacial marine deposit (Presumpscot Formation), which corresponds to the geological mapping along the roadway. Native subgrade consists of gray silt-clay, sandy silt, to silty clay with occasional mottling and light brown fine sand with trace to some silt. The subgrade is visually classified as SM, SP-SM, ML, CL, and ML-CL in accordance with USCS. The native subgrade was predominantly firm to compact and damp to moist.

4.0 Closure

Once again, thank you for this opportunity. If there are any questions or additional information is required, please do not hesitate to call.

Sincerely yours,
Summit Geoengineering Services



Craig W. Coolidge, P.E.
Vice President
Principal Engineer

Attachments: Exploration Location Plan
Exploration Summary Table
Laboratory Test Results

SCALE: 1" = 100'

0 50 100 200 300

LEGEND

B-1 SUMMIT TEST BORING (PROPOSED)

N
NORTH

PROJECT:
MERROW ROAD RECONSTRUCTION
AUBURN, MAINE

CLIENT:
CITY OF AUBURN

TITLE:
PROPOSED BORINGS & TEST PITS LOCATION PLAN

SCALE: 1" = 100'

DRAWN BY: KRF

APPR. BY: CWC

DATE: NOV. 6, 2020

PROJ.#: 20394

FIGURE: 1

145 LISBON ST. - SUITE 101
LEWISTON, ME 04240
Tel: (207) 576-3313

173 PLEASANT STREET
ROCKLAND, ME 04841
Tel: (207) 318-7161

SUMMIT
GEOENGINEERING SERVICES

SCALE: 1" = 100'

0 50 100 200 300

LEGEND

B-1 SUMMIT TEST BORING (PROPOSED)

N

NORTH

PROJECT:
MERROW ROAD RECONSTRUCTION
AUBURN, MAINE

CLIENT:
CITY OF AUBURN

TITLE:
PROPOSED BORINGS & TEST PITS LOCATION PLAN

DRAWN BY: KRF

APPR. BY: CWC

SCALE: 1" = 100'

DATE: NOV. 6, 2020

PROJ.#: 20394

FIGURE: 2

145 LISBON ST. - SUITE 101
LEWISTON, ME 04240
Tel: (207) 516-3313

173 PLEASANT STREET
ROCKLAND, ME 04841
Tel: (207) 318-7161

SUMMIT
GEOENGINEERING SERVICES

SCALE: 1" = 100'

0 50 100 200 300

LEGEND

B-1 SUMMIT TEST BORING (PROPOSED)

N
NORTH

PROJECT:
MERROW ROAD RECONSTRUCTION
AUBURN, MAINE

CLIENT:
CITY OF AUBURN

TITLE:
PROPOSED BORINGS & TEST PITS LOCATION PLAN

SCALE: 1" = 100'

DRAWN BY: KRF

APPR. BY: CWC

DATE: NOV. 6, 2020

PROJ.#: 20394

FIGURE: 3

SUMMIT
GEOENGINEERING SERVICES
145 LISBON ST. - SUITE 101
LEWISTON, ME 04240
Tel.: (207) 576-3313
173 PLEASANT STREET
ROCKLAND, ME 04841
Tel.: (207) 318-7161

SCALE: 1" = 100'

0 50 100 200 300

LEGEND

B-1 SUMMIT TEST BORING (PROPOSED)

NORTH

PROJECT:
MERROW ROAD RECONSTRUCTION
AUBURN, MAINE

CLIENT:
CITY OF AUBURN

TITLE:
PROPOSED BORINGS & TEST PITS LOCATION PLAN

SCALE: 1" = 100'

DRAWN BY: KRF

APPR. BY: CWC

DATE: NOV. 6, 2020

PROJ.#: 20394

FIGURE: 4

145 LISBON ST. - SUITE 101
LEWISTON, ME 04240
Tel.: (207) 576-3313

173 PLEASANT STREET
ROCKLAND, ME 04841
Tel.: (207) 318-7161

SUMMIT
GEOENGINEERING SERVICES

SCALE: 1" = 100'

0 50 100 200 300

LEGEND

B-1 SUMMIT TEST BORING (PROPOSED)

NORTH

PROJECT: MERROW ROAD RECONSTRUCTION
AUBURN, MAINE

CLIENT: CITY OF AUBURN

TITLE: PROPOSED BORINGS & TEST PITS LOCATION PLAN

DRAWN BY: KRF

APPR. BY: CWC

SCALE: 1" = 100'

DATE: NOV. 6, 2020

PROJ.#: 20394

FIGURE: 1

SUMMIT GEOENGINEERING SERVICES
145 LISBON ST. - SUITE 101
LEWISTON, ME 04240
Tel.: (207) 576-3313
173 PLEASANT STREET
ROCKLAND, ME 04841
Tel.: (207) 318-7161

SUMMIT
GEOENGINEERING SERVICES

Project Name: Roadway Evaluation
Location: Merrow Road, Auburn, Maine

EXPLORATION SUMMARY TABLE

20394
12/7/2020

Boring Number	Pavement Thickness (Inches)*	Granular Fill Thickness (Inches)	Granular Fill Description	Subgrade Description	Exploration Depth / Recovery (Inches)
MERROW ROAD					
B-1	4	29	Brown Gravelly SAND, little Silt, loose to compact, SP-SM	Orange brown fine SAND, little Silt, compact, moist, SP-SM	36/36
B-2	3	26 (20/6)	Black SAND, little Gravel with significant reclaimed bituminuous pavement, loose to compact, SP	Olive gray to gray with depth fine Sandy SILT, firm, wet, ML	36/36
B-3	3	23 (17/6)	Black SAND, little Gravel with significant reclaimed bituminuous pavement, loose to compact, SP	Gray SILT-CLAY to olive brown Silty CLAY with depth, little fine Sand, soft to firm, wet, CL-ML to CL	36/36
B-4	3	29 (16/13)	Black SAND, little Gravel with significant reclaimed bituminuous pavement, loose to compact, SP	NE	36/36
B-5	3.5	30 (24/6)	Black SAND, little Gravel with significant reclaimed bituminuous pavement, loose to compact, SP	Gray SILT-CLAY, little fine Sand, soft to firm, moist to wet, CL	36/36
B-6	3	30 (24/6)	Black SAND, little Gravel with significant reclaimed bituminuous pavement, loose to compact, SP	Gray SILT-CLAY, little fine Sand, slight mottling, soft to firm, moist to wet, ML-CL	36/36
B-7	3.5	22 (16/6)	Black SAND, little Gravel with significant reclaimed bituminuous pavement, loose to compact, SP	Gray and slightly mottled Silty CLAY, blocky, firm, wet, CL	36/36
B-8	5	25 (17/8)	Black SAND, little Gravel with significant reclaimed bituminuous pavement, loose to compact, SP	Gray and mottled Silty CLAY, blocky, firm, wet, CL	36/36
B-9	6	18	Brown SAND, some Gravel and Silt, loose to compact, damp, SM	Brown to light brown fine Silty SAND to fine SAND with depth, little Gravel, slight mottling, compact, damp to moist, SM to SP	36/36
B-10	5	33 (21/12)	Brown SAND, some Gravel, little Silt, loose to compact, SW-SM	Light brown fine SAND, trace Silt, slight mottling, compact, damp to moist, SP	36/36
B-11	5	36 (31/5)	Brown SAND, some Gravel, little Silt, loose to compact, SP-SM	NE	36/36
B-12	5	35 (25/10)	Brown SAND, some Gravel, little Silt, loose to compact, SW-SM	Light brown fine SAND, trace Silt, compact, damp, SP	36/36
B-13	4.5	18	Brown SAND, some Gravel, little Silt, loose to compact, SP-SM	Light brown fine SAND, trace Silt, compact, damp, SP	36/36
B-14	7	35	Brown SAND, some Gravel, little Silt, loose to compact, SW-SM	NE	36/36

NOTES:

1. Borings were performed using a Power Probe 9630 VTR on November 19, 2020. Borings were advanced to a depth of 3.5 feet using 3.5-inch direct push sampling (gravel punch sampler). Refusal was encountered only in boring B-4 at a depth of 2.7 feet below ground surface.

2. Groundwater was not encountered in the borings, however moist to wet conditions were observed in borings B-1 through B-8. The observed moisture content of the native subgrade is noted in the subgrade description column. The granular fill is considered damp/moist.

3. Pavement thickness was measured at each boring location. Pavement thickness ranged from 3 to 7 inches and averaged 4 inches. Samples of granular fill were collected from borings B-1, B-9, B-10, B-12 and B-14 and tested for grain size analysis. Thickness of granular fill ranged from 18 to 37 inches and averaged 28 inches.

4. Northwest portions of the roadway (B-2 through B-8) had a layer of black reclaimed gravel overlying an older granular fill layer (dirty, gravelly). Southeast portions of the roadway (B-10 through B-13) had a newer granular fill layer (clean, sandy) overlying an older granular fill layer (dirty, gravelly) seperated by a 1-inch old pavement layer. The thickness of each layer is denoted in the table above, separated with a forward slash "/". The sum of the two numbers is the total gravel thickness. i.e. (12/4) represents 12 inches new or reclaimed gravel over 4 inches old gravel with a total thickness of 16 inches.

5. NE = Not Encountered

173 Pleaseast Street, Rockland, Maine, 04841 (207) 318-7761
145 Lisbon Street (PO Box 7216), Lewiston, Maine, 04243, (207) 576-3313

SUMMIT
GEOENGINEERING SERVICES

GRAIN SIZE ANALYSIS - ASTM D6913

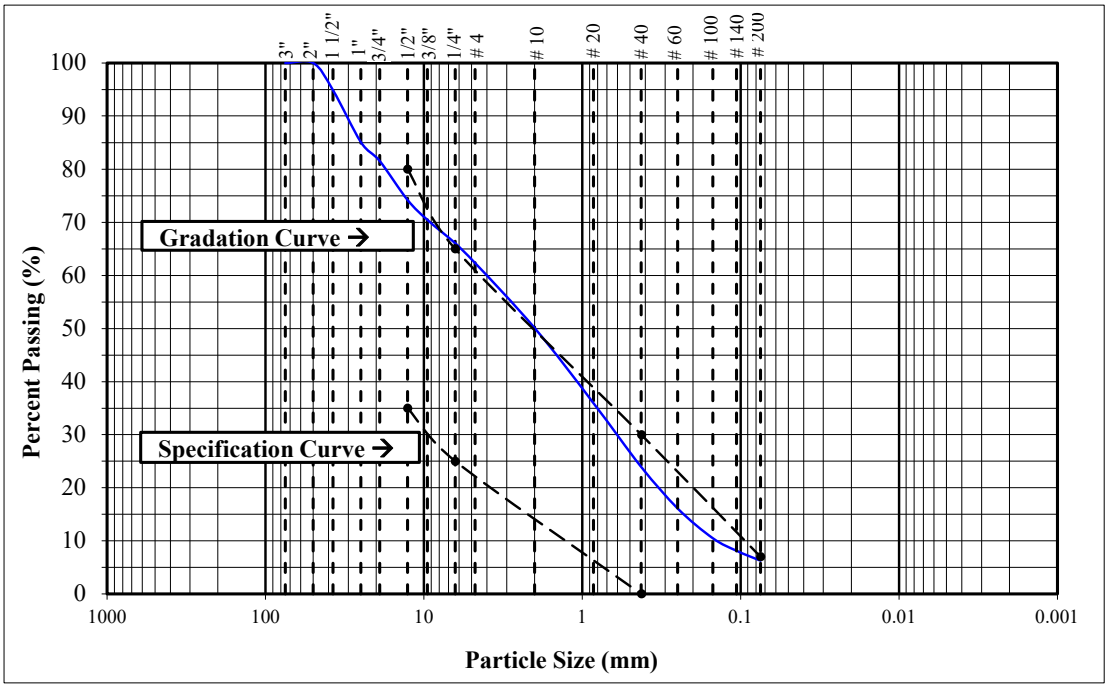
PROJECT NAME:	Roadway Evaluation	PROJECT #:	20394
PROJECT LOCATION:	Merrow Road, Auburn, Maine	EXPLORATION #:	B-1
CLIENT:	Gorrill Palmer	SAMPLE #:	SP-1
TECHNICIAN:	Colleen Sullivan	SAMPLE DEPTH:	0.3' - 2.7'
SOIL DESCRIPTION:	Gravelly SAND, little Silt, SP-SM	TEST DATE:	12/3/2020

TEST PROCEDURE

Sample Source: Gravel Punch	**Sieve Stack:** Composite	**Specimen Procedure:** Moist
Test Method: Method A	**Separating Sieve(s):** 3/8 Inch	**Dispersion Type:** Tap Water

DATA

STANDARD SIEVE DESIGNATION (mm)	ALTERNATIVE SIEVE DESIGNATION (in)	PERCENT PASSING (%)	MDOT 703.06 Type D
75	(3 in)	100	100
50	(2 in)	100	
37.5	(1-1/2 in)	95	
25.0	(1 in)	85	
19.0	(3/4 in)	82	
12.7	(1/2 in)	74	35 - 80
9.5	(3/8 in)	70	
6.35	(1/4 in)	66	25 - 65
4.75	(No. 4)	62	
2.00	(No. 10)	50	
0.850	(No. 20)	36	
0.425	(No. 40)	24	0 - 30
0.250	(No. 60)	16	
0.150	(No. 100)	10	
0.106	(No. 140)	8	
0.075	(No. 200)	6	0 - 7



REMARKS: Moisture Content = 2.5%

SUMMIT
GEOENGINEERING SERVICES

GRAIN SIZE ANALYSIS - ASTM D6913

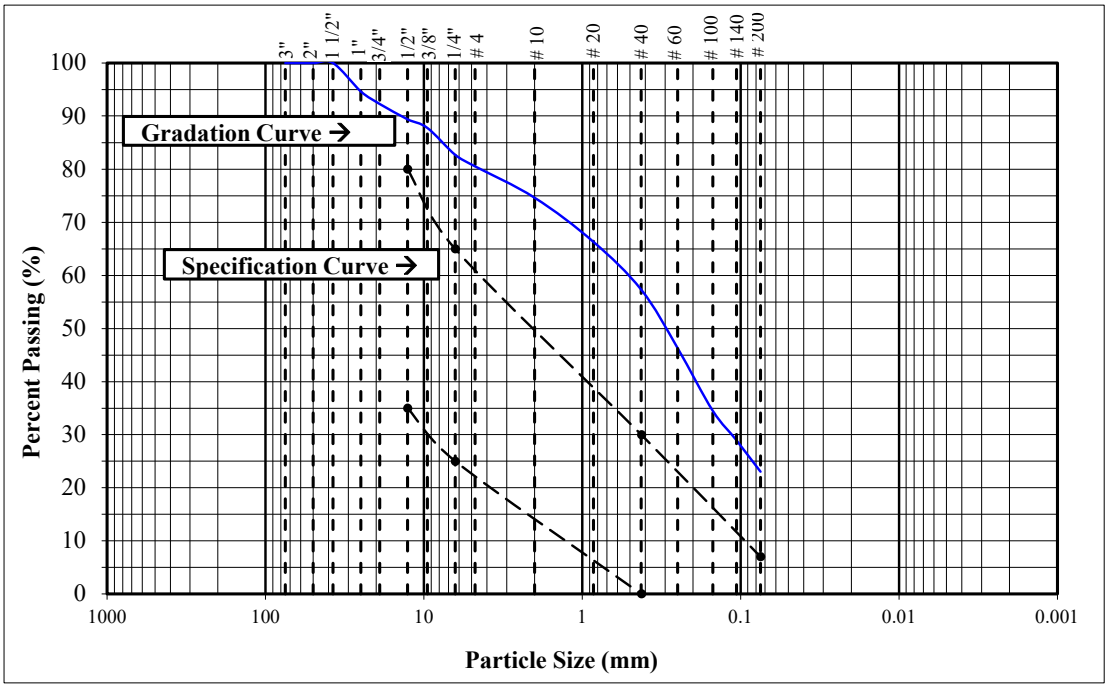
PROJECT NAME:	Roadway Evaluation	PROJECT #:	20394
PROJECT LOCATION:	Merrow Road, Auburn, Maine	EXPLORATION #:	B-9
CLIENT:	Gorrill Palmer	SAMPLE #:	SP-1
TECHNICIAN:	Colleen Sullivan	SAMPLE DEPTH:	0.5' - 0.8'
SOIL DESCRIPTION:	SAND, some Gravel and Silt, SM	TEST DATE:	12/3/2020

TEST PROCEDURE

Sample Source: Gravel Punch	**Sieve Stack:** Composite	**Specimen Procedure:** Moist
Test Method: Method A	**Separating Sieve(s):** 3/8 Inch	**Dispersion Type:** Tap Water

DATA

STANDARD SIEVE DESIGNATION (mm)	ALTERNATIVE SIEVE DESIGNATION (in)	PERCENT PASSING (%)	MDOT 703.06 Type D
75	(3 in)	100	100
50	(2 in)	100	
37.5	(1-1/2 in)	100	
25.0	(1 in)	95	
19.0	(3/4 in)	92	
12.7	(1/2 in)	89	35 - 80
9.5	(3/8 in)	88	
6.35	(1/4 in)	83	25 - 65
4.75	(No. 4)	81	
2.00	(No. 10)	75	
0.850	(No. 20)	66	
0.425	(No. 40)	57	0 - 30
0.250	(No. 60)	46	
0.150	(No. 100)	34	
0.106	(No. 140)	29	
0.075	(No. 200)	23	0 - 7



REMARKS: Moisture Content = 8.2%

SUMMIT
GEOENGINEERING SERVICES

GRAIN SIZE ANALYSIS - ASTM D6913

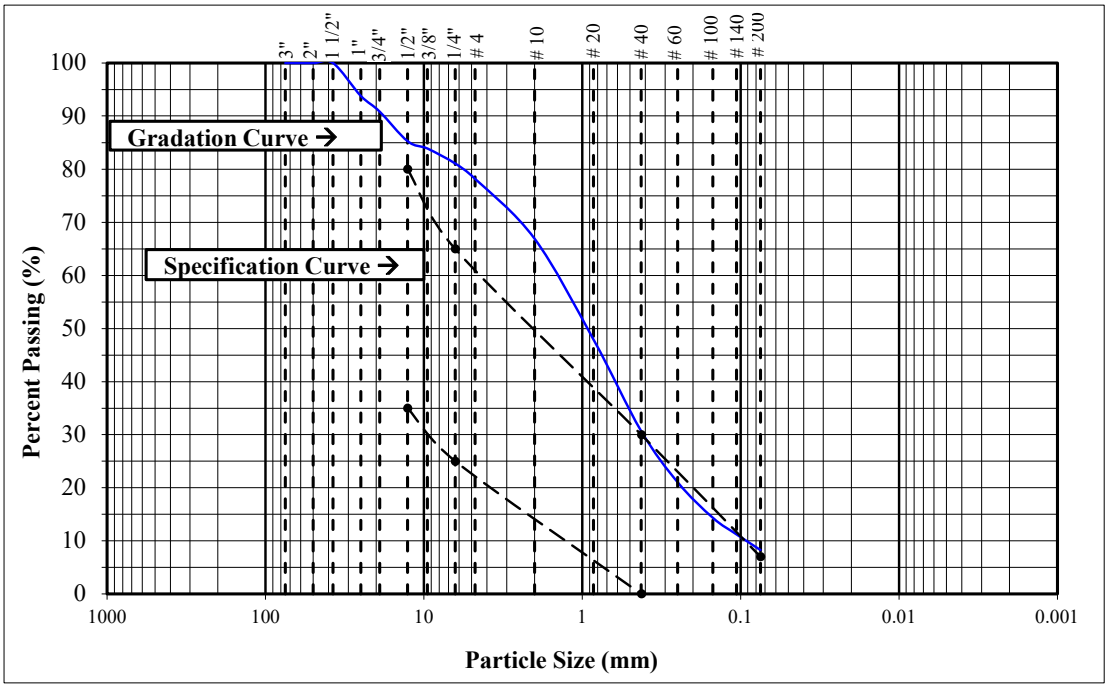
PROJECT NAME:	Roadway Evaluation	PROJECT #:	20394
PROJECT LOCATION:	Merrow Road, Auburn, Maine	EXPLORATION #:	B-10
CLIENT:	Gorrill Palmer	SAMPLE #:	SP-1
TECHNICIAN:	Colleen Sullivan	SAMPLE DEPTH:	0.4' - 2.0'
SOIL DESCRIPTION:	SAND, some Gravel, little Silt, SW-SM	TEST DATE:	12/3/2020

TEST PROCEDURE

Sample Source: Gravel Punch	**Sieve Stack:** Composite	**Specimen Procedure:** Moist
Test Method: Method A	**Separating Sieve(s):** 3/8 Inch	**Dispersion Type:** Tap Water

DATA

STANDARD SIEVE DESIGNATION (mm)	ALTERNATIVE SIEVE DESIGNATION (in)	PERCENT PASSING (%)	MDOT 703.06 Type D
75	(3 in)	100	100
50	(2 in)	100	
37.5	(1-1/2 in)	100	
25.0	(1 in)	94	
19.0	(3/4 in)	91	
12.7	(1/2 in)	85	35 - 80
9.5	(3/8 in)	84	
6.35	(1/4 in)	81	25 - 65
4.75	(No. 4)	78	
2.00	(No. 10)	67	
0.850	(No. 20)	48	
0.425	(No. 40)	31	0 - 30
0.250	(No. 60)	21	
0.150	(No. 100)	14	
0.106	(No. 140)	11	
0.075	(No. 200)	8	0 - 7



REMARKS: Moisture Content = 4.2%

SUMMIT
GEOENGINEERING SERVICES

GRAIN SIZE ANALYSIS - ASTM D6913

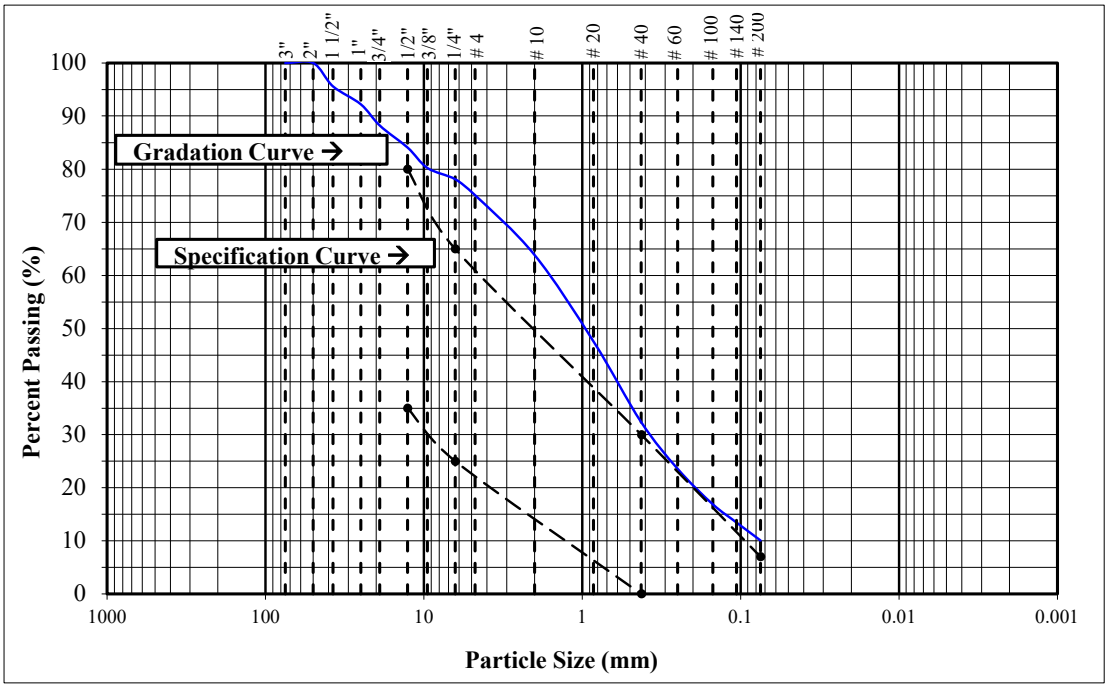
PROJECT NAME:	Roadway Evaluation	PROJECT #:	20394
PROJECT LOCATION:	Merrow Road, Auburn, Maine	EXPLORATION #:	B-12
CLIENT:	Gorrill Palmer	SAMPLE #:	SP-1
TECHNICIAN:	Colleen Sullivan	SAMPLE DEPTH:	0.4' - 2.5'
SOIL DESCRIPTION:	SAND, some Gravel, little Silt, SW-SM	TEST DATE:	12/3/2020

TEST PROCEDURE

Sample Source: Gravel Punch	**Sieve Stack:** Composite	**Specimen Procedure:** Moist
Test Method: Method A	**Separating Sieve(s):** 3/8 Inch	**Dispersion Type:** Tap Water

DATA

STANDARD SIEVE DESIGNATION (mm)	ALTERNATIVE SIEVE DESIGNATION (in)	PERCENT PASSING (%)	MDOT 703.06 Type D
75	(3 in)	100	100
50	(2 in)	100	
37.5	(1-1/2 in)	96	
25.0	(1 in)	92	
19.0	(3/4 in)	88	
12.7	(1/2 in)	84	35 - 80
9.5	(3/8 in)	80	
6.35	(1/4 in)	78	25 - 65
4.75	(No. 4)	75	
2.00	(No. 10)	64	
0.850	(No. 20)	48	
0.425	(No. 40)	32	0 - 30
0.250	(No. 60)	24	
0.150	(No. 100)	17	
0.106	(No. 140)	13	
0.075	(No. 200)	10	0 - 7



REMARKS: Moisture Content = 7%

SUMMIT
GEOENGINEERING SERVICES

GRAIN SIZE ANALYSIS - ASTM D6913

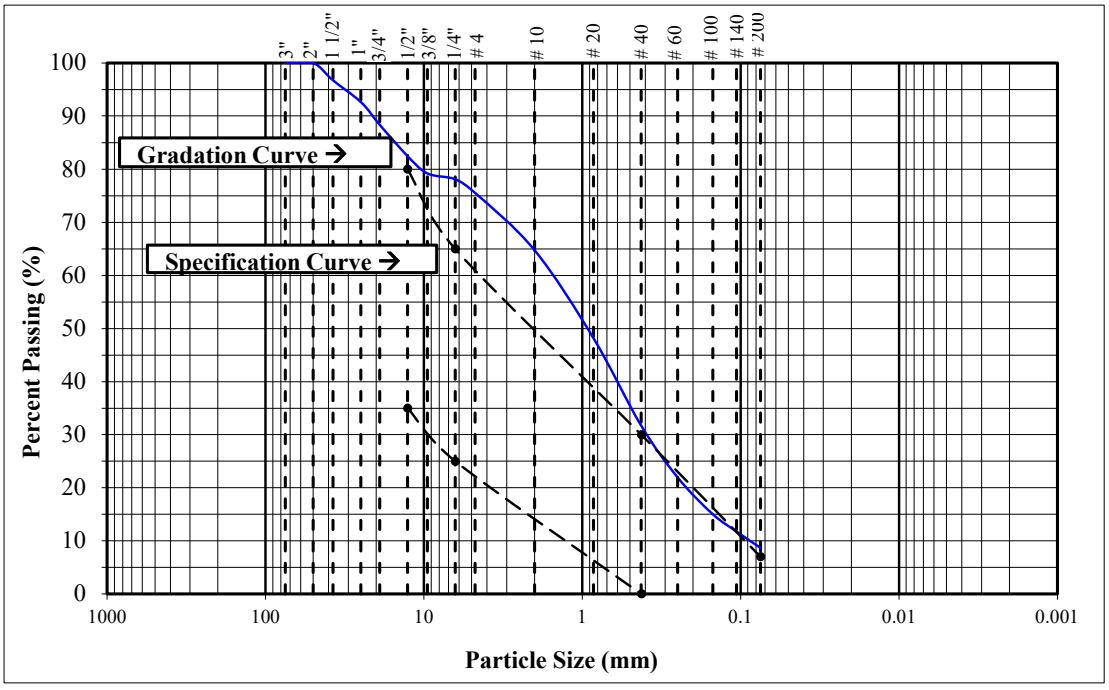
PROJECT NAME:	Roadway Evaluation	PROJECT #:	20394
PROJECT LOCATION:	Merrow Road, Auburn, Maine	EXPLORATION #:	B-14
CLIENT:	Gorrill Palmer	SAMPLE #:	SP-1
TECHNICIAN:	Colleen Sullivan	SAMPLE DEPTH:	0.6' - 3.5'
SOIL DESCRIPTION:	SAND, some Gravel, little Silt, SW-SM	TEST DATE:	12/3/2020

TEST PROCEDURE

Sample Source: Gravel Punch	**Sieve Stack:** Composite	**Specimen Procedure:** Moist
Test Method: Method A	**Separating Sieve(s):** 3/8 Inch	**Dispersion Type:** Tap Water

DATA

STANDARD SIEVE DESIGNATION (mm)	ALTERNATIVE SIEVE DESIGNATION (in)	PERCENT PASSING (%)	MDOT 703.06 Type D
75	(3 in)	100	100
50	(2 in)	100	
37.5	(1-1/2 in)	97	
25.0	(1 in)	93	
19.0	(3/4 in)	88	
12.7	(1/2 in)	82	35 - 80
9.5	(3/8 in)	79	
6.35	(1/4 in)	78	25 - 65
4.75	(No. 4)	76	
2.00	(No. 10)	65	
0.850	(No. 20)	48	
0.425	(No. 40)	32	0 - 30
0.250	(No. 60)	22	
0.150	(No. 100)	15	
0.106	(No. 140)	12	
0.075	(No. 200)	9	0 - 7



REMARKS: Moisture Content = 4.6%

Appendix B

1) City of Auburn – Blasting Ordinance

Chapter 14

BUSINESS LICENSES AND PERMITS

Article XIX

BLASTING

Sec. 14-700. - Purpose; statutory authority; enforcement.

A. Blasting is an activity essential to the economic viability of Auburn. Unregulated blasting and/or irresponsible blasting may cause undue damage to the people, property and environment of the City.

B. This chapter establishes specific standards for blasting operations, notice requirements, instrument monitoring requirements of blasting operations, a permit process for blasting and other associated standards and requirements.

C. It is intended to minimize the effects of air overpressure, ground vibration, dust, and noise associated with blasting which may be detrimental to the enjoyment of life, property and the conduct of business for those individuals affected.

D. It is also intended to provide standards that will prevent permanent damage to the geologic, hydrogeologic and wildlife resources and ecological balance in the region outside the immediate blast area. The chapter is intended to protect the quality of life and the homes of residents, neighborhoods, property, groundwater, wildlife resources, scenic beauty and/or businesses, all lying outside the approved work area and potentially affected by the blasting.

E. It is intended to be effectively and efficiently administered without causing undue financial and administrative hardship to blasting operators.

F. This chapter is enacted pursuant to 30-A M.R.S.A. § 3001, Ordinance power, as well as the City's Home Rule authority under the Maine Constitution, and shall be administered by the Planning, Permitting, and Code Department.

G. The city planning, permitting, and code department shall have authority to enforce all requirements of this Chapter in accordance with section 60-1403.

Sec. 14-701. - Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Air overpressure means an airborne shock wave resulting from detonation of explosives. Air overpressure may be caused by burden movement or the release of expanding gas into the air. Air overpressure may or may not be audible.

Applicant means the owner or other individual, corporation or other business entity who or which applies for the legal right to conduct blasting at real property which it has the legal right to use.

Blast site means the area where explosive material is handled during the loading of drilled blastholes, including the perimeter formed by the loaded blastholes and 50 feet in all directions from loaded blastholes.

Blast size means, for a

A. Small blast: trench blast or under 50 cubic yards of rock removed.

B. Medium blast: removal of 50 to 300 cubic yards of rock material.

C. Large blast: removal of over 300 cubic yards of rock material.

Blaster means an applicant who has been awarded a permit to conduct blasting.

Blasting means the use of explosives to break up or otherwise aid in the extraction or removal of rock or other consolidated material.

Blasting operations means all processes conducted in association with site or other preparation for blasting, and the detonation of explosives.

Decibel means the unit of sound pressure commonly used to measure air overpressure from explosives. The decibel scale is logarithmic.

Explosives means any substance, chemical compound or mechanical mixture that is used for the purpose of producing an explosion to fragment rock for mining, quarrying, excavation and construction. Initiating devices (detonators, detonating cords, etc.) are also included under this definition.

Extractive industry means any operation engaged in the removal of more than 20 cubic yards, in a twelve-month period, of topsoil, sand, gravel, clay, rock, peat or other like material from its natural location and for transportation off lot within any twelve-month period, except as may be exempted within the extractive industry performance standards in this chapter.

Flyrock means rock that is propelled through the air or along the ground, which leaves the secured blast area as a result of the detonation of explosives.

Ground vibrations means the energy from a blast that manifest itself in vibrations which are transmitted through the earth away from the immediate blast site. Ground vibrations are to be measured along three principal axes (x, y, z); namely, transverse, vertical, and longitudinal, all of which are subject to the performance standards herein.

Groundwater means water beneath the earth's surface often between saturated soil and rock that supplies wells and streams.

Hertz means a term used, in the case of blasting, to express the frequency of ground vibrations and air overpressure. One hertz is one cycle per second.

Particle velocity means a measure of ground vibration in the case of blasting. Particle velocity describes the velocity at which a particle of ground vibrates when excited by a seismic wave. It is measured in inches per second.

Pre-blast Survey means an inspection of the dwellings, water supplies, and other structures within the blasting notice area for the purpose of documenting the physical conditions prior to the commencement of blasting.

Quarry means the property designated in the application and permit where rock is excavated in an extractive industry operation~~.~~ ,which is licensed and governed by the performance standards 38 MRSA Section 490-Y.

Secured blast area means the area that may be affected by flyrock, dust, or fumes from an explosion that may cause personal injuries, damages to property, or losses in the process. The minimum distance for personnel is 500 feet. Safe distances will be determined based on conditions for each

blast by the blasting foreman or designee.

Seismograph means an instrument that measures and has the capability to provide a permanent record of hertz and decibel readings concerning ground vibrations caused by blasting.

Source water means bodies of water (such as rivers, streams, lakes, reservoirs, springs, and ground water) that provide water to public drinking-water supplies and private wells.

Sec. 14-702. - Blasting permit required; effect on other regulations.

A. No blasting within the City of Auburn shall be allowed unless a permit has been obtained from the city planning, permitting, and code department, except as otherwise exempted per this chapter.

B. The requirements of this chapter are in addition to any other applicable ordinances, regulations, and statutes. This includes adherence to the standards set forth in NFPA 495. Where different standards are contained within these documents or any other relevant regulations, the more restrictive standards shall apply.

C. This chapter does not replace or negate federal and/or state requirements pertaining to explosives including OSHA CFR 1923.900 and 1910.109.

Sec. 14-703. - Permit requirements.

A. Blasting permit required.

(1) The following shall require a permit:

(a) Site plan/subdivisions. If the Planning Board determines that a project involves or may require blasting, it shall expressly state and set out in its conditions of approval for such project that the applicant/developer secure from the director of the city planning, permitting, and code department, or their designee, a proper blasting permit in advanced of blasting, and as required herein.

(b) General construction. For any specific construction project, whether reviewed or not reviewed by the Planning Board as part of site plan or subdivision, that is found to need blasting at any time, the owner/developer, or responsible general contractor, shall secure a blasting permit, as described herein, from the director of the city planning, permitting, and code department, or their designee, prior to any blasting.

(c) Extractive industry and gravel pits. Any party who operates a gravel pit or who otherwise engages in extractive industry or earth removal operations shall secure from the director of the city planning, permitting, and code department, or their designee, a blasting permit, as described herein, prior to any blasting.

(d) All other blasting locations. Any other person or party, regardless of prior review, and regardless of purposes, that may need to conduct blasting shall be required to obtain a blasting permit, as described herein, from the city planning, permitting, and code department.

(2) No person or party may conduct any blasting within the boundaries of the City of Auburn without first having obtained review and approval from the director of the city planning, permitting, and code department, or their designee.

B. Notice required

(1) Blasting activities for Extractive Industries and Quarries shall require an application for a permit to conduct blasting operations at least 30 days prior to conducting blasting or drilling. The application for permit to conduct blasting shall contain the information described in Paragraph C, referred to as the “blast plan”

(a) Following the issuance of permit, notice of the blasting shall be made public in at least one newspaper of general circulation in the area at least 10 days before initiation of blasting at the site.

(b) Annually thereafter, extractive industry sites and quarries shall renew their permit by providing a new application at least 30 days prior to expiration of their permit.

~~B.~~

C. All other proposed blasting activities in the City of Auburn shall require application for permit to conduct blasting operations at least 14 days prior to conducting blasting or drilling. Notice of blasting to be given to the city planning, permitting, and code department, in writing, at least 10 business days prior to the proposed start of blasting. Notice of the blasting shall be made public in at least one newspaper of general circulation in the area at least 10 days before such blasting is scheduled to take place.

~~C.~~D. Blasting application information. All applications for permits to conduct blasting shall contain the following information, referred to as the "blast plan."

(1) Applicant: the applicant's name, address, daytime telephone number, fax number, and e-mail address.

(2) Owner's name, address, daytime telephone number, fax number, and e-mail address.

(3) Blasting contractor: the blasting contractor's name, address, daytime telephone number, fax number, and e-mail address (if other than the blaster). Contractor shall submit written evidence of license(s) held, experience and qualifications of the individual who will be responsible for loading and firing each shot.

(4) General contractor: the general contractor's name, address, daytime telephone number, fax number, and e-mail address.

(5) Work site: the street address and Tax Assessor's map and lot number for the proposed blasting activity. If the blast plan is for a property shown on a plan reviewed by the Planning Board, the blast area for which the permit is requested shall be included on the plan.

(6) Information about the blast plan to include the following:

(a) Purpose of blast: a brief description of the work for which the blasting activity is requested.

(b) Volume of material: the estimated number of cubic yards (measured in place) of material to be loosened or fragmented by blasting.

(c) Number of blasts: the estimated number of blasts required to loosen or fragment the specified amount of material.

(d) Blast period: the planned starting and ending dates of the blasting activity.

(e) Site diagram: a sketch or diagram showing the property where blasting will be conducted, including: the location of adjacent structures and distance to those structures; description and location of blasting signs.

(f) Description of test blast drill pattern.

(g) Explosives to be used during both wet and dry conditions.

(h) Description of matting that will be used to prevent flyrock.

(i) Type, number, and planned locations of seismograph, and any other instrumentation proposed for use to monitor vibrations and air overpressures.

(j) Description of proposed transport and storage of explosives.

(k) Description of safety procedures, security measures, and warning procedures to be employed before, during and after the blast period.

(l) Signature of blasting contractor testifying to the accuracy of the blast plan.

(m) Dig safe number

~~D.~~E. Liability insurance. Blasting contractors and/or applicants shall carry general liability insurance in accordance with the following:

(1) The amount insured must be a minimum amount of $2,000,000 combined single limit per occurrence.

(2) The insurance policy must contain specific reference to blasting as an activity covered by the insurance.

(3) The policy shall indemnify and hold harmless the City, its agents and/or representatives, employees, and residents from and against any or all claims, damages, losses and expenses including legal fees arising out of or resulting from performance of the work, provided that such claim, damage, loss or expense is attributable to bodily injury or death, or to injury to or destruction to tangible personal or real property, including the loss of use, resulting in whole or in part from the blasting activity by any negligent act or omission of the contractor or any of its officers, agents, employees, representatives, subcontractors, and/or anyone directly or indirectly employed by any of them or anyone for whose acts any of them would be liable regardless of whether it is caused in part by a party indemnified hereunder and the contractor shall, at its own expense, defend and protect said indemnified parties against all such claims and demands.

(4) The City shall be named as a certificate holder to ensure the liability insurance is maintained throughout the duration of the blasting operation. The certificate must provide that the City of Auburn shall be notified at least 10 days prior to any cancellation

~~E.~~F. Public hearing. A public hearing is not required prior to the issuance of a blasting permit by the director of the city planning, permitting, and code department, or their designee. Public Hearings are required for new Quarries under Chapter 60, Article III of City Ordinances.

~~F.~~G. Fees. Fees for blasting permits shall be as determined, and amended from time to time, by City Council order.

~~G.~~H. Permit duration.

(1) Extractive Industries and Quarries: Permits shall be valid for one year.

(2) All other blasting permits shall be valid for a period of 90 days. No blasting after 90 days shall occur except as permitted herein.

(3) Lapse and extension. Any party that does not complete its blasting within the defined permit period may apply to the director of the city planning, permitting, and code department, or their designee, for a reasonable extension, not to exceed 60 days. The director shall have full discretion as to the length and condition of any extension. If the ninety-day period lapses prior to a request for extension, the director may require that the party reapply for a new blasting permit.

~~(3)~~(4) In consideration of the safety hazards and community concerns associated with adverse weather conditions, this ordinance permits the adjustment of blasting operations in response to lightning-related disruptions, wind-related community concerns, and atmospheric conditions, including pressure variations. When such conditions are present, operators are authorized to modify the timing and duration of blasting activities as necessary to ensure the safety of all personnel, minimize impacts on the surrounding community, and maintain compliance with regulatory requirements. Any adjustments made must be promptly communicated to the appropriate authorities and property owners.

~~H.~~I. Notice and pre-blast survey.

(1) The following notification and pre-blast survey requirements shall be required for all blasting permits prior to commencing blasting:

	Small blast (feet)	Medium blast (feet)	Large blast (feet)
Notice required	500	700	900
Pre-blast survey to be offered	100	300	500

(2) The blasting contractor will hire an independent qualified seismologist, blasting consultant or engineer to perform pre-blast surveys on all structures and wells in the areas outlined in Subsection H(1) above, contingent upon property owner agreement. The independent seismologist or blasting consultant shall not be an employee of the contractor, subcontractor, explosives manufacturer, or explosives distributor.

(3) Pre-blast survey offer notice: Prior to commencement of the pre-blast surveys, the blasting contractor shall provide the following documentation to the city planning, permitting, and code department:

(a) A list of property owners to be contacted (in accordance with the distances listed in the table, above).

(b) Verification that the subject property owners were notified of the pre-blast survey work.

(c) A copy of the pre-blast survey offer notice.

(d) Whether each offer to conduct a pre-blast survey was either accepted, rejected, or there was no response. The blasting contractor shall retain a copy of each pre-blast survey offer notice for their records until the development project receives a final certificate of occupancy or is otherwise deemed complete by the City. Nothing herein shall be construed to discourage repeated efforts by the blasting contractor to contact eligible property owners via phone, hand delivery, or other method in

addition to provision of the required offer notice letter.

(4) Pre-blast survey documentation. All pre-blast surveys shall include documentation of interior subgrade and above-grade accessible unobscured walls, ceilings, floors, roof and visible exterior as viewed from the grade level. Where significant cracks or damage exist, or for more complex structural defects, photographs or video shall be taken. A high-quality digital video or videotape survey with appropriate audio description of the locations, conditions, and defects may substitute for a written pre-blast survey. Where necessary, notes and sketches may also be used as part of a video pre-blast survey in order to highlight or elaborate on certain aspects of the video documentation.

(5) Pre-blast survey conditions report. All pre-blast surveys shall include an existing conditions report for each property. The conditions report may be presented as narrative, photographs, video or a combination thereof. Conditions reports shall summarize the condition of each building and define areas of concern, including deteriorated structures or utilities, structures housing sensitive equipment, and/or manufacturing processes that are sensitive to vibrations.

(6) Verification that all pre-blast surveys and conditions reports have been completed shall be submitted to the city planning, permitting, and code department at least two weeks prior to commencing any drilling and/or blasting operations.

(7) The blasting contractor shall maintain a copy of the pre blast survey conditions report for a minimum of six years after the conclusion of blasting.

(8) The blasting contractor shall make a copy of the pre-blast survey conditions report available to the property owner.

Sec. 14-704. - Performance standards.

All blasters shall comply with the following performance standards:

A. Hours of detonation.

(1) Extractive industry blasting. Hours of detonation are limited to between 10:00 a.m. and 5:00 p.m., Monday through Friday inclusive, excluding the following legal holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, , Thanksgiving and Christmas.

~~(1)~~(2) At the discretion of the Director of Planning and Permitting, small scale blast of less than 25 pounds of explosives which occur more than 500 feet from a structure may be permitted on weekends and holidays.

~~(2)~~(3) All other blasting. Hours of detonation are limited to between sunrise and sunset but no earlier than 7:00 a.m. and no later than 7:00 p.m., Monday through Friday inclusive, excluding the following legal holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving and Christmas, unless otherwise more restrictive hours of detonation are specified by the Planning Board.

(4) Emergency situations. Blasting of any type may occur at any time in situations deemed to be emergencies by the director of the city planning, permitting, and code department, or their designee, after consultation with other City staff as may be determined to be necessary by the director. Emergency situations may include, but are not limited to, blasting to install utilities damaged by weather events, unanticipated needs for blasting to complete City infrastructure project when the delay would significantly affect project timelines or City services, or blasting to correct a misfire of explosives in an otherwise

permitted blast event.

~~(3) In consideration of the safety hazards and community concerns associated with adverse weather conditions, this ordinance permits the adjustment of blasting operations in response to lightning-related disruptions, wind-related community concerns, and atmospheric conditions, including pressure variations. When such conditions are present, operators are authorized to modify the timing and duration of blasting activities as necessary to ensure the safety of all personnel, minimize impacts on the surrounding community, and maintain compliance with regulatory requirements. Any adjustments made must be promptly communicated to the appropriate authorities and property owners.~~

B. Water quality protection. Water is a precious resource, and the applicant must take measures to assure that the quality of source water is protected. Prior to the initial blast, the applicant must offer water quality tests on all non-applicant-owned wells within distances outlined in Sec. 14-703(H) above. Water quality testing must also be offered post-blast if requested by the property owner because of evidence of a substantive change in water quality. Turbidity in wells tested shall be no greater than that which existed prior to the blasting as established in the pre-blast survey.

C. Ground vibration, Air Overpressure, Flyrock and Gases

(1) Ground vibration, Air Overpressure, Flyrock and gases shall be controlled and shall not exceed the limits defined in NFPA 495.

(2) Measurements shall be required for all blasts. Ground vibration shall be measured as particle velocity. Particle velocity shall be recorded in three mutually perpendicular directions (x, y, z). The maximum allowable peak particle velocity shall apply to each of the three measurements. Any blast made with less than 25 pounds of explosives in an Extractive Industry or Quarry operation which occurs more than 500 feet from a structure, building, or source water is exempt from this seismological measurement requirement.

(3) Seismographic record. A seismographic record for all blasts shall be retained by the applicant and provided to the city planning, permitting, and code department or the Planning Board, if requested. The applicant is responsible for such record and for providing proper instrumentation as specified in this chapter. Personnel conducting such monitoring shall be properly trained in the operation of the equipment being used.

(4) Measurements. The requirements established herein shall be measured at the closest building(s) on abutting properties as determined by the director of the city planning, permitting, and code department, or their designee,

D. Other permits. The applicant must also comply with all standards and conditions contained in other permits issued for such projects and local, state and federal statutes and regulations.

E. Blasting seismographs used to monitor ground vibrations and air overpressure shall comply with the ISEE document, “Performance Specifications for Blasting Seismographs” and all seismographs shall be deployed in the field according to ISEE document, “Field Practice Guidelines for Blasting Seismographs.”

Sec. 14-705. – Notices.

A. Required notification of blasting for Quarry Operations.

(1) Initial notice. State licensed quarry operations are subject to public notification and public hearing processes prior to State licensure. This initial notification is to serve as notice to residents of the commencement of blasting at a new quarry site. The blaster must send, by first-class mail an advisory notice to all property owners within 2,000 feet of the secured blasting area. Notifications shall be mailed no later than 10 calendar days and no earlier than 14 calendar days prior to the initiation of blasting. A certificate of mailing shall be submitted to the city planning, permitting, and code department as verification that said mailings were done. Said notice must include the description of the blasting signals to be utilized during the operation. The blaster of either an earth removal operation or other project must provide notice to a property owner who has made a written request to the blaster.

(2) Twenty-four-hour notice. Prior to every blast, the blaster shall notify all property owners within 2,000 feet of the production quarries. Such notification shall be given by telephone, or by door hangers on the door of the residence or business, between 24 hours and 48 hours prior to the blast. The notification shall state the time the blast is proposed to occur, and the blast may occur as early as one hour prior to the noticed time and as late as one hour after the noticed time. The burden of proof of notification is the responsibility of the blaster.

B. Required notification of blasting for all other blasting. The following notice requirements for any blast requiring a blasting permit shall be adhered to by the blaster.

(1) Initial notice. The blaster must send initial notice by first-class mail an advisory notice to all property owners within the distances outlined in Sec. 14-703H(1) of the secured blasting area. Notification shall be mailed no later than 10 calendar days and no earlier than 14 calendar days prior to the initiation of blasting. A certificate of mailing shall be submitted to the city planning, permitting, and code department as verification that said mailings were done. Said notice must include the description of the blasting signals to be utilized during the operation. The blaster of either an earth removal operation or other project must provide notice to a property owner who has made a written request to the blaster.

(2) Twenty-four-hour notice. Prior to every blast, the blaster shall notify all property owners within 300 feet of the secured blasting area. This will be done whether or not the property owners requested to be notified. The blaster shall also notify all others who have requested in writing to be so notified. Such notification shall be given by telephone, or by door hangers on the door of the residence or business, between 24 hours and 48 hours prior to the blast. The notification shall state the time the blast is proposed to occur, and the blast may occur as early as one hour prior to the noticed time and as late as one hour after the noticed time. The burden of proof of notification is the responsibility of the blaster.

C. Emergency Services Notification: The 911 dispatch center servicing the City of Auburn must be notified at least 24 hours prior to any explosive detonation. The notification shall include the address for the blast site as well as the anticipated start time for blasting and anticipated time that blasting will conclude for the day.

Sec. 14-706. - Inspection, monitoring, and recordkeeping.

A. Entry. The director of the city planning, permitting, and code department, or their designee, may enter the secured blasting area or adjacent area to conduct site evaluations and observe any authorized blasting operations and may order that additional ground vibration and air overpressure measurements using approved instrumentation be made by persons responsible

for blasting operations to ensure that the limits specified in this chapter are not exceeded, if excess readings are indicated.

B. Additional monitoring. The blaster shall maintain a record of each blast. All records shall be retained at least three years following cessation of the blasting operation, and shall be available for inspection by the director of the city planning, permitting, and code department, or their designee, or any property owner within the distances outlined in Sec. 14-703H(1) of the secured blasting area, and shall contain the following minimum data for traceability purposes:

(1) Name and contact information of responsible party: the name and contact information of the person(s) responsible for the blasting operation.

(2) Location, date, time, number and pattern/spacing of blast holes, total charge weight, charge weight per delay, date and time of each blast.

(3) Blaster: the name(s) of blaster in charge.

(4) Weather: the weather conditions (including such factors as wind direction, cloud cover, etc.).

(5) Data: seismograph and air overpressure readings, including date, time, and location of instrument.

(6) Notice: name, addresses, date and time of all persons who were notified prior to every blast.

Sec. 14-707. - Compliance schedule.

A. Applicability. Upon adoption of this chapter, all existing and new blasting operations are subject to the terms herein and must obtain a permit to conduct any further blasting.

B. Review. A complete review of all activities under this chapter shall be undertaken by the director of the city planning, permitting, and code department 12 months after adoption of this chapter to determine if the levels are adequate and reasonable to achieve the purpose for which this chapter is intended. The results of this review shall be reported to the City Manager, who will report to the City Council with recommendations of the review.

Sec. 14-708. - Exceptions for undue hardship.

A. Application. Applications for a permit for exception from the performance standards designated in this chapter may, on the basis of hardship, be made to the director of the city planning, permitting, and code department, or their designee. Any permit granted hereunder shall contain all conditions upon which said permit has been granted and shall specify a reasonable time that the permit shall be effective.

B. Standards. The director of the city planning, permitting, and code department, or their designee, may grant the exception as applied for only if:

(1) Limited in scope: the activity or operation will be of a temporary duration, i.e., a limited number of blasts at a specific site, and cannot be done in a manner that would comply with this chapter;

(2) Reasonable alternative: no other reasonable alternative is available to the applicants; and

(3) Safety: the applicants represent, and the director of the city planning, permitting, and code department, or their designee, finds, that blasting as permitted will not violate recognized safety standards.

C. Conditions. Upon the issuance of any exception permit, the director of the city planning, permitting, and code department, or their designee, may limit the scope of the exception and prescribe any reasonable conditions or requirements he deems necessary to minimize adverse effects.

Sec. 14-709. - Violations and penalties.

A. Penalties. The submission of false information required by this chapter, or the violation of this chapter or the violation of any condition attached to a permit granted under this chapter shall constitute a land use violation for which an enforcement action may be commenced by the City in accordance with 30-A M.R.S.A. § 4452.

B. Reporting. A copy of the violation report and consent agreement reached between the City and the person or entity found in violation of any portion of this chapter will be filed in the permit or license file.

Sec. 14-710. - Conflict.

Blasting in Auburn shall be conducted in compliance with all pertinent section of the City Code of Ordinances, and, except as superseded by the provision of this article, the NFPA 1 Fire Prevention Code, and NFPA 495 Explosive Materials Code as adopted by the State of Maine. In any particular instance where these regulations are in conflict with any other rules, regulations or ordinances of the City, the more restrictive regulation or provision shall prevail.

Sec. 14-711. - Appeal of denial of a blasting permit.

If the city planning, permitting, and code department has denied a blasting permit under this article, the applicant may appeal the denial to the Zoning Board of Appeals within 30 days of the decision by filing a written notice of appeal.

Sec. 14-712 to 725 Reserved.

Appendix C

1) Maine DOT - Standard Detail Updates
2) Maine DOT – Standard Specifications Updates

December 17, 2024
Supersedes November 07, 2024

2020 STANDARD DETAIL UPDATES

Standard Details and Standard Detail updates are available at:
http://maine.gov/mdot/contractors/publications/standarddetail/

Detail #	Description	Posted Date
502(19)	Bridge Drains	3/17/2023
502(15)	Bridge Drains	3/17/2023
502(20)	Bridge Drains	3/17/2023
502(23)	Bridge Drains	3/17/2023
502(24)	Bridge Drains	3/17/2023
502(25)	Bridge Drains	3/17/2023
502(26)	Bridge Drains	3/17/2023
504(07)	Diaphragm & Crossframe Notes	3/17/2023
507(20)	Steel Approach Railing 3-Bar	2/11/2021
507(21)	Steel Approach Railing 3-Bar	2/11/2021
507(22)	Steel Approach Railing 3-Bar	2/11/2021
507(23)	Steel Approach Railing 3-Bar	2/11/2021
507(27)	Steel Approach Railing	2/11/2021
526(01)	Portable Concrete Barrier	1/14/2021
526(01A)	Portable Concrete Barrier	1/14/2021
526(01B)	Portable Concrete Barrier	1/14/2021
526(02)	Portable Concrete Barrier	1/14/2021
526(02A)	Portable Concrete Barrier	1/14/2021
526(03)	Portable Concrete Barrier	1/14/2021
526(04)	Portable Concrete Barrier	1/14/2021
526(04A)	Portable Concrete Barrier	1/14/2021
526(04B)	Portable Concrete Barrier	1/14/2021
526(05)	Permanent Concrete Barrier	3/17/2023
526(21)	Permanent Concrete Barrier	3/17/2023
526(22)	Concrete Transition Barrier	3/17/2023
526(38)	Concrete Transition Barrier	3/17/2023
526(39)	Texas Classic Rail	3/17/2023
526(55)	Texas Classic Rail	3/17/2023

603(10)	Concrete Pipe Ties	6/10/2021
605(01)	Underdrain	7/8/2022
605(01)	Underdrain Notes	7/8/2022
606(17)	Midway Splice Guardrail Transition	6/10/2022
606(23)	Standard Bridge Transition – Type “1”	2/11/2021
606(24)	Standard Bridge Transition – Type “1A”	2/11/2021
608(02)	Detectable Warnings	6/10/2021
609(09)	Precast Concrete Vertical Curb	2/11/2021
627(07)	Crosswalk	2/22/2022
627(08)	Crosswalk	2/22/2022
643(11)	ATCC Cabinet	12/14/2020
645(06)	H Beam Posts Highway Signing	12/17/2024
801(11)	Pedestrian Ramp Notes	11/20/2023
801(12)	Pedestrian Ramp Requirements	11/20/2023
801(13)	Ramp Length Table	11/20/2023
801(14)	Parallel Pedestrian Ramp	11/20/2023
801(15)	Perpendicular Pedestrian Ramp – Option 1	11/20/2023
801(16)	Parallel Pedestrian Ramp – Option 2A	11/20/2023
801(17)	Perpendicular Pedestrian Ramp – Option 2A	11/20/2023
801(18)	Parallel Pedestrian Ramp – Option 2B	11/20/2023
801(19)	Perpendicular Pedestrian Ramp – Option 2B	11/20/2023
801(20)	Parallel Pedestrian Ramp – Option 3	11/20/2023
801(21)	Perpendicular Pedestrian Ramp – Option 3	11/20/2023
801(22)	Side Street Pedestrian Ramp	11/20/2023
801(23)	Parallel Pedestrian Ramp – Esplanade	11/20/2023
801(24)	Perpendicular Pedestrian Ramp – Esplanade	11/20/2023
801(25)	Island Crossings	11/20/2023
801(26)	Blended Transition	11/20/2023
801(26)	Blended Transition	1/19/2024
801(27)	Pedestrian Ramp Adjacent to Driveway or Entrance	11/20/2023
802(05)	Roadway Culvert End Slope Treatment	1/03/2017
802(05)	Roadway Culvert End Slope Treatment	11/01/2024

SUPPLEMENTAL SPECIFICATIONS
(Corrections, Additions, & Revisions to Standard Specifications – March 2020)

SECTION 101
CONTRACT INTERPRETATION

101.2 Definitions

Construction Easement revise this definition by removing it in its entirety and replace with; **"A right acquired by the Department for a specific use of private property outside of the established Right-of-Way. Examples include but are not limited to Drainage Easements, Construction and Maintenance Easements, and Slope Easements. Construction Easement areas, including Temporary Construction Limits and Temporary Road Limits, outside of the Right-of-Way remain private property. No use other than to access and perform the specified work activity is permitted without written permission of the owner."**

Construction Limit Line Remove this definition in its entirety.

Holidays Amend this paragraph by adding "**Juneteenth**" between 'Memorial Day' and 'Independence Day'.

Plans Revise this paragraph by removing "**Standard Details, Supplemental Standard Details**" from the first sentence.

Project Limits Revise this definition by removing it in its entirety and replacing it with: **"Areas within the Right-of-Way, Construction Easements, or Temporary Construction Limits shown on the Plans or otherwise indicated in the Contract. If no Project Limits are indicated in the Contract, the Project Limits shall be determined by the Department. For a related Maine statute, see 23 MRSA § 653. "**

Right-Of-Way Revise this definition by removing it in its entirety and replacing it with: **"The area of land, property, or interest therein, acquired for or devoted to the Project or other purposes. Portions of the Right-of-Way may be used for storage of materials and equipment and the location of engineering facilities, subject to written approval by the Department."**

Amend this Section by adding the following two definitions (that replace Construction Limit Line);

Temporary Construction Limits The area within which the Contractor may access and perform the Physical Work and outside of which Work may not be performed without written authorization by the property owner.

Temporary Road Limits The area within which the Contractor may construct and maintain a temporary detour for maintenance of traffic.

SECTION 102
BIDDING

102.11 Bid Responsiveness Revise the paragraph that states "The Bid is not signed by a duly authorized representative of the Bidder." So that it reads:

"**The Bid is not signed by a duly authorized representative of the Bidder.**

- **Properly submitted electronic bids meet this requirement.**
- **Paper bids must include at least one signed copy of the Contract Agreement Offer & Award form**."

SECTION 103
AWARD AND CONTRACTING

103.3.1 Qualification Requirement for Award Revise this subsection so that it reads:

"**103.3.1 Qualification Requirement for Award If the Notice to Contractors lists a Prequalification requirement, the Apparent Successful Bidder must successfully complete the Prequalification process as a condition of Award. The Apparent Successful Bidder who does not already hold an Annual Prequalification shall have 21 days to provide the Department with their Prequal documents or the Department may move on to the next low bidder."**

SECTION 104
GENERAL RIGHTS AND RESPONSIBILITIES

104.2.1 Furnishing of Right-of-Way Revise this subsection by removing it in its entirety and replace with the new subsection:

"104.2.1 Furnishing of Property Rights The Department will secure all necessary rights to real property within the Project Limits shown on the Right-of-Way Plans that are provided with the Bid Documents. For related provisions, see Sections 104.3.2 – Furnishing of Other Property Rights, Licenses and Permits and 105.4.5 - Maintenance of Existing Structures. For related definitions, see Construction Easements and Right-of-Way."

104.3.2 Furnishing of Other Property Rights, Licenses and Permits Revise this subsection by replacing "104.2.1 Furnishing of Right-of-Way" with "**104.2.1 Furnishing of Property Rights".**

SECTION 105
GENERAL SCOPE OF WORK

105.10.1.4 Race-conscious Project Goals Revise the second paragraph of this section so it reads as follows:

*"***At the time of the bid opening, all Bidders shall submit with their bid a Disadvantaged Business Enterprise (DBE) Commitment Form provided by the Department. This form will list the DBE and non-DBE firms that are proposed to be used during the execution of the Work. This form must be filled out in its entirety. The dollar total of each commitment shall be totaled and a percentage determined.***"*

105.10.2 Requirements Applicable to All Contracts Under section A, number 2, in the first sentence of the first paragraph, revise this Section by replacing the word "handicap" in two places with the word "disability" so it now reads:

"2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, State that all qualified applicants will receive consideration for employment without regard to race, color, sexual orientation, religious creed, sex, national origin, ancestry, age, physical disability, or mental disability."

SECTION 106
QUALITY

106.6 Acceptance Revise this Subsection by replacing the paragraph beginning with "Acceptance of Hot Mix Asphalt Pavement will be based" with:

"Acceptance of Hot Mix Asphalt Pavement will be based on Method A or C Statistical Acceptance, or Method B or D Acceptance as specified. The method of acceptance for each item is defined in Special Provision, Section 403, Hot Mix Asphalt Pavement. When items of Hot Mix Asphalt Pavement are not so designated, Method A will be utilized whenever there are more than 1000 tons per Hot Mix Asphalt Pavement item, and Method B will be utilized when there are less than or equal to 1000 tons per Hot Mix Asphalt Pavement item."

Revise Subsection "B" by removing it and replacing it with:

"B. Items not designated for Statistical Acceptance will utilize Method B or D Acceptance testing to validate the quality of the material incorporated into the Project. For material paid under Item 403.209 – Method D, or designated to be visually accepted, the Contractor shall provide the Department with a Certification Letter that indicates that the material supplied complies with the Specifications. Test results representative of the certified material shall be attached to the letter.

The Department will randomly sample and test the certified Material for properties noted in Table 1 of Section 502 - Structural Concrete or Table 14 of Section –401.21

Acceptance Method B & D. Material will be subject to rejection as noted in Structural Concrete Section 502.195 - Quality Assurance Method C Concrete or Hot Mix Asphalt, Section 401.2022 Pay Adjustment – Method B & D."

106.7.1 Standard Deviation Method Revise 106.7.1, subsection H by removing the following from the first paragraph:

"Method B: PF = [70 + (Quality Level * 0.33)] * 0.01"

106.9.1 Warranty by Contractor Revise the third paragraph of this section so that it reads:

"**For a related provision regarding obligations regarding plantings, see section 621.36 – Maintenance Period.** "

SECTION 107
TIME

107.3.1 General Amend this paragraph by adding "**Juneteenth**" between 'Patriot's Day' and 'the Friday after Thanksgiving'.

SECTION 108
PAYMENT

108.2.3 Mobilization Payments Replace Standard Specification 108.2.3 – Mobilization Payments with the following:

"**108.2.3 Mobilization Payments "Mobilization" includes the mobilization and demobilization of all resources as many times as necessary during the Work.**

Percent Mobilization Bid will be determined by taking the amount Bid for Mobilization and dividing by the Total Contract Amount less Mobilization. Mob/(Total Contract – Mob).

Payment will be made at the following intervals:

% Mobilization Bid	% Mobilization Paid at Contract Award	% Mobilization Paid after the Department determines 50% of the work is Complete	% Mobilization Paid at Final Acceptance
10% or less	**50%**	**50%**	
More than 10% to 15%	**33%**	**33%**	**34%**
More than15% to 20%	**25%**	**25%**	**50%**
More than 20% to 30%	**15%**	**15%**	**70%**
Greater than 30%	**10%**	**10%**	**80%**

108.3 Retainage Revise the third paragraph of this section so that it reads:

"Upon Final Acceptance, and determination by the department that there are no claims either by or on the Contractor or Subcontractors; no over payments by the department; no LDs due; and no disincentives due, the Department will reduce Retent to 1% of the original Contract Award amount, or $100,000, whichever is less, as it deems desirable and prudent."

108.4.1 Price Adjustment for Hot Mix Asphalt Revise this section by removing it in its entirety and replacing it with the following:

"108.4.1 Price Adjustment for Hot Mix Asphalt: For each Contract, a price adjustment for performance graded binder will be made for the following pay items, when the total quantity of Hot Mix Asphalt included in these items is in excess of 500 tons, based on the estimated quantities of these items at the time of bid.

Item 403.102	**Hot Mix Asphalt – Special Areas**
Item 403.207	**Hot Mix Asphalt - 19 mm**
Item 403.2071	**Hot Mix Asphalt - 19 mm (Polymer Modified)**
Item 403.2072	**Hot Mix Asphalt - 19 mm (Asphalt Rich Base)**
Item 403.208	**Hot Mix Asphalt - 12.5 mm**
Item 403.2081	**Hot Mix Asphalt - 12.5 mm (Polymer Modified)**
Item 403.2084	**Hot Mix Asphalt - 12.5 mm (Highly Modified HiMAP)**
Item 403.209	**Hot Mix Asphalt - 9.5 mm (sidewalks, drives, & incidentals)**
Item 403.210	**Hot Mix Asphalt - 9.5 mm**
Item 403.2101	**Hot Mix Asphalt - 9.5 mm (Polymer Modified)**
Item 403.2104	**Hot Mix Asphalt - 9.5 mm (Thin Lift Surface Treatment)**
Item 403.21041	**Hot Mix Asphalt - 9.5 mm (Polymer Modified Thin Lift Surface Treatment)**
Item 403.211	**Hot Mix Asphalt – Shim**
Item 403.2111	**Hot Mix Asphalt – Shim (Polymer Modified)**
Item 403.212	**Hot Mix Asphalt - 4.75 mm (Shim)**

Item 403.213	**Hot Mix Asphalt - 12.5 mm (base and intermediate course)**
Item 403.2131	**Hot Mix Asphalt - 12.5 mm (base and intermediate course Polymer Modified)**
Item 403.2132	**Hot Mix Asphalt - 12.5 mm (Asphalt Rich Base and intermediate course)**
Item 403.301	**Hot Mix Asphalt (Asphalt Rubber Gap-Graded)**
Item 461.13	**Light Capital Pavement**
Item 461.210	**9.5 mm HMA - Paver Placed Surface**
Item 461.2101	**Hot Mix Asphalt - 9.5 mm (Polymer Modified)**
Item 461.216	**Hot Mix Asphalt (Shim)**
Item 462.30	**Ultra-Thin Bonded Wearing Course**
Item 462.301	**Polymer Modified Ultra-Thin Bonded Wearing Course**

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

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

Item 403.102–6.2%
Item 403.207–5.2%
Item 403.2071–5.2%
Item 403.2072–5.8%
Item 403.208–5.6%
Item 403.2081–5.6%
Item 403.2084 – 6.2%
Item 403.209–6.2%
Item 403.210–6.2%
Item 403.2101–6.2%
Item 403.2104–6.2%
Item 403.21041–6.2%
Item 403.211–6.2%
Item 403.2111–6.2%
Item 403.212–6.8%
Item 403.213–5.6%
Item 403.2131–5.6%
Item 403.2132–6.2%
Item 403.301–6.2%
Item 461.13–6.7%
Item 461.210 – 6.4%
Item 461.2101 – 6.4%
Item 461.216 – 6.7%
Item 462.30–0.0021 tons/SY
Item 462.301–0.0021 tons/SY”

SECTION 110
INDEMNIFICATION, BONDING, AND INSURANCE

110.3.9 Administrative & General Provisions Amend this subsection by adding "**Automobile Liability**" under letter A) Additional Insured to the list of exceptions.

10. Assurance Required by 49 CFR: 26.13(a)(b) Revise this section by removing it in its entirety and replacing it with the following:

***"*a. MaineDOT shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT-assisted contract or in the administration of its DBE Program or the requirements of 49 CFR part 26. MaineDOT shall take all necessary and reasonable steps under 49 CFR part 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts. MaineDOT's DBE Program, as required by 49 CFR part 26 and as approved by DOT, is incorporated by reference in this agreement. The implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the MaineDOT of its failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the MaineDOT of its failure to carry out its approved program, the Department may impose sanctions as provided for under 49 CFR Part 26, and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Remedies Act of 1986 (31 U.S.C. 3801 et seq.). This language will appear in financial assistance agreements with sub-recipients.**

b. The contractor, sub-recipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, including, but not limited to:

1. **Withholding monthly progress payments;**
2. **Assessing sanctions;**
3. **Liquidated damages; and/or**
4. **Disqualifying the contractor from future bidding as non-responsible."**

SECTION 206
STRUCTURAL EXCAVATION

206.01 Description – *Structural Earth Excavation, Below Grade* delete the entire sentence and replace with "**shall consist of the removal of excavation required for unknown or unanticipated subsurface condition. See 206.04 – Method of Measurement for pay limits**."

206.04 Method of Measurement – Drainage and Minor Structures Paragraph 1, sentence 2, delete the remainder of the sentence beginning with "….provided the maximum allowable…"And replace with: **"….in accordance with the following limits:"**

- **Vertical pay limits:**
  - **Below a plane parallel with and 12 inches below the bottom of the drainage or minor structure or**
  - **Below the excavation limits shown in the Bid Documents; whichever is greater.**

- **Horizontal pay limits – The maximum allowable horizontal dimensions shall not exceed those bounded by vertical surfaces 18 inches outside the base, or extreme limits of, the structure, and to the vertical neat lines of underdrain trenches, as shown in the Contract Documents.**

SECTION 401
HOT MIX ASPHALT PAVEMENT

401.19 Contractor Quality Control Amend this Section by adding the following to the end: **"Failure to comply with the approved QCP will result in work suspension and pay reductions as outlined in Section 106.4.6. The Quality Control Plan Value shall be the total bid value for all items covered by the QCP as identified in Special Provision 403."**

SECTION 501
FOUNDATION PILES

501.044 Special Requirements for Steel Pipe Piles and Steel Casings Amend this section by deleting it in its entirety and replacing with:

Pipe piles shall be driven closed ended, unless otherwise specified. When open-ended pipe piles are specified or when the ends are not completely closed ended when driven, the inside of the pile shall be thoroughly cleaned out, and the inside walls cleaned by jetting or other means approved by the Resident. The sediment control required for the cleaning operations shall be covered in the Contractor's SEWPCP.

Pipe piles shall be inspected and approved by the Resident immediately before concrete is placed in them. They shall be free from rupture and undue deformation and shall be free from water unless the Resident determines that the concrete can be placed without damage to the pile and such that the discharged water will be contained. The Contractor shall provide lights and other equipment necessary to enable the Resident to inspect each pipe pile.

Portland cement concrete for filling the pipe piles shall be placed in one continuous operation to fill the pile completely without causing water contamination. An internal type vibrator shall be used in the top 25 feet. Pile heads shall be protected and cured in accordance with Section 502, Structural Concrete.

The placing of concrete and the driving of piles shall be scheduled so that fresh and setting concrete will not be injured by the pile driving.

Concrete shall not be placed in pipe piles until pile driving has progressed beyond a radius of 15 feet from the pile to be concreted. If pile heave is detected for pipe piles that have been filled with concrete, the piles shall be redriven to the original position after the concrete has attained sufficient strength and a proper hammer-pile cushion system, is in place and is satisfactory to the Resident.

When a reinforcing steel cage is specified, it shall be placed inside the piles to allow for a minimum of 2 inches of concrete cover and the piles shall be filled with concrete to the elevation shown on the Plans.

Full-length pipe piles and steel casings shall be used wherever practicable; however, splicing may be permitted when approved by the Resident. The method of splicing shall be as follows:

a. Steel pipe piles and steel casings shall be spliced by full penetration butt joint welds.

b. When the pipe piles and steel casings are to be spliced while in a vertical position, splicing shall be accomplished utilizing single-bevel groove welds with the use of back-up rings. When the pipe piles and steel casings are to be spliced while in a horizontal position, splicing shall be accomplished utilizing single-vee groove welds with the use of back-up rings.

c. Welded joints shall conform to the Standard Details.

501.047 Splicing Piles Amend this section by deleting it in its entirety and replacing it with:

Full-length piles shall always be used wherever practicable. When full-length piles cannot be used, the number of splices, locations, and details shall be noted in the QCP. Piles fabricated from multiple pieces will be acceptable only if they comply with the following:

H-Beam Piles [a]		Pipe Piles and Steel Casings [a,b]	
Lengths	**Maximum No. Field Splices**	**Lengths**	**Maximum No. Field Splices**
Less than 20 ft.	**0**	**Less than 20 ft.**	**0**
Over 20 – 35 ft.	**1**	**Over 20 – 40 ft.**	**1**
Over 35 – 79 ft.	**2**	**Over 40 – 60 ft.**	**2**
Over 79 ft.	**1 per 40 ft.**	**Over 60 – 80 ft.**	**3**
		Over 80 ft.	**1 per 20 ft.**
[a] Pile lengths less than 10 feet will not be spliced, except as the final (top) section of the pile. [b] Where pipe piles are used for pile bent piers, no splices will be allowed in the length of pile from the cutoff elevation to 2 feet below the channel bottom.			

When pre-planned splicing is approved, the pile piece of lesser length shall be placed at the tip of the pile (the first part of the pile that enters the ground).

When splicing is allowed, the work shall be done in accordance with the following:

A. Welding shall be done in accordance with the requirements of the AWS D1.1 welding code.
B. Qualify welders in accordance with the most recent edition of the AWS D1.5 code.
C. Submit a written Weld Procedure Specification (WPS) for each joint to be included as part of the QCP. The WPSs shall be provided to the Fabrication Engineer for review and approval prior to beginning welding. Provide copies of the approved WPSs to the welder, QC Inspector and Resident prior to beginning welding. Welding performed without an approved WPS and approved QCP will be considered Unacceptable Work.
D. Provide a list of qualified welders with copies of their AWS certifications to the Fabrication Engineer for review prior to beginning welding. Welders shall have in their possession, at the time of welding, a valid certification for the process and position to be used in production from the AWS. The welder shall show the Resident their credentials upon request.
E. The Contractor shall only use electrodes that are on the Department's Qualified Products List for Welding Electrodes or shall submit alternative electrodes for review and approval by the Fabrication Engineer. Electrodes used shall match those approved for use in the WPS.
F. Welding shall not be done: When the temperature in the immediate vicinity of the weld is below 0°F; when the surfaces are damp or exposed to rain, snow, or high wind; or when the welders or welding operators are exposed to inclement conditions.
G. The pile shall be preheated to and maintained at 150°F minimum, within 6 inches from the joint during welding.
H. Power sources for welders shall have meters indicating amperage/voltage that have been calibrated within 1 year at the time of welding.
I. The Contractor shall provide the Department with notice, a minimum of, 7 Days prior to the start of any welding.
J. The Contractor shall provide a QC Inspector to perform QC for the welds in accordance with the AWS D1.1 welding code. The QC Inspector shall be an AWS Certified Welding Inspector (CWI) in conformance with the requirements of AWS QC1, Standard for AWS Certifications of Welding Inspectors. The Contractor may submit, in lieu of a CWI, an alternative QC Inspector with documented training and experience in metals fabrication, inspection, and testing for approval by the Fabrication Engineer. The QC Inspector shall be someone other than the welder performing the welds to be inspected.
K. The QC Inspector shall inspect all production stages of the welded splice to ensure that workmanship and materials meet the requirements of the AWS D1.1 welding code and the Contract. The QC Inspector shall submit a signed record of all weld inspection documentation to the Resident after welding is completed.

Record of weld inspection shall include, but not be limited to, the following:

1. Name of QC Inspector
2. Project WIN and Location
3. Date
4. Weather conditions
5. Type, size, length, and location of welds.

6. **Confirmation of appropriate equipment and materials used, including proper handling of welding electrodes.**
7. **Confirmation that welder has approved WPS onsite, and welding is performed in accordance with approved WPS.**
8. **Confirmation that welder is qualified to perform work per approved WPS. Include name and certifications of qualified welder who performed the work.**
9. **Confirm that 100% visual testing, in accordance with AWS D1.1 Table 8.1, has been conducted and any subsequent repairs are made prior to non-destructive testing (NDT).**
10. **Document NDT testing including name of NDT technician, NDT personnel qualifications, type and extent of NDT testing performed, and include NDT testing reports provided by the NDT testing technician.**

L. Piles shall not be driven until all pile welding has been inspected and accepted by the Department.

501.0471 Specific Requirements for Splicing H-Beam Piles

A. Damaged material shall be removed from the end of the driven pile. Lifting holes shall be repaired or trimmed off. The ends of both pieces to be spliced shall be cut off square with the longitudinal axis of the pile and beveled per the approved WPS. All cutting shall be done with the use of a mechanical guide, except that minor trimming may be allowed, as approved by the Resident.

B. The Contractor shall use an approved mechanical splicer or a full penetration butt weld for the entire cross section of the pile. Mechanical splicers shall be installed per the manufacturer's recommendations, except that the flanges shall be welded using a complete joint penetration weld, per the AWS D1.1 welding code.

C. In addition to the 100% visual testing (VT) performed by the QC Inspector, the Contractor shall perform NDT on the first two welded splices of the same type/size. The welds shall be radiographically (RT) or ultrasonically (UT) tested for their full length for acceptance per Table 8.2 of AWS D1.1. If both RT/UT-tested splices are determined to be acceptable, no further NDT will be required. If either of the first two RT/UT-tested splices contain defects warranting rejection, RT/UT testing of splices shall continue until two consecutive splices are found to be acceptable.

D. Should the Department determine that the Quality Control of the Contractor is not producing welds with acceptable quality, then the Department may request the Contractor to perform additional NDT, such as RT or UT of any or all welds. Should the NDT testing identify defects warranting rejection, the welds shall be repaired and retested. The Contractor shall perform the NDT and weld repair work at no additional cost to the Department. If the NDT does not identify defects warranting rejection, then the Department will pay for the cost of the NDT testing. RT and UT defect indications will be evaluated according to the statically loaded criteria of AWS D1.1.

501.0472 Specific Requirements for Splicing Steel Pipe Piles and Steel Casings

A. Damaged material shall be removed from the end of the driven pile. Lifting holes shall be trimmed off. The ends of both pieces to be spliced shall be cut off square with the longitudinal axis of the pile and beveled per the approved WPS. All cutting shall be

done with the use of a mechanical guide, except that minor trimming may be allowed, as approved by the Resident.
B. Splices shall be welded using an AWS D1.1 Complete Joint Penetration butt weld
with a backer ring.
C. In addition to the 100% VT performed by the QC Inspector, the Contractor shall perform NDT on the first two welded splices of the same type/size. The welds shall be RT or UT tested for their full length for acceptance per Table 8.2 of AWS D1.1. If both RT/UT-tested splices are determined to be acceptable, no further NDT will be required. If either of the first two RT/UT-tested splices contain defects warranting rejection, RT/UT testing of splices shall continue until two consecutive splices are found to be acceptable.
D. Should the Department determine that the Quality Control of the Contractor is not producing welds with acceptable quality, then the Department may request the Contractor to perform additional NDT, such as RT or UT of any or all welds. Should the NDT testing identify defects warranting rejection, the welds shall be repaired and retested. The Contractor shall perform the NDT and weld repair work at no additional cost to the Department. If the NDT does not identify defects warranting rejection, then the Department will pay for the cost of the NDT testing. RT and UT defect indications will be evaluated according to the statically loaded criteria of AWS D1.1.

501.048 Prefabricated Pile Tips Amend this section by deleting it in its entirety and replacing it with:

Welding of pile tips shall be done in accordance with the following:

A. Welding shall be done in accordance with the requirements of the AWS D1.1 welding code.
B. Qualify welders in accordance with the most recent edition of the AWS D1.5 code.
C. Submit a written WPS for each tip to be included as part of the QCP. The WPSs shall be provided to the Fabrication Engineer for review and approval prior to beginning welding. Provide copies of the approved the WPS to the welder and Resident prior to beginning welding. Welding performed without an approved WPS and approved QCP will be considered Unacceptable Work.
D. Provide a list of qualified welders with copies of their AWS certifications to the Fabrication Engineer for review prior to beginning welding. Welders shall have in their possession, at the time of welding, a valid certification for the process and position to be used in production from the AWS or other organization acceptable to the Resident. The welder shall show the Resident their credentials upon request.
E. The Contractor shall only use electrodes that are on the Department's Qualified Products List for Welding Electrodes or shall submit alternative electrodes for review and approval by the Fabrication Engineer. Electrodes used shall match those approved for use in the WPS.
F. Pile tips shall be approved by the Resident.

G. Welding shall not be done: When the temperature in the immediate vicinity of the weld is below 0°F; when the surfaces are damp or exposed to rain, snow, or high wind; or when the welders or welding operators are exposed to inclement conditions.

H. The pile shall be preheated to and maintained at 150°F minimum within 6 inches from the joint during welding.

I. Power sources for welders shall have meters indicating amperage/voltage that have been calibrated within 1 year at the time of welding.

J. Pile tips may be welded to the piles by the pile supplier upon approval by the Department. Approval is contingent upon submission of the following: A welding QC Plan; proof that the proposed welder(s) is certified per AWS D1.5; and an AWS D1.1 WPS, with base metal preheated to a minimum of 150°F. The Contractor shall provide notice a minimum of 14 Days prior to the start of any welding by the pile supplier. At a minimum, welds shall be 100% visually inspected by the pile supplier's QC representative.

K. The Contractor shall provide a QC Inspector to perform QC for the welds in accordance with the AWS D1.1 welding code. The QC Inspector shall be an CWI in conformance with the requirements of AWS QC1, Standard for AWS Certifications of Welding Inspectors. The Contractor may submit, in lieu of a CWI, an alternative QC Inspector with documented training and experience in metals fabrication, inspection, and testing for approval by the Fabrication Engineer. The QC Inspector shall be someone other than the welder performing the welds to be inspected.

L. The QC Inspector shall inspect all production stages of the welded splice to ensure that workmanship and materials meet the requirements of the AWS D1.1 welding code and the Contract. The QC Inspector shall submit a signed record of all weld inspection documentation to the Resident after welding is completed.

M.

Record of weld inspection shall include, but not be limited to, the following:

1. **Name of QC Inspector**
2. **Project WIN and Location**
3. **Date**
4. **Weather conditions**
5. **Type, size, length, and location of welds.**
6. **Confirmation of appropriate equipment and materials used, including proper handling of welding electrodes.**
7. **Confirmation that welder has approved WPS onsite, and welding is performed in accordance with approved WPS.**
8. **Confirmation that welder is qualified to perform work per approved WPS. Include name and certifications of qualified welder who performed the work.**
9. **Confirm that 100% VT, in accordance with AWS D1.1 Table 8.1, has been conducted and any subsequent repairs are made prior to NDT.**
10. **Document NDT testing including name of NDT technician, NDT personnel qualifications, type and extent of NDT testing performed, and include NDT testing reports provided by the NDT testing technician.**

N. The Contractor shall provide notice a minimum of 7 Days prior to the start of any field welding.
O. Piles shall not be driven until all pile welding has been inspected and accepted by the Department.

501.0481 Specific Requirements for Installing H-Beam Pile Tips

A. Damaged material shall be removed from the end of the driven pile, as applicable. Lifting holes shall be trimmed off. The end of the pile to which the tip is to be attached shall be cut off square with the longitudinal axis of the pile and prepared per the approved WPS. All cutting shall be done with the use of a mechanical guide, except that minor trimming may be allowed, as approved by the Resident.
B. Regarding weld size, prefabricated pile tips shall be attached to H-beam piles with 5/16-inch groove welds along each flange, or as recommended by the manufacturer of the pile tips, whichever weld size is larger.
C. The QC Inspector shall, at a minimum, perform 100% VT on each pile tip weld.
D. Should the Department determine that the Quality Control of the Contractor is not producing welds with acceptable quality, then the Department may request the Contractor to perform additional NDT, such as RT or UT of any or all welds. Should the NDT testing identify defects warranting rejection, the welds shall be repaired and retested. The Contractor shall perform the NDT and weld repair work at no additional cost to the Department. If the NDT does not identify defects warranting rejection, then the Department will pay for the cost of the NDT testing. RT and UT defect indications will be evaluated according to the statically loaded criteria of AWS D1.1.

501.0482 Specific Requirements for Installing Steel Pipe Pile Tips

A. Damaged material shall be removed from the end of the driven pile, as applicable. Lifting holes shall be trimmed off. The end of the pile to which the tip is to be attached shall be cut off square with the longitudinal axis of the pile and prepared per the approved WPS. All cutting shall be done with the use of a mechanical guide, except that minor trimming may be allowed, as approved by the Resident.
B. Unless otherwise shown on the Plans, steel pipe piles shall have pointed cast steel pile tips.
C. Regarding weld size, prefabricated pile tips shall be attached to steel pipe piles with a continuous 5/16-inch groove weld along the full perimeter of the pile, or as recommended by the manufacturer of the pile tips, whichever weld size is larger.
D. The QC Inspector shall, at a minimum, perform 100% VT on each pile tip weld.
E. Should the Department determine that the Quality Control of the Contractor is not producing welds with acceptable quality, then the Department may request the Contractor to perform additional NDT, such as RT or UT of any or all welds. Should the NDT testing identify defects warranting rejection, the welds shall be repaired and retested. The Contractor shall perform the NDT and weld repair work at no additional cost to the Department. If the NDT does not identify defects warranting rejection, then the Department will pay for the cost of the NDT testing. RT and UT defect indications will be evaluated according to the statically loaded criteria of AWS D1.1.

501.05 Method of Measurement
c. Piles in Place Revise the third paragraph by replacing the "10" with "20" so that it reads:

Unused pile cutoffs **20** feet or more in length, except those required to accommodate the Contractor's construction method, as discussed herein, will remain the property of the Department and will be stored at a bridge maintenance yard nearest the project. Hauling and unloading of piles will be done by the Contractor or by the Department, depending upon availability of services.

SECTION 502
STRUCTURAL CONCRETE

502.09 Forms and Falsework Amend this subsection by adding the subsection title "**502.10 Placing Concrete**" after section "D" Removal of Forms and False work" and after the paragraph beginning with "2. Forms and False work, including blocking…". So that a new subsection starts and reads:

"**502.10 Placing Concrete**

A. **General Concrete shall not be placed until forms** …."

502.1701 Quality Control, Method A and B Revise this Section so that the first paragraph and the first sentence of the second paragraph read:

"**502.17 Quality Control The Contractor shall control the quality of the concrete through testing, inspection, and practices which shall be described in the QCP, sufficient to assure a product meeting the Contract requirements. The QCP shall meet the requirements of Section 106, Quality, and this specification. No work under this item shall proceed until the QCP is submitted to and approved by the Department. Failure to comply with the approved QCP will result in work suspension and pay reductions as outlined in Section 106.4.6. The Quality Control Plan Value shall be the total bid value for all cast-in-place items covered by the QCP, using the P value listed in Special Provision 502. If no P value is listed, a value of $350, or bid value per cubic yard, whichever is less, shall be used.**

502.1701 Quality Control, Method A and B The QCP shall address all elements that affect the quality of the structural concrete including, but not limited to, the following: "

Section 502.1701, Quality Control, Revise Table 4 of this Subsection by removing it in its entirety and replacing it with:

TABLE 4
METHOD A & B MINIMUM QUALITY CONTROL TESTING REQUIREMENTS *

TEST	TEST METHOD	SAMPLING LOCATION	FREQUENCY
Gradation	AASHTO T-27 & T-11	Stockpile	One set per proposed grading before production. One set every 100 yd^3 (Min. 1 set per month)
Organic Impurities	AASHTO T-21	Stockpile	**Once per fine aggregate per year ****
% Absorption	AASHTO T-84 & T-85	Stockpile	Once per aggregate per year
Specific Gravity	AASHTO T-84 & T-85	Stockpile	Once per aggregate per year
Total Moisture in Aggregate	AASHTO T-255	Stockpile	One set per day's production
Free Water and Aggregate Wt.	N/A		One per day's production
% Entrained Air	AASHTO T-152	On Project	On first two loads and every third load thereafter provided consistent results are achieved
Compressive Strength	AASHTO T-22	On Project	One set per sublot
Compressive Strength	AASHTO T-22 @ 7days	On Project	One set per sublot

* Additional QC testing will be required any time a process change occurs during a placement, including changes in type or dosage of admixture. Additional testing shall include, but is not limited to, entrained air testing.

**** If the color produced is a laboratory designation Plate III, then the fine aggregate shall be tested once per month.**

502.18, Method of Measurement, Revise Subsection 'F' by removing the word 'transverse' so that it reads: "**Saw cut grooving of concrete wearing surfaces, complete and accepted, will be measured for payment as one lump sum**."

502.19, Basis of Payment, Revise the third paragraph by removing the word 'transverse' so that it reads: "**Saw cut grooving of concrete wearing surfaces will be paid for at the Contract Lump Sum Price, which shall be payment for furnishing all materials, labor, and equipment, including depth gauges and all incidentals, to satisfactorily complete the work."**
(Also see 535.24 and 535.25 for related changes)

SECTION 503
REINFORCING STEEL

Section 503.07 Splicing Revise this section by removing the table and following footnote and replacing them with:

Minimum Lap Splice Length (inches)									
	Bar Size								
Bar Type	#3	#4	#5	#6	#7	#8	#9	#10	#11
Plain or Galvanized	16	20	24	29	38	47	59	72	85
Epoxy or Dual Coated	17	24	36	43	56	71	88	107	128
Stainless	19	24	30	36	47	59	73	89	107
Low-carbon Chromium	24	32	39	47	63	78	97	119	142

"**The minimum lap splice lengths in the table above are based on the parameters below. When any of these parameters are altered, appropriate minimum lap splice lengths will be as shown on the Plans.**

- **Normal weight concrete**
- **Minimum 28-day concrete compressive strength from 4,000 psi to 10,000 psi**
- **Class B tension lap splice**
- **Minimum center-to-center spacing between bars of 6 inches**
- **Minimum clear cover of 2 inches**
- **Nominal reinforcing steel yield strengths**
  - **Low-carbon Chromium = 100 ksi**
  - **Stainless = 75 ksi**
  - **All others = 60 ksi**
- **Reinforcement with yield strengths greater than 75 ksi shall have beam transverse reinforcement and column ties provided over the required lap splice length in accordancewith the current edition of the AASHTO LRFD Bridge Design Specifications**

When lap splices are placed horizontally in an element where the concrete depth below the splice will be 12 inches, or more, the indicated lap splice lengths shall be multiplied by a factor of 1.3."

SECTION 506
SHOP APPLIED PROTECTIVE COATING – STEEL

506.13 Surface Preparation Amend this section by adding this paragraph to the end:

"**Steel shall meet the requirements of SSPC SP8 Pickling prior to being immersed in the zinc tanks. Verification of the surface preparation shall be included in the QC documentation**."

SECTION 523
BEARINGS

523.051 Protective Coating Revise this subsection by removing the paragraph beginning with "Anchor rods shall be galvanized…" and replacing with:

"**Anchor rods shall be galvanized. When anchor rods are designated to secure bare unpainted steel or painted steel, a dielectric coating (epoxy or bituminous type coatings are acceptable) shall be applied to the anchor rod and/or adjacent steel to prevent contact between galvanized surfaces and painted or unpainted steel."**

523.22 Fabrication Amend this subsection by adding the following: "**Elastomeric Bearings shall be fabricated in accordance with AASHTO M251."**

SECTION 526
CONCRETE BARRIER

Amend this section by deleting it in its entirety and replacing it with:

"**526.01 Description This work shall consist of the furnishing, constructing, erecting, setting, resetting, and removal of concrete barrier and associated elements in accordance with these specifications, the Standard Details, and the lines and grades shown on the Plans or established by the Resident.**

The types of concrete barrier are designated as follows:

Portable Concrete Barrier Type I Double faced removable barrier in accordance with the Standard Details.

Permanent Concrete Barrier Type II Double faced barrier as shown on the Plans.

Permanent Concrete Barrier Type IIIa Single faced barrier 32 inches high in accordance with the Standard Details or as shown on the Plans.
Permanent Concrete Barrier Type IIIb Single faced barrier 42 inches high in accordance with the Standard Details or as shown on the Plans.

Permanent Concrete Transition Barrier Barrier of various heights joining steel bridge rail to steel guardrail in accordance with the Standard Details or as shown on the Plans.

Permanent Texas Classic Rail Barrier Traffic rail or sidewalk rail, in accordance with the Standard Details or as shown on the Plans.

526.02 Materials

a. Concrete Concrete for barriers, both permanent and portable, shall have a design strength of 5,000 psi.

For cast-in-place barrier: The concrete shall be Class LP, in accordance with Standard Specification Section 502, Structural Concrete.

For precast barrier: The concrete shall meet the requirements of Standard Specification 712.061, Structural Precast Concrete Units, except that the stripping strength for precast barriers is 4,000 psi.

b. Reinforcing Steel Reinforcing steel shall meet the requirements of Section 503, Reinforcing Steel.

c. Structural Steel Plates and barrier connections shall meet the requirements specified in Standard Specification 504 - Structural Steel and shall be hot dip galvanized after fabrication in accordance with Standard Specification 506, Shop Applied Protective Coating – Steel

d. Bolts Bolts shall meet the requirements specified in Section 713.02, High Strength Bolts.

e. Connecting Pins for Portable Concrete Barrier Portable concrete barriers must be connected using a 1- inch diameter pin. The connecting pin must be smooth, not deformed, i.e., reinforcing bar may not be used, and shall meet the strength requirements of ASTM A449 steel. Materials with greater strength may be used with the approval of the Department.

f. Anchor Pins for Portable Concrete Barrier Anchoring to concrete or asphalt will be required when specified on the Plans. When required, portable concrete barriers must be anchored using a 1 ½ - inch diameter anchor pin. The anchor pin must be smooth, not deformed, i.e., reinforcing bar may not be used, and shall meet the strength requirements of ASTM A36 steel. Materials with greater strength may be used with the approval of the Department.

g. Device Crashworthiness MaineDOT is transitioning to MASH2016 criteria for Portable Concrete Barrier on the following schedule:

New Portable Concrete Barrier shall be crash tested and/or evaluated to MASH2016 criteria.

Current Portable Concrete Barrier in useful serviceable condition that is successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029.

Other current Portable Concrete Barrier that is deemed acceptable by the Department may be utilized on projects off the National Highway System through December 31, 2024.

526.03 Construction Requirements

Cast-in-place barriers shall be fabricated in accordance with Standard Specification Section 502, Structural Concrete. Precast barriers shall be fabricated in accordance with Standard Specification 534, Precast Structural Concrete.

Concrete finish for permanent barrier shall be rubbed as defined in Standard Specification Section 502, Structural Concrete, 502.13 D2 or an approved equal.

Portable concrete barrier shall be generally free from fins and porous areas and shall present a neat and uniform appearance.

Permanent barrier shall have a protective coating applied in accordance with Standard Specification Section 515, Protective Coating for Concrete Surfaces.

Reflective delineators for concrete median barrier shall meet the requirements of Special Provision 645, Highway Signing.

Preformed Joint Filler shall meet the requirements specified in Subsection 705.01, Preformed Expansion Joint Filler.

Permissible dimensional tolerances for all concrete barriers shall be as follows:

a. Cross-sectional dimensions shall not vary from design dimensions by more than ¼ inch. The vertical centerline shall not be out of plumb by more than ¼ inch.

b. Longitudinal dimensions shall not vary from the design dimensions by more than ¼ inch per 10 feet of barrier section and shall not exceed ¾ inches per section.

c. Location of anchoring holes shall not vary by more than ½ inch from the dimensions shown in the concrete barrier details on the Plans.

d. Surface straightness shall not vary more than ¼ inch under a 10-foot straightedge.

e. The barrier shall have no significant cracking. Significant cracking is defined as fractures or cracks passing through the section, or any continuous crack extending for a length of 12 inches or more, regardless of position in the section.

<u>526.04 Method of Measurement</u> Permanent Concrete Barrier Type II, IIIa, IIIb, Texas Classic Rail, and Precast Median Barrier will be measured for payment by lump sum, complete in place.

Portable concrete barrier, both anchored and unanchored will be measured for payment by lump sum. Lump sum measurement will include verification of the installation and removal of all portable concrete at the completion of the Contractor's operations.

The Contractor shall replace sections of portable concrete barrier, including anchored barrier damaged by the traveling public when directed by the Resident. Replacement

sections will be measured for payment in accordance with Standard Specification 109.7, Equitable Adjustments to Compensation and Time.

Transition barrier will be measured by each, complete in place.

526.05 Basis of Payment The accepted quantities of Concrete Barrier Type II, IIIa, IIIb, Texas Classic Rail, and Precast Median Barrier will be paid for at the Contract lump sum price for the type specified, complete in place.

The accepted quantities of Portable Concrete Barrier Type I, both anchored and unanchored will be paid for at the Contract lump sum price. Such payment shall be full compensation for furnishing all materials, assembling, moving, resetting, transporting, temporarily storing, removing barrier, furnishing new parts as necessary, and all incidentals necessary to complete the work.

Portable barrier shall become the property of the Contractor upon completion of the use of the barrier on the project and shall be removed from the project site by the Contractor.

Transition barrier will be paid for at the Contract price each, complete in place.

The accepted quantity of all types of concrete barrier, whether portable or permanent, will be paid for at the lump sum or per each price, as applicable, which payment shall be full compensation for all materials, including reinforcing steel, protective coating, reflective delineators, steel plates and hardware, equipment, labor and incidentals required, as necessary, to complete the work.

Payment will be made under:

	Pay Item	Pay Unit
526.301	Portable Concrete Barrier, Type I	Lump Sum
526.304	Portable Concrete Barrier, Anchored Type I	Lump Sum
526.312	Permanent Concrete Barrier Type II	Lump Sum
526.321	Permanent Concrete Barrier Type IIIa	Lump Sum
526.323	Texas Classic Rail	Lump Sum
526.331	Permanent Concrete Barrier Type IIIb	Lump Sum
526.34	Permanent Concrete Transition Barrier	Each
526.502	Precast Concrete Median Barrier	Lump Sum”

SECTION 527
ENERGY ABSORBING UNIT

527.02 Materials Amend this section by deleting it in its entirety and replacing it with:

"**MaineDOT is transitioning to MASH2016 criteria for Work Zone Traffic Control Devices on the following schedule:**

Portable Crash Cushions will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 3 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029.

Work Zone Crash Cushions shall be selected from the Department's Qualified Products List of Crash Cushions/Impact Attenuators or approved equal."

SECTION 535
PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE

535.22 Tolerances Amend this section by deleting it in its entirety and replacing it with:
"**Product dimensional tolerances shall be in conformance with the latest edition of PCI MNL-135, Tolerance Manual for Precast and Prestressed Concrete Construction, as applicable to the particular product (e.g., slab, I-girder, box beam), the Plans, and this Specification. Use Box Beam fabrication tolerances for voided or solid slab beams and use Double Tee tolerances for NEXT beams. In case of dispute, the Fabrication Engineer shall determine the allowable tolerance.**"

535.24 Installation of Slabs, Beams, and Girders Revise the 5th paragraph by replacing "6.0 and 9.0" to "5.0 and 8.0" so it reads: **"Ready mixed grout shall achieve a design compressive strength of 6,000 psi at 28 days, have an entrained air content of between 5.0 and 8.0 percent, be non-shrink, flowable, and contain a non-shrink additive listed on the Department QPL for expansive cements."**

535.25, Installation of Precast/Prestressed Deck Panels Revise the 2nd paragraph by replacing "6.0 and 9.0" to "5.0 and 8.0" so it reads: **"Ready mixed grout shall achieve a design compressive strength of 6,000 psi at 28 days, have an entrained air content of between 5.0 and 8.0 percent, be non-shrink, flowable, and contain a non-shrink additive listed on the Department QPL for expansive cements."**

SECTION 606
GUARDRAIL

Amend this section by replacing it with the following:

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

31" W-Beam Guardrail - Mid-Way Splice
Galvanized steel w-beam, 8" wood or composite offset blocks, galvanized steel posts
Thrie Beam
Galvanized steel thrie beam, 8" wood or composite offset blocks, galvanized steel posts

Median guardrail shall consist of two beams of the above types, mounted on single posts.

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

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

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

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

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

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

Posts for underdrain delineators shall be "U" channel steel, 8 ft long, 2 ½ lb/ft minimum and have 3/8-inch round holes, 1-inch center to center for a minimum distance of 2 ft from the top of the post.

Reflectorized Flexible Guardrail Markers shall be mounted on all guardrails. A marker shall be mounted onto guardrail posts at the flared guardrail terminal end point and tangent point, both at the leading and trailing ends of each run of guardrail. The marker's flexible posts shall be gray with either silver-white or yellow reflectors (to match the edge line striping) at the tangents, red at leading ends, and green at trailing ends. Whenever the guardrail terminal is not flared, markers will only be required at the terminal end point. These shall be red or green as appropriate. Markers shall be installed on the protected side of guardrail posts unless otherwise approved by the Resident. Reflectorized flexible guardrail markers shall be from the Department's Qualified Products List of Delineators. The marker shall be gray, flexible, durable, and of a non-discoloring material to which 3-inch by 9-inch reflectors shall be applied, and capable of recovering from repeated impacts and meeting MASH 16 requirements. Reflective material shall meet the requirements of Section 719.01 for ASTM D 4956 Type III reflective sheeting. The marker shall be secured to the guardrail post with two fasteners, as shown in the Standard Details.

Reflectorized beam guardrail reflectors shall be mounted on all "w" beam guardrail and shall be either the "butterfly" type or linear delineation system panels. "Butterfly" or linear delineation panels shall be installed at approximately 62.5 foot intervals on tangents (after every tenth post) and 31.25 feet on curves (after every fifth post), and shall be centered on the guardrail beam. On Divided highways, the left-hand delineators shall be yellow and the right-hand delineators shall be silver/ white. On two-way directional highways, the right-hand side will have silver / white reflectors and no reflectorized delineator used on the left. Delineators shall have reflective sheeting that meets or exceeds the requirements of Section 719.01.

"Butterfly" reflectors shall be fabricated from high-impact, ultraviolet & weather resistant thermoplastic. Aluminum, galvanized metal or other materials shall not be used. Reflective sheeting will be applied to only one side of the delineator facing the direction of traffic and shall be centered vertically on the guardrail beam as shown in the Standard Detail 606(7).

Linear delineation system panels shall be 1.5 inches wide by approximately 11 inches nominal length, with a minimum of 5 raised lateral ridges spaced at approximately 2.25 inches. The height of each ridge shall be 0.34 inches with a 45 degree profile and a 0.28 inches radius at the top. Sheeting shall be laminated to thin gauge aluminum with a pre-applied adhesive tape on the back. Panels shall not be installed over seams or bolt heads and shall be centered horizontally on the guardrail beam; linear delineation panels shall be attached to only one guardrail beam. The guardrail beam surface shall be cleaned and prepared according to the manufacturer's instructions. Air temperature and guardrail surface temperature must be a minimum of 50 degrees F (10 C) with rising temperature at the time of installation.

Exact locations of the either the "butterfly" type or the linear delineation panels shall be approved by the Resident prior to installation.

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

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

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

Acceptable multiple mailbox assemblies shall be listed on the Department's Qualified Products List and shall be MASH 16 tested and approved.

Flared and Tangent w-beam guardrail terminals and guardrail offset blocks shall be from the Department's Qualified Products List. Flared terminals shall be installed with a 4 ft offset as shown in the Manufacturer's installation instructions.

Anchorage assemblies used to anchor trailing ends, radius guardrail, or other ends not exposed to traffic shall meet the applicable standards of "A Guide to Standardized Highway Barrier Hardware" prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Task Force 13 Report, Drawing SEW02a.

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

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

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

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

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

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

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

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

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

All bolts shall be of sufficient length to extend beyond the nuts but not more than ½ inch. Nuts shall be drawn tight.

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

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

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

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

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

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

Guardrail terminal, reflectorized flexible guardrail marker, terminal end, anchorage assembly, bridge transition, bridge connection, multiple mailbox post, and single post will be measured by each unit of the kind specified and installed.

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

Excavation in solid rock for placement of posts will be paid under force account unless otherwise indicated in the Bid Documents.

Reflectorized beam guardrail reflectors ("butterfly" type or linear delineation system panels) when identified by pay item, will be measured for payment by each.

606.09 Basis of Payment The accepted quantities of guardrail will be paid for at the contract unit price per linear foot for the type specified, complete in place. Reflectorized beam guardrail ("butterfly"-type) delineators will not be paid for directly but will be considered incidental to guardrail items. Reflectorized flexible guardrail marker, terminal end, anchorage assembly, bridge transition, bridge connection, multiple mailbox post, and single post will be paid for at the contract unit price each for the kind specified complete in place.
Guardrail terminals will be paid for at the contract price each, complete in place which price shall be full payment for furnishing and installing all components including the terminal section, posts, offset blocks, "w" beam, cable foundation posts, plates and for all incidentals necessary to complete the installation within the limits as shown on the Standard Details or the Manufacturer's installation instructions. Pay limits for a flared terminal will be 37.5 feet. Pay limits for a tangent terminal will be 50 feet. Each guardrail terminal will be clearly marked with the Manufacturer's name and model number to facilitate any future needed repair. Such payment shall also be full compensation for furnishing all material, excavating, backfilling holes, assembling, and all incidentals necessary to complete the work, except that for excavation for posts or anchorages in solid ledge rock, payment will be made under 109.7.5 – Force Account. Type III Retroreflective Adhesive Sheeting shall be applied to the approach buffer end sections and sized to substantially cover the end section. On all roadways, the ends shall be marked with alternating black and retroreflective yellow stripes. The stripes shall be 3 in wide and sloped down at an angle of 45 degrees toward the side on which traffic is to pass the end section. Guardrail terminals shall also include a set of installation drawings supplied to the Resident.

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

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

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

Adjust guardrail will be paid for at the contract unit price per linear foot and will be full compensation for adjusting to grade. Payment shall also include adjusting guardrail terminals where required.

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

Remove and Reset guardrail will be paid for at the contract unit price per linear foot and will be full compensation for removing, transporting, storing, reassembling all parts, necessary cutting, furnishing new parts when necessary, reinstalling at the new location, and all other incidentals necessary to complete the work. Payment shall also include removing and resetting guardrail terminals when required.

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

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

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

No payment will be made for guardrail removed, but not reset and all costs for such removal shall be considered incidental to the various contract pay items.

Reflectorized beam guardrail reflectors (“butterfly” type and the linear delineation panels) will not be paid for directly but will be considered incidental to all new guardrail items. The Contractor shall furnish and install either the “butterfly” type or linear delineation panels, at its discretion, for new guardrail items.

Reflectorized beam guardrail reflectors (either “butterfly” type or linear delineation system panels) will be paid for under the applicable pay items for installation in conjunction with Adjust, Modify, Remove and Reset, Remove Modify and Reset guardrail items. The accepted quantity of “butterfly” type or linear delineation system panels will be paid for at the contract unit price each for all work and materials furnished to install, complete in place, including all incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
606.1301	31” W-Beam Guardrail - Mid-Way Splice – Single Faced	Linear Foot
606.1302	31” W-Beam Guardrail - Mid-Way Splice – Double Faced	Linear Foot
606.1303	31” W-Beam Guardrail - Mid-Way Splice, 15’ Radius and Less	Linear Foot
606.1304	31” W-Beam Guardrail - Mid-Way Splice, Over 15’ Radius	Linear Foot
606.1305	31” W-Beam Guardrail - Mid-Way Splice Flared Terminal	Each
606.1306	31” W-Beam Guardrail - Mid-Way Splice Tangent Terminal	Each
606.1307	Bridge Transition (Asymmetrical) – Type IA	Each
606.1721	Bridge Transition - Type I	Each
606.1722	Bridge Transition - Type II	Each
606.1731	Bridge Connection - Type I	Each
606.1732	Bridge Connection - Type II	Each
606.178	Guardrail Beam	Linear Foot
606.25	Terminal Connector	Each
606.257	Terminal Connector - Thrie Beam	Each
606.259	Anchorage Assembly	Each
606.265	Terminal End-Single Rail - Galvanized Steel	Each
606.266	Terminal End-Single Rail - Corrosion Resistant Steel	Each
606.275	Terminal End-Double Rail - Galvanized Steel	Each
606.276	Terminal End-Double Rail - Corrosion Resistant Steel	Each
606.352	Reflectorized Beam Guardrail Delineators (“Butterfly” type)	Each
606.3521	Linear Delineation System Panel	Each
606.353	Reflectorized Flexible Guardrail Marker	Each
606.354	Remove and Reset Reflectorized Flexible Guardrail Marker	Each
606.356	Underdrain Delineator Post	Each
606.358	Guardrail, Modify	Linear Foot
606.362	Guardrail, Adjust	Linear Foot
606.365	Guardrail, Remove, Modify, and Reset	Linear Foot
606.366	Guardrail, Remove and Reset	Linear Foot
606.367	Replace Unusable Existing Guardrail Posts	Each
606.3671	Replace Unusable Offset Blocks	Each
606.47	Single Wood Post	Each
606.48	Single Galvanized Steel Post	Each
606.50	Single Steel Pipe Post	Each
606.51	Multiple Mailbox Support	Each
606.568	Guardrail, Modify - Double Rail	Linear Foot
606.63	Thrie Beam Rail Beam	Linear Foot
606.64	Guardrail Thrie Beam - Double Rail	Linear Foot
606.65	Guardrail Thrie Beam - Single Rail	Linear Foot
606.66	Terminal End Thrie Beam	Each
606.70	Transition Section - Thrie Beam	Each
606.71	Guardrail Thrie Beam - 15 ft radius and less	Linear Foot
606.72	Guardrail Thrie Beam - over 15 ft radius	Linear Foot

606.73	Guardrail Thrie Beam - Single Rail Bridge Mounted	Linear Foot
606.74	Guardrail - Single Rail Bridge Mounted	Linear Foot
606.753	Widen Shoulder for Low Volume Guardrail End	Each
606.754	Widen Shoulder for Flared Guardrail Terminal	Each
606.78	Low Volume Guardrail End	Each
606.80	Buried-in-Slope Guardrail End	Each

SECTION 608
SIDEWALKS

Section 608.022Detectable Warning Materials Standard Revise this section by removing the last sentence of this section beginning with "Concrete…" and replacing it with "**Concrete shall meet the requirements of Section 608.021, Sidewalk Materials, of this specification or may be a prepackaged concrete mix from the Department's Qualified Products List (QPL).**"

SECTION 609
CURB

Remove this section in its entirety and replace with the following:

609.01 Description Construct or reset curb, gutter, or combination curb and gutter, paved ditch, and paved flume. The types of curb are designated as follows:

Type 1 - Stone curbing of quarried granite stone
Type 2 – Concrete Curbing
Type 3 - Bituminous curbing
Type 5 - Stone edging of quarried granite stone

609.02 Materials Except as provided below, the materials used shall meet the requirements of the following Sections of Division 700 - Materials:

Portland Cement and Portland Pozzolan Cement	701.01
Water	701.02
Air Entraining Chemical Admixture	701.03
Fine Aggregate for Concrete	703.01
Coarse Aggregate for Concrete	703.02
Joint Mortar	705.02
Reinforcing Steel	709.01
Stone Curbing and Edging	712.04
Epoxy Resin	712.35
Hot Mix Asphalt Curbing	712.36
Structural Precast Concrete Units (Concrete Curb)	712.061

The Contractor shall submit a concrete mix design for the Portland Cement Concrete to the Resident, for the uses specified below or in accordance with the Contract Documents.

Circular curb, terminal sections and transition sections shall be in reasonably close conformity with the shape and dimensions shown on the Plans and to the applicable material requirements herein for the type of curb specified.

Dowels shall be reinforcing steel deformed bars.

Concrete for Slipform Concrete Curb shall meet the requirements below:

a. Class A, with the exception that permeability requirements shall be waived.
b. Entrained air content of Slipform Concrete Curb shall be 4.0% to 7.0%
c. Concrete temperature, prior to discharge, shall not exceed 90 F.
d. Proposed mix designs may contain polypropylene fibers.
e. Partially discharged loads may be retempered with water provided the maximum water to cement ratio is not exceeded.

609.03 Vertical Stone Curb, Terminal Section and Transition Sections and Portland Cement Concrete Curb, Terminal Sections and Transition Sections

a. Installation The curb stone shall be set on a compacted foundation so that the front top arris line conforms to the lines and grades required. The foundation shall be prepared in advance of setting the stone by grading the proper elevation and shaping to conform as closely as possible to the shape of the bottom of the stone. The required spacing between stones shall be assured by the use of an approved spacing device to provide an open joint between stones of at least ¼ inch and no greater than ⅝ inch.

b. Backfilling All remaining spaces under the curb shall be filled with approved material and thoroughly hand tamped so the stones will have a firm uniform bearing on the foundation for the entire length and width. Any remaining excavated areas surrounding the curb shall be filled to the required grade with approved materials. This material shall be placed in layers not exceeding 8 inches in depth, loose measure and thoroughly tamped.

When backfill material infiltrates through the joints between the stones, small amounts of joint mortar or other approved material shall be placed in the back portion of the joint to prevent such infiltrating.

c. Protection The curb shall be protected and kept in good condition. All exposed surfaces smeared or discolored shall be cleaned and restored to a satisfactory condition or the curb stone removed and replaced.

d. Curb Inlets Curb placed adjacent to curb inlets shall be installed with steel dowels cemented into each stone with epoxy grout as shown in the Standard Details.

The epoxy grout shall be used in accordance with the manufacturer's instructions. The grout shall be forced into the hole, after which the dowel shall be coated with grout for one-half its length and inserted into the grout filled hole. The hole shall be completely filled with grout around the dowel. All tools and containers must be clean before using.

The Contractor may elect to substitute concrete to backfill Stone Curbing or Stone Edging at their option. If the concrete backfill option is elected, the Concrete Fill shall meet the requirements of 609.02. The Contractor shall submit a concrete design for the Portland Cement Concrete, with a minimum designated compressive strength of 3000 PSI meeting the requirements of Class S or Class Fill Concrete. The Contractor may elect to choose a Prepackaged Concrete Mix from the Departments Qualified Products list (QPL). Concrete backfill shall be completed in conformance with a Department supplied concrete backfill detail.

609.04 Bituminous Curb

a. Preparation of Base Before placing the curb, the foundation course shall be thoroughly cleaned of all foreign and objectionable material. String or chalk lines shall be positioned on the prepared base to provide guidelines. The foundation shall be uniformly painted with tack coat at a rate of 0.04 to 0.14 gal/yd^2.

b. Placing The curb shall be placed by an approved power operated extruding type machine using the shape mold called for. A tight bond shall be obtained between the base and the curb. The Resident may permit the placing of curbing by other than mechanical curb placing machines when short sections or sections with short radii are required. The resulting curbing shall conform in all respects to the curbing produced by the machine.

c. When required, the curb shall be painted and coated with glass beads in accordance with Section 627 - Pavement Marking. Curb designated to be painted shall not be sealed with bituminous sealing compound.

d. Acceptance Curb may be accepted or rejected based on appearance concerning texture, alignment, or both. All damaged curb shall be removed and replaced at the Contractor's expense.

e. Polyester fibers shall be uniformly incorporated into the dry mix at a rate of 0.25 percent of the total batch weight. Certification shall be provided from the supplier with each shipment meeting the following requirements:

Average Length	0.25 inches ± 0.005
Average Diameter	0.0008 inches ± 0.0001
Specific Gravity	1.32-1.40
Melting Temperature	480 °F Minimum

609.05 Slipform Concrete Curb

a. Preparation of Base Before placing the curb, the foundation course shall be thoroughly cleaned of all foreign and objectionable material. The Contractor shall not place Slipform Concrete Curb on a wet or frozen foundation. The foundation (HMA or concrete) may be in a Saturated Surface Dry condition, but no standing water shall be allowed. String or chalk lines shall be positioned on the prepared foundation to provide guidelines. Prior to placing the curb, the foundation shall be uniformly coated with an epoxy resin adhesive that

meets the requirements of AASHTO M 235, Type I, II, III, IV or V and has been tested by AASHTO Product Evaluation & Audit Solutions. The Contractor shall submit the epoxy resin adhesive that they propose to utilize with the concrete mix design. The epoxy resin adhesive must be approved prior to placement and used in accordance with manufacturer's recommendations.

b. Placing Concrete shall be placed with an approved Slipform machine that will produce a finished product according to the design specified in the Plans. For cold weather slip forming, the outside temperature must be at least 36°F and rising. The curb shall be placed on a firm, uniform foundation, shall conform to the section profile specified in the Plans, and shall match the appropriate grade. Expansion joints shall be placed in the curb where it meets rigid structures such as but not limited to building foundations, catch basin headers or fire hydrants. Contraction joints will be placed at 10-foot intervals using sawing methods, which shall cut 1 to 3 inches into the concrete. Contraction joints shall be cut between 1 and 7 days after placement of the concrete. Joints shall be constructed perpendicular to the subgrade and match other joints in roadways, sidewalks, or other structures when applicable.

c. Curing and Sealing Proper curing shall be provided using either a combination curing/sealing compound spray that meets ASTM 1315 Type 1-Class A, or a curing compound spray that meets ASTM 309 Type 1-D – Class A. Curing may also be accomplished by the methods specified in Standard Specification Section 502.14, Curing Concrete.

If a combination curing/sealing compound spray is not used, a separate sealing compound from the MaineDOT Qualified Products List for a Type 1c sealer shall be applied after the concrete has cured.

d. Protection Slipform curb must be adequately protected after placement. The concrete shall be allowed to cure for at least 72 hours. During cold weather conditions, when temperatures drop below the required temperature of 36°F after placement, curbing shall be protected by concrete blankets or a combination of plastic sheeting and straw. After any placement of Slipform curb, regardless of weather conditions, the placed curb shall be adequately protected by traffic control devices as necessary.

e. Marking When required, the curb shall be painted and coated with glass beads in accordance with Section 627 - Pavement Marking. Curb designated to be painted shall not be sealed unless a combination curing/sealing compound is used.

f. Acceptance Curb shall be accepted or rejected based on finish, alignment, entrained air content, and compressive strength. Concrete Quality Control and Acceptance shall be done in accordance with Standard Specification Section 502, Method C. All damaged curb shall be removed and replaced at the Contractor's expense.

609.06 Stone Edging The curb shall be installed, backfilled and protected in accordance with Section 609.03, except as follows:

a. Slope The edging shall be set on a slope as shown on the Plans or as directed.

b. Joints Joints shall be open and not greater than 1½ inch in width.

609.07 Stone Bridge Curb

a. Installation Each stone and the bed upon which it is to be placed shall be cleaned and thoroughly wetted with water before placing the mortar for bedding and setting the stone. The stone shall be set on a fresh bed of joint mortar and well bedded before the mortar has set so that the front top arris line conforms to the line and grade required. Whenever temporary supporting wedges or other devices are used in setting the stones, they shall be removed before the mortar in the bed has become set, and the holes left by them shall be filled with mortar. Concrete behind the stones shall not be placed until the stones have been in place at least two days. Bedding and pointing mortar for joints shall be cured as required under Section 502 - Structural Concrete.

b. Joints Vertical joints shall be ½ inch in width plus or minus ⅛ inch. Whenever possible, the face and top of the joint shall be pointed with joint mortar to a depth of 1½ inch, before the bedding mortar has set. Joints which cannot be so pointed, shall be prepared for pointing by raking them to a depth of 1½ inch before the mortar has set. Joints not pointed at the time the stone is laid shall be thoroughly wetted with clean water and filled with mortar. The mortar shall be well driven into the joint and finished with an approved pointing tool, flush with the pitch line of the stones.

609.08 Resetting Stone or Portland Cement Concrete Curb, Including Terminal Sections and Transitions

The curb shall be installed, backfilled and protected in accordance with Section 609.03, except as follows:

a. Removal of Curbing The Contractor shall carefully remove and store curb specified on the Plans or designated for resetting. Curb damaged or destroyed, because of the Contractor's operations or because of their failure to store and protect it in a manner that would prevent its loss or damage, shall be replaced with curbing of equal quality at the Contractor's expense.

b. Cutting and Fitting Cutting or fitting necessary in order to install the curbing at the locations directed shall be done by the Contractor.

609.09 Method of Measurement Curb, both new and reset, will be measured by the linear foot along the front face of the curb at the elevation of the finished pavement, complete in place and accepted. Curb inlets at catch basins, including doweling, will not be measured for payment but shall be considered included in the cost of the catch basin. New transition sections and terminal curb will be measured by the unit. Reset transition sections and terminal curb will be included in the measurement for resetting curb.

Concrete Slipform Curb and terminal ends will be measured by the linear foot along the front face of the curb at the elevation of the finished pavement, complete in place and accepted.

609.10 Basis of Payment The accepted quantities of curbing will be paid for at the contract unit price per linear foot for each kind and type of curbing as specified.

Payment for terminal curb shall include only that portion of the curbing modified for installation at ends of curb runs shown in the Standard Details. Curb adjacent to terminal ends shall be paid for at the contract unit price per linear foot for the type of curb installed.

Vertical Curb Type 1 is required to have a radius of 60 feet or less, will be paid for as Vertical Curb Type 1 - Circular.

Curb, Type 5 required to have a radius of 30 feet or less will be paid for as Curb Type 5 - Circular.

There will be no separate payment for concrete fill, mortar, reinforcing steel, anchors, tack coat, drilling for and grouting anchors, pointing and bedding of curbing, and for cutting and fitting, but these will be considered included in the work of the related curb.

Removal of existing curb and necessary excavation for installing new or reset curbing will not be paid for directly but shall be considered to be included in the appropriate new or reset curb pay item. Base and Subbase material will be paid for under Section 304 - Aggregate Base and Subbase Course. Backing up bituminous curb is incidental to the curb items. Loam, as directed, will be paid under 615 – Loam.

Payment will be made under:

	Pay Item	Pay Unit
609.11	Vertical Curb Type 1	Linear Foot
609.12	Vertical Curb Type 1 - Circular	Linear Foot
609.13	Vertical Bridge Curb Type 1	Linear Foot
609.131	Vertical Bridge Curb Type 1A	Linear Foot
609.132	Vertical Bridge Curb Type 1B	Linear Foot
609.142	Vertical Bridge Curb Type 1B - Circular	Linear Foot
609.15	Sloped Curb Type 1	Linear Foot
609.151	Sloped Curb Type 1 - Circular	Linear Foot
609.161	Concrete Slipform Curb – Vertical Type 2	Linear Foot
609.21	Concrete Slipform Curb Type 2	Linear Foot
609.219	Concrete Slipform Terminal End Type 2	Linear Foot
609.23	Terminal Curb Type 1	Each
609.234	Terminal Curb Type 1 - 4 foot	Each
609.237	Terminal Curb Type 1 - 7 foot	Each
609.2371	Terminal Curb Type 1 - 7 foot – Circular	Each
609.238	Terminal Curb Type 1 - 8 foot	Each
609.26	Curb Transition Section B Type 1	Each

609.31	Curb Type 3	Linear Foot
609.34	Curb Type 5	Linear Foot
609.35	Curb-Type 5 - Circular	Linear Foot
609.38	Reset Curb Type 1	Linear Foot
609.39	Reset Curb Type 2	Linear Foot
609.40	Reset Curb Type 5	Linear Foot

SECTION 610
STONE FILL, RIPRAP, STONE BLANKET, AND STONE DITCH PROTECTION

610.02 Materials Amend this subsection by adding the following to the end of the material list:
"**Stone Ditch Protection 703.29"**

SECTION 618
SEEDING

618.08 Mulching Revise this Section so that the third sentence reads: "Mulch for Seeding Method Number 1 shall only be cellulous fiber mulch Section 619.04 **(b)** or straw mulch Section 619.04 (**a**)."

SECTION 619
MULCH

619.03 General Amend this Section by adding the following sentence to the end: **"Straw mulch shall be used in all wetland areas."**

SECTION 626
FOUNDATIONS, CONDUIT, AND JUNCTION BOXES FOR HIGHWAY SIGNING, LIGHTING, AND SIGNALS

Section 626.021 Miscellaneous Materials Revise this section by removing the fourth paragraph beginning with " All Concrete for concrete encasement…" and replace it with "**All concrete for concrete encasement of conduit shall be Class S or Class Fill concrete in accordance with the applicable requirements of Section 502 – Structural Concrete, or a Prepackaged Concrete Mix from the Department's Qualified Products List (QPL).**"

Section 626.031Conduit Revise the fifth paragraph beginning with "After the trench has been…" by removing the last sentence beginning with "Where concrete encasement…" and replacing it with **"Where concrete encasement is required around the conduit, the concrete shall meet Class S, Class Fill in accordance with the applicable requirements of Section 502 – Structural Concrete, or a Prepackaged Concrete Mix from the Department's Qualified Products List (QPL)."**

626.034 Concrete Foundations Revise this Section by changing '626.037' to '**626.036**' in the Second Paragraph which begins with "Foundations shall consist of cast-in-place…".

Revise the 10th paragraph beginning with "Before placing concrete, the required elbows…" by removing "…**in accordance with Standard Specification 633**."

626.036 Precast Foundations Revise the last sentence of paragraph one so that it reads: "**Construction of precast foundations shall conform to the Standard Details and all requirements of 712.061**."

SECTION 627
PAVEMENT MARKINGS

627.02 Materials Amend this section by adding the following to the existing Specification:

"When pavement marking paint must be applied on pavement with an air temperature between 35 ºF and 50 ºF, a low temperature waterborne paint may be used upon the Department's approval as noted below.

The Contractor shall submit the following information for Department review and approval at least 10 calendar days prior to application:

The manufacturer and product name of the low temperature waterborne paint

The manufacturer's technical product data sheets

The product's SDS sheets

All required and recommended application specifications for the product

The manufacturer's requirements for temperature, surface preparation, paint thickness and the bead application shall be followed. No additional payment will be made for the use of low temperature waterborne paint. "

627.06 Application Revise this subsection by replacing the paragraph beginning with " On other final pavement markings…" with the following:
"On other final pavement markings and on curb, where the paint is applied by hand painting or spraying, application shall be one uniform covering coat at least 16 mils thick. Before the paint has dried, the glass beads shall be applied by a pressure system that will force the glass beads onto the undried paint as uniformly as possible.

Painted lines and markings shall be applied in accordance with the manufacturer's published recommendations. These recommendations will be supplied to the Resident prior to installation."

Revise this subsection by replacing the paragraph beginning with " If the final reflectivety values are less…" with the following:

The final reflectivity will be acceptable if 90 percent or more of the painted pavement lines and markings meet the specified minimum value. If less than 90 percent of the painted pavement lines and markings meet the specified minimum final reflectivity values, the Contractor shall repaint those areas not meeting required reflectivity at no cost to the Department.

If, after repainting, analysis of the final reflectivity values results in the need for a second repainting, the Contractor will submit in writing a plan of action to meet the reflectivity minimums prior to continuing any work. Once the plan has been reviewed and approved by the Department, the Contractor shall reapply at no cost to the Department.

SECTION 637
DUST CONTROL

Revise this section by removing it in its entirety.

SECTION 643
TRAFFIC SIGNALS

643.021 Materials Amend this subsection by adding the following at the end:

"**MaineDOT is transitioning to MASH2016 criteria for Work Zone Traffic Control Devices on the following schedule:**

Temporary Traffic Control Signals will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 4 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029."

643.023 Traffic Signal Structures Remove the third paragraph and replace it with the following:

"**Traffic signal support structures shall be classified as Fatigue Category III if they are located on roads with a speed limit of 35 mph or less, Fatigue Category II if they are located on roads with a speed limit of greater than 35 mph, and Fatigue Category I if noted on the Contract Plans. Fatigue Importance Factors shall be as specified in Table 11.6-1 (Fatigue Importance Factors). Fatigue analyses are not required for span-wire (strain) pole traffic signal support structures with heights of 55 feet or less unless required by the current edition of AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals".**

643.09 Service Connection Revise this subsection by removing the paragraph that begins with "Traffic signal services shall have…".

And by removing the paragraphs beginning with " A service ground rod shall be installed…" and "A total of 4, 10' service…" and replace them with "**A total of 4, 10' service ground rods shall be installed and properly connected together on the outside of the cabinet foundation. One ground rod shall be located at each corner and shall be either flush or slightly below finished grade. The connection between the ground rod and the ground wire shall be an exothermic connection such as a Cadweld. The ground wire from the interconnected ground rods shall be routed through a conduit in the foundation and into the base of the cabinet**".

SECTION 645
HIGHWAY SIGNING

Section 645.023 Sign Support Structures. Under letter "c.", revise the fifth paragraph beginning with "In addition to the required details…" by removing the words "**and foundation**" from the 5th sentence.

Section 645.08 Method of Measurement. Revise the second paragraph beginning with "Bridge-type, cantilever and…" by removing the words "**including the foundation**" .

Section 645.09 Basis of Payment. Revise the third paragraph beginning with "The accepted bridge-type, cantilever and…" by removing the word "**foundation**" from the second sentence. Add the following sentence to the end of the paragraph "**Conduits, Junction Boxes, and Foundations will be paid for under Section 626.**"

SECTION 652
MAINTENANCE OF TRAFFIC

652.2.5 Portable Changeable Message Sign Revise the fifth paragraph so it reads:

"The control system shall include a display screen upon which messages can be reviewed before being displayed on the message sign. The control system shall be capable of maintaining memory when power is unavailable. Messages must be changeable with either a portable electronic device like a notebook computer or an on-board keypad. The controller shall have the capability to store a minimum of 200 user-defined and 200 pre-programmed messages. Controller and battery compartments shall be enclosed in lockable, weather-tight boxes. The cabinet shall be locked at all times that the Contractor is not actively changing the message. The Contractor shall change the password for the controller prior to stationing the PCMS and shall provide the password to the Resident. The password shall be unique per PCMS and secure and shall not be written anywhere in, on, around, or stored in the PCMS."

Amend this Section by adding the following new subsection:

"**652.2.6 Device Crashworthiness MaineDOT is transitioning to MASH2016 criteria for Work Zone Traffic Control Devices on the following schedule:**

Category 1 (Cones, Drums, Tubular Markers, Flexible Delineators, and similar devices that have little chance if causing windshield penetration, tire damage, or other significant effect on the control or trajectory of a vehicle) – All Category 1 devices will be manufacturer self-certified as MASH2016 by January 1, 2025. Current Category 1 devices in useful serviceable condition that are not self-certified as MASH2016 compliant may be utilized through December 31, 2024.

Category 2 (Barricades, Portable Sign Supports, Category 1 devices with attachments, and similar devices that are not expected to produce significant vehicular velocity change but may be otherwise hazardous) – All Category 2 devices will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2025. Current Category 2 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2024.

Category 3 (Portable Concrete Barrier, Portable Crash Cushions, Truck Mounted Attenuators, Category 2 devices weighing more than 100 pounds, and similar devices that are expected to produce significant vehicular velocity change or other harmful reactions) – All Category 3 devices will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 3 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029. (See Standard Specification 526 for additional Portable Concrete Barrier information).

Category 4 (Trailer Mounted Devices: Arrow Boards, Temporary Traffic Control Signals, Area Lighting, Portable Changeable Message Sign, and other similar devices.) – All Category 4 devices will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 4 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029."

652.3.3 Submittal of Traffic Control Plan Amend this section by adding:

"n. A security plan for any PCMS shall be included. The Contractor shall provide a plan for secure access to the PCMS and protection from unauthorized users. The plan shall have details on securing the cabinets via a lock and password from unauthorized users, password changing protocols, and where the access information will be kept so it can be used in the event of emergency. The Contractor shall not Identify or store passwords in the TCP."

652.4 Flaggers Revise the first paragraph of this section so that it reads:

"The Contractor shall furnish flaggers as required by the TCP or as otherwise specified by the Resident. All flaggers must have successfully completed a flagger test approved by the Department and administered by a Department-approved Flagger-Certifier who is employing that flagger. All flaggers must carry an official certification card with them while flagging that has been issued by their employer."

SECTION 681
PRECAST AGGREGATE-FILLED, CONCRETE BLOCK GRAVITY WALL

681.08 Basis of Payment Amend this section by adding the Item Number "**681.10**' in front of the item "Precast Aggregate-Filled Concrete Block Gravity Wall" at the end of the section.

SECTION 701
STRUCTURAL CONCRETE RELATED MATERIAL

701.01 Portland Cement and Portland Pozzolan Cement Amend the first sentence of Paragraph 3 by adding "**or Type 1L Portland Limestone cement**" so that it reads:
"**A Type IP (MS) Portland-pozzolan cement (blended hydraulic cement with moderate sulfate resistance) or Type 1L Portland Limestone cement meeting the requirements of AASHTO M 240, may be used instead of Type II or where Type I Portland cement, meeting the requirements of AASHTO M 85, is allowed**."

SECTION 703
AGGREGATES

Add the following to Section 703 - Aggregates

703.01 Fine Aggregate for Concrete Fine aggregate for concrete shall consist of natural sand or, when approved by the Resident, other inert materials with similar characteristics or combinations thereof, having strong, durable particles. Fine aggregate from different sources of supply shall not be mixed or stored in the same pile nor used alternately in the same class of construction or mix without permission of the Resident.

All fine aggregate shall be free from injurious amounts of organic impurities. Should the fine aggregate, when subjected to the colorimetric test for organic impurities, AASHTO T 21, produce a color darker than the reference standard color solution (laboratory designation Plate III), the fine aggregate shall be rejected.

Fine aggregate shall have a sand equivalent value of not less than 75 when tested in accordance with AASHTO T 176.
Fine aggregate sources shall meet the Alkali Silica Reactivity (ASR) requirements of Section 703.0201.

The fineness modulus shall not be less than 2.26 or more than 3.14. If this value is exceeded, the fine aggregate will be rejected unless suitable adjustments are made in proportions of coarse and fine aggregate. The fineness modulus of fine aggregate shall be determined by adding the cumulative percentages of material by weight retained on the following sieves: Nos. 4, 8, 16, 30, 50, 100 and dividing by 100.

Fine aggregate, from an individual source when tested for absorption as specified in AASHTO T 84, shall show an absorption of not more than 2.3 percent.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
⅜ inch	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10
No. 200	0-5.0

703.02 Coarse Aggregate for Concrete Coarse aggregate for concrete shall consist of crushed stone or gravel having hard, strong, durable pieces, free from adherent coatings and of which the composite blend retained on the ⅜ inch sieve shall contain no more than 15 percent, by weight of flat and elongated particles when performed in accordance with test method ASTM D 4791, Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate, using a dimensional ratio of 1:5.

The coarse aggregate from an individual source shall have an absorption no greater than 2.0 percent by weight determined in accordance with AASHTO T 85 modified for weight of sample.

The composite blend shall have a Micro-Deval value of 18.0 percent or less as determined by AASHTO T 327 or not exceed 40 percent loss as determined by AASHTO T 96.

Coarse aggregate sources shall meet the Alkali Silica Reactivity (ASR) requirements of Section 703.0201.

Coarse aggregate shall conform to the requirements of the following table for the size or sizes designated and shall be well graded between the limits specified.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves			
Grading	A	AA	S	LATEX
Aggregate Size	1 inch	¾ inch	1½ inch	½ inch
2 inch			100	
1½ inch	100		95-100	
1 inch	95-100	100	-	
¾ inch	-	90-100	35-70	100
½ inch	25-60	-	-	90-100
⅜ inch	-	20-55	10-30	40-70
No. 4	0-10	0-10	0-5	0-15
No. 8	0-5	0-5	-	0-5
No. 16	-	-	-	-
No. 50	-	-	-	-
No. 200	0 - 1.5	0 - 1.5	0 - 1.5	0 - 1.5

703.0201 Alkali Silica Reactive Aggregates All coarse and fine aggregates proposed for use in concrete shall be tested for Alkali Silica Reactivity (ASR) potential under AASHTO T 303 (ASTM C 1260), Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali-Silica Reaction, prior to being accepted for use. Acceptance will be based on testing performed by an accredited independent lab submitted to the Department. Aggregate submittals will be required on a 5-year cycle, unless the source or character of the aggregate in question has changed within 5 years from the last test date.

As per AASHTO T 303 (ASTM C 1260): Use of a particular coarse or fine aggregate will be allowed with no restrictions when the mortar bars made with this aggregate expand less than or equal to 0.10 percent at 30 days from casting. Use of a particular coarse or fine aggregate will be classified as potentially reactive when the mortar bars made with this aggregate expand greater than 0.10 percent at 30 days from casting. Use of this aggregate will only be allowed with the use of cement-pozzolan blends and/or chemical admixtures that result in mortar bar expansion of less than 0.10 percent at 30 days from casting as tested under ASTM C 1567.

Acceptable pozzolans and chemical admixtures that may be used when an aggregate is classified as potentially reactive include, but are not limited to the following:

a. Class F Coal Fly Ash meeting the requirements of AASHTO M 295
b. Ground Granulated Blast Furnace Slag (Grade 100 or 120) meeting the requirements of AASHTO M 302
c. Densified Silica Fume meeting the requirements of AASHTO M 307
d. Lithium-based admixtures
e. Metakaolin

Pozzolans or chemical admixtures required to offset the effects of potentially reactive aggregates will be incorporated into the concrete at no additional cost to the Department.

703.05 Aggregate for Sand Leveling Aggregate for sand leveling shall be sand of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The aggregate shall meet the grading requirements of the following table.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
⅜ inch	85-100
No. 200	0-5.0

703.06 Aggregate for Base and Subbase The following shall apply to Sections (a.) and (c.) below. The material shall have a Micro-Deval value of 25.0 or less as determined by AASHTO T 327. If the Micro- Deval value exceeds 25.0, the Washington State Degradation DOT Test Method T113, Method of Test for Determination of Degradation Value (January 2009 version) shall be performed, except that the test shall be performed on the portion of the sample that passes the ½ in sieve and is retained on the No. 10 sieve. If the material has a Washington Degradation value of less than 15, the material shall be rejected.
The material used in Section (b.) below shall have a Micro-Deval value of 25.0 or less as determined by AASHTO T 327. If the Micro-Deval value exceeds 25.0 the material may be used if it does not exceed 25 percent loss on AASHTO T 96, Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

Recycled Asphalt Pavement (RAP) shall not be used for or blended with aggregate base or subbase.

a. Aggregate for base, Type A and B shall be crushed ledge or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of the part that passes a 3 inch sieve shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Type A	Type B
½ inch	45-70	35-75
¼ inch	30-55	25-60
No. 40	0-20	0-25
No. 200	0-6.0	0-6.0

At least 50 percent by weight of the material retained on the No. 4 sieve shall have at least one fractured face as tested by AASHTO T 335.

Type A aggregate for base shall only contain particles of rock that will pass the 2 inch square mesh sieve.

Type B aggregate for base shall only contain particles of rock that will pass the 4 inch square mesh sieve.

b. Aggregate for base, Type C shall be crushed ledge or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The material shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
	Type C
4 inches	100
3 inches	90-100
2 inches	75-100
1 inch	50-80
½ inch	30-60
No. 4	15-40
No. 200	0-6.0

At least 50 percent by weight of the material coarser than the No. 4 sieve shall have at least one fractured face as tested by AASHTO T 335.

c. Aggregate for subbase shall be sand or gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of the part that passes a 3 inch sieve shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Type D	Type E
½ in	35-80	
¼ inch	25-65	25-100
No. 40	0-30	0-50
No. 200	0-7.0	0-7.0

Type D aggregate for subbase gravel may contain up to 50 percent by weight Recycled Concrete Aggregate (RCA). When RCA is used, the portion of the resulting blend of gravel and RCA retained on a ½" square mesh sieve shall contain a total of no more than 5 percent by weight of other recycled materials such as brick, concrete masonry block, or asphalt pavement as determined by visual inspection.

RCA shall be substantially free of wood, metal, plaster, and gypsum board as defined in Note 9 in Section 7.4 of AASHTO M 319. RCA shall also be free of all substances that fall under the category of solid waste or hazardous materials.

Aggregate for subbase shall not contain particles of rock which will not pass the 6 inch square mesh sieve.

703.08 Recycled Asphalt Pavement Recycled asphalt pavement shall consist of salvaged asphalt materials from milled pavements or production waste that has been processed before use to meet the requirements of the job mix formula. It shall be free of winter sand, granular fill, construction debris, or other materials not generally considered asphalt pavement.

703.081 RAP for Asphalt Pavement Recycled Asphalt Pavement (RAP) may be introduced into hot-mix asphalt pavement at percentages approved by the Department according to the MaineDOT Policies and Procedures for HMA Sampling and Testing.

If approved by the Department, the Contractor shall provide documentation stating the source, test results for average residual asphalt content, and stockpile gradations showing RAP materials have been sized to meet the maximum aggregate size requirements of each mix designation. The Department will obtain samples for verification and approval prior to its use.

The maximum allowable percent of RAP shall be determined by the asphalt content, the percent passing the 0.075 mm sieve, the ratio between the percent passing the 0.075 mm sieve and the asphalt content, and Coarse Micro-Deval loss values as tested by the Department.

The maximum percentage of RAP allowable shall be the lowest percentage as determined according to Table 4 below:

Classification	Maximum RAP Percentage Allowed	Asphalt content standard deviation	Percent passing 0.075 mm sieve standard deviation	Percent passing 0.075 mm sieve / asphalt content ratio	Residual aggregate M-D loss value
Class III	**10%**	**≤ 1.0**	**N/A**	**≤ 4.0**	**≤ 18**
Class II	**20%**	**≤ 0.5**	**≤ 1.0**	**≤ 2.8**	
Class I	**30%**	**≤ 0.3**	**≤ 0.5**	**≤ 1.8**	

Table 4: Maximum Percent RAP According to Test Results

The Department will monitor RAP asphalt content and gradation during production by testing samples from the stockpile at approximately 15,000 T intervals (in terms of mix production). The allowable variance limits (from the numerical average values used for mix designs) for this testing are determined based upon the maximum allowable RAP percentage and are shown below in Table 5.

Table 5: RAP Verification Limits

Classification	Asphalt content (compared to aim)	Percent passing 0.075 mm sieve (compared to aim)
Class III	± 1.5	± 2.0
Class II	± 1.0	± 1.5
Class I	± 0.5	± 0.7

For specification purposes, RAP will be categorized as follows:

Class III – A maximum of 10.0 percent of Class III RAP may be used in any base, intermediate base, surface, or shim mixture. A maximum of 20.0 percent of Class III RAP may be used in hand-placed mixes for item 403.209.

Class II – A maximum of 20.0 percent Class II RAP in any base, binder, surface, or shim course.

Class I – A maximum of 20.0 percent Class I RAP may be used in any base, intermediate base, surface, or shim mixture without requiring a change to the specified asphalt binder. A maximum of 30.0 percent Class I RAP may be used in in any base or intermediate base mixture provided that a PG 58-28 or PG 58-34 asphalt binder is used. A maximum of 30.0 percent Class I RAP may be used in any surface or shim mixture provided that PG 58-34 asphalt binder is used. Mixtures exceeding 20.0 percent Class I RAP must be evaluated and approved by the Department.

The Contractor may use up to two different RAP sources in any one mix design. The total RAP percentage of the mix shall not exceed the maximum allowed for the highest classification RAP source used (i.e. if a Class I & Class III used, total RAP must not exceed 30.0%). The blended RAP material must meet all the requirements of the classification for which the RAP is entered (i.e. 10% Class III with 20% Class I, blend must meet Class I criteria). The Department may take belt cuts of the blended RAP to verify the material meets these requirements. If the Contractor elects to use more than one RAP source in a design, the Contractor shall provide an acceptable point of sampling blended RAP material from the feed belt.

In the event that RAP source or properties change, the Contractor shall notify the Department of the change and submit new documentation stating the new source or properties a minimum of 72 hours prior to the change to allow for obtaining new samples and approval.

SECTION 709
REINFORCING STEEL AND WELDED STEEL WIRE FABRIC

709.01 Reinforcing Steel Remove the second paragraph of Section 709.01 of the standard specification beginning with "Low-Carbon, Chromium,…" and replace with the following:

" Low-carbon, chromium, reinforcing steel shall be deformed bars conforming to the requirements of ASTM A1035. Bars shall be Grade 100 and alloy Type CS unless otherwise specified on the Plans. "

SECTION 710
FENCE AND GUARDRAIL

710.06 Fence Posts and Braces Revise the first Paragraph so that it reads:

"Wood posts shall be of cedar, white oak, or tamarack or other AWPA approved species, of the diameter or section and length shown on the plans."

Remove the fourth paragraph which starts " That portion of wood posts…".

Revise the paragraph beginning with "Braces shall be of spruce, eastern hemlock … so that it now reads:

"Braces shall be of spruce, eastern hemlock, Norway pine, pitch pine, or tamarack timbers or other AWPA approved species, or spruce, cedar, tamarack or other AWPA approved species round posts of sufficient length to make a diagonal brace between adjacent posts. All wood posts and braces shall be pressure-treated in accordance with AASHTO M 133 and AWPA U1, UC4A Commodity Specification B: Posts. "

710.07 Guardrail Posts Revise this section so that the first sentence of section a. reads:

"a. Wood posts shall be of Norway pine, southern yellow pine, pitch pine, Douglas fir, red pine, white pine, or eastern hemlock or other AWPA approved species."

Revise the next paragraph so that it reads:

Wood posts and offset brackets shall be preservative treated in accordance with the requirements of AASHTO M 133 and AWPA U1, UC4A Commodity Specification B: Posts.

710.08 Guardrail Hardware Revise this subsection by replacing "**AASHTO M 298**" with "**ASTM B695**"

SECTION 711
MISCELLANEOUS BRIDGE MATERIAL

711.06 Stud Shear Connector Anchors and Fasteners Amend this section by deleting it in its entirety and replacing it with:
"Shear connectors shall meet the dimensional tolerances of Figure 9.1 of the ANSI/AASHTO/AWS D1.5 Bridge Welding Code (D1.5 Code). Shear connectors, anchors and fasteners shall meet the material requirements of Section 9 of the D1.5 Code. Shear connectors shall meet the mechanical property requirements of Table 9.1, Type B of the D1.5 Code. Anchors and fasteners shall meet the mechanical property requirements of Table 9.1 of the D1.5 Code, Type A."

SECTION 712
MISCELLANEOUS HIGHWAY MATERIAL

712.061 Structural Precast Units Amend this section by adding the following sentence to the end of the first paragraph of the Construction subsection:

"Facilities certified by NPCA or PCI shall provide to the Fabrication Engineer a copy of their annual audit to include deficiency reports and corrective actions."

Revise this section by changing the letter "b" of ASTM C1611 of the Concrete Testing subsection so that it reads:

"**b. Air content shall be 5.0% to 8.0%**."

SECTION 713
STRUCTURAL STEEL AND RELATED MATERIAL

Section 713.02 High Strength Bolts
Revise the second sentence of this subsection so that it reads "**Nuts shall meet the requirement of ASTM A563**". Revise the third sentence of this subsection so that it reads "**Circular and beveled washers shall conform to the requirement of ASTM F436**".

SECTION 718
TRAFFIC SIGNALS MATERIAL

718.03 Signal Mounting Amend the paragraph beginning with "All trunions, brackets and…" by adding "**For polycarbonate signal heads with more than 3 sections or requiring mounting extensions greater than 12 inches in length, reinforcing plates shall be used to reinforce the housings at the point of attachment.**" to the end of the paragraph.

718.08 Controller Cabinet Revise this subsection by replacing the paragraph beginning with "The cabinet shall be supplied with LED light panels…" on or about page 7-66 with "**The cabinet shall be supplied with white LED light panels which shall automatically illuminate via a door open switch whenever one of the four main cabinet doors are opened for the ground mount cabinet or two main doors for the side of pole cabinet. The ground mounted cabinet shall contain four LED light panels per side totaling eight panels for the cabinet; one panel each at the top and bottom portion of the front side and back side on the Control side and Power/Auxiliary side of the cabinet. Each light panel shall produce a minimum of 250 lumens for a total minimum lumen output of 2000 lumens with all eight panels illuminated. The minimum output per side would be 1000 lumens. The LED panels shall be protected by a clear shatterproof shield. The side of pole mounted cabinet shall contain four light panels; one at the top of the rack assembly and one at the bottom rack assembly on each side of the cabinet.**

A second door open status switch per door shall activate a controller input to log a report event that one of the doors was opened. All door open status switches shall be connected to the same controller input. For the ground mount cabinet, there shall be two switches on each of the four main doors. For the side-of-pole mount cabinet, there shall be two switches on each of the two main doors."

Revise this subsection by replacing the paragraph beginning with "The cabinet shall be supplied with a generator panel …" on or about page 7-68 with:

"The cabinet shall be supplied with a generator panel. The generator panel shall consist of a manual transfer switch and a twist-lock connector for generator hookup. The transfer switch knob and twist-lock connector shall be located inside a stainless steel enclosure with a separate lockable door accessed with a Corbin #2 key. The unit shall be mounted on the left, exterior of the control side wall of the ground mount cabinet a minimum of 36" above the surrounding grade and on the lower left side of the pole mounted cabinet. The generator transfer switch shall be a Reliance C30A1N Signa Series or approved equal. "

Revise this subsection by removing the following from the paragraph beginning with "The ground mounted cabinet shall be supplied and installed with an electric service meter socket trim and electrical service disconnect switch …" on or about page 7-69: **"(removed: thus preventing that space from being used either by equipment supplied as part of the project, or future equipment that would be installed in the rack system. Joe indicated that he would add this language to the detail so it is covered.)".**

Revise this subsection by replacing the following in the paragraph beginning with "The Contractor shall reconfigure the default user name…" on or around page 7-70; "MaineDOT IT" with "**MaineDOT Traffic Division**".

In the paragraph beginning with "Tests shall be conducted by the contractor…" on or around page 7-73, amend this subsection by removing **"in the state of Maine and"** after "The facility shall be".

Amend this Section by adding the following subsection:

718.13 Field Monitoring Unit (FMU) This item of work shall conform to this specification. This item shall consist of furnishing and installing a Field Monitoring Unit (FMU) and software, as well as all needed accessories required for a full and complete installation, including but not limited to power adapters, Ethernet cables, and interface cables, as described herein.

Where applicable, communications from MaineDOT's cloud-based Central Management System (CMS) to the on-street traffic signal controllers shall be made through fiber optic interconnect cable connected back to existing internet connections and/or the Field Monitoring Unit (FMU). The Contractor shall furnish and install all materials necessary for a complete and operational fiber optic interconnection to all project intersections as shown on the plans. All connections to the CMS cloud-based system shall be via a secure VPN network.

The FMU shall be the only remote connection device used by isolated intersections to connect to the cloud-based system. All connections shall be encrypted VPN tunnels. The Contractor shall coordinate all configuration settings with MaineDOT IT and the Engineer.

The FMU central web based interface shall be a separate element from the CMS.

MATERIALS: The materials for this work shall conform to the following requirements:

1. The work under this item specifies the requirements for the FMU. The FMU shall operate independent of the brand/type of intersection controller deployed in the ATC traffic cabinet.

2. The FMU shall conform to the following requirements:
   - 2.1 The FMU shall function correctly between -34 degrees C and +74 degrees C.
   - 2.2 The FMU shall be provided with appropriately rated connectors that allows the FMU to be exchanged by unplugging connectors, without tools.
   - 2.3 The FMU shall monitor and log all ATC Controller and ATC cabinet faults and or alarms.
   - 2.4 The FMU shall be wired directly to the ATC cabinet.
   - 2.5 The FMU shall have an internal cellular modem running at 4G LTE.
     - 2.5.1 The Cellular modem shall be designed to be replaced / upgraded to 5G service when available.
   - 2.6 The FMU shall incorporate an integrated GPS and cell modem.
   - 2.7 The configuration of the FMU shall be accomplished by accessing the internal web server with a browser. It shall be possible to configure the FMU without any special software.

2.8 The FMU shall be powered via a standard 120V input power.

2.9 The FMU shall allow for the routing of the controller configuration packets to and from the controller (either by Ethernet or serial communications) for any type of controller utilized by the MaineDOT. In this way it shall be possible to configure the controller and utilize the controller specific software to interrogate the controller, and the FMU shall provide the communications pipe which allows this to be accomplished.

2.10 The FMU shall, within the size limitations above, include a battery and battery charging/monitoring circuit, to allow the FMU to function correctly even when all power to the intersection has failed. The battery shall continue to power the FMU for a minimum of 5 hours after all power has failed to the intersection.

2.11 The FMU shall incorporate an integrated GPS which will allow the FMU to geo-locate itself on the FMU management software map, without configuration.

2.12 The FMU shall operate without requiring a static IP address. The only configuration required at the FMU is to enter the URL of where the FMU management software is hosted.

2.13 In the event that the cell service is interrupted or is not available, the FMU shall store any events that occur in internal memory and forward these events automatically to the FMU management software when the cell service is restored. In this way, a complete record of events at the device can be maintained even if cell service is interrupted for a period. The system will store 5000 events.

2.14 The FMU shall utilize HTTP and HTTPS protocols, and XML data structures, for communication with the FMU management software. In this way the data will be open for future expansion and competition. The use of secret proprietary protocols is not permitted.

2.15 The FMU shall include Ethernet communications via an Ethernet Port with RJ45 connector.

2.16 The FMU shall include weather proof antennas.

3. **Map Display FMU Management Software**

3.1 The FMU shall include a scrollable, zoomable map display, with the intersections and other monitored devices shown as representative icons on the map. The map shall include the ability to see the intersections using Google Streetview.

3.2 The alarm status of the intersection shall be clearly indicated on the icon on the map, so that the user can see at a glance which intersections are in alarm.

3.3 The map display shall also include a list of intersections, with the number and priority of alarms indicated on the list. Intersections in high priority alarm shall be moved to the top of the list, followed by medium priority, low priority and then finally by intersections not in alarm.

3.4 The icons shall change to be able to clearly indicate if an intersection is offline.

3.5 Clicking on the icon on the map shall expose a box with the current parameters of the intersection shown.

3.6 The default map display position and zoom shall be configurable by user, so that the user's view will default to show the intersections that the user is responsible for managing.

3.7 The map view shall have the ability to show Google traffic overlays on the map.

4. **Intersection Detail Display FMU Management Software**

4.1 It shall be possible to drill down, either from the map icon or from the list, to a device level detail for the intersection, which as a minimum shall display the following parameters:

4.1.1 The alarm status, with priority indicated, and a text description of the alarm (if an alarm is present for this device).

4.1.2 The time since the last communication with the device

4.1.3 The following parameters (real time now values, minimum for the day values, maximum for the day values, and average for the day values)

4.1.3.1 The AC mains voltage (value)

4.1.3.2 The battery back-up voltage (value)

4.1.3.3 The cabinet temperature (value)

4.1.3.4 The cabinet humidity (value)

4.1.3.5 The presence of AC power (OK or Fail)

4.1.3.6 The flashing status of the intersection (OK or Flashing)

4.1.3.7 Stop Time status (OK or Stop Time Active)

4.1.3.8 The cabinet door status (Open or Closed)

4.1.3.9 The intersection fan status (Fan On or Fan off)

4.1.4 It shall be possible to view graphs of each of the value parameters in graphical form, over the recent two-week period. This includes real time graphs of:

4.1.4.1 The AC mains voltage

4.1.4.2 The battery back-up voltage

4.1.4.3 The cabinet temperature

4.1.4.4 The cabinet humidity

5. **Diagnostics and Log Display FMU Management Software**

5.1 From the device level detail within the FMU management software, it shall be possible to drill down to get the raw data; the error logs; and the communications logs to allow a technician to fault-find problems.

5.2 It shall be possible to filter the logs by Device; by Device Type and/or by Group as well as between dates.

5.3 It shall be possible to print these selected logs to a local printer or a PDF file.

5.4 It shall be possible to export these logs to Excel on the local computer for further analysis.

6. **Alarms FMU Management Software**

6.1 The FMU management software shall have a comprehensive alarm generation capability

6.2 It shall be possible to configure alarms to be generated on any parameter becoming out of tolerance, including analog values, digital values and enumerated values.

6.3 Alarms shall be configurable to be of Low, High or Critical Priority.

6.4 The alarm priority shall be displayed throughout the FMU management software, on all displays, using color codes such as red-critical; yellow – high; and amber-low to indicate the priority of the alarm.

6.5 The current active alarms shall be accessible for view via an expandable window, to see which alarms are active and when the alarm occurred. The highest priority alarms shall rise to the top of the list.

7. **Alerts FMU Management Software**

7.1 The FMU management software shall have comprehensive alerting capability, to enable the response personnel to be notified when an abnormal situation has occurred.

7.2 It shall be possible to configure alerts to one or more personnel for each alarm. This will cause, as selected, an SMS and/or an email to be sent to the person when an alarm occurs.

7.3 The alert shall be configurable to optionally send via email and/or via SMS a message when an alarm clears.

7.4 The intention is that the FMU management software provides the alerts to the user in near real time. The SMS and email shall be issued within 30 seconds of the occurrence of event which results in an alert being issued.

8. **Hosting and Connectivity and Service FMU / FMU Management Software**

8.1 The contractor shall supply the FMU with the FMU manufacturers 10 year options for Connectivity and Service, as part of the purchase price. The Connectivity and Service agreement shall include at a minimum:

8.1.1 Cellular Connectivity

8.1.2 No cellular overage charges

8.1.3 Extended warranty on the hardware for the period of the Connectivity and Service Agreement

8.1.4 Over-the-air software updates

8.1.5 Over-the-air security updates

8.1.6 Future Connected Vehicles Service

SECTION 720
STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS

720.12 Wood Sign Posts Revise the first sentence so that it reads:

Wood sign posts shall be rectangular, straight and sound timber, cut from live growing native spruce, red pine, hemlock, cedar trees or other AWPA approved species, free from loose knots or other structurally weakening defects of importance, such as shake or holes or heart rot.

Revise the third paragraph that starts with “When pressure treated…” so that it reads:

All sign posts shall be pressure-treated in accordance with AASHTO M 133 and AWPA Standard U1, UC4A, Commodity Specification A: Sawn Products.