



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

Janet T. Mills
GOVERNOR

Bruce A. Van Note
COMMISSIONER

February 24, 2022
Subject: Median Barrier Wall Installation,
Pavement Milling & Asphalt Rubber
Gap-Graded HMA Overlay with Drainage &
Safety Improvements
State WIN: 022394.00 & 022420.01
Location: **Portland & South Portland**
Amendment No. 1

Dear Sir/Ms.:

Please make the following changes to the Bid Documents:

In the Bid Book:

REMOVE pages 24 - 31, CONTRACT AGREEMENT, OFFER & AWARD, 2 copies, 4 pages each, and
REPLACE with the attached, revised CONTRACT AGREEMENT, OFFER & AWARD, 2 copies, 4 pages each.

ADD the attached SPECIAL PROVISION - SECTION 400 - HOT MIX ASPHALT PAVEMENTS – (Hot Mix Asphalt Continuous Thermal Profiling), 4 pages, dated February 11, 2019.

The following questions have been received:

Question: Can you please review the liquid asphalt binder requirements for the high polymer asphalt. I think additional suppliers can be opened up by reviewing the requirements.

Response: The Performance Graded Asphalt Binder specification for Highly Modified Asphalt Pavement (HiMAP) was developed based on a review of industry recommendations, specifications from other transportation agencies, and consultation with a national expert on polymer modification. The specified criteria have been used successfully on numerous projects across the country.

After additional internal discussion, the Department has determined that the question, as currently submitted, lacks detail as to the which requirements are of a concern. The Department respectfully requests more information as to the specific items of concern to investigate any possible adjustments to the specification requirements.

Question: Regards precast Median Barrier, is GFRP an acceptable alternative to the noted Stainless Steel reinforcing?

Response: The Department can not verify that GFRP in a median barrier application meets current MASH crash criteria. If the Contractor can show that MASH criteria can be achieved with GFRP, the Department will require Contractor shall submit crash data showing MASH compliance, new design calculation, plans and shop drawings stamped by a registered Maine Professional Engineer for the Department's review and comment. All cast in place barrier will still require stainless reinforcement, GFRP will not be allowed.

Question: Can the Department provide as built information for the existing Median Barrier Wall to aid in working up removal under item 202.17 Removing Existing Structural Concrete 4340 LF?

Response: The As-Built files are now made available on the web page.

Question: Is the existing Median Barrier Wall precast panels attached with a “pinned” connection or is it slipform construction?

Response: Please see the As-Built files that are now available on the web page.

Question: Special Provision Section 107 (Contract Time) Note #6 states “The Contractor shall complete all work as outlined in this contract including all paving and striping on the Franklin Arterial (Exit 7) NB and SB on and off ramps prior to October 1, 2022.” Is this note referencing only work on the Franklin Arterial, or all work on the contract?

Response: The Franklin Arterial on and off ramps shall be completed prior to October 1, 2022. The remainder of the contract will be completed within 195 Working Days.

Question: Are there any plans or as built files for the existing median barrier that is to be removed?

Response: The As-Built files are now available on the web page.

Question: The contract agreement offer and award calls for completion within 195 working days. Special provision section 107 (contract time) item 6 states "The contractor shall complete all work as outlined in this contract including all paving and striping on the Franklin Arterial (Exit 7) NB and SB on and off ramps prior to October 1, 2022.". Is the contract completion time 195 work days or 10/1/22?

Response: The Franklin Arterial on and off ramps shall be completed prior to October 1, 2022. The remainder of the contract will be completed within 195 Working Days.

Question: The Maine Department of Labor Occupational Codes, Titles and Descriptions Code 472071 Paving Equipment Operator, Surfacing, Equipment Operator, Tamping Equipment Operator says it includes Paver Operator, Reclaim Machine Operator, Roller Operator, Screed/Wheelman, Asphalt Raker. Is the intent to pay all crew members listed above on the paving crew the same wage as defined in the new Maine Department of Labor’s Wage classification?

Response: Yes. 472071 combines or includes all the classifications listed and the rate listed is the minimum rate for all.

Consider these changes and information prior to submitting your bid on **March 2, 2022**.

Sincerely,



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

CONTRACT AGREEMENT, OFFER & AWARD

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

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

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

A. **The Work.**

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, **WINs 22394.00 & 22420.01 for the Median Barrier Wall Installation, Pavement Milling Asphalt Rubber Gap-Graded, Hot Mix Asphalt Overlay with Drainage and Safety Improvements in the Cities of Portland and South Portland, County of Cumberland, Maine.** The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. **Time.**

The Contractor agrees to complete all Work, except warranty work, within **195** Working Days. Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, March 2020 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is

Section 1 \$ _____

Section 2 \$ _____

Section 3 \$ _____

Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, March 2020 Edition, Standard Details March 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in Appendix A to Division 100 of the *Standard Specifications March 2020 Edition* (Federal Contract Provisions Supplement), and the Contract are still complete and accurate as of the date of this Agreement.
2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.
3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications March 2020 Edition, Standard Details March 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of: **WINs 22394.00 & 22420.01 for the Median Barrier Wall Installation, Pavement Milling Asphalt Rubber Gap-Graded, Hot Mix Asphalt Overlay with Drainage and Safety Improvements in the Cities of Portland and South Portland, County of Cumberland,** State of Maine, on which bids will be received until the time specified in the “Notice to Contractors” do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached “Schedule of Items.”

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached “Schedule of Items” in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached “Schedule of Items,” which may be ordered by the Resident, and to accept as full compensation the amount determined upon a “Force Account” basis as provided in the *Standard Specifications, March 2020 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier’s check, certificate of deposit or U. S. Postal Money Order in the amount given in the “Notice to Contractors”, payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications March 2020 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor’s Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

Date

(Signature of Legally Authorized Representative
of the Contractor)

Witness

(Name and Title Printed)

G. Award.

Your offer is hereby accepted for (see checked boxes):

Section 1

Section 2

Section 3

Contract Amount: _____

This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF TRANSPORTATION

Date

By: Bruce A. Van Note, Commissioner

Witness

CONTRACT AGREEMENT, OFFER & AWARD

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

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

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

A. **The Work.**

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, **WINs 22394.00 & 22420.01 for the Median Barrier Wall Installation, Pavement Milling Asphalt Rubber Gap-Graded, Hot Mix Asphalt Overlay with Drainage and Safety Improvements in the Cities of Portland and South Portland, County of Cumberland, Maine.** The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. **Time.**

The Contractor agrees to complete all Work, except warranty work, within **195** Working Days. Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, March 2020 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is

Section 1 \$ _____

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Performance Bond and Payment Bond each being 100% of the amount of this Contract.

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By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in Appendix A to Division 100 of the *Standard Specifications March 2020 Edition* (Federal Contract Provisions Supplement), and the Contract are still complete and accurate as of the date of this Agreement.
2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.
3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

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The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached “Schedule of Items” in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached “Schedule of Items,” which may be ordered by the Resident, and to accept as full compensation the amount determined upon a “Force Account” basis as provided in the *Standard Specifications, March 2020 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier’s check, certificate of deposit or U. S. Postal Money Order in the amount given in the “Notice to Contractors”, payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications March 2020 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

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IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

Date

(Signature of Legally Authorized Representative
of the Contractor)

Witness

(Name and Title Printed)

G. Award.

Your offer is hereby accepted for (see checked boxes):

Section 1

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Contract Amount: _____

This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF TRANSPORTATION

Date

By: Bruce A. Van Note, Commissioner

Witness

SPECIAL PROVISION
SECTION 400
HOT MIX ASPHALT PAVEMENTS
(Hot Mix Asphalt Continuous Thermal Profiling)

Description The Contractor shall use a paver mounted continuous thermal profiler (CTP) to automatically measure, record and store the surface temperature of the HMA mat immediately behind the paver screed during all paving operations within the project traveled way. An infrared temperature measurement scanner shall be used to provide the thermal profile information including real time material temperatures and measurement locations. The system shall include a display that allows the field staff to view a continuous pavement surface temperature Contour Plot for Quality Control purposes.

The purpose is to demonstrate CTP technology, to evaluate the benefits and effectiveness of CTP technology for improving pavement quality and compaction processes, and to investigate how CTP data can be used as part of a performance specification. The CTP data will not be used for approval or rejection of the project materials. It is expected that the Contractor will utilize the CTP data as part of the project QC activities. The Contractor shall review the thermal profile results daily and shall discuss potential improvements to paving operations with the Department. The Department shall accept all pavement work under the existing Quality Assurance provisions as specified in Standard Specification 106 and Special Provision 401.

Definitions:

Contour Plot --- a graphic display of data using contour lines and/or color scales.

Distance Measuring Instrument (DMI) --- a sensor attached to a wheel on the paver to calculate distance and velocity.

Temperature Differential --- the difference between the statistical 98.5 percentile temperature and the statistical 1 percentile temperature within a thermal profile

Thermal Coverage (TC) --- the percent of the total coverage area, for the given pavement lift, where thermal profiling measurements (meeting the requirements of this special provision) are collected and stored.

Thermal profiles --- set of infrared temperature measurements behind the paver and across the entire mat width at maximum one foot intervals, evaluated in 150 foot sublots.

Traveled Way --- the portion of the roadway that is intended for the movement of vehicles, exclusive of shoulders and auxiliary lanes

I. Equipment Requirements

The Contractor shall purchase or lease a CTP for this pilot project and shall be responsible for the operation of the CTP including calibrating per the manufacturer's recommendations, providing an on-site individual for daily operation and data collection (start and stop locations, new lifts, etc.), data sharing with the Department and any other activities related to CTP. The manufacturer shall provide a technical representative to be on site to provide assistance during initial set up, pre-construction verification, and data management and processing, as needed during the project.

The scanner system shall be post mounted on the back of the paver and capable of taking thermal profile measurements within 10 feet of the back of the paver screed across the entire pavement width. Distance traveled, paver velocity, and location and duration of paver stops shall be measured using a DMI and global positioning system during collection of the thermal profile. The thermal profile system shall function independently from the paving crew during normal paving operations.

All pavers used for traveled way paving must be instrumented. The field documentation system shall display in real time a contour plot of the thermal profiles, total distance travelled, paver speed and location in terms of station and/or GNSS coordinates. It shall provide real time statistical summaries of the thermal profiles, have the ability to manually export data using a removable media device and allow field staff to enter stations and the pavement lift currently being evaluated. The system shall support English units for distance in data incrementing or decrementing modes from a selected starting point and relate the longitudinal distance to any test point. The system may also report in station format. The CTP system shall also meet the requirements of Table 1 below:

TABLE 1: Continuous Thermal Profiler System Requirements

Parameter	Requirement
Longitudinal and Lateral Intervals Measurements	≤ 1 -ft intervals---Tolerance of +/- 1 inch
Measurement Width	Driving travel lane paved in one (1) pass.
Infrared Temperature Scanner/Sensor	Range: 32°F to 480°F Accuracy: $\pm 3.6^\circ\text{F}$ or $\pm 2.0\%$ of the sensor reading, whichever is greater.
GPS	Accuracy of measurements on the HMA mat: ± 4 feet in the X and Y Direction

The CTP software shall meet the following requirements:

- (1) Viewing/export software for analysis.
- (2) The Manufacturer's Software and Storage must automatically collect, display, record, save, and analyze the mat temperature readings which include locations, paver starts, stops, and times during pavement placement. The software must also be able to export the thermal profile data meeting the requirements of Table 2:

TABLE 2: Thermal Profile Data Header Requirements

Item No.	Description	Example Data included in Header
1	Section Title	Highway 201
2	Machine Manufacture	ABC Company
3	Machine Model	Temp Scanner
4	Lateral Spacing between temperature measurements (inch)	Maximum of 12
5	Longitudinal Spacing between temperature measurements (inch)	Maximum of 12
6	Distance between the infrared temperature system scanner and hot mix asphalt mat (feet)	Variable

- (3) The Manufacturer's software shall also provide the following items:
 - a.) Filtering by sensor/sensor location.
 - b.) Display through a map/graph---the thermal profile across the full pavement width and with respect to a defined segment/sublot length.
 - c.) Display the paver speed, and all paver stops (location and duration).

- d.) Display total paving lengths and durations.
 - e.) Automatically determine the temperature differential of each thermal profile and allow the operator access to review the summary indices while maintaining continuous profile data collection.
 - f.) Automated thermal profile testing shall continue until the operator selects to stop data collection.
- (4) The thermal profiling data must
- a.) Be exportable as dbase ASCII (or Text Format) or directly into Veta.
 - b.) Have a time stamp of mapped and exported data (reflective of the time zone where the data is collected).
 - c.) Meet the requirements of Table 3 below:

TABLE 3: Required Fields for Each Data Point

Item No.	Date Field Name	Data Format Examples
1	Date Stamp (YYYYMMDD)	20160115
2	Time Stamp (HHMMSS.S -military format)	090504.0 (9 hr. 5 min. 4.0 s.)
3	Longitude (decimal degrees, with at least 6 significant digits)	69.765304
4	Latitude (decimal degrees, with at least 6 significant digits)	45.323573
5	Distance (feet)	1.0
6	Direction heading (degree angle, clockwise from the north)	45
7	Speed (ft/min)	30.0
8	Surface temp at each measurement location (°F)	290

II. Construction Requirements

The CTP system will be installed and operated by the Contractor. The Contractor needs to ensure that there are no obstructions located in the infrared temperature scanner measurement area during paving operations. Field staff should also refrain from standing or working in the measurement area. However, if work is required in the measurement area to improve the pavement quality, it should be done in a timely manner and the field staff should provide the Department documentation of these critical work location(s).

The Department shall verify that the infrared scanner and GPS are functioning properly prior to work each day and at other times as needed. Thermal profiles will be collected on the travel lanes for the surface course. Thermal profile data shall be transferred directly from the CTP system removable media device to the Department and to the CTP software by the Contractor at the end of daily paving. The Contractor will inform the Department immediately when a CTP system failure occurs and provide a method and time to correct the deficiency. A CTP system failure is defined as any one of the following items:

- 1) The infrared scanner fails to function properly
- 2) The GPS unit fails to function properly

III. Reporting Requirements

The Contractor shall provide a report of thermal profile results to the Department by 1:00 PM on the day following paving, unless other arrangements are made with the Resident. The report shall contain the following information at a minimum:

- 1) Project WIN and town

- 2) Paving date, start time, and end time
- 3) Layer (base, intermediate, surface)
- 4) Item number
- 5) Beginning location and ending location
- 6) Total number of thermal profile sublots
- 7) Temperature distribution plot
- 8) Location and duration of each paver stop greater than 1 minute
- 9) Sublot number and beginning and ending location of each sublot categorized as either Moderate or Severe thermal segregation, as described in Table 4 below.

Each thermal profile sublot shall be categorized as Low, Moderate, or Severe by comparing the sublot Temperature Differential to the ranges listed in Table 4.

TABLE 4: Thermal Segregation Categories

Sublot Temperature Differential (°F)	Thermal Segregation Category
< 25.0	Low
25.0 to 50.0	Moderate
> 50.0	Severe

If two or more sublots in a day's paving are categorized as having Severe thermal segregation, the Contractor shall notify the Resident in writing of proposed corrective action.

IV. Method of Measurement

A pay adjustment shall be made for Thermal Coverage on the traveled way surface course. The Department will calculate the pay adjustment for the wearing surface thermal coverage using the criteria in Table 5.

TABLE 5: Pay Adjustment for Thermal Coverage

Thermal Coverage (%)	Total Price Adjustment Wearing Course
≥ 90	No Price Adjustment
< 90	$\text{Total Pay Adjustment} = \left[\frac{\text{TC} - 90\%}{90\%} \right] \times \text{Thermal Profile Unit Price}$ where: TC = Thermal Coverage for the wearing course, % (reported to the tenth)

V. Basis of Payment

All costs will be paid for by the lump sum to include purchasing or leasing the equipment, collecting and providing the data to the Department and other items as described in this special provision.

Pay Item

Pay Unit

Item 401.10 - Hot Mix Asphalt Continuous Thermal Profiling Lump Sum