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Wisconsin Department of Transportation

November 6, 2024

NOTICE TO ALL CONTRACTORS:

Proposal #05:   5069-00-70, WISC 2025077
IH 90 – CTH J (CTH B)
IH 90 to CTH J
CTH B
La Crosse County

Letting of November 12, 2024

This is Addendum No. 01, which provides for the following:

Special Provisions:

Added Special Provisions	
Article No.	Description
15	HMA Pavement Percent Within Limits (PWL) QMP, Core Only Project; Incentive Density PWL HMA Pavement, Item SPV.0055.01; Incentive Air Voids HMA Pavement SPV.0055.02.
16	Appendix A, Core Only Project
17	HMA Pavement Longitudinal Joint Density, Core Only Project; Incentive Density HMA Pavement Longitudinal Joints, Item SPV.0055.03

Schedule of Items:

Revised Bid Item Quantities					
Bid Item	Item Description	Unit	Proposal Total Prior to Addendum	Proposal Quantity Change (-)	Proposal Total After Addendum
460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EA	2	-1	1
460.2005	Incentive Density PWL HMA Pavement	DOL	10,692	-6014	4678
460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	3640	-1820	1820
460.2010	Incentive Air Voids HMA Pavement	DOL	10780	-6064	4716

Added Bid Item Quantities					
Bid Item	Item Description	Unit	Proposal Total Prior to Addendum	Quantity Added	Proposal Total After Addendum
SPV.0055.01	Incentive Density PWL HMA Pavement	DOL	0	6014	6014
SPV.0055.02	Incentive Air Voids HMA Pavement	DOL	0	6064	6064
SPV.0055.03	Incentive Density HMA Pavement Longitudinal Joints	DOL	0	1820	1820

Plan Sheets:

Revised Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of changes to sheet)
24	Miscellaneous Quantities (Revised PWL Table notes to reflect use of cores as method of acceptance for lower layer HMA)

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractor.

Sincerely,

Mike Coleman

Proposal Development Specialist
Proposal Management Section

Special Provisions

15. **HMA Pavement Percent Within Limits (PWL) QMP, Core Only Project;**
Incentive Density PWL HMA Pavement, Item SPV.0055.01;
Incentive Air Voids HMA Pavement SPV.0055.02.

A Description

This special provision describes percent within limits (PWL) pay determination, providing and maintaining a contractor Quality Control (QC) Program, department Quality Verification (QV) Program, required sampling and testing, dispute resolution, corrective action, pavement density, and payment for HMA pavements. Pay is determined by statistical analysis performed on contractor and department test results conducted according to the Quality Management Program (QMP) as specified in standard spec 460, except as modified below.

B Materials

Conform to the requirements of standard specs 450, 455, and 460 except where superseded by this special provision. The department will allow only one mix design for each HMA mixture type per layer required for the contract, unless approved by the engineer. The use of more than one mix design for each HMA pavement layer will require the contractor to construct a new test strip in accordance with HMA Pavement Percent Within Limits (PWL) QMP Test Strip Volumetrics article at no additional cost to the department. The HMA Pavement Percent Within Limits (PWL) QMP Test Strip Density article will not be added to the Core Only Projects. The contractor may correlate gauges by taking up to 10 additional cores (non-production) at any location during the project. The department will not correlate any gauges.

Replace standard spec 460.2.8.2.1.3.1 Contracts with 5000 Tons of Mixture or Greater with the following:

460.2.8.2.1.3.1 Contracts under Percent within Limits

(1) Furnish and maintain a laboratory at the plant site fully equipped for performing contractor QC testing. Have the laboratory on-site and operational before beginning mixture production.

(2) Obtain random samples and perform tests according to this special provision and further defined in Appendix A: *Test Methods & Sampling for HMA PWL QMP Projects*. Obtain HMA mixture samples from trucks at the plant. For the sublot in which a QV sample is collected, discard the QC sample and test a split of the QV sample.

(3) Perform sampling from the truck box according to WTM R97 and four-part splitting of HMA samples according to WTM R47. Sample size must be adequate to run the appropriate required tests in addition to one set of duplicate tests that may be required for dispute resolution (i.e., retained). This requires sample sizes which yield four splits for all random sampling per sublot. All QC samples shall provide the following: QC, QV, Retained, and Extra. Take possession of the QC and Extra split samples intended for QC testing. The department will observe the splitting and take possession of the QV and Retained split samples intended for QV testing. Additional sampling details are found in Appendix A. Label samples according to WTM R97.

(4) Test the QC split sample using the test methods identified below at a frequency greater than or equal to that indicated. The Extra split sample shall be tested only when the G_{mm} and/or G_{mb} replicate tolerances are exceeded according to WTM T166 section 13.1.4 and WTM T209 section 14.1.1. When testing the Extra split sample, only the results from the test from which the tolerances were exceeded may replace the results from the QC split sample. The Rule of Retained according to CMM 836.1.2 applies.

- Blended aggregate gradations in accordance with WTM T30.
- Asphalt content (AC) in percent.

Determine AC using one of the following methods:

- AC by ignition oven according to WTM T308. If the department is using an ignition oven to determine AC, conform to WTP H-003. If the department is not using an ignition oven to determine AC, IOCFs must still be reverified for any of the reasons listed in WTP H-003 Table 2 and conform to WTP H-003 section 3.
- AC by chemical extraction according to AASHTO T164 Method A or B.
- AC by automated extraction according to WTM D8159.

- Bulk specific gravity (Gmb) of the compacted mixture according to WTM T166.
- Maximum specific gravity (Gmm) according to WTM T209.
- Air voids (V_a) by calculation according to WTM T269.
- Voids in Mineral Aggregate (VMA) by calculation according to WTM R35 section 9.2.

[(5)] Lot size shall consist of 3,750 tons with sublots of 750 tons. Test each design mixture at a frequency of 1 test per 750 tons of mixture type produced and placed as part of the contract. Add a random sample for any fraction of 750 tons at the end of production for a specific mixture design. Partial lots with less than three sublot tests will be included into the previous lot for data analysis and pay adjustment. Volumetric lots will include all tonnage of mixture type under specified bid item unless otherwise specified in the plan.

[(6)] Conduct field tensile strength ratio tests according to WTM T283 on each qualifying mixture in accordance with CMM 836.6.14. Test each full 50,000-ton production increment, or fraction of an increment, after the first 5,000 tons of production. Perform required increment testing in the first week of production of that increment. If field tensile strength ratio values are below the spec limit, notify the engineer. The engineer and contractor will jointly determine a corrective action.

Delete standard spec 460.2.8.2.1.5 and 460.2.8.2.1.6.

Replace standard spec 460.2.8.2.1.7 Corrective Action with the following:

460.2.8.2.1.7 Corrective Action

[(1)] Material must conform to the following action and acceptance limits based on individual QC and QV test results (tolerances relative to the JMF used on the PWL Test Strip):

ITEM	ACTION LIMITS	ACCEPTANCE LIMITS
Percent passing given sieve:		
37.5-mm	+/- 8.0	
25.0-mm	+/- 8.0	
19.0-mm	+/- 7.5	
12.5-mm	+/- 7.5	
9.5-mm	+/- 7.5	
2.36-mm	+/- 7.0	
75-µm	+/- 3.0	
AC in percent	-0.3	-0.5
Va		- 1.5 & +2.0
VMA in percent[1]	- 0.5	-1.0

[1] VMA limits based on minimum requirement for mix design nominal maximum aggregate size in table 460-1.

[(2)] QV samples will be tested for Gmm, Gmb, and AC. Air voids and VMA will then be calculated using these test results.

[(3)] Notify the engineer if any individual test result falls outside the action limits, investigate the cause and take corrective action to return to within action limits. If two consecutive test results fall outside the action limits, stop production. Production may not resume until approved by the engineer. Additional QV samples may be collected upon resuming production, at the discretion of the engineer.

(4) For any additional non-random tests outside the random number testing conducted for volumetrics, the data collected will not be entered into PWL calculations. Additional QV tests must meet acceptance limits or be subject to production stop. If the department's non-random test does not conform to the acceptance limits, the retained sample will be tested by the BTS lab. If the BTS results also do not meet the acceptance limits, the material will be considered unacceptable as described in (5) below.

(5) Remove and replace unacceptable material at no additional expense to the department. Unacceptable material is defined as any individual QC or QV tests results outside the acceptance limits or a PWL value < 50. For AC in percent, unacceptable material is defined as any individual QV test result outside of the acceptance limit. The engineer may allow such material to remain in place with a price reduction. The department will pay for such HMA Pavement allowed to remain in place at 50 percent of the contract unit price.

Replace standard spec 460.2.8.3.1.2 Personnel Requirements with the following:

460.2.8.3.1.2 Personnel Requirements

(1) The department will provide at least one HTCP-certified Transportation Materials Sampling (TMS) Technician, to observe QV sampling of HMA mixtures.

(2) Under departmental observation, a contractor TMS technician shall collect and split samples.

(3) A department HTCP-certified Hot Mix Asphalt, Technician I, Production Tester (HMA-IPT) technician will ensure that all sampling is performed correctly and conduct testing, analyze test results, and report resulting data.

(4) The department will make an organizational chart available to the contractor before mixture production begins. The organizational chart will include names, telephone numbers, and current certifications of all QV testing personnel. The department will update the chart with appropriate changes, as they become effective.

Replace standard spec 460.2.8.3.1.4 Department Verification Testing Requirements with the following:

460.2.8.3.1.4 Department Verification Testing Requirements

(1) HTCP-certified department personnel will obtain QV random samples by directly supervising HTCP-certified contractor personnel sampling from trucks at the plant. Sample size must be adequate to run the appropriate required tests in addition to one set of duplicate tests that may be required for dispute resolution (i.e., retained). This requires sample sizes which yield four splits for all random sampling per sublot. All QV samples shall furnish the following: QC, QV, Retained, and Extra. The department will observe the splitting and take possession of the QV, Retained, and Extra split samples intended for QV testing. The department will take possession of retained samples accumulated to date each day QV samples are collected. The department will retain samples until surpassing the analysis window of up to 5 lots, as defined in 460.2.8.3.1.7(2) of this special provision. Additional sampling details are found in Appendix A.

(2) The department will verify product quality using the test methods specified here in 460.2.8.3.1.4(3). The department will identify test methods before construction starts and use only those methods during production of that material unless the engineer and contractor mutually agree otherwise.

(3) The department will test the QV split sample using the test methods identified below at the frequency indicated. The Extra split sample will be tested only when the Gmm and/or Gmb replicate tolerances are exceeded according to WTM T166 section 13.1.4 and WTM T209 section 14.1.1. When testing the Extra split sample, only the results from the test from which the tolerances were exceeded may replace the results from the QV split sample. The Rule of Retained according to CMM 836.1.2 applies. In the event that both the department and contractor's replicate tolerances are exceeded, perform dispute resolution according to 460.2.8.3.1.7(2).

- Bulk specific gravity (Gmb) of the compacted mixture according to WTM T166.
- Maximum specific gravity (Gmm) according to WTM T209.
- Air voids (Va) by calculation according to WTM T269.
- Voids in Mineral Aggregate (VMA) by calculation according to WTM R35 section 9.2.

- Asphalt Content (AC) in percent determined by ignition oven method according to WTM T308 and conforming to WTP H-003, chemical extraction according to AASHTO T164 Method A or B, or automated extraction according to WTM D8159.

(4) The department will randomly test each design mixture at the minimum frequency of one test for each lot.

Delete standard spec 460.2.8.3.1.6.

Replace standard spec 460.2.8.3.1.7 Dispute Resolution with the following:

460.2.8.3.1.7 Data Analysis for Volumetrics

(1) Analysis of test data for pay determination will be contingent upon QC and QV test results. Statistical analysis will be conducted on Gmm and Gmb test results for calculation of Va. If either Gmm or Gmb analysis results in non-comparable data as described in 460.2.8.3.1.7(2), subsequent testing will be performed for both parameters as detailed in the following paragraph.

(2) The engineer, upon completion of the first 3 lots, will compare the variances (F-test) and the means (t-test) of the QV test results with the QC test results. Additional comparisons incorporating the first 3 lots of data will be performed following completion of the 4th and 5th lots (i.e., lots 1-3, 1-4, and 1-5). A rolling window of 5 lots will be used to conduct F & t comparison for the remainder of the contract (i.e., lots 2-6, then lots 3-7, etc.), reporting comparison results for each individual lot. Analysis will use a set alpha value of 0.025. If the F- and t-tests report comparable data, the QC and QV data sets are determined to be statistically similar and QC data will be used to calculate the Va used in PWL and pay adjustment calculations. If the F- and t-tests result in non-comparable data, proceed to the *dispute resolution* steps found below. Note: if both QC and QV Va PWL result in a pay adjustment of 102% or greater, dispute resolution testing will not be conducted. Dispute resolution via further investigation is as follows:

[1] The Retained portion of the split from the lot in the analysis window with a QV test result furthest from the QV mean (not necessarily the sublot identifying that variances or means do not compare) will be referee tested for Gmm, Gmb, and Asphalt Content by the bureau's AASHTO accredited laboratory and certified personnel. All previous lots within the analysis window are subject to referee testing and regional lab testing as deemed necessary. Referee test results will replace the QV data of the sublot(s).

[2] Statistical analysis will be conducted with referee test results replacing QV results.

    i.   If the F- and t-tests indicate variances and means compare, no further testing is required for the lot and QC data will be used for PWL and pay factor/adjustment calculations.

    ii.   If the F- and t-tests indicate non-comparable variances or means, the Retained portion of the random QC sample will be tested for Gmm, Gmb, and Asphalt Content by the department's regional lab for the remaining 4 sublots of the lot which the F- and t- tests indicate non-comparable datasets. The department's regional lab and the referee test results will be used for PWL and pay factor/adjustment calculations. Upon the second instance of non-comparable variance or means and for every instance thereafter, the department will assess a pay reduction for the additional testing of the remaining 4 sublots at $2,000/lot under the HMA Regional Lab Testing administrative item.

[3] The contractor may choose to dispute the regional test results on a lot basis within 7 days after receiving results from the region. In this event, the retained portion of each sublot will be referee tested by the department's AASHTO accredited laboratory and certified personnel. The referee Gmm and Gmb test results will supersede the regional lab results for the disputed lot.

    i.   If referee testing results in an increased calculated pay factor, the department will pay for the cost of the additional referee testing.

    ii.   If referee testing of a disputed lot results in an equal or lower calculated pay factor, the department will assess a pay reduction for the additional referee testing at $2,000/lot under the Referee Testing administrative item.

(3) The department will notify the contractor of the referee test results within 3 working days after receipt of the samples by the department's AASHTO accredited laboratory. The intent is to provide referee test results within 7 calendar days from completion of the lot.

(4) The department will determine mixture conformance and acceptability by analyzing referee test results, reviewing mixture data, and inspecting the completed pavement, this special provision, and accompanying Appendix A.

(5) Unacceptable material (i.e., resulting in a PWL value less than 50 or individual QC or QV test results not meeting the Acceptance Requirements of 460.2.8.2.1.7 as modified herein) will be referee tested by the bureau's AASHTO accredited laboratory and certified personnel and those test results used for analysis. Such material may be subject to remove and replace, at the discretion of the engineer. If the engineer allows the material to remain in place, it will be paid at 50% of the HMA Pavement contract unit price. Replacement or pay adjustment will be conducted on a sublot basis. If an entire PWL sublot is removed and replaced, the test results of the newly placed material will replace the original data for the sublot. Any remove and replace shall be performed at no additional cost to the department. Testing of replaced material must include a minimum of one QV result. [Note: If the removed and replaced material does not result in replacement of original QV data, an additional QV test will be conducted and under such circumstances will be entered into the HMA PWL Production spreadsheet for data analysis and pay determination.] The quantity of material paid at 50% the contract unit price will be deducted from PWL pay adjustments, along with accompanying data of this material.

Delete standard spec 460.2.8.3.1.8 Corrective Action.

C Construction

Replace standard spec 460.3.3.2 Pavement Density Determination with the following:

460.3.3.2 Pavement Density Determination by Cores

(1) For mainline pavement, determine density with cores. Full width passing lanes, turn lanes, or auxiliary lanes must be 1,500 lane feet or greater to be eligible for PWL density. Shoulder and appurtenance density will accepted by cores and shall have average lot (daily) densities conforming to standard spec Table 460-3 or else be subject to disincentives according to 460.5.2.2(5) herein. No density incentive will be applied to shoulders or appurtenances.

(2) The engineer will determine the target maximum density using department procedures described in WTM T355 and CMM 815. The engineer will determine density as soon as practicable after compaction and before placement of subsequent layers or before opening to traffic.

(3) A lot is defined as 7,500 lane feet with sublots of 1,500 lane feet (excluding shoulder, even if paved integrally) and placed within a single layer for each location and target maximum density category indicated in table 460-3. A partial quantity less than 750 lane feet will be included with the previous sublot. Partial lots with less than three sublots will be included in the previous lot for data analysis/acceptance and pay, by the engineer.

(4) Under the direct observation of the engineer, cut 100 or 150 mm (4 or 6 inch) diameter cores from the pavement according to WTM R67 and Table 1 at one random location, determined by the engineer, per sublot. Each core will represent the entire length and width of the sublot. Cores will be cut by the next day, except if the next day is not a working day, then they shall be cut within 48 hours after placement. Fill core holes according to WTM R67 section 5.8 and obtain engineer approval before opening to traffic. Prepare cores and determine density according to WTM T166. Dry cores after testing according WTM R79. The department will label cores, transport cores to testing facilities, witness testing, store dried cores, and provide subsequent verification testing.

Table 1: Core Density Testing[1]

Application	Test Method	Test Locations	Frequency

Mainline			1 / 1,500 LF		
Shoulders & Appurtenances	WTM R67	WTP H-002	Width ≤ 5 ft.	5 ft. < Width ≤ 9 ft.	Width > 9 ft.
			1 / 4,500 LF	1 / 3,000 LF	1 / 1,500 LF

[1] Replaces Table 1 in WTP H-002 for shoulder and appurtenant testing.

(5) If a core is damaged at the time of coring, immediately take a replacement core 1 foot ahead of the existing testing location in the direction of traffic at the same offset as the damaged core. If a core is damaged during transport, record it as damaged and notify the engineer immediately.

(6) Do not re-roll compacted mixtures with deficient density test results. Do not operate continuously below the specified minimum density. Stop production, identify the source of the problem, and make corrections to produce work meeting the specification requirements.

Replace standard spec 460.3.3.3 Waiving Density Testing with Acceptance of Density Data with the following:

460.3.3.3 Analysis of Density Data

(1) As random density locations are paved, the core data will be recorded in the HMA PWL Production Spreadsheet for analysis in chronological order. Each lot will contain core density data from a single HMA mixture type placed over a specific underlying material.

(2) The department reserves the right to verify the density of any core and the department's result may be used for PWL and pay adjustment calculations, at the discretion of the engineer.

(3) The department will determine mixture density conformance and acceptability by analyzing test results, reviewing mixture data, and inspecting the completed pavement according to standard spec, this special provision, and accompanying Appendix A.

(4) Upon the completion of each lot, core data will be used by the department for PWL and pay adjustment calculation.

(5) Density resulting in a PWL value less than 50 or not meeting the requirements of 460.3.3.1 (any individual density test result falling more than 3.0 percent below the minimum required target maximum density as specified in standard spec Table 460-3) is unacceptable and may be subject to remove and replace at no additional cost to the department, at the discretion of the engineer.

    i.   Replacement is conducted on a sublot basis. If an entire PWL sublot is removed and replaced, the test results of the newly placed material will replace the original data for the sublot.

    ii.   Testing of replaced material must include a minimum of one QV result. [Note: If the removed and replaced material does not result in replacement of original QV data, an additional QV test must be conducted and under such circumstances will be entered into the data analysis and pay determination.]

    iii.   If the engineer allows such material to remain in place, it will be paid for at 50% of the HMA Pavement contract unit price. The extent of unacceptable material will be addressed as specified in CMM 815.11. The quantity of material paid at 50% the contract unit price will be deducted from PWL pay adjustments, along with accompanying data of this material.

D Measurement

The department will measure the HMA Pavement bid items acceptably completed by the ton as specified in standard spec 450.4 and as follows in standard spec 460.5 as modified in this special provision.

E Payment

Replace standard spec 460.5.2 HMA Pavement with the following:

460.5.2 HMA Pavement

460.5.2.1 General

[(1)] Payment for HMA Pavement Type LT, MT, and HT mixes is full compensation for providing HMA mixture designs; for preparing foundation; for furnishing, preparing, hauling, mixing, placing, and compacting mixture; for HMA PWL QMP testing and aggregate source testing; for warm mix asphalt additives or processes; for stabilizer, hydrated lime and liquid antistripping agent, if required; and for all materials including asphaltic materials.

[(2)] If provided for in the plan quantities, the department will pay for a leveling layer, placed to correct irregularities in an existing paved surface before overlaying, under the pertinent paving bid item. Absent a plan quantity, the department will pay for a leveling layer as extra work.

460.5.2.2 Calculation of Pay Adjustment for HMA Pavement using PWL

[(1)] Pay adjustments will be calculated using 65 dollars per ton of HMA pavement. The HMA PWL Production Spreadsheet, including data, will be made available to the contractor by the department as soon as practicable upon completion of each lot. The department will pay for measured quantities of mix based on this price multiplied by the following pay adjustment calculated in accordance with the HMA PWL Production Spreadsheet:

PAY FACTOR FOR HMA PAVEMENT AIR VOIDS & DENSITY

PERCENT WITHIN LIMITS (PWL)	PAYMENT FACTOR, PF (percent of $65/ton)
$\geq$ 90 to 100	PF = ((PWL – 90) * 0.4) + 100
$\geq$ 50 to < 90	(PWL * 0.5) + 55
<50	50%[1]

where PF is calculated per air voids and density, denoted $PF_{air\ voids}$ & $PF_{density}$.

> [1] Any material resulting in PWL value less than 50 shall be removed and replaced unless the engineer allows such material to remain in place. In the event the material remains in place, it will be paid at 50% of the contract unit price of HMA pavement.

[(2)] For air voids, PWL values will be calculated using lower and upper specification limits of 2.0 and 4.3 percent, respectively. Lower specification limits for density shall be in accordance with standard spec Table 460-3.

[(3)] Pay adjustment will be determined on a lot basis and will be computed as shown in the following equation.

Pay Adjustment = (PF-100)/100 x (WP) x (tonnage) x ($65/ton)*

*Note: If the Pay Factor = 50%, the contract unit price will be used in lieu of $65/ton and the weighted percentage (WP) will equal 1.0. The following weighted percentage (WP) values will be used for the corresponding parameter:

Parameter	WP
Air Voids	0.5
Density	0.5

[(4)] Individual Pay Factors for each air voids ($PF_{air\ voids}$) and density ($PF_{density}$) will be determined. $PF_{air\ voids}$ will be multiplied by the total tonnage placed (i.e., from truck tickets), and $PF_{density}$ will be multiplied by the calculated tonnage used to pave the mainline only (i.e., traffic lanes excluding shoulder) as determined in accordance with Appendix A.

[(5)] Pay adjustment for shoulders and appurtenances accepted by department testing will be determined on a lot basis. If the lot density is less than the specified minimum in table 460-3, the department will reduce pay based on the contract unit price for the HMA pavement bid item for that lot as follows:

DISINCENTIVE PAY REDUCTION FOR HMA PAVEMENT DENSITY

PERCENT LOT DENSITY BELOW SPECIFIED MINIMUM	PAYMENT FACTOR (percent of contract price)
From 0.5 to 1.0 inclusive	98
From 1.1 to 1.5 inclusive	95
From 1.6 to 2.0 inclusive	91
From 2.1 to 2.5 inclusive	85
From 2.6 to 3.0 inclusive	70
More than 3.0[1]	___

[1] Remove and replace the lot with a mixture at the specified density. When acceptably replaced, the department will pay for the replaced work at the contract unit price. Alternatively, the engineer may allow the nonconforming material to remain in place with a 50 percent payment factor.

(6) The department will pay incentive for air voids and density under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0055.01	Incentive Density PWL HMA Pavement	DOL
SPV.0055.02	Incentive Air Voids HMA Pavement	DOL

(7) The department will administer disincentives under the Disincentive Density HMA Pavement and the Disincentive Air Voids HMA Pavement administrative items.

(8) The department will administer a disincentive under the Disincentive HMA Binder Content administrative item for each individual QV test result indicating asphalt binder content below the Action Limit in 460.2.8.2.1.7 presented herein. The department will adjust pay per sublot of mix at 65 dollars per ton of HMA pavement multiplied by the following pay adjustment calculated according to the HMA PWL Production Spreadsheet:

AC Binder Relative to JMF	Pay Adjustment / Sublot
-0.4% to -0.5%	75%[1]
More than -0.5%	50%[1] [2]

[1] Any material resulting in an asphalt binder content more than 0.3% below the JMF AC content will be referee tested by the department's AASHTO accredited laboratory and HTCP certified personnel using automated extraction according to automated extraction according to WTM D8159.

[2] Any material resulting in an asphalt binder content more than 0.5% below the JMF AC content shall be removed and replaced unless the engineer allows such material to remain in place. In the event the material remains in place, it will be paid at 50% of the contract unit price of HMA pavement.

Note: PWL value determination is further detailed in the *PWL Production Spreadsheet Instructions located in the Project Info and Instructions tab* of the HMA PWL Production spreadsheet.

16. Appendix A, Core Only Project.

Test Methods & Sampling for HMA PWL QMP Projects.

The following procedures are included with the HMA Pavement Percent Within Limits (PWL) Quality Management Program (QMP) special provision:

WisDOT Test Method for HMA PWL QMP Density Measurements for Main Production
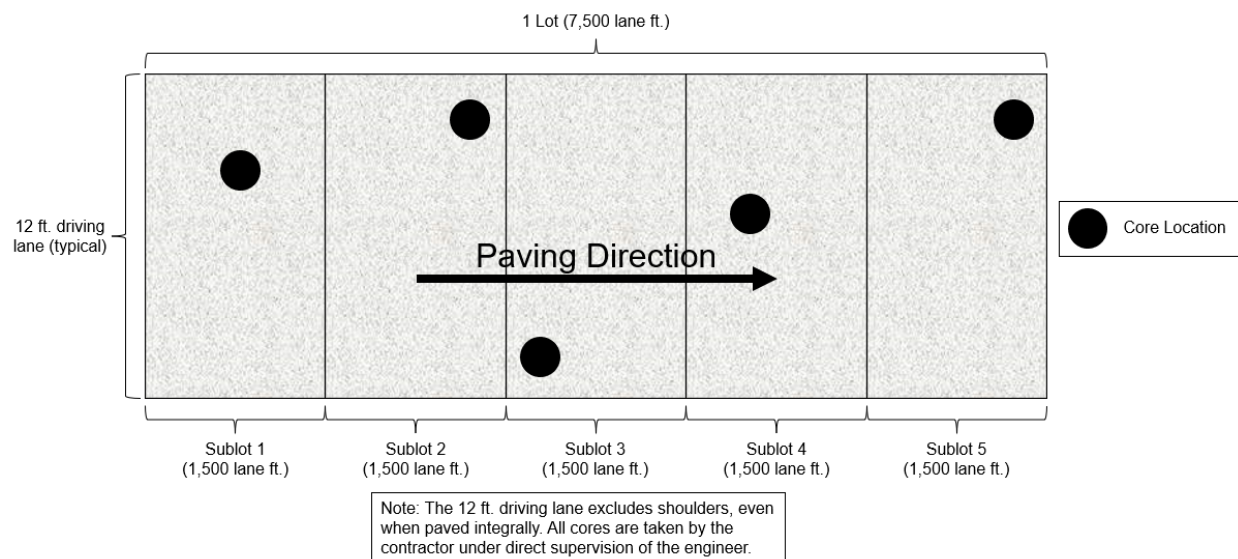
Sampling for WisDOT HMA PWL QMP

Calculation of PWL Mainline Tonnage Example

WisDOT Test Method for HMA PWL QMP Density Determination for Main Production

For mainline density determination, typical sublot lengths are 1,500 lane feet and lots typically consist of 5 sublots. Partial lots with less than three sublots remaining at the end of the project will be included in the previous lot, by the engineer. The PWL Density measurements do not include the shoulder and other appurtenances. Such areas are tested by the department and are not eligible for density incentive but are subject to disincentive according to 460.5.2.2(5) of the HMA PWL QMP STSP.

Determination by Cores

For mainline density determination by cores, collect one core per sublot. Each core location is determined by the engineer using random numbers and represents the entire length and width of the sublot. The contractor is responsible for all work related to coring and filling of the core holes according to WTM R67. Each core is tested for density according to WTM T166 by the contractor and witnessed by a department representative. The department must always maintain custody of the cores during collection, transportation, and testing. Figure 5 shows an example coring layout for a 12-foot-wide lane.

Figure 5: Example core density locations for traffic lanes

Sampling for WisDOT HMA PWL QMP Production

Sampling of HMA mix for QC, QV, Retained, and Extra split samples shall conform to WTM R97 and WTM R47.

Sampling Hot Mix Asphalt

At the beginning of the contract, determine the anticipated tonnage to be produced. The frequency of sampling is 1 per 750 tons (sublot) for QC and Retained Samples and 1 per 3,750 tons (lot or 5 sublots) for QV as defined by the HMA PWL QMP STSP. A test sample is obtained randomly from each sublot. Collect each random sample at the plant according to WTM R97. Submit the random numbers for all mix sampling to the department before production begins.

Example 1

Expected production for a contract is 12,400 tons. The number of required samples is determined based on this expected production (per HMA PWL QMP SPV) and is determined by the random sample calculation.

Sample 1 – from 50 to 750 tons
Sample 2 – from 751 to 1500 tons
Sample 3 – from 1501 to 2250 tons
Sample 4 – from 2251 to 3000 tons
Sample X – ....
Sample 16 – from 11,251 to 12,000 tons
Sample 17 – from 12,001 to 12,400 tons

The approximate location of each sample within the prescribed sublots is determined by selecting random numbers using WTM D3665. The random numbers selected are used in determining when a sample is to be taken and will be multiplied by the sublot tonnage. This number will then be added to the final tonnage of the previous sublot to yield the approximate cumulative tonnage of when each sample is to be taken.

To allow for plant start-up variability, the procedure calls for the first random sample to be taken at 50 tons or greater per production day (not intended to be taken in the first two truckloads). Random samples calculated for 0-50 ton shall be taken in the next truck (51-75 ton).

This procedure is to be used for any number of samples per contract.

If the production is less than the final randomly generated sample tonnage, then the random sample is to be collected from the remaining portion of that sublot of production. If the randomly generated sample is calculated to be within the first 0-50 tons of the subsequent day of production, it shall be taken in the next truck. Add a random sample for any fraction of 750 tons at the end of the contract. Lot size will consist of 3,750 tons with sublots of 750 tons. Partial lots with less than three sublot tests will be included into the previous lot, by the engineer.

It's intended that the plant operator is not advised ahead of time when samples are to be taken.

If belt samples are used during troubleshooting, the blended aggregate will be obtained when the mixture production tonnage reaches approximately the sample tonnage. For plants with storage silos, this could be up to 60 minutes in advance of the mixture sample that's taken when the required tonnage is shipped from the plant.

Collect QC, QV, Retained, and Extra split samples for all test strip and production mixture testing using a four-part splitting procedure according to WTM R47.

Calculation of PWL Mainline Tonnage Example

A mill and overlay project in being constructed with a 12-foot traffic lane and an integrally paved 3-foot shoulder. The layer thickness is 2 inches for the full width of paving. Calculate the tonnage in each sublot eligible for density incentive or disincentive.

Solution:

$$\frac{1500\ ft\ \times\ 12\ ft}{9\ sf/sy}\ \times\ \frac{2\ in\ \times 112\ lb/sy/in}{2000\ lb/ton} = 224\ tons$$

17. HMA Pavement Longitudinal Joint Density, Core Only Project; Incentive Density HMA Pavement Longitudinal Joints, Item SPV.0055.03.

A Description

This special provision incorporates longitudinal joint density requirements into the contract and describes the data collection, acceptance, and procedure used for determination of pay adjustments for HMA pavement longitudinal joint density. Pay adjustments will be made on a linear foot basis, as applicable per pavement layer and paving lane. Applicable longitudinal joints are defined as those between any two or more traffic lanes including full-width passing lanes, turn lanes, or auxiliary lanes more than 1500 lane feet, and those lanes must also include the 460.2005 Incentive Density PWL HMA Pavement bid item. This excludes any joint with one side defined as a shoulder and ramp lanes of any length. If echelon paving is required in the contract, the longitudinal joint density specification shall not apply for those joints. Longitudinal joints placed during a test strip will be tested for information only to help ensure the roller pattern will provide adequate longitudinal joint density during production. Longitudinal joint density test results collected during a test strip are not eligible for pay adjustment.

Pay is determined according to standard spec 460, HMA Pavement Percent Within Limits QMP special provisions, and as modified within.

B Materials

Compact all applicable HMA longitudinal joints to the appropriate density based on the layer, confinement, and mixture type shown in Table B-1.

TABLE B-1 MINIMUM REQUIRED LONGITUDINAL JOINT DENSITY

Layer	Percent of Target Maximum Density			
	Unconfined		Confined	
	LT and MT	HT	LT and MT	HT
Lower (on crushed/recycled base)	88	89	89.5	90.5
Lower (on Concrete/HMA)	90[1]	90[1]	91.5[1]	91.5[1]
Upper	90	90	91.5	91.5

[1] Minimum reduced by 1.0 percent for a 1.25-inch-thick No. 5 mix lower layer constructed on a paved or milled surface.

C Construction

Add the following to standard spec 460.3.3.2:

(5) Establish companion density locations for each applicable joint. Each companion location shares longitudinal stationing with the QV mainline density location within each sublot and is located transversely with the center of the core 6-inches from the final joint edge of the paving area. Sublot and lot numbering remains the same as mainline densities, however, in addition to conventional naming, joint identification must clearly indicate "M" for inside/median side of lane or "O" for outside shoulder side of lane, as well as "U" for an unconfined joint or "C" for a confined joint (e.g., XXXXX-MC or XXXXX-OU).

(6) Each joint shall be measured, reported, and accepted under methods, testing times, and procedures consistent with the program employed for mainline density, i.e., PWL.

(7) For single density test results greater than 3.0% below specified minimums per Table B-1 herein, perform the following:

    a) Testing at 50-foot increments both ahead and behind the unacceptable site

    b) Continued 50-foot incremental testing until test values indicate higher than or equal to -3.0 percent from target joint density.

c) Materials within the incremental testing indicating lower than -3.0 percent from target joint density are defined as unacceptable and will be handled with remedial action as defined in the payment section of this document.

d) The remaining sublot average (exclusive of unacceptable material) will be determined by the first forward and backward 50-foot incremental tests that reach the criteria of higher than or equal to -3.0 percent from target joint density.

Note: If the 50-foot testing extends into a previously accepted sublot, remedial action is required up to and inclusive of such material; however, the results of remedial action must not be used to recalculate the previously accepted sublot density. When this occurs, the lane feet of any unacceptable material will be deducted from the sublot in which it is located, and the previously accepted sublot density will be used to calculate pay for the remainder of the sublot.

(8) Joint density measurements shall be recorded in the HMA PWL Production Spreadsheet.

(9) Placement and removal of excess material outside of the final joint edge, to increase joint density at the longitudinal joint testing location, shall be done at the contractor's discretion and cost. This excess material and related labor will be considered waste and will not be paid for by the department. Joints with excess material placed outside of the final joint edge to increase joint density or where a notched wedge is used will be considered unconfined joints.

(10) When not required by the contract, echelon paving may be performed at the contractor's discretion to increase longitudinal joint density and still remain eligible to earn incentive. The additional costs incurred related to echelon paving will not be paid for by the department. If lanes are paved in echelon, the contractor may choose to use a longitudinal vertical joint or notched wedge longitudinal joint as described in SDD 13c19 HMA Longitudinal Joints. Lanes paved in echelon will be considered confined on both sides of the joint regardless of the selected joint design. Place the joint between echelon paved lanes at the centerline or along lane lines.

(11) When performing inlay paving below the elevation of the adjacent lane, the longitudinal joint along the adjacent lane to be paved shall be considered unconfined.

D Measurement

(1) The department will measure each side of applicable longitudinal joints, as defined in Section A of this special provision, by the linear foot of pavement acceptably placed. Measurement will be conducted independently for the inside or median side and for the outside or shoulder side of paving lanes with two applicable longitudinal joints. Each paving layer will be measured independently at the time the mat is placed.

E Payment

Add the following as 460.5.2.4 Pay Adjustment for HMA Pavement Longitudinal Joint Density:

(1) The department will administer longitudinal joint density adjustments under the Incentive Density HMA Pavement Longitudinal Joints and Disincentive Density HMA Pavement Longitudinal Joints items. The department will adjust pay based on density relative to the specified targets in Section B of this special provision, and linear foot of the HMA Pavement bid item for that sublot as follows:

PAY ADJUSTMENT FOR HMA PAVEMENT LONGITUDINAL JOINT DENSITY

PERCENT SUBLOT DENSITY ABOVE/BELOW SPECIFIED MINIMUM	PAY ADJUSTMENT PER LINEAR FOOT
Equal to or greater than +1.0 confined, +2.0 unconfined	$0.20
From 0.0 to +0.9 confined, 0.0 to +1.9 unconfined	$0
From -0.1 to -1.0	$(0.20)
From -1.1 to -2.0	$(0.40)
From -2.1 to -3.0	$(0.80)

More than -3.0	*REMEDIAL ACTION*[1]

[1] Remedial action must be approved by the engineer and agreed upon at the time of the pre-pave meeting and may include partial sublots as determined and defined in 460.3.3.2(7) of this document. If unacceptable material is removed and replaced per guidance by the engineer, the removal and replacement will be for the full lane width of the side of which the joint was constructed with unacceptable material.

(2) The department will not assess joint density disincentives for pavement placed in cold weather because of a department-caused delay as specified in standard spec 450.5.2(3).

(3) The department will not pay incentive on the longitudinal joint density if the traffic lane is in disincentive. A disincentive may be applied for each mainline lane and all joint densities if both qualify for a pay reduction.

(4) Inlay paving operations will limit payment for additional material to 2 inches wider than the final paving lane width at the centerline.

The department will pay incentive for longitudinal joint density under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0055.03	Incentive Density HMA Pavement Longitudinal Joints	DOL

The department will administer disincentives under the Disincentive Density HMA Pavement Longitudinal Joints administrative item.

Appendix

WisDOT Longitudinal Joint – Core Density Layout

Each mainline QV density location must have a companion longitudinal joint density location for applicable joints. This companion location shares the longitudinal stationing for each QV mainline density location and is located transversely with the center of the core 6-inches from the final joint edge of the paving area.

For HMA Pavement Percent Within Limits QMP projects, this appears as follows:
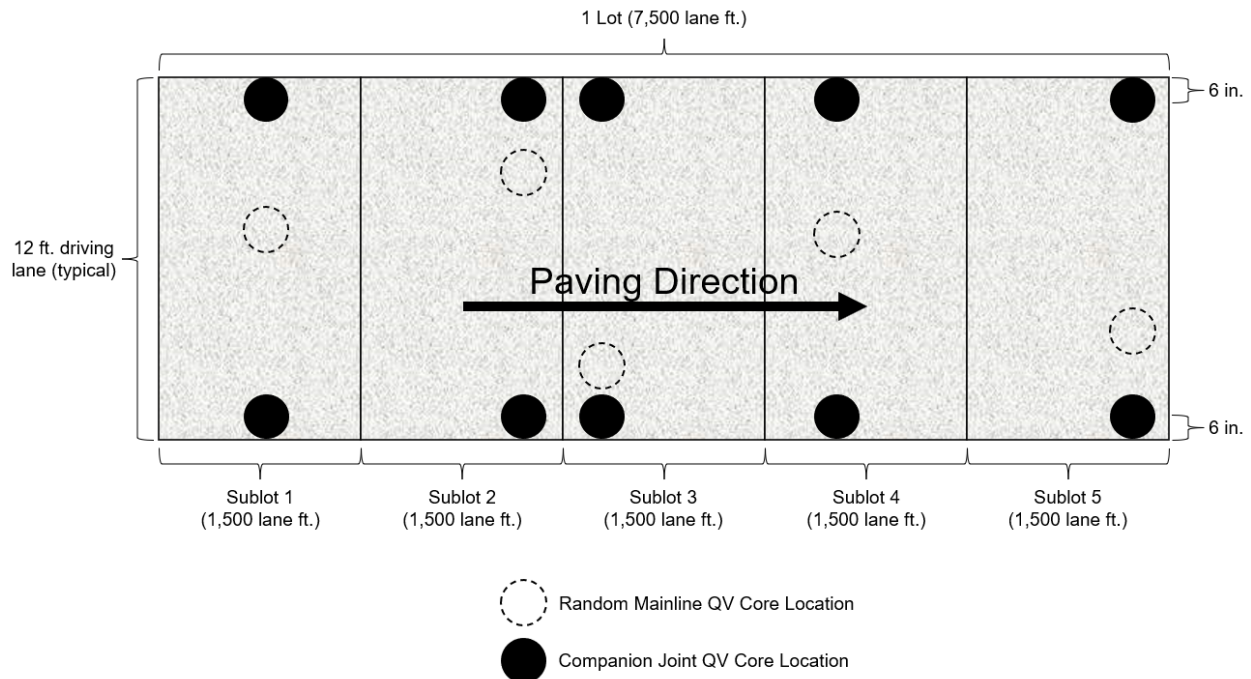
Further Explanation of *PAY ADJUSTMENT FOR HMA PAVEMENT LONGITUDINAL JOINT DENSITY* Table

Confined

	Lower Layer (On Base)		Upper Layer		
	LT/MT	HT	LT/MT	HT	Pay Adjust
Mainline Target (SS 460-3)	91.0	92.0	93.0	93.0	-
Confined Target (mainline - 1.5)	89.5	90.5	91.5	91.5	-
Equal to or greater than +1.0	$\geq$ 90.5	$\geq$ 91.5	$\geq$ 92.5	$\geq$ 92.5	$0.20
From 0.0 to +0.9	90.4 - 89.5	91.4 - 90.5	92.4 - 91.5	92.4 - 91.5	$0
From -0.1 to -1.0	89.4 - 88.5	90.4 - 89.5	91.4 - 90.5	91.4 - 90.5	($0.20)
From -1.1 to -2.0	88.4 - 87.5	89.4 - 88.5	90.4 - 89.5	90.4 - 89.5	($0.40)
From -2.1 to -3.0	87.4 - 86.5	88.4 - 87.5	89.4 - 88.5	89.4 - 88.5	($0.80)
More than -3.0	< 86.5	< 87.5	< 88.5	< 88.5	REMEDIAL ACTION

	Unconfined				
	Lower Layer (On Base)		Upper Layer		
	LT/MT	HT	LT/MT	HT	Pay Adjust
Mainline Target (SS 460-3)	91.0	92.0	93.0	93.0	-
Unconfined Target (Mainline -3.0)	88.0	89.0	90.0	90.0	-
Equal to or greater than +2.0	$\geq$ 90.0	$\geq$ 91.0	$\geq$ 92.0	$\geq$ 92.0	$0.20
From 0.0 to +1.9	89.9 - 88.0	90.9 - 89.0	91.9 - 90.0	91.9 - 90.0	$0
From -0.1 to -1.0	87.9 - 87.0	88.9 - 88.0	89.9 - 89.0	89.9 - 89.0	($0.20)
From -1.1 to -2.0	86.9 - 86.0	87.9 - 87.0	88.9 - 88.0	88.9 - 88.0	($0.40)
From -2.1 to -3.0	85.9 - 85.0	86.9 - 86.0	87.9 - 87.0	87.9 - 87.0	($0.80)
More than -3.0	< 85.0	< 86.0	< 87.0	< 87.0	REMEDIAL ACTION

Schedule of Items
Attached, dated November 6, 2024, are the revised Schedule of Items Pages 1 – 3.

Plan Sheets
The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal:
Revised: 24.

END OF ADDENDUM

ALL QUANTITIES ARE CATEGORY 10

Description	Station	Mixture Use	Underlying Surface	Bid Item	Tons	Thickness	Quality Management Program to be used for:	
							Mixture Acceptance	Density Acceptance
11.5' Driving Lanes	59+66 to 241+56	Upper Layer	4 LT 58-28 S	4 LT 58-28 S	4678	1 3/4"	PWL Incentive Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
11.5' Driving Lanes	59+66 to 241+56	Lower Layer	Milled Existing HMA Surface or Base Aggregate	4 LT 58-28 S	6014	2 1/4"	PWL Incentive Air Voids HMA Pavement SPV.0055.02	Incentive Density PWL HMA Pavement SPV.0055.01
Driveways and Field Entrances	Various	Driveway and Field Entrance Bump Outs	Existing Aggregate	Asphaltic Surface Driveway and Field Entrances	119	4" total	(SS 465)	Ordinary Compaction (SS 450.3.2.6.2)
Side Roads	Various	Upper Layer	4 LT 58-28 S	4 LT 58-28S	38	1 3/4"	PWL Incentive Air Voids HMA Pavement 460.2010	Department Acceptance (SS 460.3.3.2) *Not eligible for incentive
Side Roads	Various	Lower Layer	Milled Existing HMA Surface or Base Aggregate	4 LT 58-28S	50	2 1/4"	PWL Incentive Air Voids HMA Pavement SPV.0055.02	Department Acceptance (SS 460.3.3.2) *Not eligible for incentive

TACK COAT

455.0605
TACK COAT
GALLON

STATION to STATION		REMARKS
STA 59+66 to 241+66	3122	MAINLINE ON MILLED SURFACE (ASSUMED 22' WIDTH)
STA 59+66 to 241+66	2331	MAINLINE BETWEEN HMA LAYERS
STA 103+64 to 104+34	12	PRAIRIE RD, ON MILLED SURFACE AND BETWEEN HMA LAYERS
STA 129+90 to 130+38	9	ROBERTS RD, ON MILLED SURFACE AND BETWEEN HMA LAYERS
STA 143+30 to 144+03	12	ANTAL RD, ON MILLED SURFACE AND BETWEEN HMA LAYERS
STA 169+36 to 169+95	11	EVANS RD, ON MILLED SURFACE AND BETWEEN HMA LAYERS
ASPHALT DRIVEWAYS	6	FOR USE AT ASPHALT DRIVES ON MILLED SURFACE AND BETWWEN HMA LAYERS
PROJECT TOTAL	5503	

Proposal ID: 20241112005   **Project(s):** 5069-00-70

Federal ID(s): WISC 2025077

SECTION: 0001   Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0002	204.0115 Removing Asphaltic Surface Butt Joints	120.000 SY	_____._____	_____._____
0004	204.0120 Removing Asphaltic Surface Milling	46,900.000 SY	_____._____	_____._____
0006	211.0101 Prepare Foundation for Asphaltic Paving (project) 01. 5069-00-70	1.000 EACH	_____._____	_____._____
0008	213.0100 Finishing Roadway (project) 01. 5069-00-70	1.000 EACH	_____._____	_____._____
0010	305.0110 Base Aggregate Dense 3/4-Inch	520.000 TON	_____._____	_____._____
0012	305.0500 Shaping Shoulders	361.000 STA	_____._____	_____._____
0014	455.0605 Tack Coat	5,503.000 GAL	_____._____	_____._____
0016	460.0105.S HMA Percent Within Limits (PWL) Test Strip Volumetrics	1.000 EACH	_____._____	_____._____
0018	460.0110.S HMA Percent Within Limits (PWL) Test Strip Density	1.000 EACH	_____._____	_____._____
0020	460.2005 Incentive Density PWL HMA Pavement	4,678.000 DOL	1.00000	4,678.00
0022	460.2007 Incentive Density HMA Pavement Longitudinal Joints	1,820.000 DOL	1.00000	1,820.00
0024	460.2010 Incentive Air Voids HMA Pavement	4,716.000 DOL	1.00000	4,716.00
0026	460.5224 HMA Pavement 4 LT 58-28 S	10,780.000 TON	_____._____	_____._____
0028	465.0120 Asphaltic Surface Driveways and Field Entrances	119.000 TON	_____._____	_____._____

Proposal ID: 20241112005   **Project(s):** 5069-00-70

Federal ID(s): WISC 2025077

SECTION: 0001   Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0030	618.0100 Maintenance and Repair of Haul Roads (project) 01. 5069-00-70	1.000 EACH	_____.____	_____.____
0032	619.1000 Mobilization	1.000 EACH	_____.____	_____.____
0034	634.0612 Posts Wood 4x6-Inch X 12-FT	42.000 EACH	_____.____	_____.____
0036	634.0614 Posts Wood 4x6-Inch X 14-FT	16.000 EACH	_____.____	_____.____
0038	634.0616 Posts Wood 4x6-Inch X 16-FT	3.000 EACH	_____.____	_____.____
0040	637.2230 Signs Type II Reflective F	271.250 SF	_____.____	_____.____
0042	638.2602 Removing Signs Type II	26.000 EACH	_____.____	_____.____
0044	638.3000 Removing Small Sign Supports	18.000 EACH	_____.____	_____.____
0046	642.5001 Field Office Type B	1.000 EACH	_____.____	_____.____
0048	643.0420 Traffic Control Barricades Type III	330.000 DAY	_____.____	_____.____
0050	643.0705 Traffic Control Warning Lights Type A	660.000 DAY	_____.____	_____.____
0052	643.0900 Traffic Control Signs	2,860.000 DAY	_____.____	_____.____
0054	643.0920 Traffic Control Covering Signs Type II	1.000 EACH	_____.____	_____.____
0056	643.5000 Traffic Control	1.000 EACH	_____.____	_____.____
0058	645.0220 Geogrid Type SR	7,800.000 SY	_____.____	_____.____
0060	646.2005 Marking Line Paint 6-Inch	62,035.000 LF	_____.____	_____.____

Proposal ID: 20241112005   **Project(s):** 5069-00-70

Federal ID(s): WISC 2025077

SECTION: 0001   Contract Items

Alt Set ID: **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0062	648.0100 Locating No-Passing Zones	3.450 MI	_____._____	_____._____
0064	650.8000 Construction Staking Resurfacing Reference	18,190.000 LF	_____._____	_____._____
0066	650.9911 Construction Staking Supplemental Control (project) 01. 5069-00-70	1.000 EACH	_____._____	_____._____
0068	740.0440 Incentive IRI Ride	13,780.000 DOL	1.00000	13,780.00
0070	SPV.0035 Special 01. Base Repair	1,700.000 CY	_____._____	_____._____
0072	SPV.0055 Special 01. Incentive Density PWL HMA Pavement	6,014.000 DOL	1.00000	6,014.00
0074	SPV.0055 Special 02. Incentive Air Voids HMA Pavement	6,064.000 DOL	1.00000	6,064.00
0076	SPV.0055 Special 03. Incentive Density HMA Pavement Longitudinal Joints	1,820.000 DOL	1.00000	1,820.00

Section: 0001   **Total:**   _____._____

Total Bid: _____._____