



Wisconsin Department of Transportation

Division of Transportation Systems Development

Bureau of Project Development
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February 26, 2019

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NOTICE TO ALL CONTRACTORS:

Proposal #61: 8590-23-71
Bloomer - Bruce
South County Line to USH 8
STH 40
Rusk County

Letting of March 12, 2019

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

Special Provisions:

Added Special Provisions	
Article No.	Description
21	HMA Percent Within Limits (PWL) Test Strip Volumetrics
22	HMA Pavement Percent Within Limits (PWL) QMP.
23	Appendix Appendix A

Deleted Special Provisions	
Article No.	Description
10	QMP HMA Pavement Nuclear Density

Schedule of Items:

Added Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
460.2005	Incentive Density PWL HMA Pavement	DOL	0	21,883	21,883
460.2010	Incentive Air Voids HMA Pavement	DOL	0	27,515	27,515
SPV.0060.01	HMA Pavement PWL Test Strip Volumetrics	EA	0	1	1
SPV.0060.02	HMA Pavement PWL Test Strip Density	EA	0	1	1

Deleted Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
460.2000	Incentive Density HMA	DOL	17,610	-17,610	0

Plan Sheets:

Revised Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of changes to sheet)
140	Miscellaneous Quantities (Added Incentive Density PWL HMA Pavement)
140	Miscellaneous Quantities (Added Incentive Air Voids HMA Pavement)
141	Miscellaneous Quantities (Moved HMA Pavement 4 MT 58-34 V)
142	Miscellaneous Quantities (Moved Asphaltic Flumes)
172	Miscellaneous Quantities (Added HMA Pavement PWL Test Strip Volumetrics)
172	Miscellaneous Quantities (Added HMA Pavement PWL Test Strip Density)

Added Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of why sheet was added)
140A	Miscellaneous Quantities (HMA Percent Within Limits (PWL)) Added Table for QMP
140B	Miscellaneous Quantities (HMA Percent Within Limits (PWL)) Added Table for QMP
140C	Miscellaneous Quantities (HMA Percent Within Limits (PWL)) Added Table for QMP
140D	Miscellaneous Quantities (HMA Percent Within Limits (PWL)) Added Table for QMP

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

ADDENDUM NO. 1

8590-23-71

February 26, 2019

Special Provisions

10. DELETED.

**21. HMA Percent Within Limits (PWL) Test Strip Volumetrics, Item 460.0105.S;
HMA Percent Within Limits (PWL) Test Strip Density Item 460.0110.S.**

A Description

This special provision describes the Hot Mix Asphalt (HMA) density and volumetric testing tolerances required for an HMA test strip. An HMA test strip is required for contracts constructed under HMA Percent Within Limits (PWL) QMP. A density test strip is required for each pavement layer placed over a specific, uniform underlying material, unless specified otherwise in the plans. Each contract is restricted to a single mix design per mix type per layer (e.g., upper layer and lower layer may have different mix type specified or may have the same mix type with different mix designs). Each mix design requires a separate test strip. Density and volumetrics testing will be conducted on the same test strip whenever possible.

Perform work according to standard spec 460 and as follows.

B Materials

Use materials conforming to HMA Pavement Percent Within Limits (PWL) QMP special provision.

C Construction

C.1 Test Strip

Submit the test strip start time and date to the department in writing at least 5 calendar days in advance of construction of the test strip. If the contractor fails to begin paving within 2 hours of the submitted start time, the test strip is delayed and the department will assess the contractor \$2,000 for each instance according to Section E of this document. Alterations to the start time and date must be submitted to the department in writing a minimum of 24 hours prior to the start time. The contractor will not be liable for changes in start time related to adverse weather days as defined by standard spec 101.3 or equipment breakdown verified by the department.

On the first day of production for a test strip, produce approximately 750 tons of HMA. (Note: adjust tonnage to accommodate natural break points in the project.) Locate test strips in a section of the roadway to allow a representative rolling pattern (i.e. not a ramp or shoulder, etc.).

C.1.1 Sampling and Testing Intervals

C.1.1.1 Volumetrics

Laboratory testing will be conducted from a split sample yielding three components, with portions designated for QC (quality control), QV (quality verification), and retained.

During production for the test strip, obtain sufficient HMA mixture for three-part split samples from trucks prior to departure from the plant. Collect three split samples during the production of test strip material. Perform sampling from the truck box and three-part splitting of HMA according to CMM 8-36. These three samples will be randomly selected by the engineer from each *third* of the test strip tonnage (T), excluding the first 50 tons:

<u>Sample Number</u>	<u>Production Interval (tons)</u>
<u>1</u>	50 to $\frac{T}{3}$
<u>2</u>	$\frac{T}{3}$ to $\frac{2T}{3}$
<u>3</u>	$\frac{2T}{3}$ to T

C.1.1.2 Density

Required field tests include contractor QC and department QV nuclear density gauge tests and pavement coring at ten individual locations (five in each half of the test strip length) in accordance with Appendix A: *Test Methods and Sampling for HMA PWL QMP Projects*. Both QV and QC teams shall have two nuclear density gauges present for correlation at the time the test strip is constructed. QC and QV teams may wish to scan with additional gauges at the locations detailed in Appendix A, as only gauges used during the test strip correlation phase will be allowed.

C.1.2 Field Tests

C.1.2.1 Density

A gauge comparison according to CMM 8-15.7 shall be completed prior to the day of test strip construction. Daily standardization of gauges on reference blocks and a project reference site shall be performed according to CMM 8-15.8. A standard count shall be performed for each gauge on the material placed for the test strip, prior to any additional data collection. Nuclear gauge readings and pavement cores shall be used to determine nuclear gauge correlation in accordance with Appendix A. The two to three readings for the five locations across the mat for each of two zones shall be provided to the engineer. The engineer will analyze the readings of each gauge relative to the densities of the cores taken at each location. The engineer will determine the average difference between the nuclear gauge density readings and the measured core densities to be used as a constant offset value. This offset will be used to adjust raw density readings of the specific gauge and shall appear on the density data sheet along with gauge and project identification. An offset is specific to the mix and layer, therefore a separate value shall be determined for each layer of each mix placed over a differing underlying material for the contract. This constitutes correlation of that individual gauge for the given layer. Two gauges per team are not required to be onsite daily after completion of the test strip. Any data collected without a correlated gauge will not be accepted.

The contractor is responsible for coring the pavement from the footprint of the density tests and filling core holes according to Appendix A. Coring and filling of pavement core holes must be approved by the engineer. The QV team is responsible for the labeling and safe transport of the cores from the field to the QC laboratory. Testing of cores shall be conducted by the contractor and witnessed by department personnel. The contractor is responsible for drying the cores following testing. The department will take possession of cores following laboratory testing and will be responsible for any verification testing at the discretion of the engineer.

The target maximum density to be used in determining core density is the average of the three volumetric/mix Gmm values from the test strip multiplied by 62.24 lb/ft³. In the event mix and density portions of the test strip procedure are separated, or if an additional density test strip is required, the mix portion must be conducted prior to density determination. The target maximum density to determine core densities shall then be the Gmm four-test running average (or three-test average from a PWL volumetric-only test strip) from the end of the previous day's production multiplied by 62.24 lb/ft³. If no PWL production volumetric test is to be taken in a density-only test strip, a non-random three-part split mix sample will be taken and tested for Gmm by the department representative. The department Gmm test results from this non-random test will

be entered in the HMA PWL Test Strip Spreadsheet and must conform to the Acceptance Limits presented in C.2.1.

Exclusions such as shoulders and appurtenances shall be tested and reported according to CMM 8-15. However, all acceptance testing of shoulders and appurtenances will be conducted by the department, and average lot (daily) densities must conform to standard spec Table 460-3. No density incentive or disincentive will be applied to shoulders or appurtenances. However, unacceptable shoulder material will be handled according to standard spec 460.3.3.1 and CMM 8-15.11.

C.1.3 Laboratory Tests

C.1.3.1 Volumetrics

Obtain random samples according to C.1.1.1 and Appendix A. Perform tests the same day as taking the sample.

Theoretical maximum specific gravities of each mixture sample will be obtained according to AASHTO T 209. Bulk specific gravities of both gyratory compacted samples and field cores shall be determined according to AASHTO T 166. The bulk specific gravity values determined from field cores shall be used to calculate a correction factor (i.e., offset) for each QC and QV nuclear density gauge. The correction factor will be used throughout the remainder of the layer.

C.2 Acceptance

C.2.1 Volumetrics

Produce mix conforming to the following limits based on individual QC and QV test results (tolerances based on most recent JMF):

ITEM	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
Asphaltic content in percent ^[1]	- 0.5
Air Voids	-1.5 & +2.0
VMA in percent ^[2]	- 1.0
Maximum specific gravity	+/- 0.024

^[1] Asphalt content more than -0.5% below the JMF will be referee tested by the department's AASHTO accredited laboratory and HTCP certified personnel using automated extraction according to WisDOT Modified ASTM D8159.

^[2] VMA limits based on minimum requirement for mix design nominal maximum aggregate size in [table 460-1](#).

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

Calculation of air voids shall use either the QC, QV, or retained split sample test results, as identified by conducting the paired t-test with the WisDOT PWL Test Strip Spreadsheet.

If QC and QV test results do not correlate as determined by the split sample comparison, the retained split sample will be tested by the department's AASHTO accredited laboratory and HTCP certified personnel as a referee test. Additional investigation shall be conducted to identify the source of the difference between QC and QV data. Referee data will be used to determine material conformance and pay.

C.2.2 Density

Compact all layers of test strip HMA mixture to the applicable density shown in the following table:

TABLE 460-3 MINIMUM REQUIRED DENSITY^[1]

LAYER	MIXTURE TYPE	
	LT & MT	HT
LOWER	93.0 ^[2]	93.0 ^[3]
UPPER	93.0	93.0

^[1] If any individual core density test result falls more than 3.0 percent below the minimum required target maximum density, the engineer will investigate the acceptability of that material per CMM 8-15.11.

^[2] Minimum reduced by 2.0 percent for a lower layer constructed directly on crushed aggregate or recycled base courses.

^[3] Minimum reduced by 1.0 percent for lower layer constructed directly on crushed aggregate or recycled base courses.

Nuclear density gauges are acceptable for use on the project only if correlation is completed for that gauge during the time of the test strip and the department issues documentation of acceptance stating the correlation offset value specific to the gauge and mix design. The offset is not to be entered into any nuclear density gauge as it will be applied by the department-furnished Field Density Worksheet.

C.2.3 Test Strip Approval and Material Conformance

All applicable laboratory and field testing associated with a test strip shall be completed prior to any additional mainline placement of the mix. All test reports shall be submitted to the department upon completion, and approved before paving resumes. The department will notify the contractor within 24 hours from start of test strip regarding approval to proceed with paving, unless an alternate time frame is agreed upon in writing with the department. The 24-hour approval time includes only working days as defined in standard spec 101.3.

The department will evaluate material conformance and make pay adjustments based on the PWL value of air voids and density for the test strip. The QC core densities and QC and QV mix results will be used to determine the PWL values as calculated in accordance with Appendix A.

The PWL values for air voids and density shall be calculated after determining core densities. An approved test strip is defined as the individual PWL values for air voids and density both being equal to or greater than 75, mixture volumetric properties conforming to the limits specified in C.2.1, and an acceptable gauge-to-core correlation. Further clarification on PWL test strip approval and appropriate post-test strip actions are shown in the following table:

PWL Value for Air Voids and Density	Test Strip Approval	Material Conformance	Post-Test Strip Action
Both PWL \geq 75	Approved ¹	Material paid for according to Section E.	Proceed with Production
50 \leq Either PWL < 75	Not Approved	Material paid for according to Section E.	Consult BTS to determine need for additional test strip.
Either PWL < 50	Not Approved	Unacceptable material removed and replaced or paid for at 50% of the contract unit price according to Section E.	Construct additional Volumetrics or Density test strip as necessary.

¹ In addition to these PWL criteria, mixture volumetric properties must conform to the limits specified in C.2.1, split sample comparison must have a passing result and an acceptable gauge-to-core correlation must be completed.

A maximum of two test strips will be allowed to remain in place per pavement layer per contract. If material is removed, a new test strip shall replace the previous one at no additional cost to the department. If the contractor changes the mix design for a given mix type during a contract, no additional compensation will be paid by the department for the required additional test strip and the department will assess the contractor \$2,000 for the additional test strip according to Section E of this special provision. For simultaneously conducted density and volumetric test strip components, the following must be achieved:

- i. Passing/Resolution of Split Sample Comparison
- ii. Volumetrics/mix PWL value \geq 75
- iii. Density PWL value \geq 75
- iv. Acceptable correlation

If not conducted simultaneously, the mix portion of a test strip must accomplish (i) & (ii), while density must accomplish (iii) & (iv). If any applicable criteria are not achieved for a given test strip, the engineer, with authorization from the department's Bureau of Technical Services, will direct an additional test strip (or alternate plan approved by the department) be conducted to prove the criteria can be met prior to additional paving of that mix. For a density-only test strip, determination of mix conformance will be according to main production, i.e., HMA Pavement Percent Within Limits (PWL) QMP special provision.

D Measurement

The department will measure HMA Percent Within Limits (PWL) Test Strip as each unit of work, acceptably completed as passing the required air void, VMA, asphalt content, gradation, and density correlation for a Test Strip. Material quantities shall be determined according to standard spec 450.4 and detailed here within.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH
460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH

These items are intended to compensate the contractor for the construction of the test strip for contracts paved under the HMA Pavement Percent Within Limits QMP article.

Payment for HMA Percent Within Limits (PWL) Test Strip Volumetrics is full compensation for volumetric sampling, splitting, and testing; for proper labeling, handling, and retention of split samples.

Payment for HMA Percent Within Limits (PWL) Test Strip Density is full compensation for collecting and measuring of pavement cores, acceptably filling core holes, providing of nuclear gauges and operator(s), and all other work associated with completion of a core-to-gauge correlation, as directed by the engineer.

Acceptable HMA mixture placed on the project as part of a volumetric or density test strip will be compensated by the appropriate HMA Pavement bid item with any applicable pay adjustments. If a test strip is delayed as defined in C.1 of this document, the department will assess the contractor \$2,000 for each instance, under the HMA Delayed Test Strip administrative item. If an additional test strip is required because the initial test strip is not approved by the department or the mix design is changed by the contractor, the department will assess the contractor \$2,000 for each additional test strip (i.e. \$2,000 for each individual volumetrics or density test strip) under the HMA Additional Test Strip administrative item.

Pay adjustment will be calculated using 65 dollars per ton of HMA pavement. The department will pay for measured quantities of mix based on \$65/ton multiplied by the following pay adjustment:

PAY ADJUSTMENT FOR HMA PAVEMENT AIR VOIDS & DENSITY

<i>PERCENT WITHIN LIMITS (PWL)</i>	<i>PAYMENT FACTOR, PF (percent of \$65/ton)</i>
≥ 90 to 100	$PF = ((PWL - 90) * 0.4) + 100$
≥ 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] Material resulting in PWL value less than 50 shall be removed and replaced, unless the engineer allows for 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.

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 will be according to Table 460-3 as modified herein. Pay adjustment will be determined for an acceptably completed test strip and will be computed as shown in the following equation:

$$\text{Pay Adjustment} = (PF-100)/100 \times (WP) \times (\text{tonnage}) \times (\$65/\text{ton})^*$$

*Note: If Pay Factor <50, the contract unit price will be used in lieu of \$65/ton

The following weighted percentage (WP) values will be used for the corresponding parameter:

<u>Parameter</u>	<u>WP</u>
Air Voids	0.5
Density	0.5

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 produced (i.e., from truck tickets), and PF_{density} will be multiplied by the calculated tonnage used to pave the mainline only (i.e., traffic lane excluding shoulder) as determined in accordance with Appendix A.

The department will pay incentive for air voids under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
460.2005	Incentive Density PWL HMA Pavement	DOL

The department will administer disincentives under the Disincentive Density HMA Pavement and the Disincentive Air Voids HMA Pavement administrative items.
stp-460-040 (20181119)

22. HMA Pavement Percent Within Limits (PWL) QMP.

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 and HMA Pavement Percent Within Limits (PWL) QMP Test Strip Density articles at no additional cost to the department.

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 subplot 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 and three-part splitting of HMA samples according to CMM 8-36. 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 three splits for all random sampling per subplot. All QC samples shall provide the following: QC, QV, and Retained. The contractor shall take possession and test the QC portions. The department will observe the splitting and take possession of the samples intended for QV testing (i.e., QV portion from each sample) and the Retained portions. Additional sampling details are found in Appendix A. Label samples according to CMM 8-36. Additional handling instructions for retained samples are found in CMM 8-36.
- (4) Use the test methods identified below to perform the following tests at a frequency greater than or equal to that indicated:
 - Blended aggregate gradations in accordance with AASHTO T 30
 - Asphalt content (AC) in percent determined by ignition oven method according to AASHTO T 308 as modified in CMM 8-36.6.3.6, chemical extraction according to AASHTO T 164 Method A or B, or automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1.
 - Bulk specific gravity (G_{mb}) of the compacted mixture according to AASHTO T 166.
 - Maximum specific gravity (G_{mm}) according to AASHTO T 209.
 - Air voids (V_a) by calculation according to AASHTO T 269.
 - Voids in Mineral Aggregate (VMA) by calculation according to AASHTO R35.

(5) Lot size shall consist of 3750 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 subplot 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 AASHTO T283, without freeze-thaw conditioning cycles, on each qualifying mixture in accordance with CMM 8-36.6.14. 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 ^[1]	-0.3	-0.5
Va		- 1.5 & +2.0
VMA in percent ^[2]	- 0.5	-1.0

^[1] The department will not adjust pay based on QC AC in percent test results; however corrective action will be applied to nonconforming material according to 460.2.8.2.1.7(3) as modified herein. ^[2] 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 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 and/or remove and replace.

(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. 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 three splits for all random sampling per subplot. All QV samples shall furnish the following: QC, QV, and Retained. The department will observe the splitting and take possession of the samples intended for QV testing (i.e., QV portion from each sample) and the Retained portions. 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 perform all testing conforming to the following standards:
 - Bulk specific gravity (Gmb) of the compacted mixture according to AASHTO T 166.
 - Maximum specific gravity (Gmm) according to AASHTO T 209.
 - Air voids (Va) by calculation according to AASHTO T 269.
 - Voids in Mineral Aggregate (VMA) by calculation according to AASHTO R 35.
 - Asphalt Content (AC) in percent determined by ignition oven method according to AASHTO T 308 as modified in CMM 8-36.6.3.6, chemical extraction according to AASHTO T 164 Method A or B, or automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1.
- (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 most recent lot in the analysis window (specifically the subplot identifying that variances or means do not compare) will be referee tested by the bureau's AASHTO accredited laboratory and certified personnel. If the non-comparison occurs following Lot 3, 4, or 5, all previous lots are subject to referee testing. Referee test results will replace the QV data of the subplot(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 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. In this event, the retained portion of each subplot 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 according to the standard spec, 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. 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 subplot basis. If an entire PWL subplot is removed and replaced, the test results of the newly placed material will replace the original data for the subplot. 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

- (1) The engineer will determine the target maximum density using department procedures described in CMM 8-15. The engineer will determine density as soon as practicable after compaction and before placement of subsequent layers or before opening to traffic.
- (2) 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.
- (3) A lot is defined as 7500 lane feet with sublots of 1500 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. The contractor is required to complete three tests randomly per subplot and the department will randomly conduct one QV test per subplot. A partial quantity less than 750 lane feet will be included with the previous subplot. Partial lots with less than three sublots will be included in the previous lot for data analysis/acceptance and pay, by the engineer. If density lots/sublots are determined prior to construction of the test strip, any random locations within the test strip shall be omitted. Exclusions such as shoulders and appurtenances shall be tested and recorded in accordance with CMM 8-15. However, all acceptance testing of shoulders and appurtenances will be conducted by the department, and average lot (daily) densities must conform to standard spec Table 460-3. No density incentive or disincentive will be applied to shoulders or appurtenances. Offsets will not be applied to nuclear density gauge readings for shoulders or appurtenances. Unacceptable shoulder material will be handled according to standard spec 460.3.3.1 and CMM 8-15.11.
- (4) The three QC locations per subplot represent the outside, middle, and inside of the paving lane. The QC density testing procedures are detailed in Appendix A.
- (5) QV nuclear testing will consist of one randomly selected location per subplot. The QV density testing procedures will be the same as the QC procedure at each testing location and are also detailed in Appendix A.
- (6) An HTCP-certified nuclear density technician (NUCDENSITYTEC-I) shall identify random locations and perform the testing for both the contractor and department. The responsible certified technician shall ensure that sample location and testing is performed correctly, analyze test results, and provide density results to the contractor weekly, or at the completion of each lot.
- (7) For any additional tests outside the random number testing conducted for density, the data collected will not be entered into PWL calculations. However, additional QV testing must meet the tolerances for material conformance as specified in the standard specification and this special provision. If additional density data identifies unacceptable material, proceed as specified in CMM 8-15.11.

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) Analysis of test data for pay determination will be contingent upon test results from both the contractor (QC) and the department (QV).
- (2) As random density locations are paved, the data will be recorded in the HMA PWL Production Spreadsheet for analysis in chronological order. The engineer, upon completion of the analysis lot, will compare the variances (F-test) and the means (t-test) of the QV test results with the QC test results. Analysis will use a set alpha value of 0.025.
 - i. If the F- and t-tests indicate variances and means compare, the QC and QV data sets are determined to be statistically similar and QC data will be used for PWL and pay adjustment calculations.
 - ii. If the F- and t-tests indicate variances or means do not compare, the QV data will be used for subsequent calculations.

(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) 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 may be conducted on a subplot basis. If an entire PWL subplot is removed and replaced, the test results of the newly placed material will replace the original data for the subplot.
- 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 8-15.11. 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)

≥ 90 to 100

≥ 50 to < 90

<50

PAYMENT FACTOR, PF

(percent of \$65/ton)

PF = ((PWL – 90) * 0.4) + 100

(PWL * 0.5) + 55

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.

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. Pay adjustment will be determined on a lot basis and will be computed as shown in the following equation.

$$\text{Pay Adjustment} = (\text{PF}-100)/100 \times (\text{WP}) \times (\text{tonnage}) \times (\$65/\text{ton})^*$$

*Note: If Pay Factor <50, the contract unit price will be used in lieu of \$65/ton

The following weighted percentage (WP) values will be used for the corresponding parameter:

<u>Parameter</u>	<u>WP</u>
Air Voids	0.5
Density	0.5

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., travel lane excluding shoulder) as determined in accordance with Appendix A.

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

<u>ITEM NUMBER</u>	<u>DESCRIPTION</u>	<u>UNIT</u>
460.2005	Incentive Density PWL HMA Pavement	DOL
460.2010	Incentive Air Voids HMA Pavement	DOL

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

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 subplot of mix at 65 dollars per ton of HMA pavement multiplied by the following pay adjustment calculated according to the HMA PWL Production Spreadsheet:

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

^[1] 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. Such material will be referee tested by the department's AASHTO accredited laboratory and HTCP certified personnel using automated extraction according to automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1.

Note: PWL value determination is further detailed in the *Calculations* worksheet of the HMA PWL Production spreadsheet.
stp-460-050 (20181119)

23. Appendix A

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 Procedure for Nuclear Gauge/Core Correlation – Test Strip
 - 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 Procedure for Nuclear Gauge/Core Correlation – Test Strip

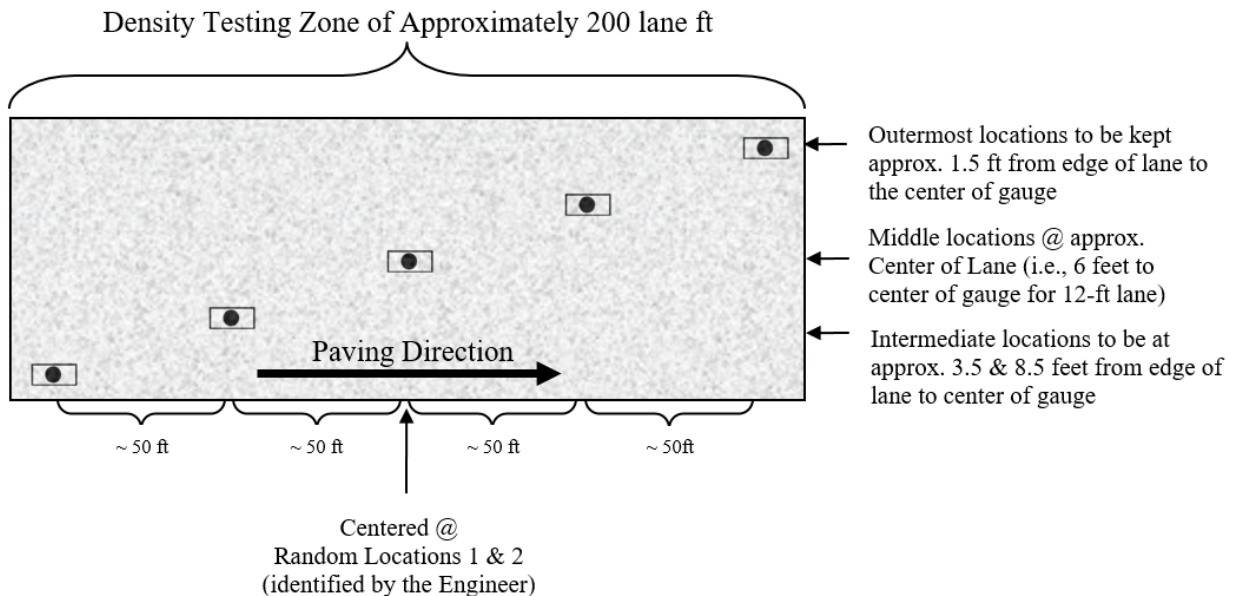



Figure 1: Nuclear/Core Correlation Location Layout

The engineer will identify two zones in which gauge/core correlation is to be performed. These two zones will be randomly selected within each *half* of the test strip length. (Note: Density zones shall not overlap and must have a minimum of 100 feet between the two zones; therefore, random numbers may be shifted (evenly) in order to meet these criteria.) Each zone shall consist of five locations across the mat as identified in Figure 1. The following shall be determined at each of the five locations within both zones:

- two one-minute nuclear density gauge readings for QC team*
- two one-minute nuclear density gauge readings for QV team*
- pavement core sample

*If the two readings exceed 1.0 pcf of one another, a third reading is conducted in the same orientation as the first reading. In this event, all three readings are averaged, the individual test reading of the three which falls farthest from the average value is discarded, and the average of the remaining two values is used to represent the location for the gauge.

The zones are supposed to be undisclosed to the contractor/roller operators. The engineer will not lay out density/core test sites until rolling is completed and the cold/finish roller is beyond the entirety of the zone. Sites are staggered across the 12-foot travel lane, and do not include shoulders. The outermost locations should be 1.5-feet from the center of the gauge to the edge of lane. [NOTE: This staggered layout is only applicable to the test strip. All mainline density locations after test strip should have a longitudinal- as well as transverse-random number to determine location as detailed in the *WisDOT Test Method for HMA PWL QMP Density Measurements for Main Production* section of this document.]

Individual locations are represented by the  symbol as seen in Figure 1 above. The symbol is two-part, comprised of the nuclear test locations and the location for coring the pavement, as distinguished here:



The nuclear site is the same for QC and QV readings for the test strip, i.e., the QC and QV teams are to take nuclear density gauge readings in the same footprint. Each of the QC and QV teams are to take a minimum of two one-minute readings per nuclear site, with the gauge rotated 180 degrees between readings, as seen here:



Figure 2: Nuclear gauge orientation for (a) 1st one-minute reading and (b) 2nd one-minute reading

Photos should be taken of each of the 10 core/gauge locations of the test strip. This should include gauge readings (pcf) and a labelled core within the gauge footprint. If a third reading is needed, all three readings should be recorded and documented. Only raw readings in pcf should be written on the pavement during the test strip, with a corresponding gauge ID/SN (generalized as QC-1 through QV-2 in the following Figure) in the following format:



Figure 3: Layout of raw gauge readings as recorded on pavement

Each core will then be taken from the center of the gauge footprint, and will be used to correlate each gauge with laboratory-measured bulk specific gravities of the pavement cores. One core in good condition must be obtained from each of the 10 locations. If a core is damaged at the time of extracting from the pavement, a replacement core should be taken immediately adjacent to the damaged core, i.e., from the same footprint. If a core is damaged during transport, it should be recorded as damaged and excluded from the correlation. Coring after traffic is on the pavement should be avoided. The contractor is responsible for coring of the pavement. Coring and filling of core holes must be approved by the engineer. The QV team is responsible for the labeling and safe transport of the cores from the field to the QC laboratory. Core density testing will be conducted by the contractor and witnessed by department personnel. The contractor is responsible for drying the cores following testing. The department will take possession of cores following initial testing and is responsible for any verification testing.

Each core 150 mm (6 inches) in diameter will be taken at locations as identified in Figure 1. Each random core will be full thickness of the layer being placed. The contractor is responsible for thoroughly drying cores obtained from the mat in accordance with ASTM D 7227 prior to using specimens for in-place density determination in accordance with AASHTO T 166.

Cores must be taken before the pavement is open to traffic. Cores are cut under Department/project staff observation. Relabel each core immediately after extruding, or ensure that labels applied to pavement prior to cutting remain legible. The layer interface should also be marked immediately following extrusion. Cores should be cut at this interface, using a wet saw, to allow for density measurement of only the most recently placed layer. Cores should be protected from excessive temperatures such as direct sunlight. Also, there should be department custody (both in transport and storage) for the cores until they are tested, whether that be immediately after the test strip or subsequent day if agreed upon between Department and Contractor. Use of concrete cylinder molds works well to transport cores. Cores should be placed upside down (flat surface to bottom of cylinder mold) in the molds, one core per mold, cylinder molds stored upright, and ideally transported in a cooler. Avoid any stacking of pavement cores.

Fill all core holes with non-shrink rapid-hardening grout, mortar or concrete, or with HMA. When using grout, mortar or concrete, remove all water from the core holes prior to filling. Mix the mortar or concrete in a separate container prior to placement in the hole. If HMA is used, fill all core holes with hot-mix matching the same day's production mix type at same day compaction temperature +/- 20 F. The core holes shall be dry and coated with tack before filling, filled with a top layer no thicker than 2.25 inches, lower layers not to exceed 4 inches, and compacted with a Marshall hammer or similar tamping device using approximately 50 blows per layer. The finished surface shall be flush with the pavement surface. Any deviation in the surface of the filled core holes greater than 1/4 inch at the time of final inspection will require removal of the fill material to the depth of the layer thickness and replacement.

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

For nuclear density testing of the pavement beyond the test strip, QC tests will be completed at three locations per subplot, with a subplot defined as 1500 lane feet. The three locations will represent the outside, middle, and inside of the paving lane (i.e., the lane width will be divided into thirds as shown by the dashed longitudinal lines in Figure 3 and random numbers will be used to identify the specific transverse location within each third in accordance with CMM 8-15). Longitudinal locations within each subplot shall be determined with 3 independent random numbers. 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 or disincentive. Each location will be measured with two one-minute gauge readings oriented 180 degrees from one another, in the same footprint as detailed in Figure 2 above. Each location requires a minimum of two readings per gauge. The density gauge orientation for the first test will be with the source rod towards the direction of paving. QV nuclear testing will consist of one randomly selected location per subplot. The QV is also comprised of two one-minute readings oriented 180 degrees from one another. For both QC and QV test locations, if the two readings exceed 1.0 pcf of one another, a third reading is conducted in the same orientation as the first reading. In this event, all three readings are averaged, the individual test reading of the three which falls farthest from the average value is discarded, and the average of the remaining two values is used to represent the location for the gauge. The subplot density testing layout is depicted in Figure 4, with QC test locations shown as solid lines and QV as dashed.

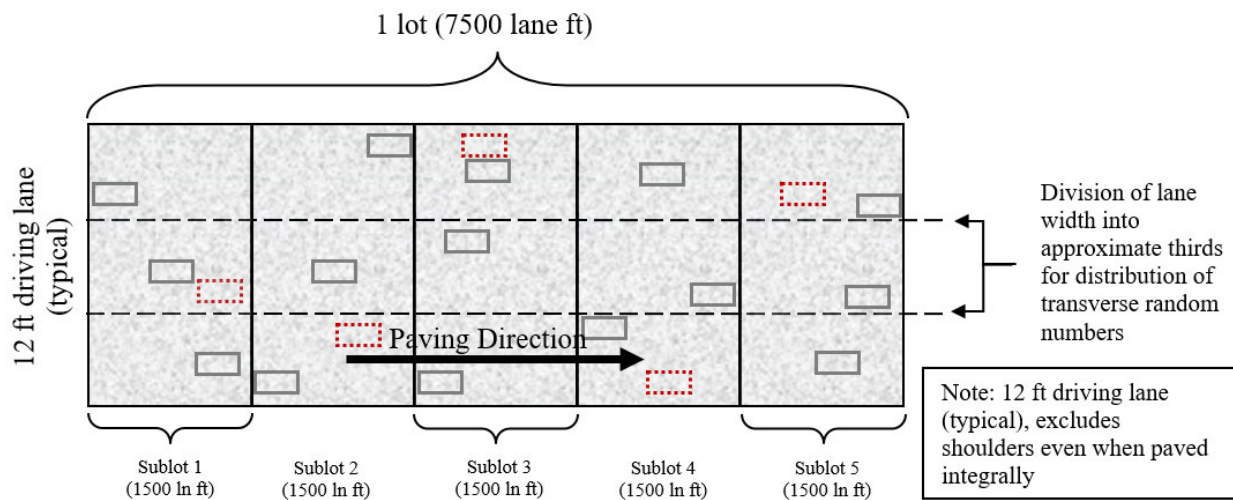


Figure 4: Locations of main lane HMA density testing (QC=solid lines, QV=dashed)

QC and QV nuclear density gauge readings will be statistically analyzed in accordance with Section 460.3.3.3 of the HMA PWL QMP SPV. (Note: For density data, if F- and t-tests compare, QC data will be used for the subsequent calculations of PWL value and pay determination. However, if an F- or t-test does not compare, the QV data will be used in subsequent calculations.)

Sampling for WisDOT HMA PWL QMP Production

Sampling of HMA mix for QC, QV and Retained samples shall conform to CMM 8-36 except as modified here.

Delete CMM 8-36.4 Sampling Hot Mix Asphalt and replace with the following to update subplot tonnages:

Sampling Hot Mix Asphalt

At the beginning of the contract, the contractor determines the anticipated tonnage to be produced. The frequency of sampling is 1 per 750 tons (sublot) for QC and Retained Samples and 1 per 3750 tons (lot or 5 sublots) for QV as defined by the HMA PWL QMP SPV. A test sample is obtained randomly from each sublot. Each random sample shall be collected at the plant according to CMM 8-36.4.1 and 8-36.4.2. The contractor must 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 ASTM Method D-3665 or by using a calculator or computerized spreadsheet that has a random number generator. The random numbers selected are used in determining when a sample is to be taken and will be multiplied by the subplot tonnage. This number will then be added to the final tonnage of the previous subplot 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 should 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 subplot of production. If the randomly generated sample is calculated to be within the first 0-50 tons of the subsequent day of production, it should 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 3750 tons with sublots of 750 tons. Partial lots with less than three subplot tests will be included into the previous lot, by the engineer.

It's intended that the plant operator not be advised ahead of time when samples are to be taken. If the plant operator is involved in recording a Pb (%AC) to match up with the mix sample tonnage, then notification need not be earlier than 60 minutes before the mix sample being 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.

QC, QV and retained samples shall be collected for all test strip and production mixture testing using a three-part splitting procedure according to CMM 8-36.5.2.

Calculation of PWL Mainline Tonnage Example

A mill and overlay project is being constructed with a 12-foot travel 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 subplot eligible for density incentive or disincentive.

Solution:

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

stp-460-055 (20181119)

Schedule of Items

Attached, dated February 26, 2019, are the revised Schedule of Items Pages 1 – 4.

Plan Sheets

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

Revised: 140, 141, 142, and 172

Added: 140A, 140B, 140C, and 140D.

END OF ADDENDUM

INCENTIVE AIR VOIDS HMA PAVEMENT

CATEGORY	STATION	TO	STATION	LOCATION	DOL	REMARKS
0010	2+00	-	117+07		3529	CIR
0010	117+47	-	339+66		6814	CIR
0010	340+52	-	670+00		10104	CIR
0010	670+00	-	691+00		966	MILL & OVERLAY
0010	691+00	-	696+57		470	MILL & OVERLAY
0010	2+00	-	26+57	LT	94	Shoulder
0010	2+00	-	10+00	RT	31	Shoulder
0010	10+00	-	17+16	RT	27	Shoulder
0010	17+49	-	32+38	RT	57	Shoulder
0010	26+57	-	41+11	LT	56	Shoulder
0010	32+56	-	41+14	RT	33	Shoulder
0010	41+32	-	66+74	RT	97	Shoulder
0010	41+35	-	98+25	LT	218	Shoulder
0010	66+94	-	102+07	RT	135	Shoulder
0010	98+56	-	117+47	LT	72	Shoulder
0010	102+35	-	112+61	RT	39	Shoulder
0010	112+33	-	117+07	RT	18	Shoulder
0010	117+47	-	129+01	LT	88	Shoulder
0010	117+47	-	176+39	RT	226	Shoulder
0010	129+01	-	137+28	LT	32	Shoulder
0010	137+68	-	175+55	LT	105	Shoulder
0010	175+82	-	203+68	LT	147	Shoulder
0010	176+62	-	232+43	RT	214	Shoulder
0010	203+68	-	218+89	LT	117	Shoulder
0010	218+89	-	232+43	LT	52	Shoulder
0010	231+61	-	287+15	LT	213	Shoulder
0010	233+05	-	287+56	RT	209	Shoulder
0010	287+36	-	317+56	LT	116	Shoulder
0010	287+75	-	339+67	RT	199	Shoulder
0010	317+74	-	339+66	LT	84	Shoulder
0010	340+52	-	352+99	LT	48	Shoulder
0010	340+52	-	353+66	RT	50	Shoulder
0010	353+15	-	425+88	LT	279	Shoulder
0010	353+98	-	403+82	RT	191	Shoulder
0010	404+01	-	416+58	RT	48	Shoulder
0010	416+58	-	434+76	RT	139	Shoulder
0010	426+09	-	468+05	LT	161	Shoulder
0010	433+82	-	438+40	RT	18	Shoulder
0010	438+53	-	443+87	RT	20	Shoulder
0010	444+10	-	515+82	RT	275	Shoulder
0010	468+33	-	557+50	LT	342	Shoulder
0010	516+08	-	646+60	RT	500	Shoulder
0010	557+83	-	577+38	LT	75	Shoulder
0010	577+68	-	670+00	LT	354	Shoulder
0010	646+94	-	661+80	RT	57	Shoulder
0010	661+39	-	663+76	RT	18	Shoulder
0010	663+76	-	670+00	RT	24	Shoulder
0010	670+00	-	690+05	LT	115	Shoulder
0010	670+00	-	690+62	RT	237	Shoulder
TOTAL					0010	27514

SHEET: 140

MISCELLANEOUS QUANTITIES

COUNTY: RUSK

HWY: STH 40

PROJECT: 8590-23-71

E

INCENTIVE DENSITY PWL HMA PAVEMENT

CATEGORY	STATION	TO	STATION	LOCATION	DOL	REMARKS
0010	2+00	-	117+07		3529	CIR
0010	117+47	-	339+66		6814	CIR
0010	340+52	-	670+00		10104	CIR
0010	670+00	-	691+00		966	MILL & OVERLAY
0010	691+00	-	696+57		470	MILL & OVERLAY
TOTAL					0010	21883

Addendum No. 01
ID 8590-23-71
Revised Sheet 140
February 25, 2019

LOCATION	STATION	TO	STATION	LOCATION LT OR RT	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM to be used for:	
									MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
2 - 12 foot Driving Lanes	2+00	-	117+07		CTR	HMA PAVEMENT 4 MT 58-34 V	3529	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
Shoulder	2+00	-	26+57	LT		HMA PAVEMENT 4 MT 58-34 V	94	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	2+00	-	10+00	RT		HMA PAVEMENT 4 MT 58-34 V	31	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	10+00	-	17+16	RT		HMA PAVEMENT 4 MT 58-34 V	27	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	17+49	-	32+38	RT		HMA PAVEMENT 4 MT 58-34 V	57	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	26+57	-	41+11	LT		HMA PAVEMENT 4 MT 58-34 V	56	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	32+56	-	41+14	RT		HMA PAVEMENT 4 MT 58-34 V	33	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	41+32	-	66+74	RT		HMA PAVEMENT 4 MT 58-34 V	97	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	41+35	-	98+25	LT		HMA PAVEMENT 4 MT 58-34 V	218	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	66+94	-	102+07	RT		HMA PAVEMENT 4 MT 58-34 V	135	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	98+56	-	117+47	LT		HMA PAVEMENT 4 MT 58-34 V	72	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	102+35	-	112+61	RT		HMA PAVEMENT 4 MT 58-34 V	39	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	112+33	-	117+07	RT		HMA PAVEMENT 4 MT 58-34 V	18	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.

Addendum No. 01
 ID 8590-23-71
 Added Sheet 140A
 February 25, 2019

HMA PERCENT WITHIN LIMITS (PWL) CONT'D		HMA PERCENT WITHIN LIMITS (PWL) CONT'D		HMA PERCENT WITHIN LIMITS (PWL) CONT'D		HMA PERCENT WITHIN LIMITS (PWL) CONT'D		HMA PERCENT WITHIN LIMITS (PWL) CONT'D		HMA PERCENT WITHIN LIMITS (PWL) CONT'D		HMA PERCENT WITHIN LIMITS (PWL) CONT'D	
2 - 12 foot Driving Lanes	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder
117+47	-	339+66											
117+47	-	129+01	LT										
117+47	-	176+39	RT										
129+01	-	137+28	LT										
137+68	-	175+55	LT										
175+82	-	203+68	LT										
176+62	-	232+43	RT										
203+68	-	218+89	LT										
218+89	-	232+43	LT										
231+61	-	287+15	LT										
233+05	-	287+56	RT										
287+36	-	317+56	LT										
287+75	-	339+67	RT										
317+74	-	339+66	LT										

Addendum No. 01
 ID 8590-23-71
 Added Sheet 140B
 February 25, 2019

SHEET: 140B

PROJECT: 8590-23-71 HWY: STH 40 COUNTY: RUSK MISCELLANEOUS QUANTITIES PLOT DATE: 12/12/2018 10:47:21 AM PLOT BY: AARON CHRIST

EXCEL FILE NAME: N:\PDS\PROJECTS\LE1\8590-23\QUANTITIES AND ESTIMATE\8590-23-71.XLSX
 POWERPOINT FILE NAME: N:\PDS\PROJECTS\LE1\8590-23\QUANTITIES AND ESTIMATE\8590-23-71.PPTX

HMA PERCENT WITHIN LIMITS (PWL) CONT'D												
2 - 12 Foot Driving Lanes	340+52	-	670+00						10104	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
Shoulder	340+52	-	352+99	LT					48	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	340+52	-	353+66	RT					50	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	353+15	-	425+88	LT					279	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	353+98	-	403+82	RT					191	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	404+01	-	416+58	RT					48	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	416+58	-	434+76	RT					139	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	426+09	-	468+05	LT					161	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	433+82	-	438+40	RT					18	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	438+53	-	443+87	RT					20	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	444+10	-	515+82	RT					275	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	468+33	-	557+50	LT					342	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	516+08	-	646+60	RT					500	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	557+83	-	577+38	LT					75	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	577+68	-	670+00	LT					354	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	646+94	-	661+80	RT					57	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	661+39	-	663+76	RT					18	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	663+76	-	670+00	RT					24	2"	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.

Addendum No. 01
 ID 8590-23-71
 Added Sheet 140C
 February 25, 2019

SHEET: 140C E

PROJECT: 8590-23-71 HWY: STH 40 COUNTY: RUSK MISCELLANEOUS QUANTITIES PLOT DATE: 12/12/2018 10:47:21 AM PLOT BY: AARON CHRIST

EXCEL FILE NAME: N:\PDS\PROJECTS\LE16890-23\02\MISO 16-11-18.XLSX
 POWERPOINT FILE NAME: N:\PDS\PROJECTS\LE16890-23\02\QUANTITIES AND ESTIMATE\8590-23-71.PPTX

Addendum No. 01
 ID 8590-23-71
 Added Sheet 140D
 February 25, 2019

HMA PERCENT WITHIN LIMITS (PWL) CONT'D

2 - 12 foot Driving Lanes	670+00	-	691+00		MILL & OVERLAY	HMA PAVEMENT 4 MT 58-34 V	966	3"	PWL INCENTIVE AIR Voids HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
Shoulder	670+00	-	690+05	LT		HMA PAVEMENT 4 MT 58-34 V	115	3"	PWL INCENTIVE AIR Voids HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Shoulder	670+00	-	690+62	RT		HMA PAVEMENT 4 MT 58-34 V	237	3"	PWL INCENTIVE AIR Voids HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.
Driving Lane	691+00	-	696+57		MILL & OVERLAY	HMA PAVEMENT 4 MT 58-34 V	470	3"	PWL INCENTIVE AIR Voids HMA PAVEMENT 460.2010	Acceptance testing by the department; Not eligible for incentive.

HMA PAVEMENT 4 MT 58-34 V

ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES

CATEGORY	STATION	TO	STATION	LOCATION	TON	REMARKS	CATEGORY	STATION	LOCATION	TON	REMARKS	
0010	2+00	-	117+07		329	CLR	0010	60+22	LT	3	PE	
0010	117+47	-	339+66		684	CLR	0010	119+80	LT	5	PE	
0010	340+52	-	670+00		10104	CLR	0010	120+10	LT	3	PE	
0010	670+00	-	691+00		966	MILL & OVERLAY	0010	120+91	LT	3	PE	
0010	691+00	-	696+57		470	MILL & OVERLAY	0010	122+56	LT	2	PE	
0010	2+00	-	26+57	LT	94	Shoulder	0010	122+93	LT	2	PE	
0010	2+00	-	10+00	RT	31	Shoulder	0010	124+49	LT	2	PE	
0010	10+00	-	17+16	RT	27	Shoulder	0010	126+14	LT	3	PE	
0010	17+49	-	32+38	RT	57	Shoulder	0010	126+80	LT	2	PE	
0010	26+57	-	41+11	RT	56	Shoulder	0010	127+64	LT	2	PE	
0010	32+56	-	41+14	RT	33	Shoulder	0010	160+00	LT	4	CE	
0010	41+32	-	66+74	RT	97	Shoulder	0010	250+53	LT	2	PE	
0010	41+35	-	98+25	RT	218	Shoulder	0010	300+05	RT	2	PE	
0010	66+94	-	102+07	RT	135	Shoulder	0010	413+39	RT	2	PE	
0010	98+56	-	117+47	RT	72	Shoulder	0010	416+32	LT	3	PE	
0010	102+35	-	112+61	RT	39	Shoulder	0010	418+38	RT	5	PE	
0010	112+33	-	117+07	RT	18	Shoulder	0010	420+26	RT	2	PE	
0010	117+47	-	129+01	RT	88	Shoulder	0010	421+40	RT	4	PE	
0010	117+47	-	176+39	RT	226	Shoulder	0010	423+27	RT	2	PE	
0010	129+01	-	137+28	LT	32	Shoulder	0010	424+90	RT	2	PE	
0010	137+68	-	175+55	LT	145	Shoulder	0010	425+21	RT	2	PE	
0010	175+82	-	203+68	LT	107	Shoulder	0010	440+19	LT	2	PE	
0010	176+62	-	232+43	RT	214	Shoulder	0010	445+17	LT	6	PE	
0010	203+68	-	218+89	LT	117	Shoulder	0010	448+28	LT	3	PE	
0010	218+89	-	232+43	LT	52	Shoulder	0010	529+21	RT	3	PE	
0010	231+61	-	287+15	LT	213	Shoulder	0010	532+81	LT	3	PE	
0010	233+05	-	287+56	RT	209	Shoulder	0010	536+06	RT	3	PE	
0010	287+36	-	317+56	LT	116	Shoulder	0010	536+88	RT	3	PE	
0010	287+75	-	339+67	RT	199	Shoulder	0010	542+09	RT	3	PE	
0010	317+74	-	339+66	LT	84	Shoulder	0010	562+20	RT	3	PE	
0010	340+52	-	352+99	LT	48	Shoulder	0010	595+44	LT	3	PE	
0010	340+52	-	353+66	RT	50	Shoulder	0010	659+49	RT	2	PE	
0010	353+15	-	425+88	LT	279	Shoulder	0010	673+12	RT	2	PE	
0010	353+98	-	403+82	RT	191	Shoulder	0010	679+57	LT	2	PE	
0010	404+01	-	416+58	RT	48	Shoulder	0010	680+43	LT	2	PE	
0010	416+58	-	434+76	RT	139	Shoulder	0010	681+40	RT	2	PE	
0010	426+09	-	468+05	LT	161	Shoulder	0010	682+57	RT	2	PE	
0010	433+82	-	438+40	RT	18	Shoulder	0010	687+52	LT	2	PE	
0010	438+53	-	443+87	RT	20	Shoulder						
0010	444+10	-	515+82	RT	275	Shoulder						
0010	468+33	-	537+50	LT	342	Shoulder						
0010	516+08	-	646+60	RT	500	Shoulder						
0010	537+83	-	577+38	LT	75	Shoulder						
0010	577+68	-	670+00	LT	354	Shoulder						
0010	646+94	-	661+80	RT	57	Shoulder						
0010	661+39	-	663+76	RT	18	Shoulder						
0010	663+76	-	670+00	RT	24	Shoulder						
0010	670+00	-	690+05	LT	115	Shoulder						
0010	670+00	-	690+62	RT	237	Shoulder						
				TOTAL	0010	27514			TOTAL	0010	100	

Addendum No. 01
ID 8590-23-71
Revised Sheet 141
February 25, 2019

ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE_RURAL

CATEGORY	STATION	TO	STATION	LOCATION	LF
0010	2+00	-	15+39	LT	1339
0010	2+00	-	39+23	RT	3723
0010	19+39	-	30+40	RT	1101
0010	34+40	-	41+23	RT	683
0010	43+23	-	116+82	LT	7359
0010	43+23	-	64+81	RT	2158
0010	68+81	-	100+20	RT	3139
0010	104+20	-	112+77	RT	857
0010	114+77	-	116+82	RT	205
0010	117+72	-	135+57	LT	1785
0010	117+72	-	176+08	RT	5836
0010	139+57	-	176+08	LT	3651
0010	178+08	-	232+76	LT	5468
0010	178+08	-	232+76	RT	5468
0010	234+76	-	287+37	LT	5261
0010	234+76	-	287+49	RT	5273
0010	289+37	-	317+81	LT	2844
0010	289+89	-	339+41	RT	4952
0010	319+81	-	339+41	LT	1960
0010	340+77	-	353+44	LT	1267
0010	340+77	-	353+55	RT	1278
0010	355+44	-	423+98	LT	6854
0010	355+55	-	401+96	RT	4641
0010	405+96	-	430+34	RT	2438
0010	427+98	-	466+30	LT	3832
0010	431+47	-	433+47	RT	200
0010	435+47	-	438+43	RT	296
0010	440+43	-	444+05	RT	362
0010	446+05	-	514+06	RT	6801
0010	470+30	-	555+91	LT	8561
0010	518+06	-	644+26	RT	12620
0010	559+91	-	575+31	LT	1540
0010	579+31	-	676+18	LT	9687
0010	648+26	-	676+18	RT	2792
TOTAL 0010					126231

ASPHALTIC FLUMES

CATEGORY	STATION	LOCATION	SY	REMARKS
0010	339+50	LT	1	(8-60-0030) SOFT MAPLE CREEK
0010	339+50	RT	1	(8-60-0030) SOFT MAPLE CREEK
TOTAL 0010				2

465.0315

ASPHALT CENTER LINE RUMBLE STRIPS 2-LANE_RURAL

CATEGORY	STATION	TO	STATION	LOCATION	LF
0010	2+00	-	15+39		1339
0010	19+39	-	32+40		1301
0010	34+40	-	39+23		483
0010	43+23	-	64+81		2158
0010	68+81	-	102+20		3339
0010	104+20	-	112+77		857
0010	114+77	-	116+82		205
0010	117+72	-	137+57		1985
0010	139+57	-	176+08		3651
0010	178+08	-	232+76		5468
0010	234+76	-	287+37		5261
0010	289+49	-	317+81		2832
0010	319+81	-	339+41		1960
0010	340+77	-	353+44		1267
0010	355+55	-	403+96		4841
0010	405+96	-	425+98		2002
0010	427+98	-	430+34		236
0010	432+34	-	433+47		113
0010	435+47	-	438+43		296
0010	440+43	-	444+05		362
0010	446+05	-	468+30		2225
0010	470+30	-	516+06		4576
0010	518+06	-	557+91		3985
0010	559+91	-	577+31		1740
0010	579+31	-	646+26		6695
0010	648+26	-	676+18		2792
TOTAL 0010					61969

465.0475

Addendum No. 01
 ID 8590-23-71
 Revised Sheet 142
 February 25, 2019

PROJECT: 8590-23-71

HWY: STH 40

COUNTY: RUSK

MISCELLANEOUS QUANTITIES

SHEET: 142

E



Proposal Schedule of Items

Proposal ID: 20190312061 Project(s): 8590-23-71

Federal ID(s): WISC 2019187

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	201.0105 Clearing	1.500 STA	_____.	_____.
0004	201.0205 Grubbing	1.500 STA	_____.	_____.
0006	204.0115 Removing Asphaltic Surface Butt Joints	3,507.000 SY	_____.	_____.
0008	204.0120 Removing Asphaltic Surface Milling	138,662.000 SY	_____.	_____.
0010	211.0400 Prepare Foundation for Asphaltic Shoulders	1,258.000 STA	_____.	_____.
0012	213.0100 Finishing Roadway (project) 01. 8590-23-71	1.000 EACH	_____.	_____.
0014	305.0500 Shaping Shoulders	1,258.000 STA	_____.	_____.
0016	455.0605 Tack Coat	5,818.000 GAL	_____.	_____.
0020	460.6644 HMA Pavement 4 MT 58-34 V	27,515.000 TON	_____.	_____.
0022	465.0120 Asphaltic Surface Driveways and Field Entrances	100.000 TON	_____.	_____.
0024	465.0315 Asphaltic Flumes	2.000 SY	_____.	_____.
0026	465.0425 Asphaltic Shoulder Rumble Strips 2-Lane Rural	126,231.000 LF	_____.	_____.
0028	465.0475 Asphalt Centerline Rumble Strips 2-Lane Rural	61,969.000 LF	_____.	_____.
0030	618.0100 Maintenance And Repair of Haul Roads (project) 01. 8590-23-71	1.000 EACH	_____.	_____.
0032	619.1000 Mobilization	1.000 EACH	_____.	_____.



Proposal Schedule of Items

Proposal ID: 20190312061 Project(s): 8590-23-71

Federal ID(s): WISC 2019187

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0034	628.1905 Mobilizations Erosion Control	1.000 EACH	_____.	_____.
0036	628.1910 Mobilizations Emergency Erosion Control	1.000 EACH	_____.	_____.
0038	634.0414 Posts Wood 4x4-Inch X 14-FT	138.000 EACH	_____.	_____.
0040	634.0416 Posts Wood 4x4-Inch X 16-FT	13.000 EACH	_____.	_____.
0042	634.0612 Posts Wood 4x6-Inch X 12-FT	1.000 EACH	_____.	_____.
0044	634.0614 Posts Wood 4x6-Inch X 14-FT	11.000 EACH	_____.	_____.
0046	634.0616 Posts Wood 4x6-Inch X 16-FT	16.000 EACH	_____.	_____.
0048	634.0808 Posts Tubular Steel 2x2-Inch X 8-FT	8.000 EACH	_____.	_____.
0050	637.2210 Signs Type II Reflective H	572.370 SF	_____.	_____.
0052	637.2230 Signs Type II Reflective F	630.000 SF	_____.	_____.
0054	638.2602 Removing Signs Type II	410.000 EACH	_____.	_____.
0056	638.3000 Removing Small Sign Supports	184.000 EACH	_____.	_____.
0058	642.5001 Field Office Type B	1.000 EACH	_____.	_____.
0060	643.0300 Traffic Control Drums	17.000 DAY	_____.	_____.
0062	643.0310.S Temporary Portable Rumble Strips	1.000 LS	_____.	_____.
0064	643.0900 Traffic Control Signs	331.000 DAY	_____.	_____.
0066	643.1050 Traffic Control Signs PCMS	28.000 DAY	_____.	_____.



Proposal Schedule of Items

Proposal ID: 20190312061 Project(s): 8590-23-71
Federal ID(s): WISC 2019187

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Table with 5 columns: Proposal Line Number, Item ID Description, Approximate Quantity and Units, Unit Price, Bid Amount. Rows include items like Traffic Control, Marking Line Epoxy, Construction Staking, Sawing Asphalt, Incentive IRI Ride, On-the-Job Training, and Special Repair/Prepare Foundation.



Proposal Schedule of Items

Proposal ID: 20190312061 Project(s): 8590-23-71

Federal ID(s): WISC 2019187

SECTION: 0001 Contract Items

Alt Set ID: Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0096	SPV.0170 Special 01. Reheating HMA Pavement Longitudinal Joints Special	694.000 STA	_____.	_____.
0098	SPV.0180 Special 01. Cold-In-Place Recycling (CIR) Pavement Partial Depth	223,702.000 SY	_____.	_____.
0100	SPV.0195 Special 01. Asphalt Stabilizing Agent	738.000 TON	_____.	_____.
0102	SPV.0195 Special 02. Salvaged Asphaltic Pavement Base	11,593.000 TON	_____.	_____.
0104	SPV.0195 Special 03. Salvaged Asphaltic Pavement Milling	11,593.000 TON	_____.	_____.
0106	460.2005 Incentive Density PWL HMA Pavement	21,883.000 DOL	1.00000	21,883.00
0108	460.2010 Incentive Air Voids HMA Pavement	27,515.000 DOL	1.00000	27,515.00
0110	SPV.0060 Special 01. HMA Pavement PWL Test Strip Volumetrics	1.000 EACH	_____.	_____.
0112	SPV.0060 Special 02. HMA Pavement PWL Test Strip Density	1.000 EACH	_____.	_____.
Section: 0001			Total:	_____.
			Total Bid:	_____.

