



Wisconsin Department of Transportation

Division of Transportation Systems Development

Bureau of Project Development
4822 Madison Yards Way, 4th Floor South
Madison, WI 53705

March 7, 2019

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NOTICE TO ALL CONTRACTORS:

**Proposal #61: 8590-23-71, WISC 2019 187
Bloomer - Bruce
SCL to USH 8
STH 40
Rusk County**

Letting of March 12, 2019

This is Addendum No. 02, which provides for the following:

Special Provisions:

Revised Special Provisions	
Article No.	Description
3	Prosecution and Progress

Added Special Provisions	
Article No.	Description
24	Cold-In-Place Recycling (CIR) Asphalt Pavement w/Higher Moisture and 3 Day Set Time., SPV.0180.02; Asphalt Stabilizing Agent, Item SPV.0195.01

Deleted Special Provisions	
Article No.	Description
9	Shaping Shoulders, Item 305.0500
18	Cold-In-Place Recycling (CIR) Pavement Partial Depth, Item SPV.0180.01; Asphalt Stabilizing Agent, Item SPV.0195.01

Schedule of Items:

Added Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
SPV.0180.02	Cold-In-Place Recycling (CIR) Asphalt Pavement w/Higher Moisture and 3 Day Set Time	SY	0	223,702	223,702
646.4520	Marking Line Same Day Epoxy – 4-Inch	LF	0	79,431	79,431
649.0105	Temporary Marking Line – 4-Inch	LF	0	138,738	138,738

Deleted Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
SPV.0180.01	Cold-In-Place Recycling (CIR) Asphalt Pavement	SY	223,702	-223,702	0

Plan Sheets:

Revised Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of changes to sheet)
4	Existing Typical Section (Modified Shoulder Width)
17	Finished Typical Section (Finished Typical Section Label)
18	Finished Typical Section (Modified Shoulder)
23	Finished Typical Section (Modified Shoulder)
32	Construction Details (Modified Cold-In-Place-Limits)
170	Miscellaneous Quantities (Added Marking Line Same Day & Temporary Marking Line Paint)
173	Miscellaneous Quantities (Replaced Cold-In-Place Recycling (CIR) Asphalt Pavement Bid Item with Cold-In-Place Recycling (CIR) Asphalt Pavement w/ Higher Moisture and 3 Day Set Time.

Added Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of why sheet was added)
17A	Existing Typical Section (Pavement Field Core Log) Recommended by the Pavement Section

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. 02

8590-23-71

March 7, 2019

Special Provisions

3. Prosecution and Progress.

Delete entire section titled Milling Cold-In-Place Recycling (CIR) Pavement Partial Depth and Overlay:

9. DELETED.

18. DELETED.

24. Cold-In-Place Recycling (CIR) Asphalt Pavement w/ Higher Moisture and 3 Day Set Time, Item SPV.0180.02; Asphalt Stabilizing Agent, Item SPV.0195.

A Description

- (1) This work consists of the milling, crushing, and screening (as necessary) of the existing HMA pavement to the width and depth specified on the plans. The processed material shall be blended with foamed asphalt stabilizing agent, water, and other additives as necessary, and required by the mix design, for placement and compaction of this mixture in accordance with the plans and specifications.

B Materials

B.1 Reclaimed Asphalt Pavement (RAP) Material

- (1) The RAP shall be milled from the existing roadway and processed in-place.
- (2) The RAP shall be free of contamination of base material, shoulder material, concrete, silt, clay, or other deleterious materials.
- (3) Rubberized crack filler, pavement markers, loop wires, fabric, or other materials shall be removed as observed from the roadway during the recycling process. Any residual materials shall be appropriately sized and homogenously blended with the RAP. No rubberized crack filler or fabric piece has any dimension exceeding a length of 4 inches.
- (4) The milled and processed material shall conform to the following gradation prior to addition of the stabilizing agent:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 ½" (37.5 mm)	100
1"	95 to 100

B.2 Stabilizing Agent

- (1) The asphalt stabilizing agent used for CIR Asphalt Pavement shall be Foam Asphalt.

B.2.1 Foamed Asphalt

- (1) Foamed asphalt shall be produced with a performance graded asphalt binder; without polymer modification; in accordance with Standard Specification 455.

- (2) Asphalt binder performance grade for foamed asphalt shall be PG 46-34 or PG 52-34
- (3) Asphalt binder shall be sufficiently heated to meet the mix design expansion and half-life criteria; not to exceed 375° F. The temperature of the Asphalt binder shall be maintained within $\pm 10^{\circ}$ F of the optimum foaming temperature as determined by the mix design.
- (4) Asphalt binder shall produce asphalt foam with a minimum expansion ratio of 8 and half-life of no less than 6 seconds.

B.2.2 Water

- (1) Water may be added to the RAP at the milling head and/or in a mixing chamber.
- (2) Water added to the RAP, used for foaming asphalt shall meet the requirements of Standard Specification 501.2.4.

B.3 Mixture Design

- (1) The contractor will be responsible for obtaining milled samples and/or cores for the project mix design. Core samples shall be obtained at a frequency of 0.5 lane-mile. Cores shall be obtained from the area to be recycled including shoulder. Samples obtained by coring should be enough to develop the mix design.
- (2) Samples for mix design obtained by milling shall be taken from at least 3 different locations directly from the area to be recycled.
- (3) Significant mixture differences in the pavement to be recycled may require additional sampling. All samples shall represent the entire depth of the layer to be recycled.
- (4) Develop and submit a material sampling plan to the engineer; for review with and approval by the Bureau of Technical Services Materials Management Section, Pavement Unit; 5 business days prior to obtaining milled and/or cored samples.
- (5) Material sampling prior to receipt of the engineers notice to proceed shall require submittal and approval of an Application/Permit to Work on Highway Right-of-Way (DT1812).
- (6) During material sampling operations; contractor insurance will be as specified in section 107 of the Standard Specifications; traffic control requirements will be as specified in sections 107 and 643 of the Standard Specifications and in the contract special provisions.
- (7) Develop and submit a Job Mix Formula (JMF) for approval 15 business days prior to the start of the CIR operation. The JMF will be developed according to the applicable portions of WisDOT Mix Design Method 1559, as described in WisDOT Construction Material Manual (CMM) 8.66.2; and conforming to the requirements of Table B.3. The JMF will be submitted to the engineer for review with and approval by the Bureau of Technical Services Materials Management Section, Pavement Unit. If differing material types are observed, samples shall be obtained at each differing material type location and a separate mix design shall be conducted for each material type.

Table B.3 – Minimum Mix Design Requirements

	Test Method	Specification	Criteria
Mix Design Requirements for Foam Asphalt	Gradation of RAP (Sieve Analysis of Aggregates)	WisDOT Laboratory Standard Method of Asphalt Mix Design (Method 1559); CMM 8-66	See Section B.1.(4)
	Bulk Specific Gravity of Compacted Samples		Report Only; Ndes=30
	Maximum Theoretical Specific Gravity		Report Only
	% Air Voids in Compacted Dense and Open Bituminous Paving Mixtures		Report Only
	Tensile Strength (Resistance of Compacted Mixture to Moisture) Dry, psi		Minimum 45
	Ratio (TSR), %		Minimum 0.70*
	RAP Coating Test	AASHTO T 59	Minimum Good
Minimum Virgin Asphalt Content		1.5%	
Foaming Properties	Foamed Asphalt Expansion Ratio		Minimum 8.0 Times
	Foamed Asphalt Half-life		Minimum 6.0 Seconds

*In some cases when the

recycling RAP with round aggregate or the RAP binder is softer, the dry strength and TSR ratio may not be achievable without a recycling additives, in such situations the TSR ratio may be reduced to 0.65, provided the dry tensile strength exceeds the minimum dry strength requirement.

- (8) The mix design JMF shall be the baseline measure for the rate of stabilizing agent application and water blended with the RAP to construct the CIR mixture. The mix design shall indicate the allowable tolerance for field adjustments for the stabilizing agent and/or water so as not to jeopardize the performance of the mix in regards to Table B.3, but allow the contractor to adjust the mix in response to field conditions.
- (9) The mix design report shall contain the following minimum information:
 - Gradation of RAP
 - Density, maximum specific gravity, air void content, indirect dry tensile strength, indirect wet (conditioned) tensile strength, and tensile strength ratio at each recycling agent content iteration (minimum of 4; inclusive of recommended moisture and stabilizing contents) and at the recommended moisture and stabilizing agent contents
 - Recommended water content range as a percentage of dry RAP
 - Optimum stabilizing agent content as a percentage of dry RAP
 - Stabilizing agent designation, PG grading of asphalt binder, supplier name and location, and certified test report.

- The Optimal foaming characteristics of the asphalt stabilizing agent during the mix design process shall be determined at a minimum of using three different percentage of foamed asphalt content, three different temperatures, and water content.
- Application means of recycling agent
- RAP coating test results
- Allowable tolerances for field adjustments for stabilizing agent and/or water.

B.4 Quality Management Program

B.4.1 Quality Control Plan

- (1) Submit a comprehensive written quality control plan to the engineer no later than 15 business days before beginning CIR activities. Construct the project as the plan provides.
- (2) Do not change the quality control plan without the engineer's review and acceptance. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:
 1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
 2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
 3. A list of suppliers for all stabilizing agents.
 4. A list of source locations for all water.
 5. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
 6. Location of the QC laboratory, retained sample storage, and other documentation.
 7. A summary of locations or quantities, selected randomly using ASTM Method D3665, to be tested under this provision.

B.4.2 Pre-CIR Construction Meeting

A minimum of 10 business days prior to the start of CIR construction, hold a pre-CIR construction meeting at a mutually agreed upon time and location. Present the submitted Quality Control Plan at the meeting. Attendance at the pre-CIR construction meeting is a mandatory for the project leader, quality control manager, project inspection and testing staff, all appropriate contractor personnel involved in the sampling, testing, and quality control including subcontractors, and the engineer or designated representatives.

B.4.3 Personnel

- (1) Provide HTCP Nuclear Density Technician I, or ACT certified technician, for performance of field density and field moisture content testing.
- (2) Provide HTCP Aggregate Technician I, for aggregate sampling and aggregate sieve analysis.
- (3) Provide HTCP Hot Mix Asphalt, Mix Design, (HMA-MD) certified technician, for JMF preparation and report submittal.
- (4) If an ACT is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

B.4.4 Equipment

- (1) Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and applicable AASHTO and/or ASTM specifications and maintain a calibration record at the laboratory.
- (2) Furnish nuclear gauges from the department's approved product list at:
<http://www.dot.wisconsin.gov/business/engrserv/approvedprod.htm>
- (3) Ensure that the nuclear gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.
- (4) Conform to ASTM D 6938 and CMM 8.15 for density testing and gauge monitoring methods.

B.4.5 Quality Control (QC) Testing

- (1) Roadway production lots will be defined as 4000 lane feet. Each roadway production lot will consist of two- 2000 lane feet sublots.
- (2) Gradation samples shall be taken at random location at a minimum frequency of 1 per lot of production. Gradation samples shall be taken representative of the full recycled depth. Samples may be obtained prior to or after addition of stabilizing agent depending on the type of CIR equipment used in the project. For each sample report the gradation of the material, determined in accordance with AASTHO T27, for the Number 4 (4.75mm) sieve and larger.
- (3) Conduct and report density testing at a minimum frequency of 3 individual random tests per subplot.
- (4) Conduct and report mill depth checks at random location at a minimum frequency of 1 per subplot.
- (5) Measure and report stabilizing agent foaming properties (i.e. half-life and expansion ratio) of each new tanker load from equipment's test nozzle or recycling unit. If the foaming properties don't meet the requirement as specified in Table B.3, take the necessary corrective action by adjusting the temperature of the stabilizing agent and / or foaming water content to obtain the foaming properties requirement stated in Table B.3.
- (6) Report stabilizing agent temperature at a minimum one per each new tanker load.
- (7) Report stabilizing agent and mixing and foaming water application rate at random location at a minimum frequency of 1 per subplot.
- (8) Perform startup QC testing (milling depth, stabilizing agent, and foaming/mixing water application rate) within the first 500 feet at the beginning of each day production.
- (9) The contactor shall provide a Daily Inspection Report to the engineer summarizing the: daily beginning and ending stations, applicable mix design, stabilizing agent temperature, stabilizing agent foaming properties, subplot test (mill depth check, density test, and application rate) locations and values, lot roadway sample locations, and any adjustments to the application rate of the stabilizing agent or water.
- (10) If at any time during production, stabilizing agent adjustments for mixing and placement exceed the allowable field adjustment limits defined in B.3. (8) or reduce the stabilizing agent application rate below the 1.5% mix design minimum specified in Table B.3, based on a single test or meter adjustment, from the Job Mix Formula (JMF) value, re-evaluation of the entire process must be completed. Approval by the engineer granted before production can resume.

B.4.6 Department Testing

B.4.6.1 General

- (1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within 5 business days after the department obtains the sample.

B.4.6.2 Quality Verification (QV) Testing

- (1) The department will have a technician, or ACT working under a technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in B.4.3 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.
- (2) The department will conduct QV tests at the minimum frequency of 10% of the required QC tests. The department will observe contractor's QC stabilizing agent foaming property test.
- (3) The department will locate gradation, mill depth check, roadway gradation sample, and density test samples, at locations independent of the contractor's QC work, collecting one sample at each QV location. The department will split each QV sample, test half for QV, and retain the remaining half for 7 calendar days.
- (4) The department will conduct QV tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.
- (5) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If QV test results are nonconforming, re-evaluation of the entire process must be completed before production can resume.

B.4.6.3 Independent Assurance (IA)

- (1) Independence assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing, including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:
 1. Split sample testing.
 2. Proficiency sample testing.
 3. Witnessing sampling and testing.
 4. Test equipment calibration checks.
 5. Requesting that testing personnel perform additional sampling and testing.
- (3) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in B.4.6.4.

B.4.6.4 Dispute Resolution

- (1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor shall review the data, examine data reduction and analysis methods, evaluate sampling and testing

methods/procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

- (2) Production test results, and results from other process control testing, may be considered when resolving a dispute.
- (3) If project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product or work, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

C Construction

C.1 General

- (1) Unless the contract provides otherwise, keep the road open to traffic during construction.
- (2) Perform CIR operations; only between the dates of May 15 and September 15; when the air temperature approximately 3 feet above grade, in shade, and away from artificial heat sources is above 50°F and when the nighttime ambient air temperature is above 45°F the night prior and following; unless approved otherwise by the engineer.
- (3) Do not perform CIR operations during inclement weather; such as rain or fog; that will not allow proper mixing, placing, and/or compacting of the mixture.
- (4) CIR operations and recycled pavement curing shall be completed to allow adequate time for placement of surfacing in accordance with calendar requirements of Standard Specification section 450.3.2.1.

C.2 Equipment

- (1) Equipment used for CIR shall be subject to approval by the engineer.
- (2) Tankers supplying hot stabilizing agent components shall be equipped to constantly monitor temperature within the tank.

C.2.1 Milling Machine

- (1) The primary Milling units; not inclusive of pre-mill/wedge-cut milling units; shall be capable of milling the existing pavement at a minimum width of not less than 12.5 feet and to the depth shown on the plans, specified in the contract or directed by the engineer. A smaller milling machine may be used to mill paved shoulders and miscellaneous areas to increase the recycle width.
- (2) The units shall be equipped with automatic depth control, shall maintain constant cutting depth and width, uniform grade, and uniform slope.
- (3) For processes not incorporating additional screening, sizing, or crushing; the milling unit shall be capable of producing RAP sized as specified in B.1.
- (4) Use of a heating device to soften the pavement is not permitted.

C.2.2 Screening, Crushing, and Sizing Equipment

- (1) Processes requiring additional screening, sizing, or crushing, shall include a unit with a closed circuit system capable of continuously returning oversized material to the crusher until all milled

material entering the screening, crushing, or sizing equipment meets the gradation requirements of section B.1.

C.2.3 Mixing Unit

- (1) Processed RAP shall be mixed with the stabilizing agent and water in a mixing unit; defined as the milling machine cutter housing, a separate mixing chamber, or a pugmill.
- (2) The asphalt stabilizing agent shall be applied; using a computer controlled additive system; uniformly at the predetermined application rate. The metering of the stabilizing agent must be monitored through a calibrated pump providing a continuous readout of quantities.
- (3) The additive system shall contain separate pumping systems for adding stabilizing agent and water. Each system shall have an inspection or test nozzle for stabilizing agent and/or water sampling.
- (4) The system shall be capable of producing a uniformly mixed homogeneous recycled pavement mixture.

C.2.4 Paving Equipment

- (1) The placement and shaping of the recycled pavement mixture shall be completed using a self-propelled paver or screed integral to the recycling equipment meeting the requirements of Standard Specification section 450.3.1.4; revised to exclude the requirement of an activated screed or strike-off assembly.
- (2) The screed shall not be heated.
- (3) If utilizing a self-propelled paver, the material shall be transferred directly into the paver hopper from the recycling equipment or with a pick-up device. When a pick-up device is used, the entire windrow shall be removed from the milled surface and transferred to the paver hopper.

C.2.5 Compaction Equipment

- (1) Compaction equipment shall be self-propelled and meet the requirements of Standard Specification 450.3.1.5.
- (2) The number, weight, and types of rollers shall be as necessary to achieve the specified compaction. At a minimum, the following rollers shall be used:
 1. At least one self-propelled double drum vibratory steel roller with a minimum weight of not less than 10 tons.
 2. At least one self-propelled pneumatic-tired roller with a minimum weight of not less than 22 tons.

C.3 Constructing CIR

C.3.1 Preparation

- (1) After any contract required surface milling, and immediately prior to commencing CIR operations, remove from the roadway, and up to one inch below the milled surface, any vegetation, standing water, loose crack filler, and any other deleterious materials.
- (2) Inspect the pavement surface, after any contract required surface milling, for areas of yielding subgrade. Yielding areas will be repaired prior to CIR operations and paid for in accordance with the Prepare Foundation for CIR Pavement SPV item.
- (3) Blade the existing base aggregate roadway shoulders away from the asphaltic surface edge to minimize contamination of the CIR pavement.

C.3.2 Processing and Placement of CIR Material

- (1) Mill the existing pavement to the required depth and width indicated on the plans.

- (2) Further process the milled RAP material as necessary by crushing, screening, and/or sizing to the gradation requirements of B.1.
- (3) Blend the RAP material with the mix design specified proportions of stabilizing agent and water; produce a uniform and homogeneous recycled mixture.
- (4) Spread the recycled mixture to the grade, elevations, and slopes specified on the plans; avoiding tearing or scarring of the recycled pavement surface.
- (5) Ensure proper material transfer, handling, and spreading to prevent material segregation. If segregation does occur behind the paver, the contractor shall take immediate steps to correct the problem. Corrective action may include adjusting the forward speed of the paving operation and adjusting the follow of material to paver. The contractor shall make adjustments until a satisfactory end-product has been obtained, as determined by the Engineer.
- (6) Longitudinal joints between successive CIR operations shall be overlapped a minimum of 3 inches. Consideration should be given to the amount of stabilizing agent used in the overlapping pass. Adjust the width of the stabilizing agent application so that the overlapped CIR mixtures maintain the target stabilizing agent content. Transverse joints between successive CIR operations during the same day of placement shall be overlapped a minimum of 2 feet. The beginning of each day's recycling operation shall overlap the end of the preceding recycling operation a minimum of 50 feet unless otherwise directed by the engineer.

C.4 Compaction

C.4.1 Control Strip Construction

- (1) On the first day of production, construct a control strip to identify the target wet density for the CIR layer using a nuclear moisture-density gauge in backscatter measurement. Nuclear gauge test duration in backscatter measurement shall be one minute. The control strip construction and density testing will occur under the direct observation and/or assistance of the department QV personnel.
- (2) Unless the Engineer approves otherwise, construct control strips to a minimum dimension of 500 feet long and one full lane width.
- (3) Completed control strips may remain in-place to be incorporated into the final roadway cross-section.
- (4) Construct additional control strips, at a minimum, when:
 1. The CIR layer thickness changes in excess of 2.0 inches.
 2. The percent of target wet density is less than 95% or exceeds 105.0%; and is outside the range of the 10 random measurements defining the control strip; on two consecutive sublots.
 3. If there is a significant change in mix proportions, weather conditions, compaction equipment's or other controlling factors, the Engineer may require construction of new control strips to check target density.
- (5) Construct control strips using equipment and methods representative of the operations to be used for constructing the CIR layer.
- (6) After compacting the control strip with a minimum of 3 passes, mark and take wet density measurements using nuclear moisture-density gauge in backscatter mode at 3 random locations

across the control strip, at least 1 ½ feet from the unrestricted edge of the CIR layer. Subsequent density measurements will be taken at the same 3 locations.

- (7) After each subsequent pass of compaction equipment over the entirety of the control strip, take wet density measurements at the 3 marked locations. Continue compacting and testing until the increase in density measurements of individual locations is less than 2.0 lb/ft³, or the density measurements begin to decrease.
- (8) Upon completion of control strip compaction, take 10 randomly located wet density measurements within the limits of the control strip, at least 1 ½ feet from the unrestricted edge of the CIR layer. The final measurements recorded at the 3 locations under article paragraph (6) of this section may be included as 3 of the 10 measurements. Average the 10 measurements to obtain the control strip target density.

C.4.2 Compaction Requirements

- (1) Compact the CIR layer to a required density of 95% of the target density. Density acceptance shall be based on the average subplot measurements results.

C.5 Surface Requirements

- (1) Test the pavement surface at regular intervals, and engineer selected locations, using a 10-foot straightedge or other engineer specified device.
- (2) The engineer may direct the repair of surface deviations greater than 1/2 inch between two surface contact points. High points shall be corrected by reworking, rerolling, trimming, milling, or grinding. Depressions may be corrected by reworking or have a tack coat applied and be filled with HMA immediately prior to placement of the surface treatment.

C.6 Maintaining the Work

- (1) After compaction is complete, the contractor will determine when the CIR is stable to open to traffic.
- (2) After opening to traffic, and prior to placing a surface treatment, the surface of the recycled pavement shall be maintained in a condition suitable for safe movement of traffic.
- (3) The recycled pavement surface shall be protected and maintained from standing water, deleterious substances, and/or other damage.
- (4) Any damage to the recycled pavement shall be repaired by the contractor prior to placement of the upper layer at no additional cost to the department; unless otherwise specified in the "Preparation of Foundation for HMA Layer" SPV item.

C.9 Curing and Surfacing

C.9.1 Curing

- (1) Application of a surface treatment or leveling/lower layer of HMA will not be allowed until the moisture content of the CIR layer is not more than **3.5% and at least 3 days have passed since placing the CIR layer.**
- (2) If the moisture content of the CIR layer does not reduce to **3.5%**; the surface treatment may be applied after the change in moisture content is less than 0.30 percentage points for three consecutive calendar days.
- (3) The final surfacing or leveling/lower layer shall be placed on the CIR layer within **5** calendar days **once** the CIR layer is **started** and initially achieves allowable moisture content.

- (4) Conduct and report moisture content of the finished CIR layer at minimum from 3 random locations for each day of placement. The three random locations shall represent each day of placement. Moisture content acceptance shall be based on the average of each day placement. The department will verify the contractor's moisture content values by testing a moisture content split sample at a frequency of 10% of the contractor's moisture testing.
- (5) The moisture content shall be determined from a sample retrieved over the full-depth of the CIR layer by weighting and drying to a constant weight using an oven at 230° ±9°F. Moisture content testing by nuclear density shall only be used for informational purposes not for acceptance. **The engineer can direct moisture testing if they feel the contractor is not testing on a regular basis.**

C.9.2 Tack Coat

- (1) The surface shall be prepared and tack coat applied meeting the requirements of Standard Specification section 455.3.2.
- (2) Tack coat application rate shall be 0.05 to 0.07 gal/SY. The engineer may adjust the tack coat application rate based on surface conditions.
- (3) Use only emulsified asphalt material as tack coat specified in Standard Specification Section 455.2.5. Paving grade asphaltic tack coat shall not be used.

C.9.3 Surfacing

- (1) Surfacing materials, equipment, and construction methods shall be in accordance with the applicable sections of the Standard Specifications or contract special provisions.

D Measurement

- (1) The department will measure the Asphalt Stabilizing Agent incorporated into the work by the ton; as metered through a calibrated pump, or through delivered ticket quantity.
- (2) The department will measure the Cold-In-Place (CIR) Asphalt Pavement bid item as acceptably completed by the Square Yard (SY).

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0195.01	Asphalt Stabilizing Agent	Ton
SPV.0180.02	Cold-In-Place Recycling (CIR) Asphalt Pavement	SY

- (2) Payment is full compensation for measured quantities as specified above; all material including mixing and milling water; equipment necessary for milling and sizing, mixing, paving, compacting the completed CIR; and for furnishing all labor, tools, and incidentals necessary to the conduct mix design; including sampling and sampling traffic control; mill the existing pavement for recycling, size the milled RAP, inject and mix the RAP with the stabilizing agent, place or pave, compact, and maintain the completed CIR.
- (3) Preparation work and repair of yielding areas will be paid for under the Prepare Foundation for CIR Pavement and Prepare Foundation for HMA Layer SPV items.

- (4) Removing or blading away of the adjacent shoulder material will be paid for under the Standard Specifications Shaping Shoulders (305.0500).
- (5) Surfacing treatments, including tack coat, will be constructed and paid for under the applicable specifications and contract items.

CIR(11-7-16) and DCH edits (5-15-18).docx

Schedule of Items

Attached, dated March 7, 2019, are the revised Schedule of Items Page 4.

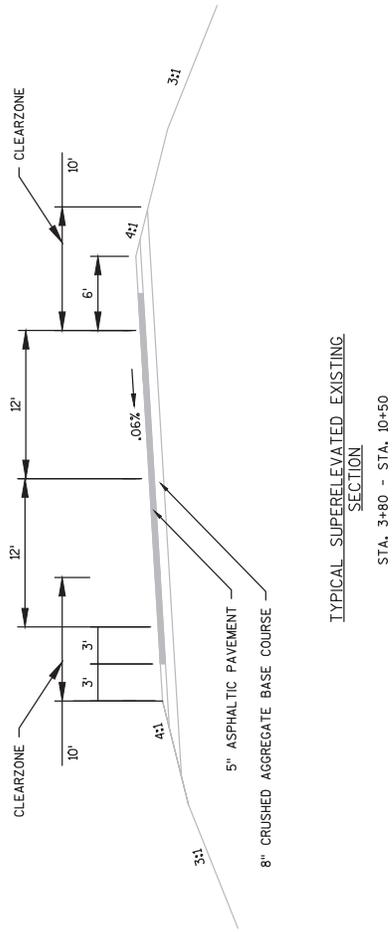
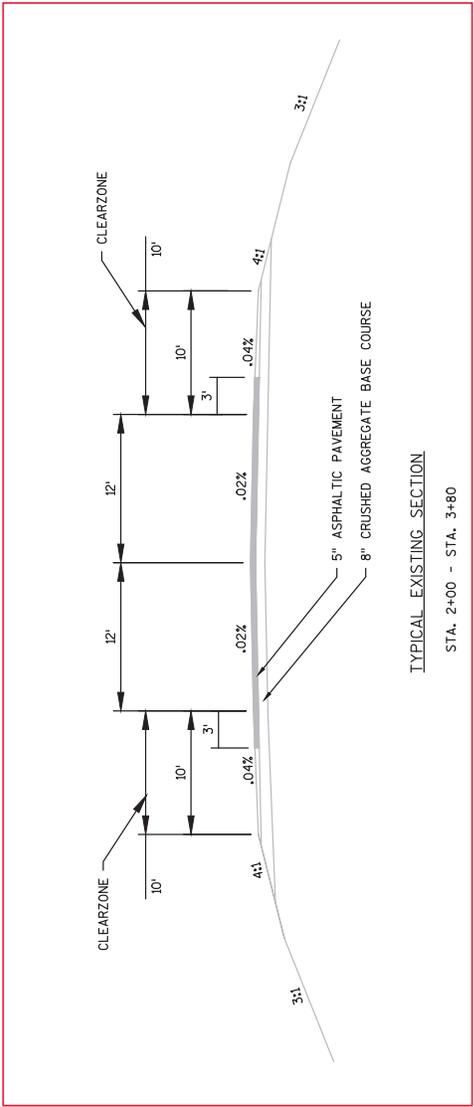
Plan Sheets

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

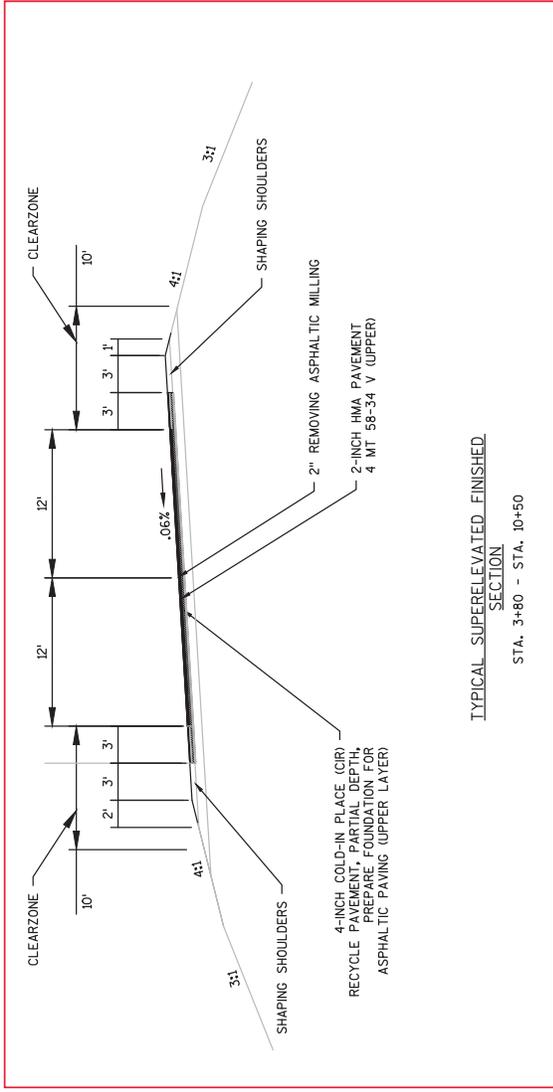
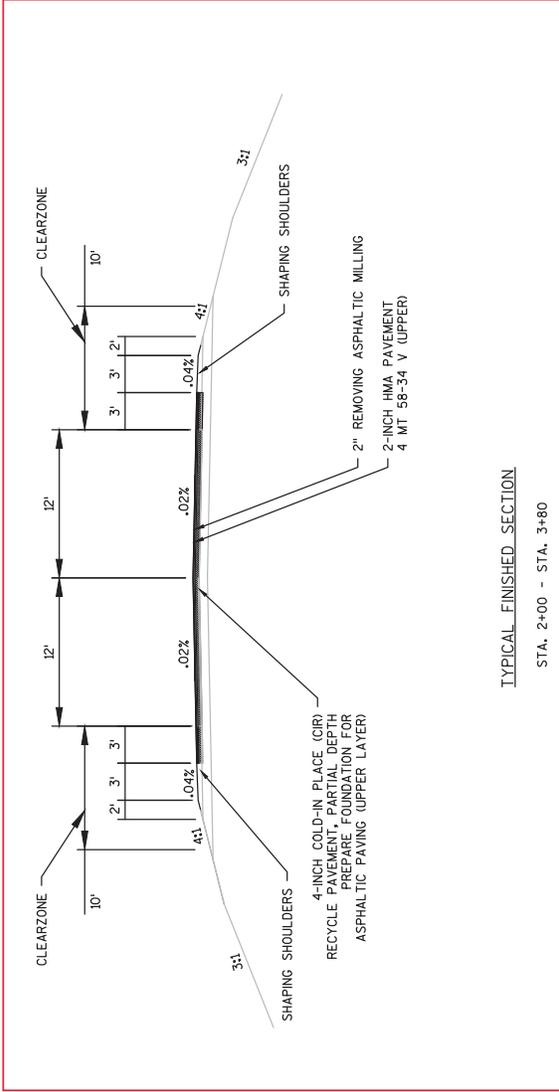
Revised: 4, 17, 18, 23, 32, 170, and 173

Added: 17A

END OF ADDENDUM



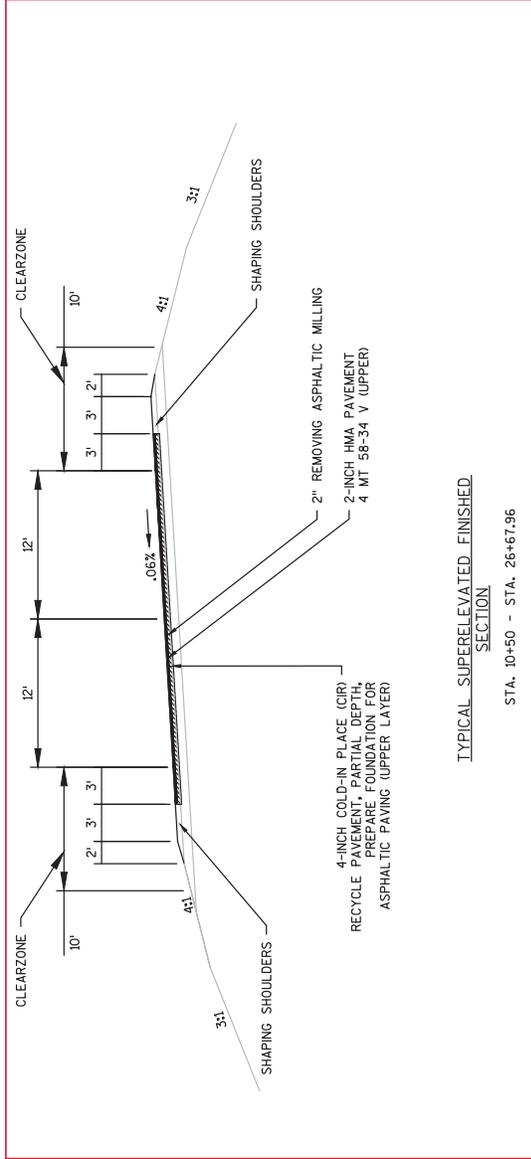
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Revised Sheet 4
March 7, 2019



Addendum No. 02
ID 8590-23-71
Revised Sheet 17
March 7, 2019

Addendum No. 02
ID 8590-23-71
Added Sheet 17A
March 7, 2019

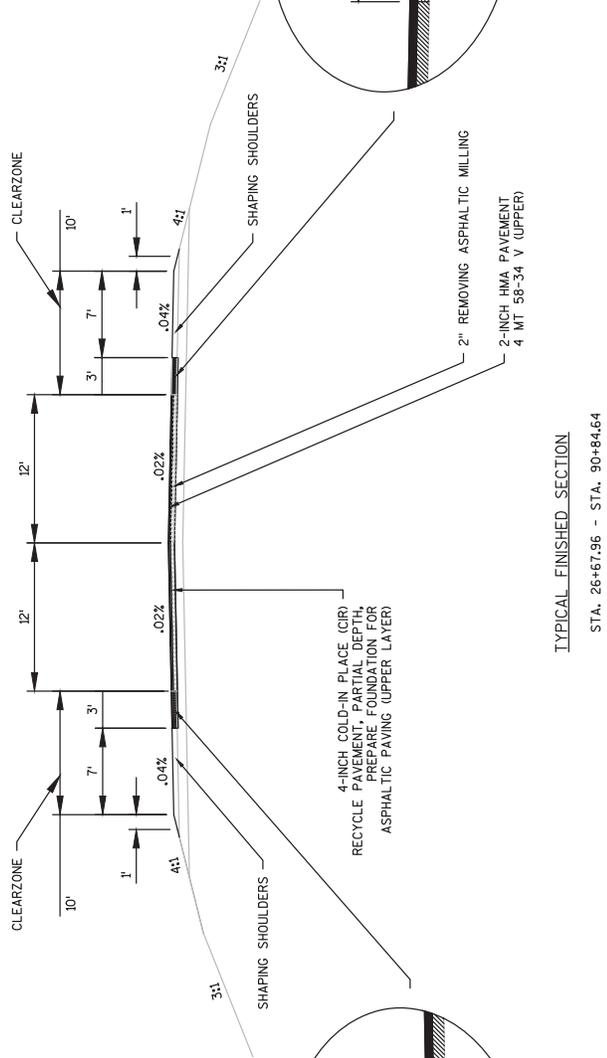
Core No.	Station	Offset FT	Location Left or Right	Core Size Inches	Core Diameter Inches	Base	Pavement Type
C-1	8+60	8	LT	6	5	Base	HMA
C-2	26+70	3	RT	12	5	Base	HMA
C-3	39+90	3	LT	7	5	Base	HMA
C-4	53+10	7	RT	10.25	5	Base	HMA
C-5	66+30	8	LT	6	5	Base	HMA
C-6	79+50	3	RT	5.5	5	Base	HMA
C-7	92+70	3	LT	10	5	Base	HMA
C-8	105+80	6	RT	5.5	5	Base	HMA
C-9	119+00	6	LT	13	5	Base	HMA
C-10	132+30	3	RT	10.5	5	Base	HMA
C-11	145+50	3	LT	12	5	Base	HMA
C-12	156+30	3	RT	10.5	5	Base	HMA
C-13	169+60	3	LT	14.75	5	Base	HMA
C-14	183+00	5	RT	10	5	Base	HMA
C-15	196+20	8	LT	8	5	Base	HMA
C-16	209+40	8	RT	9.75	5	Base	HMA
C-17	222+60	3	LT	9.5	5	Base	HMA
C-18	235+80	3	RT	9	5	Base	HMA
C-19	249+00	7	LT	4.5	5	Base	HMA
C-20	262+20	7	RT	10.25	5	Base	HMA
C-21	275+40	3	LT	7	5	Base	HMA
C-22	288+60	3	RT	7	5	Base	HMA
C-23	301+80	7	LT	7	5	Base	HMA
C-24	315+00	8	RT	10	5	Base	HMA
C-25	328+40	3	LT	9.75	5	Base	HMA
C-26	343+60	3	RT	5.25	5	Base	HMA
C-27	354+80	6	LT	7	5	Base	HMA
C-28	368+00	7	RT	8.25	5	Base	HMA
C-29	381+20	4	LT	9.75	5	Base	HMA
C-30	394+40	3	RT	10	5	Base	HMA
C-31	407+60	8	LT	11.5	5	Base	HMA
C-32	420+90	9	RT	4.5	5	Base	HMA
C-33	330A+00	4	LT	6.5	5	Base	HMA
C-34	343A+10	6	RT	7.25	5	Base	HMA
C-35	356A+30	7	LT	12	5	Base	HMA
C-36	369A+50	7	RT	15.5	5	Base	HMA
C-37	382A+70	3	LT	5	5	Base	HMA
C-38	395A+90	3	RT	7.25	5	Base	HMA
C-39	409A+10	7	LT	7.75	5	Base	HMA
C-40	422+20	8	RT	6	5	Base	HMA
C-41	435+40	3	LT	12	5	Base	HMA
C-42	448+60	3	RT	9.25	5	Base	HMA
C-43	461+80	7	LT	10.5	5	Base	HMA
C-44	475+00	8	RT	10.5	5	Base	HMA
C-45	488+20	4	LT	8	5	Base	HMA
C-46	501+40	3	RT	8.5	5	Base	HMA
C-47	514+60	7	LT	5.75	5	Base	HMA
C-48	527+90	7	RT	6.25	5	Base	HMA
C-49	541+10	3	LT	8.5	5	Base	HMA
C-50	554+30	3	RT	4.75	5	Base	HMA
C-51	567+50	6	LT	6.75	5	Base	HMA
C-52	580+70	8	RT	5	5	Base	HMA
C-53	593+90	14	LT	5.5	5	Base	HMA



TYPICAL SUPERELEVATED FINISHED SECTION

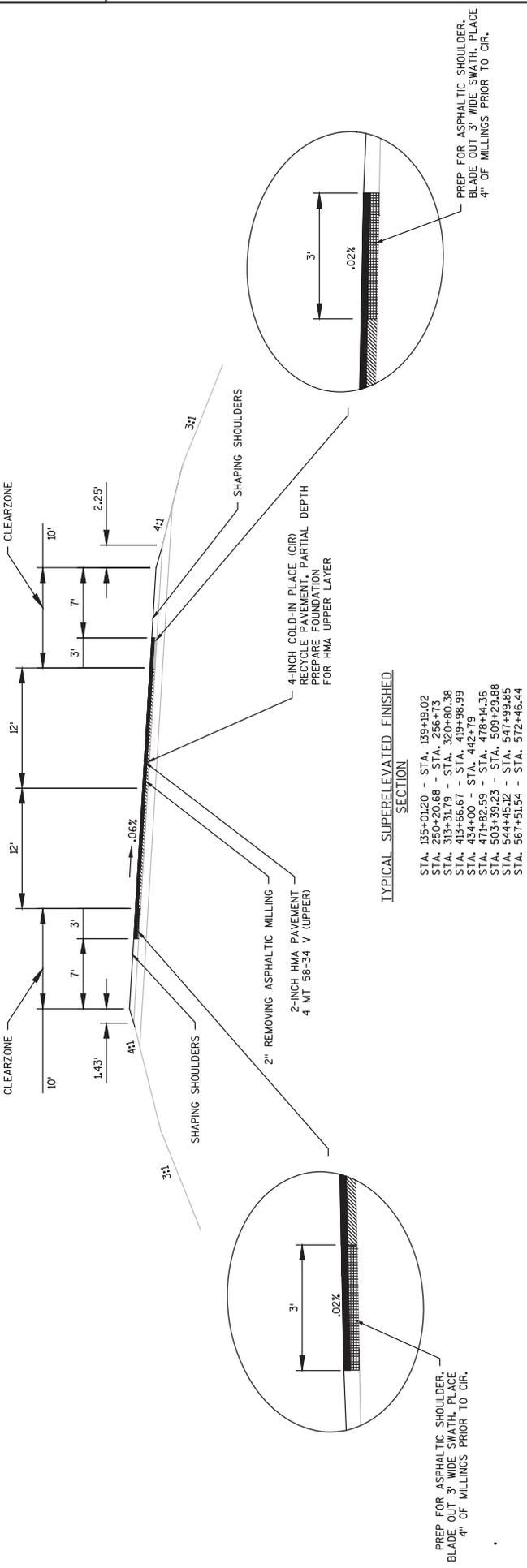
STA. 10+50 - STA. 26+67.96

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TYPICAL FINISHED SECTION

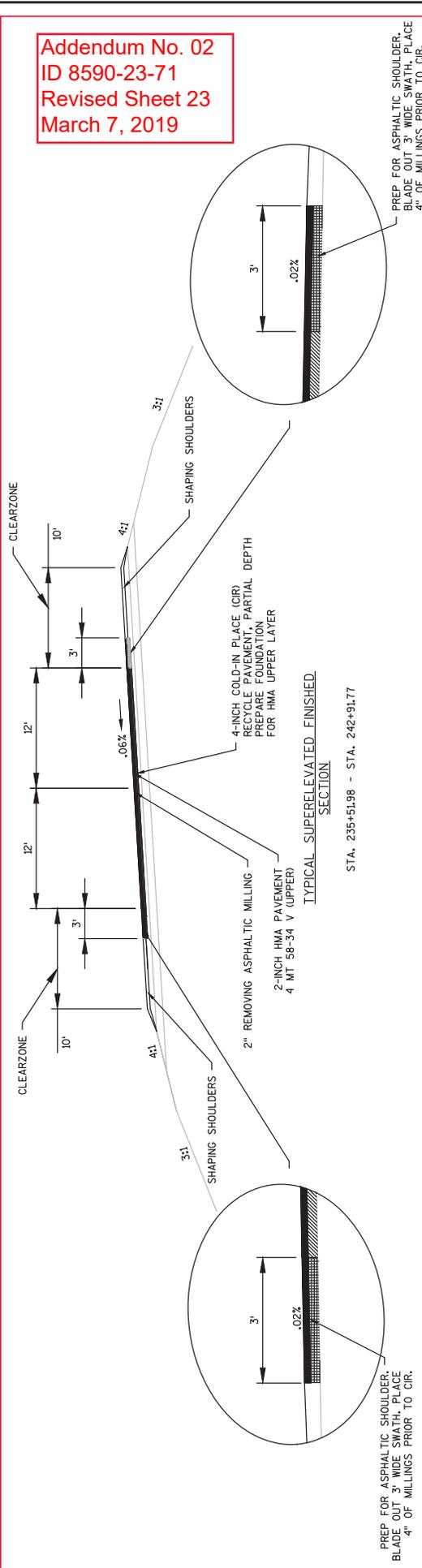
STA. 26+67.96 - STA. 90+84.64



TYPICAL SUPERELEVATED FINISHED SECTION

- STA. 135+01.20 - STA. 139+19.02
- STA. 250+20.68 - STA. 256+73
- STA. 313+31.79 - STA. 320+80.38
- STA. 413+66.67 - STA. 419+98.99
- STA. 434+00.00 - STA. 442+79
- STA. 471+82.93 - STA. 476+45.86
- STA. 501+49.93 - STA. 507+99.88
- STA. 544+45.12 - STA. 547+99.88
- STA. 567+51.54 - STA. 572+46.44

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March 7, 2019



TYPICAL SUPERELEVATED FINISHED SECTION

- STA. 235+51.98 - STA. 242+91.77

MARKING LINE EPOXY 4-INCH CONT'D

CATEGORY	STATION	TO	STATION	LOCATION	646.1020 LF	REMARKS
0010	56+25	-	56+00		1750	SOLID (YELLOW)
0010	56+00	-	569+65		581	SKIP-SOLID (YELLOW)
0010	569+65	-	581+00		2270	SOLID (YELLOW)
0010	581+00	-	590+50		1188	SOLID-SKIP (YELLOW)
0010	590+50	-	611+40		523	SKIP (YELLOW)
0010	611+40	-	629+25		2231	SKIP-SOLID (YELLOW)
0010	629+25	-	636+00		169	SKIP (YELLOW)
0010	636+00	-	644+50		1063	SKIP-SOLID (YELLOW)
0010	644+50	-	655+65		2230	SOLID (YELLOW)
0010	655+65	-	664+40		1094	SOLID-SKIP (YELLOW)
0010	664+40	-	667+00		65	SKIP (YELLOW)
0010	667+00	-	673+35		794	SKIP-SOLID (YELLOW)
0010	673+35	-	696+35		4600	SOLID (YELLOW)
					18556	SUBTOTAL 0010
					216533	TOTAL 0010

MARKING LINE EPOXY 8-INCH

CATEGORY	STATION	LOCATION	646.3020 LF	REMARKS
0010	176+08	LT		CTH D WEST
0010	176+08	RT		CTH D EAST
0010	696+10			USH 8 - STH 40 Intersection
			61	TOTAL 0010

MARKING LINE SAME DAY EPOXY 4-INCH

CATEGORY	STATION	TO	STATION	LOCATION	646.4520 LF	REMARKS
0010	2+00	-	696+35	PROJECT	79431	SURFACE LAYER - YELLOW
				TOTAL 0010	79431	

TEMPORARY MARKING LINE PAINT 4-INCH

CATEGORY	STATION	TO	STATION	LOCATION	649.0105 LF	REMARKS
0010	2+00	-	696+35	PROJECT	69369	MILLED SURFACE - YELLOW
0010	2+00	-	696+35	PROJECT	69369	CIR - YELLOW
				TOTAL 0010	138738	

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PROJECT: 8590-23-71 HWY: STH 40 COUNTY: RUSK MISCELLANEOUS QUANTITIES SHEET: 170 E

EXCEL FILE NAME: N:\PDS\PROJECTS\LE1\8590-23-71\ESTIMATE\8590-23-71.XLSX PLOT DATE: 12/12/2018 10:47:21 AM PLOT BY: AARON CHRIST PLOT SCALE: NONE

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SPECIAL 01. COLD-IN-PLACE RECYCLING (CIR) ASPHALT PAVEMENT W/ HIGHER MOISTURE AND 3 DAY SET TIME

CATEGORY	STATION	TO	STATION	LOCATION	SPV. 0180.01 SY	REMARKS
0010	2+00	-	117+07		30686	
0010	117+47	-	339+66		59252	
0010	340+52	-	670+00	LT	87862	shoulder
0010	2+00	-	26+57	RT	819	shoulder
0010	2+00	-	10+00		267	
0010	10+00	-	17+16	RT	239	shoulder
0010	17+49	-	32+38	RT	496	
0010	26+57	-	41+11	LT	485	shoulder
0010	32+56	-	41+14	RT	286	shoulder
0010	41+32	-	66+74	RT	847	shoulder
0010	41+35	-	98+25	LT	1897	shoulder
0010	66+94	-	102+07	RT	1171	shoulder
0010	98+56	-	117+47	LT	630	shoulder
0010	102+35	-	112+61	RT	342	shoulder
0010	112+33	-	117+07	RT	158	shoulder
0010	117+47	-	129+01	LT	769	shoulder
0010	117+47	-	176+39	RT	1964	shoulder
0010	129+01	-	137+28	LT	276	shoulder
0010	137+68	-	175+55	LT	1262	shoulder
0010	175+82	-	203+68	LT	929	shoulder
0010	176+62	-	232+43	RT	1860	shoulder
0010	203+68	-	218+89	LT	1014	shoulder
0010	218+89	-	232+43	LT	451	shoulder
0010	231+61	-	287+15	LT	1851	shoulder
0010	233+05	-	287+56	RT	1817	shoulder
0010	287+36	-	317+56	LT	1007	shoulder
0010	287+75	-	339+67	RT	1731	shoulder
0010	317+74	-	339+66	LT	731	shoulder
0010	340+52	-	352+99	LT	416	shoulder
0010	340+52	-	353+66	RT	438	shoulder
0010	353+15	-	425+88	LT	2424	shoulder
0010	353+98	-	403+82	RT	1661	shoulder
0010	404+01	-	416+58	RT	419	shoulder
0010	416+58	-	434+76	RT	1212	shoulder
0010	426+09	-	468+05	LT	1399	shoulder
0010	433+82	-	438+40	RT	153	shoulder
0010	438+53	-	443+87	RT	178	shoulder
0010	444+10	-	515+82	RT	2391	shoulder
0010	468+33	-	557+50	LT	2972	shoulder
0010	516+08	-	646+60	RT	4351	shoulder
0010	557+83	-	577+38	LT	652	shoulder
0010	577+68	-	670+00	LT	3077	shoulder
0010	646+94	-	661+80	RT	495	shoulder
0010	661+39	-	663+76	RT	158	shoulder
0010	663+76	-	670+00	RT	208	shoulder
TOTAL 0010					223702	

MISCELLANEOUS QUANTITIES

PROJECT: 8590-23-71

HWY: STH 40

COUNTY: RUSK

PLOT DATE: 12/12/2018 10:47:21 AM

PLOT BY: AARON CHRIST

PLOT SCALE: NONE

SHEET: 173

E

EXCEL FILE NAME: N:\PBS\PROJECTS\LE1\8590-23-71\ESTIMATE\ESTIMATE\8590-23-71.PPTX
POWERPOINT FILE NAME: N:\PBS\PROJECTS\LE1\8590-23-71\ESTIMATE\8590-23-71.PPTX



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	_____.	_____.
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	_____.	_____.
0114	646.4520 Marking Line Same Day Epoxy 4-Inch	79,431.000 LF	_____.	_____.
0116	649.0105 Temporary Marking Line Paint 4-Inch	138,738.000 LF	_____.	_____.
0118	SPV.0180 Special 02. Cold-In-Place (CIR) Asphalt Pavement w/ Higher Moisture and 3 Day Set Time	223,702.000 SY	_____.	_____.
Section: 0001			Total:	_____.
			Total Bid:	_____.

