



Wisconsin Department of Transportation

Division of Transportation Systems Development

Bureau of Project Development
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October 27, 2021

NOTICE TO ALL CONTRACTORS:

Proposal #27: 1610-11-70, WISC 2022044
Park Falls - Mellen
Morse Road to Jefferson Avenue
STH 13
Ashland County

Letting of November 9, 2021

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

Special Provisions:

Added Special Provisions	
Article No.	Description
19	Prepare Foundation for CIR Base Layer Project 1610-11-70, Item 211.0700.S.01
20	Base Repair for CIR Layer, Item 211.0800.S.
21	Cold In-Place Recycling (CIR) Asphalt Base Layer, Item 327.1000.S; Asphalt Stabilizing Agent, Item 455.0770.S.

Deleted Special Provisions	
Article No.	Description
16	Base Repair for CIR Pavement, Item SPV.0035.01.
17	Prepare Foundation for HMA Upper Layer Project 1610-11-70, Item SPV.0060.01.
18	Cold-In-Place Recycling (CIR) Pavement Partial Depth, Item SPV.0180.01; Asphalt Stabilizing Agent, Item 455.0770.S.

Schedule of Items:

Added Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
211.0700.S	Prepare Foundation for CIR Base Layer 1610-11-70, Item 211.0700.S.01	Each	0	1	11
211.0080.S	Base Repair for CIR Layer, Item 211.0800.S.	CY	0	30	30
327.1000.S	Cold In-Place Recycling (CIR) Asphalt Base Layer, Item 327.1000.S	Ton	0	142,640	142,640

Deleted Bid Item Quantities					
Bid Item	Item Description	Unit	Old Quantity	Revised Quantity	Proposal Total
SPV.0035.01	Base Repair for CIR Pavement, Item SPV.0035.01.	CY	30	-30	0
SPV.0060.01	Prepare Foundation for HMA Upper Layer Project 1610-11-70, Item SPV.0060.01.	Each	1	-1	0
SPV.0180.01	Cold-In-Place Recycling (CIR) Pavement Partial Depth, Item SPV.0180.01	Ton	142,640	-142,640	0

Plan Sheets:

Revised Plan Sheets	
Plan Sheet	Plan Sheet Title (brief description of changes to sheet)
12	Miscellaneous Quantities
13	PWL Table

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. 01

1610-11-70

October 27, 2021

Special Provisions

16. DELETED

17. DELETED

18. DELETED

19. Prepare Foundation for CIR Base Layer Project 1610-11-70, Item 211.0700.S.01.

A Description

This special provision describes the preparation of foundation for work required prior to Cold-In-Place Recycling (CIR) in accordance to standard spec 211 and as hereinafter provided.

B (Vacant)

C Construction

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.

D Measurement

The department will measure Prepare Foundation for CIR Pavement as each individual project, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
211.0700.S.01	Prepare Foundation for CIR Pavement 1610-11-70	EACH

Replace standard spec 211.5.1 (4) with the following:

(4) Payment is full compensation for brooming and crack fill removal.

The department will pay separately for the following work associated with yielding areas under this item under the following contract items:

- Base Repair for CIR Layer.

Stp-211-020 (20191121)

20. Base Repair for CIR Layer, Item 211.0800.S.

A Description

This special provision describes base repair for Cold In-Place Recycling (CIR) layer in accordance with standard spec 211, and as hereinafter provided.

B (Vacant)

C Construction

After any contract required surface mill, the engineer and contractor shall visually inspect the milled surface for yielding areas.

Yielding areas will then be repaired prior to the CIR process. The identified yielding areas will be excavated to a maximum of 2 feet, repaired with base course, and a minimum of 5 inches of milled and re-laid pavement material or asphaltic surface in the upper layer,

Add the following to standard spec 211.3.5:

Prior to and during the placement of the CIR layer the contractor shall also be responsible for the work covered under this item.

Perform work under this bid item in accordance with standard spec 205.

Remove soft and/or yielding areas of base to a maximum depth of 2-feet. All areas will be documented, and information will be provided to the project engineer. If areas are found after paving operation begin, the project engineer will be notified of locations. Excavated area will be filled and compacted with material that meets the material requirements of standard spec 305 and Base Aggregate Dense 1 ¼-inch, or standard spec 330 and Mill and Relay, or standard spec 465 and Asphaltic Surface.

Do not exceed plan quantity without written approval from the engineer.

D Measurement

The department will measure Base Repair for CIR Layer by the cubic yard, acceptably completed.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
211.0800.S	Base Repair for CIR Layer	CY

Payment is full compensation for removing and excavating areas of base to a maximum of 2 feet; required saw cuts; providing, placing, and compacting dense graded base course; milling and relaying pavement; asphaltic surfacing; and traffic control.

Stp-211-030 (20200629)

21. Cold In-Place Recycling (CIR) Asphalt Base Layer, Item 327.1000.S; Asphalt Stabilizing Agent, Item 455.0770.S.

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 material shall be milled from the existing roadway and processed in-place.
- (2) The RAP shall be free of contamination including base material, aggregate shoulder material, concrete, silt, clay, or other deleterious materials, unless specified in the plan.
- (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 may have a dimension exceeding a length of 4 inches.
- (4) The milled and processed material shall conform to the following gradation:

<u>Sieve Size</u>	<u>Percent Passing</u>
2"	100
1 ½"	98
1"	95 to 100

B.2 Stabilizing Agent

- (1) The asphalt stabilizing agent used for CIR Asphalt Base Layer shall be foamed 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 spec 455.
- (2) Asphalt binder performance grade for foamed asphalt shall be PG 46-34 or PG 52-34. Ensure that the material is furnished by a supplier from the Combined State Binder Group Certified Supplier List.

- (3) Asphalt binder shall be sufficiently heated to meet the mix design expansion and half-life criteria; not to exceed 375° F.
- (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 be free of sediment and deleterious materials.

B.3 Mixture Design

- (1) The contractor will be responsible for obtaining milled samples and/or cores for the project mix design.
- (2) Core samples shall be obtained at a minimum 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.
- (3) Samples for mix design obtained by milling shall be taken from at least 3 different locations directly from the area to be recycled.
- (4) All samples shall represent the entire depth of the layer to be recycled.
- (5) Develop and submit a material sampling plan for review and approval a minimum of 5 business days prior to obtaining milled and/or cored samples.
- (6) 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).
- (7) During material sampling operations; contractor insurance will be as specified in standard spec 107; traffic control requirements will be as specified in standard spec 107 and 643; and in the contract special provisions.
- (8) Develop and submit a mix design with the optimal asphalt content 10 business days prior to the start of the CIR operation. This will be developed according to AASHTO MP 38-18 and PP 94-18; and additionally, will conform to the requirements listed in B.3. Submit mix design to the engineer and department's Bureau of Technical Services, Materials Management Section, Pavement Unit.

Table B.3 – Minimum Mix Design Requirements

	Test Method	Specification	Criteria
Mix Design Requirements for Foam Asphalt	Gradation of RAP (Sieve Analysis of Aggregates)	AASHTO MP 38-18 and PP 94-18	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)		Minimum 45
	Dry, psi		
	Ratio (TSR)	Minimum 0.60*	
	RAP Coating Test	AASHTO T 59	Minimum Good

Foaming Properties	Foamed Asphalt Expansion Ratio	AASHTO MP 38-18 and PP 94-18	Minimum 8.0 Times
	Foamed Asphalt Half-life		Minimum 6.0 Seconds

*0.70 for mix designs requiring the addition of cement.

- (9) The mix design shall be used for informational purposes.
- (10) The mix design report shall contain the following minimum information:
1. Gradation of RAP.
 2. 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.
 3. Recommended water content from the moisture density curve as a percentage of dry RAP.
 4. Optimum stabilizing agent content as a percentage of dry RAP.
 5. Stabilizing agent designation, PG grading of asphalt binder, supplier name and location, and certified test report.
 6. 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.
 7. RAP coating test results.
 8. Any additives that may be used.

- **B.4 Quality Management Program**

- **B.4.1 Quality Control Plan**

- (1) Submit a comprehensive written quality control plan, including random numbers, to the engineer no later than 10 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 5 business days prior to the start of CIR construction, hold a pre-CIR construction meeting at a mutually agreed upon time and location. Attendance at the pre-CIR construction meeting is 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 or ACT certified technician for material sampling and sieve analysis.
- (3) A Transportation Materials Sampling (TMS) certified technician is allowed for materials sampling.
- (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:
<https://wisconsin.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/tools/appr-prod/default.aspx>
- (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 AASHTO T310 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. The contractor will notify the department before sampling.
- (2) Gradation samples shall be taken at random location at a minimum frequency of one 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, as determined in accordance with AASHTO T27, for the Number 4 (4.75mm) sieve and larger.
- (3) Conduct and report density testing at a minimum frequency of three individual random tests per subplot.
- (4) Conduct and report mill depth checks at random location at a minimum frequency of one 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 do not meet the requirement as specified in B.2.1, take the necessary corrective action by adjusting the temperature of the stabilizing agent and / or foaming water content.
- (6) Report stabilizing agent temperature at a minimum of one per each new tanker load.
- (7) Report stabilizing agent foamed asphalt expansion ratio and half-life at random locations at a minimum frequency of one per subplot.

- (8) Perform startup QC testing (milling depth, stabilizing agent, foaming properties and stabilizing agent application rate) within the first 500 feet at the beginning of each day of production.
- (9) Conduct and report moisture content of the finished CIR layer at minimum from three random locations for each day of placement. The three random locations shall represent each day of placement. Moisture content shall be based on the average of the three tests, from each day of placement. This information is used for tracking the curing process.
- (10) 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 tests (mill depth check, density test, and gradation) locations and values, and lot roadway sample locations. Any adjustments to the application rate of the stabilizing agent, compaction or foaming water shall be reported as stated in section C.1.

B.4.6 Department Testing

B.4.6.1 General

- (1) The department will conduct quality verification(QV) testing to validate the quality of the product and independent assurance(IA) 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.
- (2) The department will conduct random QV tests at the minimum frequency of 10% of the required QC tests. The department will observe the contractor's QC stabilizing agent foaming property test.
- (3) The department's mill depth check, roadway gradation sample, and density test sites, will be at locations independent of the contractor's QC work, collecting one sample at each QV location. The department will split each QV gradation sample, test half for QV, and retain the remaining half for 7 calendar days.
- (4) The department will verify the contractor's moisture content values by testing a moisture content split sample at a frequency of at least one per day.
- (5) 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.
- (6) 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.
- (2) 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 the shade, and away from artificial heat sources is above 50°F and when the nighttime ambient air temperature is above 35°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 base layer curing shall be completed to allow adequate time for placement of surfacing in accordance with calendar requirements of standard spec 450.3.2.1.
- (5) The asphalt binder stabilizing agent application rate will be 2.00 percent with a field adjustment tolerance of +/- 0.30 percent. Any changes within the +/- 0.30 percent tolerance from the 2.00 percent application rate will need to be documented with date, time, pavement temperature, location, reason, and new values and communicated to the engineer at the time the change occurs.
- (6) The metered water added at the mill used for cooling and compaction shall be 2.00 percent. Any changes within the +/- 0.30 percent tolerance from the 2.00 percent application rate will need to be documented with date, time, pavement temperature, location, reason, and new values and communicated to the engineer at the time the change occurs.
- (7) If the stabilizing agent or water application rate from the mix design referenced in section B.3 is not within the range of 1.70 to 2.30 percent, at the departments direction, 500 feet test sections will be required as a comparison. The contractor's liability for the department's directed test sections will be waived. The department's Bureau of Technical Services Pavement Unit will be consulted on these test sections. No test section will be considered below 1.50 percent asphalt binder stabilizing agent.

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 machines; 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 milling machines 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 machine 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 base layer mixture.

C.2.4 Paving Equipment

- (1) The placement and shaping of the recycled pavement base layer mixture shall be completed using a self-propelled paver or screed integral to the recycling equipment meeting the requirements of standard spec 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 spec 450.3.1.5.
- (2) The number, weight, and types of rollers shall be used 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 1 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.
- (3) Blade the existing base aggregate roadway shoulders away from the asphaltic surface edge to minimize contamination of the CIR base layer.

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 base layer 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 flow 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 maintains 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 for a total of one-minute test per location in the direction of paving. 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. Begin the control strip at a location of at least 200 feet beyond the start of the project.
- (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 96% 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 three roller passes, mark and take three wet density measurements using a nuclear moisture-density gauge in backscatter mode at one random station. One density measurement representing the inside 1/3, one density measurement representing the middle 1/3 and one density measurement representing the outside 1/3 transversely across the traveled lane, a minimum of 1 ½ feet from the center of the probe to the unrestricted edge of the CIR layer. Subsequent density measurements will be taken at the same three locations.
- (7) After each subsequent pass of compaction equipment over the entirety of the control strip, take wet density measurements at the three 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, a minimum of 1 ½ feet from the center of the probe to the unrestricted edge of the CIR layer. The final measurements recorded at the three 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 96% of the target density. Density acceptance shall be based on the average subplot measurements results.

C.5 Surface Requirements

- (1) Prior to placement of the surface treatment, the engineer and contractor shall visually inspect the CIR layer for distresses including, but not limited to raveled areas, rutted areas, areas of excess or deficient stabilizing agent, or deficient surface tolerance areas.
- (2) Test the recycled pavement base layer surface at regular intervals, and engineer selected locations, using a 10-foot straightedge or other engineer specified device.
- (3) The engineer may direct the repair of surface deviations greater than ½ inch between two surface contact points. High points shall be corrected by rerolling, trimming, milling, or grinding. Depressions may be corrected by having a tack coat applied and be filled with HMA immediately prior to placement of the surface treatment.
- (3) Raveled areas, rutted areas, areas of excess or deficient stabilizing agent shall be re-processed or repaired. Reprocessing shall consist of milling, blending of additional stabilizing agent, placement with a paver and compaction with determined rolling patterns as determined by the control strip.

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 placement of the upper layer, the surface of the recycled base shall be maintained in a condition suitable for safe movement of traffic.
- (3) The recycled base and shoulders shall be protected and maintained from standing water, deleterious substances, and/or other damage.
- (4) Any damage to the recycled base, excluding department directed test sections, shall be repaired by the contractor prior to placement of the upper layer at no additional cost to the department.

C.7 Curing and Surfacing

C.7.1 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 2.50 percent.
- (2) If the moisture content of the CIR layer does not reduce to 2.50 percent; 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 10 calendar days after the CIR layer is completed and initially achieves allowable moisture content.
- (4) 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 department will obtain a sample(s) to verify the contractor's final moisture content values.

C.7.2 Tack Coat

- (1) The surface shall be prepared, and tack coat applied meeting the requirements of standard spec 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 spec 455.2.5. Paving grade asphaltic tack coat shall not be used.

C.7.3 Surfacing

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

D Measurement

- (1) The department will measure Cold In-Place Recycling (CIR) Asphalt Base Layer by the square yard, acceptably completed.
- (2) 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.

E Payment

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

ITEM NUMBER	DESCRIPTION	UNIT
327.1000.S	Cold In-Place Recycling (CIR) Asphalt Base Layer	SY
455.0770.S	Asphalt Stabilizing Agent	TON

- (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; incidentals necessary to the conduct mix design; including sampling and 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) The department will pay separately for repair of yielding areas under the bid item Base Repair for CIR Layer.
- (4) The department will pay separately for removing or blading away of the adjacent shoulder material under the bid item Shaping Shoulders.
- (5) The department will pay separately for preparation under the bid item Prepare Foundation for CIR Base Layer.
- (6) The department will pay separately for surfacing treatments, including tack coat, under the appropriate bid items.

stp-327-010 (20200629)

Schedule of Items

Attached, dated October 27, 2021, are the revised Schedule of Items Pages 1 – 3.

Plan Sheets

The following 8½ x 11-inch sheets are attached and made part of the plans for this proposal:
Revised: 12 and 13.

END OF ADDENDUM

PAVEMENT MARKING SUMMARY

CAT	STATION TO	STATION	LOCATION	MARKING LINE	646.1040	649.0105	649.0120	WHITE	YELLOW
				GROOVED WET REF EPOXY 4-INCH	LF	LF	LF		
0010	390+00	- 927+00	STH 13 CENTERLINE (MILLED SURF)					55028	55028
0010	390+00	- 927+00	STH 13 CENTERLINE (ON CIR)					55028	55028
0010	390+00	- 927+00	CENTERLINE (ON LEVELING LAYER)					55028	55028
0010	390+00	- 927+00	STH 13 CENTERLINE (ON SMA)		61823	55028		61823	61823
0010	390+00	- 927+00	STH 13 EDGLINES		105565			105565	
0010	426+33	- 426+33	MORSE ROAD		150			150	
0010	519+33	- 519+33	MORSE ROAD		160			160	
0010	527+90	- 527+90	CAYUGA ROAD		150			150	
0010	773+80	- 773+80	LAKE DRIVE		100			100	
			TOTAL 0010		106125	165084		55028	

ASPHALT STABILIZING AGENT

CATEGORY	STATION TO	STATION	LOCATION	TON	REMARKS
					455.0770-S
0010	390+00	- 927+00	MAINLINE	571	
			TOTAL 0010	571	

PREPARE FOUNDATION FOR CIR BASE LAYER

CATEGORY	LOCATION	EACH	REMARKS
			211.0700-S
0010	PROJECT	1	
	TOTAL 0010	1	

MATERIAL TRANSFER VEHICLE

CATEGORY	LOCATION	EACH	REMARKS
			460.9000-S
0010	PROJECT	1	
	TOTAL 0010	1	

BASE REPAIR FOR CIR LAYER

CATEGORY	STATION TO	STATION	LOCATION	CY	REMARKS
					211.0800-S
0010	390+00	- 927+00	PROJECT	30	
			TOTAL 0010	30	

COLD IN-PLACE RECYCLING (CIR) ASPHALT BASE LAYER

CATEGORY	STATION TO	STATION	LOCATION	SY	REMARKS
					327.1000-S
0010	390+00	- 580+56	STH 13	50816	DRIVING LANES ONLY
0010	582+66	- 927+00	STH 13	91824	DRIVING LANES ONLY
			TOTAL 0010	142640	

Addendum No. 01
 ID 1610-11-70
 Revised Sheet 12
 October 27, 2021

Addendum No. 01
 ID 1610-11-70
 Revised Sheet 13
 October 27, 2021

HMA / SMA ACCEPTANCE TABLE

Location	Station	Mixture Use	Underlying Surface	Bid Item	Tons	Thickness	Quality Management Program to be used for:	
							Mixture Acceptance	Density Acceptance
12' Driving Lanes (Cold-In-Place Recycle)	390+00 - 580+56, 582+66 - 927+00	Asphalt Stabilizing Agent	Milled Surface	SPV.0180.01, 455.0770.S	571	4"	Cold-In-Place Recycling (CIR) Pavement Partial Depth (327.1000.S)	
12' Driving Lanes (Leveling Layer)	390+00 - 580+56, 582+66 - 927+00	4 MT 58-34 S	Cold-In-Place Recycle	460.6244	7988	1"	PWL Incentive Air Voids HMA Pavement (460.2010)	Acceptance by ordinary compaction
12' Driving Lanes (SMA Pavement)	390+00 - 580+56, 582+66 - 927+00	4 SMA 58-34 V	1" Leveling Layer (4 MT 58-34 S)	460.8644	13979	1.75"	QMP as per SS 460	Incentive density HMA Pavement(460.2000)
5' Shoulders	390+00 - 580+56, 582+66 - 927+00	4 MT 58-34 S	Pulverize and Relay	460.6244	5824	1.75"	PWL Incentive Air Voids HMA Pavement (460.2010)	Acceptance testing by department; Not eligible for incentive or disincentive
Sideroads	Varies	4 MT 58-34 S	Milled Surface	460.6244	355	2"	PWL Incentive Air Voids HMA Pavement (460.2010)	Acceptance testing by department; Not eligible for incentive or disincentive



Proposal Schedule of Items

Proposal ID: 20211109027 Project(s): 1610-11-70

Federal ID(s): WISC 2022044

SECTION: 0001

Contract Items

Alt Set ID:

Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0002	204.0120 Removing Asphaltic Surface Milling	142,640.000 SY	_____	_____
0004	204.0126.S Removing Asphaltic Longitudinal Notched Wedge Joint Milling	53,700.000 LF	_____	_____
0006	211.0100 Prepare Foundation for Asphaltic Paving (project) 01. 1610-11-70	LS	LUMP SUM	_____
0008	213.0100 Finishing Roadway (project) 01. 1610-11-70	1.000 EACH	_____	_____
0010	305.0110 Base Aggregate Dense 3/4-Inch	2,129.000 TON	_____	_____
0012	325.0100 Pulverize and Relay	59,433.000 SY	_____	_____
0014	455.0605 Tack Coat	20,192.000 GAL	_____	_____
0016	455.0770.S Asphalt Stabilizing Agent	571.000 TON	_____	_____
0018	460.0105.S HMA Percent Within Limits (PWL) Test Strip Volumetrics	1.000 EACH	_____	_____
0020	460.0115.S HMA Pavement Test Strips Volumetrics	1.000 EACH	_____	_____
0022	460.0120.S HMA Pavement Test Strips Density	1.000 EACH	_____	_____
0024	460.2000 Incentive Density HMA Pavement	11,183.000 DOL	1.00000	11,183.00
0026	460.2010 Incentive Air Voids HMA Pavement	11,334.000 DOL	1.00000	11,334.00
0028	460.6244 HMA Pavement 4 MT 58-34 S	14,167.000 TON	_____	_____
0030	460.8644 HMA Pavement 4 SMA 58-34 V	13,979.000 TON	_____	_____
0032	460.9000.S Material Transfer Vehicle	1.000 EACH	_____	_____



Proposal Schedule of Items

Proposal ID: 20211109027 Project(s): 1610-11-70

Federal ID(s): WISC 2022044

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	465.0110 Asphaltic Surface Patching	150.000 TON	_____.	_____.
0036	465.0120 Asphaltic Surface Driveways and Field Entrances	20.000 TON	_____.	_____.
0038	465.0425 Asphaltic Shoulder Rumble Strips 2-Lane Rural	106,980.000 LF	_____.	_____.
0040	465.0475 Asphalt Centerline Rumble Strips 2-Lane Rural	53,490.000 LF	_____.	_____.
0042	618.0100 Maintenance And Repair of Haul Roads (project) 01. 1610-11-70	1.000 EACH	_____.	_____.
0044	619.1000 Mobilization	1.000 EACH	_____.	_____.
0046	624.0100 Water	32.000 MGAL	_____.	_____.
0048	642.5201 Field Office Type C	1.000 EACH	_____.	_____.
0050	643.0900 Traffic Control Signs	2,532.000 DAY	_____.	_____.
0052	643.0920 Traffic Control Covering Signs Type II	160.000 EACH	_____.	_____.
0054	643.5000 Traffic Control	1.000 EACH	_____.	_____.
0056	646.1020 Marking Line Epoxy 4-Inch	61,823.000 LF	_____.	_____.
0058	646.1040 Marking Line Grooved Wet Ref Epoxy 4-Inch	106,125.000 LF	_____.	_____.
0060	649.0105 Temporary Marking Line Paint 4-Inch	165,084.000 LF	_____.	_____.
0062	649.0120 Temporary Marking Line Epoxy 4-Inch	55,028.000 LF	_____.	_____.



Proposal Schedule of Items

Proposal ID: 20211109027 Project(s): 1610-11-70

Federal ID(s): WISC 2022044

SECTION: 0001

Contract Items

Alt Set ID:

Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price	Bid Amount
0064	650.8000 Construction Staking Resurfacing Reference	53,700.000 LF	_____.	_____.
0066	650.9910 Construction Staking Supplemental Control (project) 01. 1610-11-70	LS	LUMP SUM	_____.
0068	740.0440 Incentive IRI Ride	26,745.000 DOL	1.00000	26,745.00
0070	ASP.1T0A On-the-Job Training Apprentice at \$5.00/HR	2,500.000 HRS	5.00000	12,500.00
0072	ASP.1T0G On-the-Job Training Graduate at \$5.00/HR	1,440.000 HRS	5.00000	7,200.00
0080	211.0700.S Prepare Foundation for CIR Base Layer (project) 01. 1610-11-70	1.000 EACH	_____.	_____.
0082	211.0800.S Base Repair for CIR Layer	30.000 CY	_____.	_____.
0084	327.1000.S CIR Asphaltic Base Layer	142,640.000 SY	_____.	_____.
Section: 0001			Total:	_____.
			Total Bid:	_____.