

**ADDENDUM NO. 1**

**Sedgwick County Project: 2016 Cold In-Place Recycling (R175-D)**

**The items contained herein now become a part of the referenced plans and specifications. Please read the following items and acknowledge receipt of this addendum on the Proposal Page Number P-1. NOTE: THIS ADDENDUM MUST BE ACKNOWLEDGED TO CONSTITUTE A VALID BID.**

***SPECS:***

Replace page SOP-1 with SOP-1R.

(Adding bid item "Cold Central Plant Recycling" and changing bid quantities for Emulsified Asphalt (SS-1H or CSS - 1H) and Cement.)


Replace pages CRA-1 to 5 with CRA-1R to 5R

(Added bid item "Cold Central Plant Recycling" and changed wording in sections 3.b.(1) and 5.)

***PLANS:***

Replace page SI-1 with SI-1R

(added columns for Cold Central Plant Recycling and Cement, changed quantity for Fog Seal Coat.)

By:   
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Director of Public Works/County Engineer

**Date: May 23, 2016**

**SCHEDULE OF PRICES**

**Project: 2016 Cold In-Place Recycling (R175-D)**  
**Type of Work: Cold In-Place Recycling and Pavement Marking**

<b>Items</b>	<b>Approx. Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Amount</b>
Cold Recycled Asphalt Material	126,406	S.Y.		
Cold Central Plant Recycling	1,200	Ton		
Emulsified Asphalt	126,406	S.Y.		
Blotter Sand (Set Price)	1	C.Y.	25.00	25.00
Emulsified Asphalt (SS-1H or CSS - 1H)	575	Ton		
Cement	135	Ton		
Water (Set Price)	1	Mgal	35.00	35.00
Manipulation for Treated Subgrade (Cement)	4,780	S.Y.		
Mobilization	1	LS		
Pavement Marking (4" White)(Paint)	91,670	L.F.		
Pavement Marking (4" Yellow)(Paint)	14,273	L.F.		
Pavement Marking (12" Yellow)(Paint)	28	L.F.		
Pavement Marking (24" White)(Paint)	42	L.F.		
Rumble Strips (Milled)(Asphalt)(Centerline)	16	Sta.		
Pavement Marking Removal	580	L.F.		
Traffic Control	1	L.S.		
<b>GRAND TOTAL</b>				

**DOLLARS**

\_\_\_\_\_  
 Company or Firm Name

\_\_\_\_\_  
 BY

\_\_\_\_\_  
 TITLE

SOP-1R

# SPECIAL PROVISION

NOTE: This special provision is generally written in the imperative mood. The subject, “the Contractor” is implied. Also implied in this language are “shall”, “shall be”, or similar words and phrases. The word “will” generally pertains to decisions or actions of Sedgwick County Public Works. The term “Standard Specifications” refers to the Kansas Department of Transportation Standard Specifications for State Road and Bridge Construction (latest edition).

## COLD RECYCLED ASPHALT CONSTRUCTION

### 1. DESCRIPTION

Mill the asphalt pavement, mix the reclaimed asphalt pavement (RAP) material with emulsified asphalt, and spread and compact the mixture as specified in the Contract Documents.

**BID ITEMS**

Cold Recycled Asphalt Material  
 Cold Central Plant Recycling  
 Emulsified Asphalt

**UNITS**

Square Yard  
 Ton  
 Square Yard

### 2. MATERIALS

Provide materials that comply with the applicable requirements.

Emulsified Asphalt ..... **DIVISION 1200**  
 Water..... **DIVISION 2400**

Provide processed RAP material that complies with **TABLE 1**.

<b>TABLE 1: RAP MATERIAL FOR CIR</b>	
<b>Sieve Size</b>	<b>% Retained</b>
1¼"	0

RAP shall be obtained from milling and pulverizing in-place asphalt material from within the project corridors. Additional RAP will be added only when indicated in the Contract Documents, and will be provided by Sedgwick County at the location(s) shown in the Contract Documents. When added, pulverize the RAP to meet the specifications in Table 1; do not exceed 0.2% deleterious materials. When blended with existing material, the mixture shall meet the requirements of Table 2.

### 3. EQUIPMENT AND OPERATION

The Contractor may use either Cold In-Place Recycled (CIR) Asphalt Construction or Cold Central Plant Recycled (CCPR) Asphalt Construction.

- a. **Cold In-Place Recycled Asphalt Construction.** The Contractor shall supply a single-unit self-propelled cold recycling machine with a down cutting cutter head capable of pulverizing and recycling the existing hot-mix asphalt pavement to a maximum depth of 6 inches. The same machine shall incorporate the asphalt emulsion, water, and necessary additives, and mix the materials to produce a homogeneous material. Equip the milling and mixing machine with automatic controls capable of maintaining a uniform grade and cross slope.

- (1) The milling and mixing machine must be equipped with a gradation control bar that will stabilize the milled surface during milling to prevent the pavement from chunking. The

machine shall be capable of pulverizing and recycling not less than 12.5 feet wide in each pass.

- (2) The RAP material processing unit shall consist of a closed loop system with a crusher and a scalper screen, or other approved devices capable of reducing the RAP material to the specified gradation.
  - (3) Provide the milling and mixing machine with a continuous weighing system for the processed RAP material, and be coupled with meters to maintain the proper proportion of RAP material, liquid binder, and water. Meter all water (including water added by the milling and mixing unit) introduced into the mix. If delivery of RAP material is stopped, automatically shut off the liquid binder and water pumps. Provide positive means for calibrating the weight measurement device and the additive metering devices.
  - (4) The milling and mixing machine shall have two independent systems for adding asphalt emulsion and metered water with each system having a full width spray bar with a positive displacement pump interlocked to the machine's ground speed to insure that the amount of asphalt emulsion and water being added is automatically adjusted with changes to the machine's ground speed. Each additive system shall have its own spray bar equipped with two (2) nozzles per foot of spray bar. The asphalt emulsion spray bar must be electrically heated. Individual valves on the spray bar shall be capable of being turned off (in pairs), as necessary.
- b. **Cold Central Plant Recycled Asphalt Construction.** The Contractor shall supply a pug-mill unit. The unit shall have the capability of mixing the pulverized RAP, asphalt emulsion, water, and additives (if necessary) to a homogenous mixture at a rate of at least 200 tons per hour. To ensure that the water, asphalt emulsion, and additives are mixed with the pulverized RAP at a rate consistent with the requirements of the mix design, the mixing unit shall be equipped with a belt scale for continuous weighing of the pulverized RAP prior to mixing, and with a liquid metering device with digital readouts displaying the exact amount of emulsion that has been added. The mixing unit shall also be equipped with a digital display of the total weight of the RAP material that has been recycled.
- (1) Setup the pug-mill unit at the location specified in the Contract Documents. Mix the owner provided RAP with emulsified asphalt, water, and any necessary additives according to the approved mix design. Any expenses incurred to transport equipment, personnel, and material to and from the identified location is SUBSIDIARY to the bid item, "Cold Central Plant Recycling."
  - (2) The milling unit must be equipped with a gradation control bar that will stabilize the milled surface during milling to prevent the pavement from chunking. The machine shall be capable of pulverizing and recycling not less than 12.5 feet wide in each pass
- c. **Asphalt Paver.** Pave in 1 continuous pass, utilizing a self-propelled asphalt paver complying with SUBSECTION 155.4 of the Standard Specifications. Ensure the paver does not support the weight of any portion of the hauling equipment other than the connection. Provide loading equipment that does not transmit vibrations or other motions to the paver that adversely affect the finished pavement quality. Equip the paver with automatic control systems as required in SUBSECTION 155.4.
- (1) **Windrow Elevator.** Supply windrow pickup equipment constructed to pick up substantially all the roadway mixture placed in the windrow, and deliver a continuous, uniform mixture flow to the asphalt paver, dumping directly into the finishing machine to obtain the desired lines and grades to eliminate any hand finishing.
  - (2) **Screed.** Provide a compacting screed that will produce a finished surface that meets longitudinal and transverse profile, typical section, and placement requirements. Screed

extensions must provide the same compacting action as the main unit unless otherwise approved. Screed may not be heated.

- (3) **Grade Reference.** Provide a grade reference with enough support that the maximum deflection does not exceed 1/16 inch between supports. Ensure that the longitudinal controls can operate from any longitudinal grade reference including a string line, ski, mobile string line, or matching shoes. Furnish paver skis or mobile string line at least 40 ft. long unless otherwise approved.
- (4) **Power Broom.** Provide a self-propelled broom for removal of loose particles and other materials from the pavement surface. The broom shall have positive control on the downward pressure applied to the surface. Brooming uncured CIR can cause excessive raveling. Use caution to ensure the broom is not causing undue raveling.
- (5) **Compaction Rollers.** As a minimum, provide the following self-propelled rollers: a double drum vibratory steel roller and a pneumatic tired roller. Provide a vibratory roller complying with the requirements for hot asphalt pavement in SUBSECTION 151.5 of the Standard Specifications and having a minimum operating weight of 10 tons and a minimum drum width of 6½ feet. The vibratory roller may be used in the static mode. Use a pneumatic tired roller with a minimum weight of 30 tons and a minimum tire pressure of 90 psi. The air pressure in each of the pneumatic tires shall be within 5 psi of each other. Supply a suitable tire pressure gauge.

#### 4. CONSTRUCTION REQUIREMENTS

Remove grass and other vegetation from the edge of the existing pavement to prevent contamination of the pulverized, reclaimed asphalt material during the milling operation.

- a. **Mix Design.** The mix design is the responsibility of the Contractor and shall be submitted to the Engineer for approval prior to the start of the project. Additional mix designs may be required at the direction of the Engineer to account for any variability in the RAP being recycled. The mix design procedure (including sample preparation and testing) and job mix formula shall meet the criteria in Table 2.

Property	Test Method	Requirement
Bulk Specific Gravity	AASHTO T 166	Report
Theoretical Max. Specific (Rice) Gravity	AASHTO T 209	85-200
Air Voids of compacted and cured specimens	AASHTO T 166	6%-20%
Marshal Stability, Cured Specimen (40°C)	AASHTO T 245	1250 lbs.
Retained Marshall Stability (40°C)	AASHTO T 245	70% min.

- b. **Milling Operation.** Mill the required depth and width in 1 or more passes. Process the RAP material to the required gradation and thoroughly mix with the specified amount of binder. Water may be added to the RAP material to facilitate mixing, provided it does not adversely affect the binder. Deposit the recycled material in a windrow, a paver or load into trucks, without segregation.

When deposited in a windrow, have equipment available to equalize the windrow as directed by the Engineer.

If RAP is to become the property of the Owner, deliver and stockpile at locations shown in the Contract Documents.

c. **Mixing Operations.**

- (1) **Asphalt Emulsion.** Do not accept asphalt emulsion with a temperature greater than 120°F, **TABLE 601-1** of SECTION 601 of the Standard Specifications. Sample and accept or reject from the shipping trailers prior to unloading into the Contractor's storage units.
- (2) **Asphalt Emulsion Content.** Check and record the emulsion content for each segment in which the percentage is changed. Make emulsion content changes based upon mix design recommendations, which are based upon different mix designs for road segments of varying construction. Determine asphalt emulsion content from the belt scale totalizer and asphalt pump totalizer.
- (3) **Water Content.** Verify and record the water content at the milling head for each segment in which the percentage is changed. Determine water quantities from the water metering device, and compare with the belt scale totalizer to determine daily quantities used. Make the water content adjustments based on mixture consistency, coating and dispersion of the recycled materials.

d. **Stockpile (CCPR operations).** The stockpile shall not exceed 15' in height. At no time shall any equipment be allowed on the stockpile

e. **Paving Operations.** Deliver the RAP and/or water and emulsion mixture to the paver immediately after mixing. The minimum temperature of the mixed material when placed is 50°F. Pave in 1 continuous pass, utilizing an asphalt paver complying with SECTION 155 of the Standard Specifications or other equipment approved by the Engineer. Without tearing the surface, spread and finish the recycled material, to the lines and grades in the Contract Documents or established by the Engineer so it is smooth, free of segregation, uniform in density, texture and free from surface irregularities. Do not heat the paver screed. A pick-up machine may be used to transfer the windrowed material into the paver hopper provided it is operated so that substantially all the mixture deposited on the roadbed is picked up and loaded into the paver. Maintain the asphalt paver within 150 feet of the mixing unit. If the process does not comply with these requirements, the Engineer will suspend paving until the deficiency is corrected.

f. **Compaction.** Use air void control. Avoid displacement of the mixture. Ensure pavement is fully compacted before allowing rollers to stand on the pavement. Unless otherwise directed, use only water or an approved release agent on rollers and other compaction equipment. Keep diesel, gasoline, oil, grease, and other foreign matter off the mixture.

- (1) **Air Void Control.** Compact cold in-place recycled asphalt pavement to contain from 6% to 20% in-place air voids. Do not increase the emulsion content of the mixture to reduce pavement air voids.
- (2) **Rollers.** Furnish the type and size of rollers as described in SUBSECTION 3.e above. Provide a sufficient number of rollers to complete compaction requirements in the time allotted. Start rolling a maximum of 30 minutes after paving. Complete finish rolling a maximum of 1 hour after milling is completed. When possible, begin and end rolling sequences on previously compacted material or the existing pavement. Change rolling or roller patterns when major displacement and/or cracking of the recycled material occur.
- (3) Before and after opening to traffic, maintain the surface of the recycled pavement in a condition suitable for the safe movement of the traffic. Remove all loose particles that develop on the pavement surface by power brooming.

g. **Utility Adjustment.** Storm, sanitary sewer, and utility manholes, water valves and gas valves shall be adjusted, as needed, to meet the new surface elevation. All such adjustments shall meet the requirements of Section 816 of the Standard Specifications.

- h. **Surface Treatment or Overlay.** When required by the Engineer, apply a heavy application of asphalt material (fog seal) on the recycled surface. Before placing the fog seal, allow the CIR asphalt material to cure until the moisture of the material is a maximum of 2.0%, or approved by the Engineer. Under dry conditions, the CIR should comply with the moisture requirements within 48 hours.

No traffic, including construction traffic, will be allowed on completed recycled asphalt pavement for a period of at least two hours. Pavement may be opened to all traffic after two hour period. This time may be adjusted by the Engineer to allow establishment of sufficient cure so traffic will not initiate raveling.

- i. **Maintenance of Traffic.** Perform traffic control according to DIVISION 800 of the Standard Specifications.
- j. **Weather and Seasonal Limitations.** Complete milling, adding the liquid binder and laydown between May 1 and September 30, when the ambient air temperature is greater than 50°F and rising, the weather is not rainy or foggy and the weather forecast does not call for freezing temperature within 48 hours after placement. The above requirement may be waived, when approved in writing by the Engineer.

## 5. MEASUREMENT AND PAYMENT

The Engineer will measure recycled asphalt material and emulsified asphalt by the square yard in place. The Engineer will measure central plant recycling by the ton produced. The Engineer will not measure water or the emulsified asphalt used in central plant recycling for separate payment.

Payment for "Cold Recycled Asphalt Material," "Emulsified Asphalt" and "Cold Central Plant Recycling" at the contract unit prices is full compensation for the specified work.

**Summary of Cold In-Place Recycling (R175-D)**

A	Location (See Map)	Length (Ft)	Average Width (Ft)	Full Depth Reclamation		Recycled Asphalt Material (S.Y.)	Cold Central Plant Recycling (Ton)	Fog Seal Coat (Ton)	Centerline Rumble Strips (Sta.)	Pavement Marking				Remarks	
				Manipulation (S.Y.)	Cement (Ton)*					Paint (L.F.)	L.F.	4" White	12" Yellow		24" White
	109th N between 311th & 279th W 592-7,8	10,570	24			28,187	1,200	128			21,140	2,640		Begin at the County Line (311th St.) and end at the W end of return at 279th St.	
	279th W between Mt. Hope SCL & 61st N 785-S½ D thru H	24,898	25			69,161		315	16		49,628	7,340	580	Begin ½ mile N of 93rd N and end at the N end of return of 61st St. Project excludes 169' of bridge deck.	
	183rd W between MacArthur & Pawnee 797-S,T	10,367	25	4,500	127	28,797		131			20,734	3,793		Begin at the N edge of return at MacArthur and end at the S edge of return at Pawnee. Project includes 1500' of full depth subgrade reclamation measured from the north end of the project.	
	151st W between S EWS of Big Slough Bridge & N Edge of K-96 Intersection 801-South 84' F	84	28	280	8	261		1			168	500	28	42	Begin at the S edge of wearing surface of the Big Slough Bridge and end at the north edge of concrete pavement for the K-96 intersection. Full depth subgrade reclamation for the entire length and width.
<b>Totals</b>		<b>45,919</b>		<b>4,780</b>	<b>135</b>	<b>126,406</b>	<b>1,200</b>	<b>575</b>	<b>16</b>		<b>91,670</b>	<b>14,273</b>	<b>28</b>	<b>42</b>	<b>580</b>

\* Cement calculated on the basis of 94 pcf and a rate of 10% cement content.

**DO NOT OVERLAY EXISTING BRIDGE DECKS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER**

**NOTES:** All information provided is for information only and is based on the best information available at the time of design. Any discrepancies should be reported to the engineer prior to bidding.

Temporary pavement marking tape may be Type I or II (NO TABS). The contractor shall completely remove any temporary pavement marking prior to the application of the permanent pavement marking.

Existing non-paint (e.g. epoxy, MMA) markings on concrete surfaces shall be removed and replaced with new markings specified in the Contract Documents of the same width and color, or of the same legend or symbol.

Removal method(s) shall be approved by the Engineer, and the method(s) shall not damage the pavement beyond minor scarring due to the method(s) used.

The bid item "Pavement Marking Removal" may be under-run in its entirety depending on existing type of pavement marking. This bid item is exempt from SECTION 104 of Sedgwick County Division 100. There will be no price adjustments due to quantity changes for this item.

**If chosen, Central Plant location shall be the Sedgwick County Andale Yard.**  
Additional Recycled Asphalt Pavement (RAP) may be needed for certain locations on this project. Additional RAP will be available from Sedgwick County at the Andale Yard. Andale Yard Address: 5858 N. 247th St. W. Andale, KS