



**CALL NO. 335**

**CONTRACT ID. 222583**

**HENRY COUNTY**

**FED/STATE PROJECT NUMBER FD05 052 0421 007-011**

**DESCRIPTION CASTLE HIGHWAY (US 421)**

**WORK TYPE PAVEMENT (WITH ALTERNATES)**

**PRIMARY COMPLETION DATE 9/30/2023**

**LETTING DATE: December 08,2022**

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN STANDARD TIME December 08,2022. Bids will be publicly announced at 10:00 AM EASTERN STANDARD TIME.

**NO PLANS ASSOCIATED WITH THIS PROJECT.**

**DEFERRED PAYMENT**

**REQUIRED BID PROPOSAL GUARANTY:** Not less than 5% of the total bid.

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# **PART I**

## **SCOPE OF WORK**

HENRY COUNTY  
FD05 052 0421 007-011

**ADMINISTRATIVE DISTRICT - 05**

**CONTRACT ID - 222583**  
**FD05 052 0421 007-011**  
**COUNTY - HENRY**  
**PCN - MP052042122W1**  
**FD05 052 0421 007-011**

CASTLE HIGHWAY (US 421) (MP 7.854) BEGIN AT KY 22 EXTENDING NORTH TO KY 3322 (MP 10.426), A  
DISTANCE OF 02.57 MILES.PAVEMENT (WITH ALTERNATES)  
GEOGRAPHIC COORDINATES LATITUDE 38:21:56.00 LONGITUDE 85:07:50.00  
ADT 2,332

**COMPLETION DATE(S):**  
COMPLETED BY 09/30/2023      APPLIES TO ENTIRE CONTRACT

## **CONTRACT NOTES**

### **PROPOSAL ADDENDA**

All addenda to this proposal must be applied when calculating bid and certified in the bid packet submitted to the Kentucky Department of Highways. Failure to use the correct and most recent addenda may result in the bid being rejected.

### **BID SUBMITTAL**

Bidder must use the Department's electronic bidding software. The Bidder must download the bid file located on the Bid Express website ([www.bidx.com](http://www.bidx.com)) to prepare a bid packet for submission to the Department. The bidder must submit electronically using Bid Express.

### **JOINT VENTURE BIDDING**

Joint venture bidding is permissible. All companies in the joint venture must be prequalified in one of the work types in the Qualifications for Bidders for the project. The bidders must get a vendor ID for the joint venture from the Division of Construction Procurement and register the joint venture as a bidder on the project. Also, the joint venture must obtain a digital ID from Bid Express to submit a bid. A joint bid bond of 5% may be submitted for both companies or each company may submit a separate bond of 5%.

### **UNDERGROUND FACILITY DAMAGE PROTECTION**

The contractor shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. When prescribed in said directives, the contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom shall be contacted through their individual Protection Notification Center. Non-compliance with these directives can result in the enforcement of penalties.

### **REGISTRATION WITH THE SECRETARY OF STATE BY A FOREIGN ENTITY**

Pursuant to KRS 176.085(1)(b), an agency, department, office, or political subdivision of the Commonwealth of Kentucky shall not award a state contract to a person that is a foreign entity required by [KRS 14A.9-010](#) to obtain a certificate of authority to transact business in the Commonwealth ("certificate") from the Secretary of State under [KRS 14A.9-030](#) unless the person produces the certificate within fourteen (14) days of the bid or proposal opening. If the foreign entity is not required to obtain a certificate as provided in [KRS 14A.9-010](#), the foreign entity should identify the applicable exception. Foreign entity is defined within [KRS 14A.1-070](#).

**For all foreign entities required to obtain a certificate of authority to transact business in the Commonwealth, if a copy of the certificate is not received by the contracting agency within the time frame identified above, the foreign entity's solicitation response shall be deemed non-responsive or the awarded contract shall be cancelled.**

Businesses can register with the Secretary of State at <https://secure.kentucky.gov/sos/ftbr/welcome.aspx>.

### **SPECIAL NOTE FOR PROJECT QUESTIONS DURING ADVERTISEMENT**

Questions about projects during the advertisement should be submitted in writing to the Division of Construction Procurement. This may be done by fax (502) 564-7299 or email to [kytc.projectquestions@ky.gov](mailto:kytc.projectquestions@ky.gov). The Department will attempt to answer all submitted questions. The Department reserves the right not to answer if the question is not pertinent or does not aid in clarifying the project intent.

The deadline for posting answers will be 3:00 pm Eastern Daylight Time, the day preceding the Letting. Questions may be submitted until this deadline with the understanding that the later a question is submitted, the less likely an answer will be able to be provided.

The questions and answers will be posted for each Letting under the heading "Questions & Answers" on the Construction Procurement website ([www.transportation.ky.gov/contract](http://www.transportation.ky.gov/contract)). The answers provided shall be considered part of this Special Note and, in case of a discrepancy, will govern over all other bidding documents.

### **HARDWOOD REMOVAL RESTRICTIONS**

The US Department of Agriculture has imposed a quarantine in Kentucky and several surrounding states, to prevent the spread of an invasive insect, the emerald ash borer. Hardwood cut in conjunction with the project may not be removed from the state. Chipping or burning on site is the preferred method of disposal.

### **INSTRUCTIONS FOR EXCESS MATERIAL SITES AND BORROW SITES**

Identification of excess material sites and borrow sites shall be the responsibility of the Contractor. The Contractor shall be responsible for compliance with all applicable state and federal laws and may wish to consult with the US Fish and Wildlife Service to seek protection under Section 10 of the Endangered Species Act for these activities.

### **ACCESS TO RECORDS**

The contractor, as defined in KRS 45A.030 (9) agrees that the contracting agency, the Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this contract for the purpose of financial audit or program review. Records and other prequalification information confidentially

disclosed as part of the bid process shall not be deemed as directly pertinent to the contract and shall be exempt from disclosure as provided in KRS 61.878(1)(c). The contractor also recognizes that any books, documents, papers, records, or other evidence, received during a financial audit or program review shall be subject to the Kentucky Open Records Act, KRS 61.870 to 61.884.

In the event of a dispute between the contractor and the contracting agency, Attorney General, or the Auditor of Public Accounts over documents that are eligible for production and review, the Finance and Administration Cabinet shall review the dispute and issue a determination, in accordance with Secretary's Order 11-004.

### **BUILD AMERICA, BUY AMERICA ACT (BABA)**

On November 15, 2021, President Biden signed into law the Infrastructure Investment and Jobs Act (IIJA), Pub. L. No. 117-58, includes the Build America, Buy America Act (“the Act”). Pub. L. No. 117-58, §§70901-52. The Act strengthens the Buy America preference to include “construction materials.” The current temporary waiver for **“construction materials”** will expire on November 10, 2022.

The Act will apply to construction materials as outlined in the guidance issued in OMB [M-22-11](#).

Construction Materials – Includes an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives – that is or consists primarily of:

- Non-ferrous metals
- Plastic/polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- Glass (including optic glass);
- Lumber; or
- Drywall.

Construction Materials only applies to items, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project.

Construction Materials does not apply to tools, equipment or supplies brought to the jobsite and removed before completion.

October 14, 2022

## **SPECIAL NOTE FOR RECIPROCAL PREFERENCE**

### **RECIPROCAL PREFERENCE TO BE GIVEN BY PUBLIC AGENCIES TO RESIDENT BIDDERS**

By reference, KRS 45A.490 to 45A.494 are incorporated herein and in compliance regarding the bidders residency. Bidders who want to claim resident bidder status should complete the Affidavit for Claiming Resident Bidder Status along with their bid in the electronic bidding software. Submittal of the Affidavit should be done along the bid in Bid Express.

April 30, 2018



### **DEFERRED PAYMENT**

The successful bidder on this project may request a work order with an effective date prior to June 15, 2023. The successful bidder must make the request in writing to the Department. The Department will issue a work order at the request of the contractor with the distinct understanding that payment for any Work Performed Estimates may be delayed until July 15, 2023. Unless the successful bidder requests an earlier work order date, the Department will issue a work order on June 15, 2023 for this project.

### **SURFACING AREAS**

The Department estimates the mainline surfacing width to be \_\_\_\_\_ feet.

The Department estimates the total mainline area to be surfaced to be \_\_\_\_\_ square yards.

The Department estimates the shoulder width to be \_\_\_\_\_ feet on each side.

The Department estimates the total shoulder area to be surfaced to be \_\_\_\_\_ square yards.

### **ASPHALT MIXTURE**

Unless otherwise noted, the Department estimates the rate of application for all asphalt mixtures to be 110 lbs/sy per inch of depth.

### **INCIDENTAL SURFACING**

The Department has included in the quantities of asphalt mixtures established in the proposal estimated quantities required for resurfacing or surfacing mailbox turnouts, farm field entrances, residential and commercial entrances, curve widening, ramp gores and tapers, and road and street approaches, as applicable. Pave these areas to the limits as shown on Standard Drawing RPM-110-06 or as directed by the Engineer. In the event signal detectors are present in the intersecting streets or roads, pave the crossroads to the right of way limit or back of the signal detector, whichever is the farthest back of the mainline. Surface or resurface these areas as directed by the Engineer. The Department will not measure placing and compacting for separate payment but shall be incidental to the Contract unit price for the asphalt mixtures.

### **OPTION B**

Be advised that the Department will control and accept compaction of asphalt mixtures furnished on this project under OPTION B in accordance with Sections 402 and 403.

## **SPECIAL NOTE FOR THERMOPLASTIC PAVEMENT MARKINGS REMOVAL**

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Remove existing Thermoplastic Pavement Markings just prior to placement of the overlay as directed by the Engineer. The Department will not measure removal of the Thermoplastic Pavement Markings, but shall be incidental to the other items of work. Lane Striping thermo removal will be paid for as indicated by the Bid Item 06531 PAVE STRIPING REMOVAL-6 IN

## **SPECIAL NOTE FOR POLISH-RESISTANT AGGREGATE IN NO 4 THINLAY ASPHALT MIXTURES**

**Contrary to Section 409.03.03** of the *Standards and Specifications*, for 4.75mm asphalt mixtures requiring Class D aggregate, recycled asphalt pavement (RAP) shall not exceed 15% of cold feed percentage, and the use of recycled asphalt shingles (RAS) is prohibited.

**Contrary to Section 402** of the *Standards and Specifications*, Warm Mix Asphalt (WMA) will not be permitted for all 4.75mm asphalt mixtures.

**Contrary to Section 403.03.01** the NO 4 surface mixtures, do not place the mixture between September 30 and May 1 unless requested in writing and approved by the engineer.

## **CAPE SEAL SPECIAL NOTE**

A cape seal treatment shall consist of one or more layers of chip/scrub seal application(s) followed by a surface treatment. Prior to placement of the surface treatment, the chip/scrub seal application shall have a curing time of no less than 72 hours and placement shall start before 10 days after the chip/scrub seal application.

A tack coat shall be applied on top of chip/scrub seal aggregate before placing the asphalt surface. Contrary to section **406.03.03 B** of the Kentucky Standard Specifications for Road and Bridge Construction, tack coat application rate for 4.75mm thinlay asphalt surface shall for be 0.40lbs – 0.65lbs (0.05 gal – 0.08 gal) per sqyd. The tack coat application rate for emulsified microsurface asphalt surface shall be 0.25lbs – 0.50lbs (0.03 gal – 0.06 gal) per sqyd.

## SPECIAL NOTE FOR ASPHALT CHIP SEAL

**1. DESCRIPTION.** Construct an asphalt chip seal consisting of one or more applications each of asphalt material and cover aggregate.

**2. MATERIAL AND EQUIPMENT.**

**Asphalt Material.** Furnish undiluted CRS-2P or CMS-1P or CMS-1PC polymer modified emulsion that conforms to **AASHTO M 316** and the requirements **Section 806.05**.

**When surface cracks have been previously crack sealed, CRS-2P may be required. Otherwise, application shall require undiluted CMS-1P or CMS-1PC polymer modified emulsion that meets requirements below:**

EMULSIFIED ASPHALT SPECIFICATION			
PROPERTY	METHOD	SPECIFICATION	
		CMS-1P	CMS-1PC
Test on Emulsion			
Viscosity @ 122 °F (SFS)	AASHTO T 59	100 - 350	100-350
Residue, w%, minimum. <sup>(1)</sup>	AASHTO T 59	67	60
pH	ASTM E 70	2.0-5.0	2.0-5.0
Sieve, w%, max.	AASHTO T 59	0.1	0.1
Oil distillate, w%, max.	AASHTO T 59	0.5	0.5
TEST ON RESIDUE			
Viscosity @ 140 °F, P, maximum.	AASHTO T 201	3000	-
Penetration @ 39.2 °F, minimum.	AASHTO T 49	40	30
Elastic Recovery on residue by distillation, %, minimum <sup>(2)</sup>	AASHTO T 301	50	50
Test on Polymer:			
Tensile strength, die C dumbbell, psi, minimum	ASTM D 412 <sup>(3)</sup>	500	800
Swelling in rejuvenating agent, % maximum; 48 hours exposure @ 104 °F	ASTM D 471 <sup>(4)</sup> Modified	40% intact film	40%
Latex Density @ 73 °F	ASTM D 6937 <sup>(5,6)</sup>	-	1.00-1.05
TEST ON REJUVENATING AGENT:			
Flash point, COC, °F	AASHTO T 48	380 Min	
Viscosity, 140 °F, CST	AASHTO T 201	50-175	
Saturate, % by wt.	ASTM D 2007	30 Max	
Asphaltenes	ASTM D 2007	1.0 Max.	
Test on Residue from RTFO	AASHTO T 240		
Weight Change, %		6.5 Max.	
Viscosity Ratio		3 Max	

- (1) Exception to AASHTO T59: Bring the temperature on the lower thermometer slowly to  $350 \pm 10$  °F. Maintain at this temperature for 20 minutes. Complete total distillation in  $60 \pm 5$  min from first application of heat.
- (2) Elastic Recovery @ 10 °C (50 °F): Hour glass sides, pull 20 cm, hold 5 minutes then cut, let sit 1 hour.
- (3) Tensile Strength Determination: Samples for testing for tensile strength in accordance with ASTM D412 shall be tested with the following test procedure modifications:
- (4) Prepare the polymer film, dilute the waterborne polymer to 40% Total Solids Content and pour 57 g into a Teflon or silicone release mold of dimensions 7" X 7" X 1/4". Allow to dry at 23°C (73 °F) and 50% RH (controlled conditions) for 7 – 10 days total time, during which time the film should be flipped around once, preferably after 3 or 4 days. The film should be transparent in the end. To drive out any residual water, place the film in an oven at 50 °C for 30 min. Dried film thickness should be  $25 \pm 5$  mils. Discard films <20 mil. Cut out dumbbell-shaped test specimens of dimension 75 mm total length, 25 mm mid-section (L) and 4 mm width of mid-section. Grip in Instron machine with gap size 1 inch, use 8 in/min cross-head speed.
- (5) Polymer testing shall be prepared from polymer as follows: Resistance to Swelling: Using a syringe, place 0.8 g of latex into an 18 mm diameter DSR mold. Allow the sample to dry at ambient lab conditions (air conditioned) on the bench for 72 hours. Sample should be easily removable from the mold. Take the "button" out of the mold and place the sample into a forced air oven at 40 °C (104 °F) for 48 h (on release paper). If at the end of the ambient dry, the sample sticks to the mold, place it into the oven and check it after 1-2 h. After 48 h, cool and weigh the sample to the nearest 0.0001 g and record the weight. Put 1/2 in of Rejuvenating Agent into a 3 oz penetration tin. Place the "button" on the rejuvenating agent, and add another 1/2 in of rejuvenating agent, so that the "button" is covered. Put the cap on the penetration tin and place it into the 40 °C oven for 48 h. Remove the "button" from the Rejuvenating Agent, blot surface of the "button" to remove excess Rejuvenating Agent, cool the "button" to room temperature and weigh it. Calculate weight gain of the "button", express as a percent.
- (6) Replace "Emulsified Asphalt" with "Latex" in text of test method. The testing temperature used should be  $25 \pm 3$  °C. The calculation in Section 7 should be as follows:

$$D = (W_f - W_t) * 0.1$$

$$S.G. = D / 8.337$$

Where:  $W_f$  = Weight of filled cup (g)

$W_t$  = Weight of empty cup (g)

The Department will require a sample of the polymerized emulsion to be taken from the distributor spray bar at a lot frequency of one sample per 5,000 gallons of emulsion. Take two 1 gallon samples of the heated material and forward the sample to the Division of Materials for testing. Ensure the product temperature is between 160° and 180° F at the time of sampling.

**Aggregate.** Provide a cleaned damp aggregate cover material from an approved aggregate producer and shall meet the material requirements that conform to **Section 805**, as applicable. Contrary to section 805.05.04 provide coarse aggregates having no more than 2.0 percent passing the No. 200 sieve.

**Equipment.** Provide, and keep on the project at all times, an accurate thermometer, hand brooms, and other small tools and equipment essential for completion of the work.

**Calibration** of equipment application rates shall be completed prior to application or as directed by the engineer. A test strip shall be required at the beginning of each new project or as directed by the engineer.

**The asphalt distributor** for the application of the emulsion shall have full circulation spray bar that is adjustable to at least 16 feet wide in 2 feet increments and capable of heating and circulating the emulsion simultaneously, conforming to **Section 406.02.05**. It must have computerized rate control for adjusting and controlling the application from the cab within 0.01 gallons per square yard increments. The distributor shall also be equipped with a volume measuring device and a thermometer for measuring the emulsion temperature in the tank. For each emulsion application, follow manufactures recommendations for proper nozzle type and adjustment.

**The aggregate spreader** shall be a front discharge, continuous mechanical feed, self-propelled aggregate spreader with a screen capable of removing oversized materials. It must have computerized control for adjusting and regulating application rates, as well as width, from the operating platform. Ensure the spreader can evenly distribute the aggregate from the transporting vehicle directly onto the fresh asphalt material in smooth, uniform layers, independent of the forward speed. The spreader must be capable of being filled and moved without discharging aggregate. The spreader must be equipped with a locking mechanism compatible with the triaxle trucks used to supply aggregate.

**Rollers.** Pneumatic tire roller shall weigh at least 5 tons. Double steel wheel type roller shall weigh at least 5 tons but no more than 8 tons.

### 3. CONSTRUCTION.

**Weather Limitations.** Application of chip seal shall be applied when air temperature is at least 50 degrees F and rising and a minimum surface temperature of 70 degrees F. Do not construct when the ambient temperature within the preceding 24 hours has been 35 degrees F or lower. Do not proceed with construction if rain is expected in a minimum period of 4 hours. If an unexpected shower arises during operations, the asphalt distributor should be shut off immediately and placement of aggregate continued until all asphalt has been covered.

**Preparation of Mixture.** Submit a complete mix design a minimum of 14 days prior to construction. Mix design shall be prepared by an approved laboratory, to verify the compatibility of the

aggregate, asphalt emulsion and other additives. Perform the mix design with the same materials that will be used on the project.

**Surface Preparation.** Prior to operation, the contractor shall remove all existing thermoplastic striping, thermoplastic legends, and raised markers within application limits. All surfaces intended for application shall be thoroughly cleaned of all vegetation, loose material, dirt, or other objectionable material immediately before application of emulsion using a mechanical sweeper and wire hand brooms, when necessary. Clean the edges of the surface providing a full and uniformly clean width of roadway. Where mud or earth exists, remove it in advance and allow surface to thoroughly dry before applying emulsion. Mowing or removal of shoulder vegetation and or brush may be necessary for proper application.

If cracks cannot be adequately filled by emulsion, fill with proper asphalt material or hot pour joint sealer conforming to **Section 807.03.01**. If applicable, apply cover aggregate before applying chip seal application.

#### 4. APPLICATION.

##### Application Rates of Materials for Single Layer Chip Seal.

Properties	Minimum	Maximum
Application rate of emulsion, gal/sqyd	0.30	0.38
Emulsion temperature, F	120	180
Application rate of aggregate, lb/sqyd	15	20

##### Application Rates of Materials for Double Layer Chip Seal.

Properties	Total Rate Minimum	Total Rate Maximum	Minimum For Any Layer	Maximum For Any Layer
Application rate of emulsion, gal/sqyd	0.60	0.76	0.30	0.38
Emulsion temperature, F	120	180	120	180
Application rate of aggregate, lb/sqyd	30	40	15	20

Double chip seal treatment shall consist of two single layers. The first layer of material shall be applied at 40-50% of the total combined material rate. The second layer shall be applied at 50-60% of the total combined material rate. When a double layer of chip application is required the second layer of chip seal shall not be applied until three days after placement of the first layer. Sweep the first layer before starting the construction of the second layer of chip seal.

**Application of Emulsion.** Heat and maintain emulsion between 120 and 180 degrees F during application. Polymer modified emulsion shall be applied when air temperature is at least 50 degrees F and rising and a minimum surface temperature of 70 degrees F. Emulsion shall be applied using a pressure distributor in a uniform, continuous quantity at specified rates.

Keep the nozzles of the spray bar clean at all times. Immediately make any streaked areas uniform by use of a hand hose equipped with a nozzle.

Do not allow distributor to apply asphalt material ahead of aggregate spreader for more than 150 feet.

When the chip seal treatment is constructed in half-widths, provide complete coverage by overlapping the 2 applications approximately 4 inches along centerline and sweep the centerline before constructing the adjoining lane.

When a double layer of chip application is required the second layer of chip seal shall not be applied until three days after placement of the first layer. Sweep the first layer before starting the construction of the second layer of chip seal.

Prevent spotting or discoloring curbs, headwalls, and other structures. When such discolorations occur, remove them at no expense to KYTC.

Provide and use building paper or other materials approved by the engineer to provide a clean and proper at every construction joint. A straight edge shall be used to ensure a consistent and even joint.

**Aggregate.** Aggregate cover material shall be cleaned to remove dirt and dust, ensuring appropriate adhesion with emulsion. Aggregate shall be damp during application. Aggregate shall only be stockpiled once per project and must be placed on a pad clean from unwanted materials and debris. The Department will sample and test the aggregate from the stockpile to determine if the aggregate meets the washed gradation and the percent passing the No. 200 sieve requirements before any placement of the aggregate. Reject the stockpile when the aggregate doesn't meet the requirements. Prior to breaking of the emulsion, aggregate shall be continuously and evenly spread with the proper equipment at the specified rates. Spreading equipment shall not contact the asphalt material before it is covered with aggregate. Precautions should be taken not to exceed the designated rate by more than 5 percent. Use hand brooms to correct any irregularities.

**Rolling.** Two self-propelled pneumatic tire rollers and one double steel wheel roller shall be used for the required rolling of the aggregate. This shall be done no more than 5 minutes after the spreading of aggregate. Operate the rollers parallel to the centerline in a manner preventing the dislodgment of newly applied aggregate. Rolling should proceed from the outer edge to the center, with each pass overlapping the previous by one-half. Rolling shall consist of at least 2 passes or more with pneumatic tire roller, followed by at least 1 pass with the double steel wheel roller when the engineer directs. Roller speeds shall not exceed 5 mph. Additional roller patterns and/or equipment may be required as directed by the engineer depending on speed of application.

**Sweeping.** Power sweep and/or vacuum the completed application to remove all excess aggregate after each day(s) of production. The curing time shall be determined by the engineer. Surface shall be swept or vacuumed prior to any striping or other surface applications. If directed by the engineer, water may be applied during sweeping process. A second sweeping may be required following the initial application day. If applying an additional surface treatment over the chip seal, it may be opened to traffic for an amount of time specified in the contract or as directed by the engineer. At the end of each day(s) production, the treated portion of the roadway shall be swept.

**Little to no aggregate shall be remaining on the following:**

- Entrances
- Exit aprons
- Intersections
- Crossroads
- Driveways
- Lawns
- Curbs
- Shoulders

**5. MEASUREMENT.**

**Asphalt Material.** KYTC will measure the quantity in tons according to **Section 109.**

**Aggregate.** KYTC will measure the quantity in sqyd according to **Section 109.**

**6. PAYMENT.**

Contrary to **Section 805.15**, the department will apply a 50 percent reduction on the bid price for asphalt seal aggregate when exceeding 2 percent on the No. 200 sieve. The washed gradation acceptance will follow section 805.15 guidelines for the aggregate size used for the asphalt seal aggregate. KYTC will make payment for the completed and accepted quantities under the following:

<u><b>Pay Item</b></u>	<u><b>Pay Unit</b></u>
Polymer Modified Emulsified Asphalt	Ton
Asphalt Seal Aggregate	Sqyd

KYTC will consider payment as full compensation for all work required under this section.



## SPECIAL NOTE FOR NON-TRACKING TACK COAT

1. DESCRIPTION AND USEAGE. This specification covers the requirements and practices for applying a non-tracking tack asphalt coating. Place this material on the existing pavement course, prior to placement of a new asphalt pavement layer. Use when expedited paving is necessary or when asphalt tracking would negatively impact the surrounding area. This material is not suitable for other uses. Ensure material can “break” within 15 minutes under conditions listed in 3.2.
2. MATERIALS, EQUIPMENT, AND PERSONNEL.

2.1 Non-Tracking Tack. Provide material conforming to Subsection 2.1.1.

2.1.1 Provide a tack conforming to the following material requirements:

Property	Specification	Test Procedure
Viscosity, SFS, 77 ° F	20 – 100	AASHTO T 72
Sieve, %	0.3 max.	AASHTO T 59
Asphalt Residue <sup>1</sup> , %	50 min.	AASHTO T 59
Oil Distillate, %	1.0 max.	AASHTO T 59
Residue Penetration, 77 ° F	0 - 30	AASHTO T 49
Original Dynamic Shear (G*/sin δ), 82 ° C	1.0 min.	AASHTO T 315
Softening Point, ° F	149 min.	AASHTO T 53
Solubility, %	97.5 min.	AASHTO T 44

<sup>1</sup> Bring sample to 212 °F over a 10-15 minute period. Maintain 212 °F for 15-20 minutes or until 30-40 mL of water has distilled. Continue distillation as specified in T59.

- 2.2. Equipment. Provide a distributor truck capable of heating, circulating, and spraying the tack between 170 °F and 180 °F. Do not exceed 180 °F. Circulate the material while heating. Provide the correct nozzles that is recommend by the producer to ensure proper coverage of tack is obtained. Ensure the bar can be raised to between 14” and 18” from the roadway.
  - 2.3. Personnel. Ensure the tack supplier has provided training to the contractor on the installation procedures for this product. Make a technical representative from the supplier available at the request of the Engineer.
3. CONSTRUCTION.
    - 3.1 Surface Preparation. Prior to the application of the non-tracking tack, ensure the pavement surface is thoroughly dry and free from dust or any other debris that would inhibit adhesion. Clean the surface by scraping, sweeping, and the use of compressed air. Ensure this preparation process occurs shortly before application to prevent the return of debris on to the pavement. If rain is expected within one hour after application, do not apply material. Apply material only when the surface is dry, and no precipitation is expected.

3.2 Non-tracking Tack Application. Placement of non-tracking tack is not permitted from October 1<sup>st</sup> to May 15<sup>th</sup>. When applying material, ensure the roadway temperature is a minimum of 40°F and rising. Prior to application, demonstrate competence in applying the tack according to this note to the satisfaction of the Engineer. Heat the tack in the distributor to between 170 – 180 °F. After the initial heating, between 170 – 180 °F, the material may be sprayed between 165 °F and 180 °F. Do not apply outside this temperature range. Apply material at a minimum rate of 0.70 pounds (0.08 gallons) per square yard. Ensure full coverage of the material on the pavement surface. Full coverage of this material is critical. Increase material application rate if needed to achieve full coverage. Schedule the work so that, at the end of the day's production, all non-tracking tack is covered with the asphalt mixture. If for some reason the non-tracking tack cannot be covered by an asphalt mixture, ensure the non-tracking tack material is clean and reapply the non-tracking tack prior to placing the asphalt mixture. Do not heat material more than twice in one day.

3.3 Non-tracking Tack Certification. Furnish the tack certification to the Engineer stating the material conforms to all requirements herein prior to use.

3.4 Sampling and Testing. The Department will require a sample of non-tracking tack be taken from the distributor at a rate of one sample per 15,000 tons of mix. Take two 1 gallon samples of the heated material and forward the sample to the Division of Materials for testing within 7 days. Ensure the product temperature is between 170 and 180 °F at the time of sampling.

4. MEASUREMENT. The Department will measure the quantity of non-tracking tack in tons. The Department will not measure for payment any extra materials, labor, methods, equipment, or construction techniques used to satisfy the requirements of this note. The Department will not measure for payment any trial applications of non-tracking tack, the cleaning of the pavement surface, or furnishing and placing the non-tracking tack. The Department will consider all such items incidental to the non-tracking tack.
5. PAYMENT. The Department will pay for the non-tracking tack at the Contract unit bid price and apply an adjustment for each manufacturer's lot of material based on the degree of compliance as defined in the following schedule. Non-tracking tack will not be permitted for use from October 1<sup>st</sup> to May 15<sup>th</sup>. During this timeframe, the department will allow the use of an approved asphalt emulsion in lieu of a non-tracking tack product but will not adjust the unit bid price of the material. When a sample fails on two or more tests, the Department may add the deductions, but the total deduction will not exceed 100 percent.

Non-Tracking Tack Price Adjustment Schedule						
Test	Specification	100% Pay	90% Pay	80% Pay	50% Pay	0% Pay
Viscosity, SFS, 77 ° F	20 – 100	19 - 102	17 - 18	15 - 16	14	≤13
			103 - 105	106 - 107	108 - 109	≥ 110
Sieve, %	0.30 max.	≤ 0.40	0.41 - 0.50	0.51 - 0.60	0.61 - 0.70	≥ 0.71
Asphalt Residue, %	50 min.	≥49.0	48.5 – 48.9	48.0 – 48.4	47.5-47.9	≤ 47.4
Oil Distillate, %	1.0 max.	≤1.0	1.1-1.5	1.6 - 1.7	1.8-1.9	>2.0
Residue Penetration, 77 ° F.	30 max.	≤ 31	32 - 33	34 - 35	36 - 37	≥ 38
Original Dynamic Shear (G*/sin δ), 82 ° C	1.0 min.	≥0.95	0.92 – 0.94	0.90 – 0.91	0.85 - 0.89	≤ 0.84
Softening Point, ° F	149 min.	≥145	142 - 144	140 - 141	138 - 139	≤ 137
Solubility, %	97.5 min.	≥ 97.0	96.8 – 96.9	96.6 – 96.7	96.4 – 96.5	≤ 96.3

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24970EC	Asphalt Material for Tack Non-Tracking	Ton

Revised: May 23, 2022

## SPECIAL NOTE FOR PAVEMENT WEDGE AND SHOULDER MONOLITHIC OPERATION

**1.0 MATERIALS.** Provide an Asphalt Surface Mixture conforming to Section 403 of the Standard Specifications, as applicable to the project, for the pavement wedge.

**2.0 CONSTRUCTION.** Place the specified Asphalt Surface Mixture on shoulders monolithically with the driving lane. Prime the existing shoulder with tack material as the Engineer directs before placing the wedge. Construct according to Section 403.03 of the Standard Specifications.

Equip the paver with a modified screed that extends the full width of the wedge being placed and is tapered to produce a wedge. Obtain the Engineer's approval of the modified screed before placing shoulder wedge monolithically with the driving lane.

The wedge may vary in thickness at the edge of the milled area in the shoulder. If the area to receive the shoulder wedge is milled prior to placement, during rolling operations pinch the outside edge of the new inlay wedge to match the existing shoulder elevation not being resurfaced. Unless required otherwise by the Contract, construct rolled or sawed rumble strips according to Section 403.03.08, as applicable.

The following sketch is primarily for the computation of quantities; however, the wedge will result in a similar cross-section where sufficient width exists. Do not construct a shoulder for placing the wedge unless specified elsewhere in the Contract.



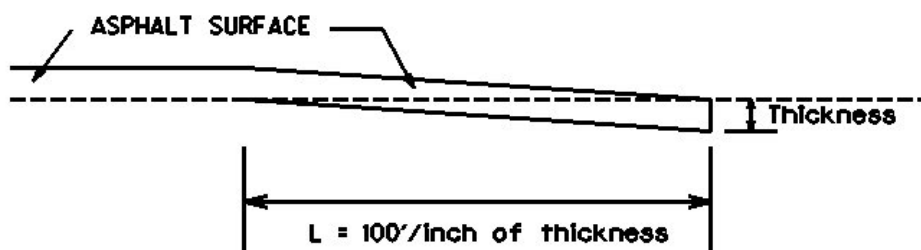
**3.0 MEASUREMENT.** The Department will measure Asphalt Surface Mixture placed as the pavement wedge according to Section 403.

**4.0 PAYMENT.** The Department will make payment for the completed and accepted quantities of Asphalt Surface Mixtures on pavement wedges according to Section 403.

## SPECIAL NOTE FOR EDGE KEY

Construct Edge Keys at the beginning of project, end of project, at railroad crossings, and at ramps, as applicable. Unless specified in the Contract or directed by the Engineer, do not construct edge keys at intersecting streets, roads, alleys, or entrances. Cut out the existing asphalt surface to the required depth and width shown on the drawing and heel the new surface into the existing surface. The Department will make payment for this work at the Contract unit price per ton for Asphalt Pavement Milling and Texturing, which shall be full compensation for all labor, materials, equipment, and incidentals for removal and disposal of the existing asphalt surface required to construct the edge key.

### EDGE KEY



Thickness =  Inches

L =  LF

L= Length of Edge Key

### **SPECIAL NOTE FOR ASPHALT MILLING AND TEXTURING**

Begin paving operations within **48 hours** of commencement of the milling operation. Continue paving operations continuously until completed. If paving operations are not begun within this time period, the Department will assess liquidated damages at the rate prescribed by Section 108.09 until such time as paving operations are begun.

Take possession of the millings and recycle the millings or dispose of the millings off the Right-of-Way at sites obtained by the Contractor at no additional cost to the Department.

1-3520 48 hours Contractor keeps millings  
01/2/2012

### **SPECIAL NOTE FOR TYPICAL SECTION DIMENSIONS**

Consider the dimensions shown on the typical sections for pavement and shoulder widths and thickness' to be nominal or typical dimensions. The Engineer may direct or approve varying the actual dimensions to be constructed to fit existing conditions. Do not widen existing pavement or shoulders unless specified elsewhere in this proposal or directed by the engineer.

1-3725 Typical Section Dimensions  
01/02/2012

## **TRAFFIC CONTROL PLAN**

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### **TRAFFIC CONTROL GENERAL**

Except as provided herein, maintain and control traffic in accordance with the Standard and Supplemental Specifications and the Standard and Sepia Drawings, current editions. Except for the roadway and traffic control bid items listed, all items of work necessary to maintain and control traffic will be paid at the lump sum bid price to "Maintain and Control Traffic".

Contrary to Section 106.01, furnish new, or used in like new condition, traffic control devices at the beginning of the work and maintain in like new condition until completion of the work.

### **PROJECT PHASING & CONSTRUCTION PROCEDURES**

The Engineer may specify days and hours when lane closures will not be allowed.

Maintain alternating one way traffic during construction. Provide a minimum clear lane width of        feet; however, provide for passage of vehicles of up to 16 feet in width. If traffic should be stopped due to construction operations, and a school bus on an official run arrives on the scene, make provisions for the passage of the bus as quickly as possible.

### **LANE CLOSURES**

Do not leave lane closures in place during non-working hours.

### **SIGNS**

Sign posts and splices shall be compliant with NCHRP 350 or MASH. Manufacturer's documentation validating this compliance shall be provided to the Engineer prior to installation. Signs, including any splices, shall be installed according to manufacturer's specifications and installation recommendations. Contrary to section 112.04.02, only long-term signs (signs intended to be continuously in place for more than 3 days) will be measured for payment. Short-term signs (signs intended to be left in place for 3 days or less) will not be measured for payment but will be incidental to Maintain and Control Traffic.

### **CHANGEABLE MESSAGE SIGNS**

If deemed necessary by the Engineer, the Department will furnish, operate, and maintain Changeable Message Signs.



Traffic Control Plan  
Page 2 of 4

## TEMPORARY ENTRANCES

The Engineer will not require the Contractor to provide continuous access to farms, single family, duplex, or triplex residential properties during working hours; however, provide reasonable egress and ingress to each such property when actual operations are not in progress at that location. Limit the time during which a farm or residential entrance is blocked to the minimum length of time required for actual operations, not extended for the Contractor's convenience, and in no case exceeding six (6) hours. Notify all residents twenty-four hours in advance of any driveway or entrance closings and make any accommodations necessary to meet the access needs of disabled residents.

Except as allowed by the Phasing as specified above, maintain direct access to all side streets and roads, schools, churches, commercial properties and apartments or apartment complexes of four or more units at all times.

The Department will measure asphalt materials required to construct and maintain any temporary entrances which may be necessary to provide temporary access; however, the Department will not measure aggregates, excavation, and/or embankment, but shall be incidental to Maintain and Control Traffic. The Engineer will determine the type of surfacing material, asphalt or aggregate, to be used at each entrance.

## TRAFFIC SIGNAL LOOPS **Delete this paragraph if not applicable**

Install traffic signal loops according to the Special Notes for Traffic Signal Loop Replacement. Coordinate the placement of the loops with the Engineer.

## TRAFFIC COUNTING INDUCTANCE LOOPS AND AXLE SENSORS **Delete this paragraph if not applicable**

Install traffic counting loops and axle sensors according to the Special Notes for Installation of Traffic Counting Inductance Loops and Axle Sensors. Coordinate the placement of the loops and sensors with the Engineer.

## THERMOPLASTIC INTERSECTION MARKINGS **Delete this paragraph if not applicable**

Consider the locations listed on the summary as approximate only. Prior to milling and/or resurfacing, locate and document the locations of the existing markings. After resurfacing, replace the markings at their approximate existing locations or as directed by Engineer. Place

Traffic Control Plan  
Page 3 of 4

markings not existing prior to resurfacing as directed by the Engineer.

## **BARRICADES**

The Department will not measure barricades used in lieu of barrels and cones for channelization or delineation, but shall be incidental to Maintain and Control Traffic according to Section 112.04.01.

The Department will measure barricades used to protect pavement removal areas in individual units Each. The Department will measure for payment the maximum number of barricades in concurrent use at the same time on a single day on all sections of the contract. The Department will measure individual barricades only once for payment, regardless of how many times they are set, reset, removed, and relocated during the duration of the project. The Department will not measure replacements for damaged barricades the Engineer directs to be replaced due to poor condition or reflectivity. Retain possession of the Barricades upon completion of construction.

## **PAVEMENT MARKINGS**

If there is to be a deviation from the existing striping plan, the Engineer will furnish the Contractor a striping plan prior to placement of the final surface course.

Install Temporary Striping according to Section 112 with the following exception:

If the Contractor's operations or phasing requires temporary markings that must subsequently be removed from the final surface course, use an approved removable lane tape; however, the Department will not measure removable lane tape for separate payment, but will measure and pay for removable lane tape as temporary striping.

## **PAVEMENT EDGE DROP-OFFS**

Do not allow a pavement edge between opposing directions of traffic or lanes that traffic is expected to cross in a lane change situation with an elevation difference greater than 1½". Place Warning signs (MUTCD W8-11 or W8-9A) in advance of and at 1500' intervals throughout the drop-off area. Dual post the signs on both sides of the traveled way. Wedge all transverse transitions between resurfaced and unresurfaced areas which traffic may cross with asphalt mixture for leveling and wedging. Remove the wedges prior to placement of the final surface course.

Protect pavement edges that traffic is not expected to cross, except accidentally, as follows:

Less than 2" - No protection required.

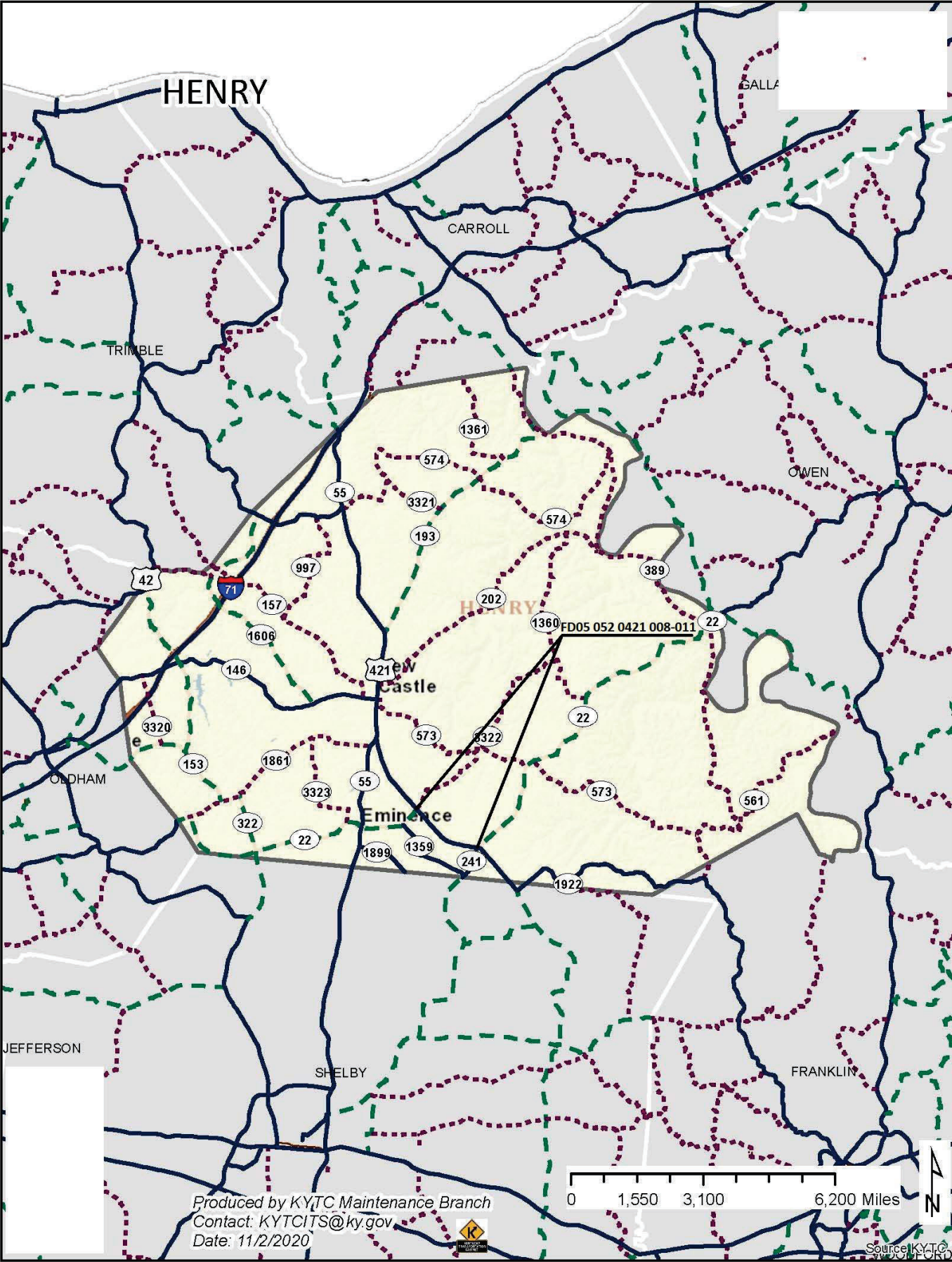
## Traffic Control Plan

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2" to 4" - Place plastic drums, vertical panels, or barricades every 50 feet. During daylight working hours only, the Engineer will allow the Contractor to use cones in lieu of plastic drums, panels, and barricades. Wedge the drop-off with DGA or asphalt mixture for leveling and wedging with a 1:1 or flatter slope in daylight hours, or 3:1 or flatter slope during nighttime hours, when work is not active in the drop-off area.

Greater than 4" - Protect drop-offs greater than 4 inches within 10 feet of traffic by placing drums, vertical panels, or barricades every 25 feet. The Engineer will not allow the use of cones in lieu of drums, vertical panels, or barricades for drop-offs greater than 4". Place Type III Barricades directly in front of the drop-off facing on coming traffic in both directions of travel. Provide warning signs as shown on the Standard Drawings or as directed by the Engineer

Pedestrians & Bicycles - Protect pedestrian and bicycle traffic as directed by the engineer.

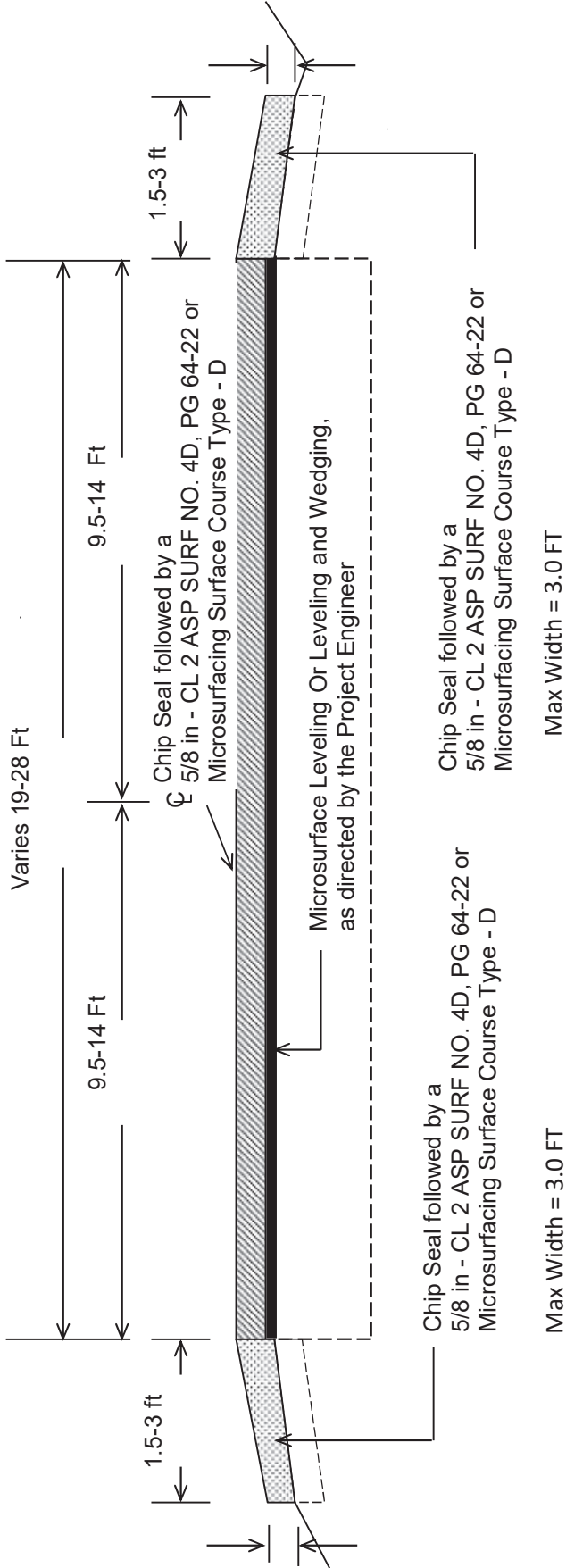


Henry County  
THERMOPLASTIC INTERSECTION PAVEMENT MARKINGS SUMMARY  
FD05 052 0421 007-011

MPT.	INTERSECTION	X-WALKS 6 INCH LF	STP BARS 24 INCH LF	CURVE EA	ARROWS STR EA	COMB EA	"ONLY" EA	"STOP" EA	CATRAXX 6 INCH LF	NOTES
7.869	KY 241	220	48							
10.584	KY 22/KY 3322		48							
TOTAL		220	96							

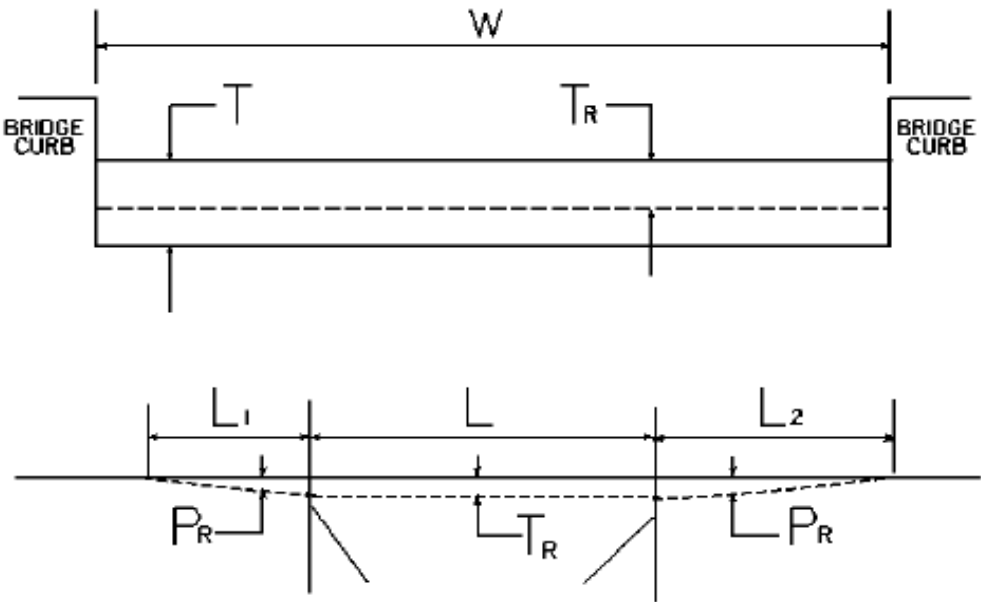
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**HENRY COUNTY**  
**FD05 052 0421 007-011**  
**TYPICAL SECTION**  
**MILEPOINTS 7.846-10.426**



**\*Where Existing Site Conditions Permit**

BRIDGE DETAIL FOR PAVING PROJECT



W = bridge width curb to curb  
T = thickness of existing asphalt overlay  
L = length of bridge  
L<sub>1</sub> & L<sub>2</sub> = length of approach pavement to be removed  
T<sub>R</sub> = thickness to be removed and replaced on bridge  
P<sub>R</sub> = thickness to be removed and replaced on pavement  
Note: L<sub>1</sub> & L<sub>2</sub> lengths shall be determined by using a transition rate of 100 ft/in of thickness

Route	Bridge No.	MP	W (ft)	T (in)	L <sub>1</sub> (ft)	L <sub>2</sub> (ft)	T <sub>R</sub> (in)	L (ft)	P <sub>R</sub> (in)



**PART II**

**SPECIFICATIONS AND STANDARD DRAWINGS**

### **SPECIFICATIONS REFERENCE**

Any reference in the plans or proposal to previous editions of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 2019* and *Standard Drawings, Edition of 2020*.

## **SUPPLEMENTAL SPECIFICATIONS**

The contractor shall use the Supplemental Specifications that are effective at the time of letting.  
The Supplemental Specifications can be found at the following link:

<http://transportation.ky.gov/Construction/Pages/Kentucky-Standard-Specifications.aspx>

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## **SPECIAL NOTE FOR MICROSURFACING**

**1. DESCRIPTION.** This work consists of constructing a cold-laid, polymer-modified, emulsified asphalt pavement course to fill ruts or provide an intermediate or surface course for existing pavements. The paving mixture is composed of a polymer-modified emulsified asphalt, crushed aggregate, mineral filler, water, and possibly other additives. Follow the requirements outlined in ASTM D 6372, Standard Practice for Design, Testing, and Construction of microsurfacing, with modifications as found in this note. Apply this material according to the lines, grades, and typical cross-sections in the plans or as established by the Engineer.

Unless otherwise noted, Section references herein are to the Department's Standard Specifications for Road and Bridge Construction, current edition. All applicable portions of the Department's Standard Specifications apply unless specifically modified herein.

## **2. MATERIALS AND EQUIPMENT.**

**2.1 Mineral Filler.** Use Portland Cement, Type I, conforming to Section 801.

**2.2 Aggregate.** Provide 100-percent crushed aggregate conforming to Sections 804 and 805. Contrary to Subsection 403.03.03, provide polish-resistant aggregate in the asphalt mixture conforming to one of the following requirements:

### **Microsurfacing Type A**

- 100 percent of total combined aggregate is Class A polish-resistant aggregate.

### **Microsurfacing Type B**

- 100 percent of total combined aggregate is Class B or Class A polish-resistant aggregate.

### **Microsurfacing Type D**

- No polish-resistant aggregate requirements.

Contrary to ASTM D 6372, test sand equivalent according to AASHTO T 176, soundness according to Kentucky Method (KM) 64-610, and a maximum LA abrasion resistance of 35 percent when tested according to AASHTO T 96. Ensure all aggregates satisfy ASTM D 6372 for sand equivalent, soundness, and LA abrasion listed above.

Do not use mineral aggregates that are inherently porous, such as blast-furnace slag, expanded shale, porous limestone, and lightweight aggregates, in this mixture.

**2.3 Water.** Conform to Section 803.

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**2.4 Emulsified Asphalt.** The polymer-modified emulsion will be a CQS-1hP or a CQS-1hL latex-modified emulsion conforming to AASHTO M 208 and tested according to T59. Distill sample at 350 °F. In addition, ensure that the emulsified asphalt conforms to the following criteria:

<u>Test</u>	<u>Criteria</u>
Ductility at 77 °F (AASHTO T 51)	40 cm (min)

Ensure the asphalt supplied can be found on the List of Approved Materials.

**2.5 Equipment.** All equipment necessary for the satisfactory performance of the work shall be on hand and approved before the work is permitted to begin. All equipment, tools, and machines used in the performance of this work shall be maintained in satisfactory working condition.

All trucks shall be covered immediately after loading with a cover of canvas or other suitable material. The cover shall lap down along the sides and rear of the truck bed a minimum of 6 in. and be secured by tie downs at a maximum of 5 ft. spacing along the sides and rear of the truck bed. All trucks must be equipped to meet the above requirements prior to commencing hauling operations.

**2.6 Mixing Equipment.** Produce the mixture in a self-propelled, front-feed, continuous-loading machine equipped with a conveyer-belt aggregate-delivery system and an interconnected, positive-displacement, water-jacketed gear pump and/or a variable displacement computerized rate control pump, to accurately proportion the aggregate and asphalt emulsion. Locate the mineral filler feed so the proper amount of mineral filler is dropped on the aggregate before discharge into the pug mill. Provide a spray bar to completely pre-wet the aggregate dropping down to the pug mill with additive and water before the introduction of the asphalt emulsion. Provide a twin-shaft, continuous-flow, multi-blade pug mill that is a minimum of 49 in. long. Ensure that the blade size and side clearances meet the equipment manufacturer's recommendations. Introduce the emulsion within the first one-third of the mixer length to ensure proper mixing of all materials before exiting the pug mill.

Equip the machine with opposite-side driving stations to allow full control of the machine from either side. Equip the mixer with a remote, forward-speed control at the rear mixing platform so the rear operator can control the forward speed and level of mixture in the paving or rut box. Provide material control devices that are readily accessible and positioned so the amount of each material used can be determined at any time.

Equip the mixing machine with a water pressure system and nozzle-type spray bar to provide a water spray ahead of and outside the spreader box when required. Apply water at a rate that will dampen the surface but not create free-flowing water ahead of the spreader box.

The mixer shall be equipped with a computerized material monitoring system with integrated material control devices that are readily accessible and positioned so the

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amount of each material used can be determined at any time. The mixer shall be equipped with a back-up electronic materials counter that is capable of recording running count totals for each material being monitored. The mixer shall include an attached radar ground measuring device or comparable device. Each material control device shall be calibrated prior to each mix application and at the discretion of the Engineer. The computer system shall have the capability to record, display, and print the following information:

- Individual sensor counts for emulsion, aggregate, cement, water and additive
- Aggregate, emulsion, and cement output in pounds per minute
- Ground travel distance
- Spread rate in pounds per square yard
- Percentages of emulsion, cement, water and additive
- Cumulative totals of aggregate, emulsion, cement, water and additive
- Scale factor for all materials

The computer system shall be functional at the beginning of work, and throughout the entire work operation.

**2.7 Aggregate Equipment.** In an effort to eliminate oversize materials in the finished mat, aggregate shall be screened directly into the trucks. The inspector shall view the screen for oversized aggregate and if it is found to have gaps, it shall be replaced or repaired before continuing to place the material.

**2.8 Spreading Equipment.** If a leveling or surface course is specified, apply the mixture uniformly by means of a conventional spreader box.

If a rut-fill course is specified, apply the mixture with a 5-6ft width, “V-shaped” rut-filling spreader box. Equip the rut-filling spreader box with a steel strike-off device.

Attach either type of spreader box to the mixer, and equip it with augers mounted on an adjustable shaft to continually agitate and distribute the materials throughout the box. Ensure that the equipment provides sufficient turbulence to prevent the mix from setting in the box or causing excessive build-up or lumps. To prevent loss of the mixture from the box, attach flexible seals, front and rear, in contact with the road. Operate the spreading equipment in such a manner as to prevent the loss of the mixture on super-elevated curves.

For surface courses, attach a secondary strike-off device to the spreader. Use neoprene rubber drags to obtain the desired finish. Replace drags having excessive buildup. Do NOT use burlap drags.

**2.9 Asphalt Distributor.** For the application of the emulsion shall have full circulation spray bar that is adjustable to at least 12 feet wide in 2 feet increments and capable of heating and circulating the emulsion simultaneously, conforming to **Section 406.02.05**. It must have computerized rate control for adjusting and controlling the

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application from the cab within 0.01 gallons per square yard increments. The distributor shall also be equipped with a volume measuring device and a thermometer for measuring the emulsion temperature in the tank. For each emulsion application, follow manufactures recommendations for proper nozzle type and adjustment.

**2.10 Calibration Equipment.** Supply all of the equipment, materials, and certified scales necessary to perform the calibration according to Section 3.5 of this note.

### 3. CONSTRUCTION.

**3.1 Preparation and Proportioning of Mixture.** Submit a complete mix design to the Division of Construction and to the Division of Materials, Asphalt Branch and Aggregate Section. Mix design shall be prepared by an approved laboratory, to verify the compatibility of the aggregate, asphalt emulsion, mineral filler, and other additives. Perform the mix design with the same materials that will be used on the project. Ensure that the aggregate that is used in the mix design is listed on the Division of Materials *List of Approved Materials (LAM)* for the type of microsurfacing that is being designed.

Ensure the mix design has a residual asphalt content, by dry weight of aggregate, of 7.0 to 8.5 percent for leveling and surface courses and 6.5 to 8.0 percent for rut-filling mixes. Also ensure the mixture contains no reclaimed materials and a mineral filler content between 0.25 and 2.0 percent by dry weight of aggregate.

In addition to the mix design information required by KM 64-421, provide the following (all percentages are based on the dry weight of aggregate):

- minimum and maximum percentage of water; and
- percentage of mix-set additives, if required.
- county and contract listed

Provide test results from an accredited laboratory that conform to ASTM D 6372.

Submit the mix design and two full 5-gallon buckets of the aggregate blend for the mixture to the Division of Materials for verification according to Subsection 402.03 a minimum of four weeks prior to initial use for testing and approval.

When requested by the Engineer, the Contractor shall calculate the % asphalt content of the mixture from the equipment computer display readings. If no request is made by the Engineer, the Contractor shall calculate the % asphalt content of the mixture from the equipment computer display readings randomly, a minimum of 3 times a day. The quality control tolerances from the mix design is  $\pm 0.5\%$ .

**3.2 Mixture Gradation.** When performing a single microsurface application, conform to the Type II requirements that are listed in Table 1 for surface and leveling courses. When performing a double microsurface application, conform to the Type III requirements that are listed in Table 2 for leveling and rut-fill courses.

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**3.3 Weather and Seasonal Limitations.** In addition to the applicable requirements in ASTM D 6372, apply the mixture only when rain is not imminent and the existing pavement surface temperature is at least 50 °F. The ambient temperature shall be at least 50°F and rising and no forecasted temperatures shall be below 40°F within a 24 hour period after placement. Do not place the material between September 30 and May 15.

**3.4 Surface Preparation.** All surfaces intended for application shall be thoroughly cleaned of all vegetation, loose material, dirt, or other objectionable material immediately before application of emulsion using a mechanical sweeper and wire hand brooms.

Remove pavement markers at least 24 hours in advance of paving operation and fill the areas with microsurface material, asphalt material, or other approved material meeting the engineer's specifications. Remove any loose crack sealing material in advance of paving operation.

Remove existing thermoplastic and/or excessive paint markings prior to application.

Contrary to Section 406, apply an approved tack coat material diluted to 2 to 1 at rate of 0.03 to 0.06 gal/yd<sup>2</sup>. Application rate shall be adjusted based on the surface texture and/or porosity. Do not apply tack coat on top of a rut fill or leveling course prior to placing surface course. For a double microsurface treatment, do not apply a tack coat between the first and second application. Apply tack coat only to surfaces that will be covered by the application in the same day. The tack coat material shall be a polymer-modified emulsion CQS-1HP or CSS-1H emulsion.

**3.5 Calibration.** Before mix production, calibrate the mixing equipment in the presence of the Engineer. Generate documentation for the Engineer, including individual calibrations of each material at various settings. Perform a new calibration if there is any change in the mix design. Following calibration and adjustments for changes in the mix design, do not make any further calibration adjustments to the mixing equipment without the Engineer's approval.

**3.6 Application.** Apply the paving mixture in a manner to fill minor surface irregularities and achieve a uniform surface without causing streaking, drag marks, skips, lumps, or tears. Carry a sufficient amount of material in the spreader box at all times to ensure complete and uniform coverage. Avoid overloading the spreader box. Do not allow lumping, balling, or unmixed aggregate in the spreader box.

If a rut-fill course is specified, apply enough material to fill the wheel paths without excess crowning (overfilling). An excess crown is defined as 1/8 in. after 24 h of traffic compaction. Apply rut-fill courses in widths from 5 to 6 ft for each wheel path. If rut depth exceeds 1.0 inches, apply rut fill course in multiple layers. Provide a smooth, neat seam where two rut-fill passes meet. Restore the design profile of the pavement cross-section. Feather the edges of the rut-fill course to minimize the use of excess material. Rut fill course shall not exhibit drag marks or tears greater than 1 inch in width, ½ inch in



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depth and greater than 12 inches in length. Rut fill course shall not exhibit excessive flushing or excessive roughness.

If a leveling course is specified, ensure the material covers the entire surface area. The leveling course may exhibit minor raveling upon opening to traffic but shall not exhibit any continued raveling after the first four hours to traffic. Leveling course shall not exhibit drag marks or tears greater than ½ inch wide, ¼ inch in depth and greater than 12 inches in length. Leveling course shall not exhibit flushing or excessive roughness.

If a leveling course is specified for a double layer of microsurfacing, utilize a type III aggregate and apply the paving mixture at a minimum dry aggregate rate of 18 lb/yd<sup>2</sup>. If a type II mixture is specified to be use as minor leveling, apply the paving mixture at a minimum dry aggregate rate of 14 lb/yd<sup>2</sup>. If a surface course is specified over a leveling course for a double layer, utilize a type II aggregate and apply the paving mixture at a minimum dry aggregate rate of 18 lb/yd<sup>2</sup>. If a single layer surface course is specified, utilize a type II aggregate and apply the paving mixture at a dry aggregate rate of 24 lb/yd<sup>2</sup>. For leveling course provide an even layer creating a neat center seam with no overlap where two passes meet. For surface courses, provide a smooth, neat center seam with a maximum overlap of 2 inches where two passes meet.

Construct surface courses wide enough to cover the outside edges of rut-fill and leveling courses. Maintain straight edge lines along curbs and shoulders. Do not allow runoff in these areas. Ensure that lines at the intersections are straight. Immediately remove excess material from the ends of each run.

Use squeegees and lutes to spread the mixture in areas inaccessible to the spreader box and areas requiring hand-spreading. With the Engineer's approval, adjust the mix-set additive to provide a slower setting time if hand-spreading is needed. Do not adjust the water content. If hand-spreading, pour the mixture in a small windrow along one edge of the surface to be covered, and spread it uniformly by a hand squeegee or lute. Do not over spray the mixture with water by the use of a hose or other equipment.

Ensure the material cures at a rate that will permit traffic on the pavement within one hour of placement or time specified by the engineer.

If the final surface is not uniform in texture, free from streaks, drag marks, lumps, or tears, stop applying mixture and correct the problem. Do not resume work until the engineer is satisfied the problem has been corrected. If surface correction is necessary, due to traffic, rain, or other causes during construction of the project, repair areas of the surface.

If excessive flushing or bleeding occurs within 30 to 60 days after the treatment is applied, corrective work will be required at the contractor's expense.

**3.7 Crossovers and Intersections.** Prior to allowing traffic, the contractor shall broadcast microsurfacing sand or other approved material as directed by the engineer

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over turnouts, intersections, and/or crossovers as the microsurface material cures. Once the microsurfacing material has properly cured, sweep all loose sand and debris from the intersection/crossover and properly dispose of the material. Contractor shall repair any damaged areas prior to project completion.

**3.8 Curb and Gutter/Sidewalk Ramps.** When applying microsurface mixture to curb and gutter/sidewalk ramp areas, ensure the final surface is flush with the edge of the gutter pan and/or ramp. The final surface shall comply with all ADA sidewalk ramp requirements as determined by the Engineer. Failure to satisfy these requirements shall result in corrective work at no expense to the Department.

**3.9 Transverse Joints.** All transverse joints shall be clean and straight. At the start of each day(s) of production and at approaches, place a 5ft minimum width of paper/plastic on the existing pavement. Cover all bridge ends with paper/plastic to ensure no microsurfacing is placed on the bridge. Remove the paper/plastic once the microsurfacing has cured and dispose the excess material from the project site.

Place and spread all courses as continuously as possible, keeping the number of construction transverse joints to a minimum. When a construction transverse joint is necessary, the paving box must be full of material. Do not spread (drag) the remaining material, emptying the paving box. Once the end of the mat and a straight line is created, the paving box shall be lifted and the remaining material shall be removed and disposed of properly off the project limits.

#### **4.0 ACCEPTANCE AND VERIFICATION.**

**4.1 Proportion and Spread Rate.** Maintain continuous control of the emulsified asphalt-to-dry aggregate proportion to conform to the approved mix design within a tolerance of  $\pm 2$  gal/ton. Ensure the spread rate satisfies the specified quantity of aggregate per square yard on a dry-weight basis.

The Contractor shall calculate the yield of the course being placed from the equipment computer display readings. If no request is made by the Engineer, the Contractor shall calculate the yield of the course being placed from the equipment computer display readings randomly, a minimum of 3 times a day and at the end of each day(s) of production.

The Department will base acceptance of the emulsified asphalt-to-dry aggregate proportion and the spread rate on the Engineer's summary of daily quantities. The Department will accept a day's application of microsurfacing provided the Engineer's summary indicates conformance with the requirements for proportion and spread rate.

**4.2 Emulsified Asphalt.** Submit samples of the polymer-modified emulsion to the Division of Materials for testing at a frequency of one sample per lot.

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**4.3 Mixture Gradation.** The Department will perform combined-gradation determinations on the aggregates used in the microsurfacing at a frequency of one per day of production. When the combined-gradation fails to meet the master range for the type of aggregate, the Department will apply a reduction on the invoice price of the aggregate as listed in Table 1 and Table 2. Contrary to section 804.10 the Department will impose a reduction in payment no matter the quantities used.

**4.4 Documentation.** The Contractor shall maintain a daily report including the following information:

- Aggregate used, ton (dry)
- Microsurfacing emulsion used, ton
- Bituminous Materials for Tack Coat, ton
- Cement used, ton
- Water used in mixture, gallons
- Additive used in mixture, gallons
- Moisture Content
- Yield, dry aggregate lb/yd<sup>2</sup>
- Square yards placed
- Rate of Application

**4.5 Test Strip Construction.** Prior to production application, the Contractor shall place a test section 1,000 ft. in length and one lane wide. The test strip shall demonstrate the mix and set time of the material and the ability to perform under traffic. If handwork will be required on the project, include handwork in the test strip. The test strip shall be placed at the same general time of day as paving is to take place (night or day), and under similar ambient conditions. The test strip shall be able to carry normal traffic within 60 minutes. If normal traffic cannot be carried, the emulsion or mixture must be adjusted and another test strip will be required. Upon approval of the test strip, the Contractor can begin application. Payment will only be made for the first test strip.

**5. MEASUREMENT.** The Department will pay for surface and leveling microsurfacing courses by the number of square yards, complete and accepted in place. The Department will pay for microsurfacing rut-fill course by the number of tons of dry aggregate used, complete and accepted in place. The weight of the dry aggregate used will be based on the calibrated weight of aggregate provided by the paving machine.

The Department will base the width of the pavement course on the width shown on the plans or as directed by the Engineer. The Department will measure the length along the centerline of each roadway or ramp.

The Department will not measure the surface preparation for payment and will consider it incidental to the microsurfacing.

The Department will not measure asphalt material for tack for payment and will consider it incidental to microsurfacing

11L

**6. PAYMENT.** The Department will consider the unit bid price per square yard to include all labor, materials, and equipment necessary to complete the work. The Department will make payment for the completed and accepted quantities according to the following:

<b>Emulsified Asphalt Price Adjustment Schedule</b>						
Test	Specification	100% Pay	90% Pay	80% Pay	50% Pay	0% Pay
CQS-1hP/CQS-1hL						
Viscosity, 77 ° F (SFS)			15 - 17	12 - 14	9 - 11	≤8
AASHTO T 59	20 - 100	18 - 110	111 - 120	121 - 130	131 - 140	≥ 141
Residue Penetration, 77 ° F			34 - 36	31 - 33	28 - 30	≤ 27
AASHTO T 59	40 - 90	37 - 98	99 - 108	109 - 120	121 - 130	≥ 131
Softening Point, AASHTO T 53	≥ 135	≥ 130	127 - 134	128 - 129	126 - 127	≤ 125
Distillation Residue, % AASHTO T 59, 350°F	≥ 62.0	≥ 60.0	59.5	59.0	58.5	≤ 58.4
Sieve, % AASHTO T 59	≤ 0.1	≤ 0.3	0.31 - 0.45	0.46 - 0.60	0.61 - 0.75	≥ 0.76
Residue Elastic Recovery @ 50 ° F, % AASHTO T 301	≥ 60.0	≥ 58.0	57.0	56.0	55.0	≤ 54.9
Residue Ductility @ 77 ° F, cm	≥ 40	≥ 38	37	36	35	≥ 34

**TABLE 1**  
**GRADATION - MICROSURFACING TYPE II**  
**SAND**

Payment	Sieve Size-Percent Passing							
	3/8	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
0%	100	90-100	60-90	40-70	25-50	15-30	10-21	5-15
10%			58-59	38-39	23-24	13-14	8-9	4
10%	98-100	88-89	91-92	71-72	51-52	31-32	22-23	16
20%			57	37	22	12	7	3
20%	97	87	93	73	53	33	24	17
30%			56	36	21	11	6	2
30%	96	86	94	74	54	34	25	18
50%			55	35	20	10	5	1
50%	95	85	95	75	55	35	26	19

11L

**TABLE 2**

<b>GRADATION - MICROSURFACING TYPE III SAND</b>								
Payment	Sieve Size-Percent Passing							
Reduction	3/8	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200
0%	100	70-100	45-70	28-50	19-34	12-25	7-18	5-15
10%			43-44	26-27	17-18	10-11	5-6	4
10%	98-100	68-69	71-72	51-52	35-36	26-27	19-20	16
20%			42	25	16	9	4	3
20%	97	67	73	53	37	28	21	17
30%			41	24	15	8	3	2
30%	96	66	74	54	36	29	22	18
50%			40	23	14	7	2	1
50%	95	65	75	55	35	30	23	19

If the Department determines that the minimum rate of application has not been obtained for each day of production, then the Department will reduce the bid payment as according to Tables 3, 4, and 5 listed below.

**Table 3**

<b>Payment Based on Rate of Application for 18 lb/yd<sup>2</sup></b>	
<b>Rate of Application of Per Day of Production (lb/sy)</b>	<b>Reduction of Payment (%)</b>
18 and Greater	100
17.9 - 17.5	95
17.4 - 17.0	90
16.9 - 16.5	80
16.4 - 16.0	70
15.9 and Below	50

**Table 4**

<b>Payment Based on Rate of Application for 14 lb/yd<sup>2</sup></b>	
<b>Rate of Application of Per Day of Production (lb/sy)</b>	<b>Reduction of Payment (%)</b>
14 and Greater	100
13.9 - 13.5	95
13.4 - 13.0	90
12.9 - 12.5	80
12.4 - 12.0	70
11.9 and Below	50

**Table 5**

<b>Payment Based on Rate of Application for 24 lb/yd<sup>2</sup></b>	
<b>Rate of Application of Per Day of Production (lb/sy)</b>	<b>Reduction of Payment (%)</b>
24 and Greater	100
23.9 - 23.5	95
23.4 - 23.0	90
22.9 - 22.5	80
22.4 - 22.0	70
21.9 and Below	50

**Code**

40173  
24957EC  
24958EC  
21652EN  
24515EC

**Pay Item**

Microsurfacing-Surface Course - Type A  
Microsurfacing-Surface Course - Type B  
Microsurfacing-Surface Course - Type D  
Microsurfacing-Leveling Course  
Microsurfacing-Rut Fill Course

**Pay Unit**

Square Yard  
Square Yard  
Square Yard  
Square Yard  
Ton

February 2021

2020 KENTUCKY STANDARD DRAWINGS

ROADWAY

~ BARRIERS ~

GUARDRAIL AND BRIDGE END DRAINAGE

GUARDRAIL AND BRIDGE END DRAINAGE FOR SINGLE STRUCTURES.....	RBB-001-09
GUARDRAIL AND BRIDGE END DRAINAGE FOR TWIN STRUCTURES .....	RBB-002-09
LAYOUT OF GUARDRAIL AT TWIN STRUCTURES (DEPRESSED MEDIAN).....	RBB-003-03
GUARDRAIL TRANSITION FROM NORMAL SHOULDER TO NARROW BRIDGE .....	RBB-010-06

GUARDRAIL CONNECTORS TO BRIDGE ENDS

GUARDRAIL CONNECTOR TO BRIDGE END TYPE A COMPONENTS .....	RBC-002-04
GUARDRAIL CONNECTOR TO BRIDGE END TYPE A AND A-1 COMPONENTS.....	RBC-003-09
GUARDRAIL CONNECTOR TO BRIDGE END TYPE D .....	RBC-004-08
GUARDRAIL CONNECTOR TO BRIDGE END TYPE D NOTES.....	RBC-004N
GUARDRAIL CONNECTOR TO BRIDGE END TYPE A .....	RBC-005-01
GUARDRAIL CONNECTOR TO BRIDGE END TYPE A NOTES.....	RBC-005N
GUARDRAIL CONNECTOR TO BRIDGE END TYPE A-1 .....	RBC-006-01
GUARDRAIL CONNECTOR TO CONCRETE MEDIAN BARRIER END .....	RBC-100-05
GUARDRAIL CONNECTOR TO CONCRETE MEDIAN BARRIER END NOTES.....	RBC-100N
CONNECTION DETAILS OF CRASH CUSHION TYPE VI TO DOUBLE FACE GUARDRAIL .....	RBC-110-12

ENERGY ABSORPTION DEVICES

CRASH CUSHION TYPE VII CLASS B AND C (ONE & TWO DIRECTION) .....	RBE-040-11
CRASH CUSHION TYPE VI (ONE & TWO DIRECTION).....	RBE-060-15
CONCRETE MEDIAN BARRIER END .....	RBE-065-08
CONCRETE MEDIAN BARRIER END NOTES.....	RBE-065N
CONCRETE MEDIAN BARRIER END FOR CRASH CUSHION TYPE IX .....	RBE-070-07
CONCRETE MEDIAN BARRIER END FOR CRASH CUSHION TYPE IX NOTES .....	RBE-070N

ENERGY ABSORPTION DEVICES (CONTINUED)

CRASH CUSHION TYPE VI-BT.....	RBE-100-11
CRASH CUSHION TYPE IX .....	RBE-200-07
CRASH CUSHION TYPE IX-A.....	RBE-205-07

TYPICAL BARRIER INSTALLATIONS

TYPICAL GUARDRAIL INSTALLATIONS .....	RBI-001-12
TYPICAL GUARDRAIL INSTALLATIONS .....	RBI-002-07
TYPICAL INSTALLATION FOR GUARDRAIL END TREATMENT TYPE 2A.....	RBI-003-09
INSTALLATION OF GUARDRAIL END TREATMENT TYPE 1 .....	RBI-004-06
GUARDRAIL INSTALLATION AT BRIDGE COLUMNS.....	RBI-005-08
GUARDRAIL INSTALLATION AT SIGN SUPPORTS .....	RBI-006-07
CRASH CUSHION TYPE IX INSTALLATION AT MEDIAN PIERS (DEPRESSED MEDIAN).....	RBI-007-09

CONCRETE MEDIAN BARRIERS

CONCRETE MEDIAN BARRIER FIXED-FORM OR SLIP-FORM (PERMANENT).....	RBM-001-11
CONCRETE MEDIAN BARRIER PRECAST (PERMANENT - NEW PAVEMENT).....	RBM-003-12
CONCRETE MEDIAN BARRIER PRECAST (PERMANENT – EXISTING PAVEMENT).....	RBM-006-11
CONCRETE MEDIAN BARRIER SYMMETRICAL & ASYMMETRICAL SEPARATE AND TRANSITION	

DETAILS .....	RBM-015-06
DELINEATORS FOR CONCRETE BARRIERS.....	RBM-020-09
CONCRETE MEDIAN BARRIER FIXED-FORM OR SLIP-FORM (PERMANENT) (50" TALL WALL) .....	RBM-050-02
CONCRETE MEDIAN BARRIER PRECAST (PERMANENT) (50" TALL WALL).....	RBM-053-02
CONCRETE MEDIAN BARRIER SYMMETRICAL & ASYMMETRICAL SEPARATE AND TRANSITION DETAILS (50" TALL WALL).....	RBM-060-01
CONCRETE BARRIER WALL TYPE 9T (TEMPORARY).....	RBM-115-10
BOX BEAM STIFFENING OF TEMPORARY CONCRETE BARRIER.....	RBM-120-02
CURB TO BARRIER WALL TRANSITION.....	RBM-130-05

GUARDRAIL HARDWARE

STEEL BEAM GUARDRAIL ("W"-BEAM).....	RBR-001-13
GUARDRAIL COMPONENTS.....	RBR-005-11
GUARDRAIL TERMINAL SECTIONS .....	RBR-010-06
STEEL GUARDRAIL POSTS.....	RBR-015-06
TIMBER GUARDRAIL POSTS.....	RBR-016-05
GUARDRAIL SYSTEM TRANSITION .....	RBR-018
GUARDRAIL END TREATMENT TYPE 1 .....	RBR-020-07
GUARDRAIL END TREATMENT TYPE 2A.....	RBR-025-06
GUARDRAIL END TREATMENT TYPE 3 .....	RBR-030-05
GUARDRAIL END TREATMENT TYPE 3 PIPE DRAINAGE DETAIL .....	RBR-031-01
GUARDRAIL END TREATMENT TYPE 3 ALTERNATE ANCHOR.....	RBR-032
GUARDRAIL END TREATMENT TYPE 4A.....	RBR-035-12
GUARDRAIL END TREATMENT TYPE 7 .....	RBR-050-08
GUARDRAIL END TREATMENT TYPE 7 ALTERNATE ANCHOR .....	RBR-051-01
DELINEATORS FOR GUARDRAIL.....	RBR-055-01
DELINEATORS AT NARROW SHOULDER BRIDGES .....	RBR-060
STEEL BEAM GUARDRAIL (THRIE BEAM) .....	RBR-100-07

**~ DRAINAGE ~**  
BOX INLETS AND OUTLETS

DROP BOXES

DROP BOX INLET TYPE 1 .....	RDB-001-12
DROP BOX INLET TYPE 2 .....	RDB-002-12
DROP BOX INLET TYPE 3 .....	RDB-003-08
DROP BOX INLET TYPE 4.....	RDB-004-10
DROP BOX INLET TYPE 5A-5B-5C-5D-5E AND 5F .....	RDB-005-09
DROP BOX INLET TYPE 6A-6B-6C-6D-6E AND 6F .....	RDB-006-08
DROP BOX INLET TYPE 7 (LAYOUT & STEEL PATTERN) .....	RDB-007-03
DROP BOX INLET TYPE 7 (DIMENSION & STEEL CHARTS).....	RDB-008-04
DROP BOX INLET TYPE 10.....	RDB-010-07
DROP BOX INLET TYPE 11 .....	RDB-011-08
DROP BOX INLET TYPE 12 OR 12A.....	RDB-012-10
DROP BOX INLET TYPE 13 (DETAIL SHEET).....	RDB-013-07
DROP BOX INLET TYPE 13 AND TYPE 16 (FRAME & GRATE DETAILS).....	RDB-014-06
DROP BOX INLET TYPE 13 (DETAIL & BAR CHART FOR LID) .....	RDB-015-04
DROP BOX INLET TYPE 13 (PIPE CHAMBER - GRADE CONDITION).....	RDB-016-03
DROP BOX INLET TYPE 13 (PIPE CHAMBER - SAG CONDITION) .....	RDB-017-03
DROP BOX INLET TYPE 13 (ADDITIONAL STEEL - RISER) .....	RDB-018-04
DROP BOX INLET TYPE 13 (ADDITIONAL STEEL - CHAMBER) .....	RDB-019-04
DROP BOX INLET TYPE 14 & 15 .....	RDB-020-05
DROP BOX INLET TYPE 16 (DETAIL SHEET).....	RDB-030-04
DROP BOX INLET TYPE 16 (STEEL SHEET).....	RDB-031-04

DROP BOX INLET TYPE 16 (DETAIL & BAR CHART FOR LID) .....	RDB-032-04
DROP BOX INLET TYPE 16 (DIMENSIONS & ESTIMATE OF QUANTITIES).....	RDB-033-03
DROP BOX INLET TYPE 16 (ADDITIONAL STEEL - RISER) .....	RDB-034-04
DROP BOX INLET TYPE 16 (ADDITIONAL STEEL - CHAMBER) .....	RDB-035-04

SLOPED BOXES

SLOPED BOX OUTLET TYPE 1 .....	RDB-100-05
GRATES FOR SLOPED BOX OUTLET TYPE 1 .....	RDB-101-05
SLOPED AND FLARED BOX INLET-OUTLET 18”-24”-30”-36” ALL SKEWS .....	RDB-105-06
GRATES FOR SLOPED AND FLARED BOX INLET-OUTLET .....	RDB-106-05
SLOPED BOX INLET OR OUTLET TYPE 1 .....	RDB-110-08
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METAL END SECTION TYPE 1 & 2 (PARALLEL STRUCTURES).....	RDB-150-02
METAL END SECTION TYPE 3 & 4 (CROSS STRUCTURES) .....	RDB-155-02
DIMENSIONS FOR METAL END SECTIONS.....	RDB-160-02

CURB BOXES

CONCRETE MEDIAN BARRIER BOX INLET (CAST-IN-PLACE).....	RDB-230-09
CONCRETE MEDIAN BARRIER BOX INLET (SLIP-FORM).....	RDB-231-11
CONCRETE MEDIAN BARRIER BOX INLET (50” TALL WALL CAST-IN-PLACE).....	RDB-240-02
CONCRETE MEDIAN BARRIER BOX INLET (50” TALL WALL SLIP-FORM) .....	RDB-241-02
CURB BOX INLET TYPE A (DETAIL DRAWING).....	RDB-270-09
CURB BOX INLET TYPE A (STEEL DRAWING) .....	RDB-271-05
CURB BOX INLET TYPE A (TOP PHASE TABLE).....	RDB-272-07
CURB BOX INLET TYPE A (DETAIL & BAR CHART FOR 8” LID).....	RDB-273-06
CURB BOX INLET TYPE B (DETAIL DRAWING) .....	RDB-280-06
CURB BOX INLET TYPE B (STEEL DRAWING).....	RDB-281-03
CURB BOX INLET TYPE B (TOP PHASE TABLE).....	RDB-282-04
CURB BOX INLET TYPE B (DETAIL & BAR CHART FOR 8” LID).....	RDB-283-04
CURB BOX INLET TYPE F.....	RDB-320-06
BOX INLET RISER .....	RDB-400-05
BOX INLET PIPE CHAMBER.....	RDB-410-06
BOX INLET PIPE CHAMBER (ADDITIONAL STEEL).....	RDB-420-05

PAVED DITCHES, FLUME INLETS AND CHANNEL LININGS

PAVED DITCH TYPE 1 .....	RDD-001-06
PAVED DITCH TYPE 2 .....	RDD-002-07
FLUME INLET TYPE 1 .....	RDD-020-07
FLUME INLET TYPE 2 .....	RDD-021-07
CHANNEL LINING CLASS IA (MATTRESS UNITS) .....	RDD-030-08
CHANNEL LINING CLASS II AND III.....	RDD-040-05

PIPE AND BOX CULVERT AND HEADWALLS

FOR ALL PIPE AND BOX CULVERT HEADWALLS (RDH SERIES) SEE HEADWALL SUPPLEMENT

TYPICAL DRAINAGE INSTALLATIONS

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CULVERT, ENTRANCE & STORM SEWER PIPE TYPES & COVER HEIGHTS.....	RDI-002-05
CULVERT & STORM SEWER PIPE TYPES & COVER HEIGHTS.....	RDI-003-05
CULVERT & STORM SEWER PIPE TYPES & COVER HEIGHTS.....	RDI-004-04
CULVERT & STORM SEWER PIPE TYPES & COVER HEIGHTS.....	RDI-005-04
CULVERT & STORM SEWER PIPE TYPES & COVER HEIGHTS.....	RDI-006-04
CULVERT & STORM SEWER PIPE TYPES & COVER HEIGHTS.....	RDI-007-04
CULVERT & STORM SEWER PIPE TYPES & COVER HEIGHTS.....	RDI-008-04



CULVERT, ENTRANCE & STORM SEWER PIPE TYPES & COVER HEIGHTS.....	RDI-011-03
CULVERT & STORM SEWER PIPE TYPES & COVER HEIGHTS.....	RDI-012-03
NON-CIRCULAR PIPE ALTERNATES .....	RDI-016-03
PIPE BEDDING FOR CULVERTS, ENTRANCE AND STORM SEWER PIPE.....	RDI-020-10
PIPE BEDDING FOR CULVERTS, ENTRANCE AND STORM SEWER REINFORCED CONC.PIPE.....	RDI-021-01
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BEDDING FOR PRECAST BOX CULVERTS, SEWERS, STORM DRAINS AND THEIR COMBINATIONS.....	RDI-120-04
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MANHOLES

MANHOLE TYPE A .....	RDM-001-07
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MANHOLE TYPE C (CHAMBER LAYOUT).....	RDM-010-06
MANHOLE TYPE C (TOWER APPLICATIONS) .....	RDM-011-05
MANHOLE TYPE C (STEEL PATTERN).....	RDM-012-03
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MANHOLE STEPS.....	RDM-055
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PERFORATED PIPE

PERFORATED PIPE TYPES AND COVER HEIGHTS .....	RDP-001-06
PERFORATED PIPE FOR SUBGRADE DRAINAGE ON TWO-LANE (CLASS 2) AND MULTI-LANE ROADS .....	RDP-005-05
PERFORATED PIPE UNDERDRAINS (LONGITUDINAL AND TRANSVERSE) .....	RDP-006-04
PERFORATED PIPE DETAILS (SOLID ROCK) .....	RDP-007-04
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JUNCTION BOX (DIMENSIONS AND QUANTITIES) .....	RDX-002-04
JUNCTION BOX TYPE B .....	RDX-005-03
SPRING BOX INLET TYPE “A” .....	RDX-010-05
SPRING BOX INLET TYPE “B” .....	RDX-011-05
TRAP FOR BOX INLETS .....	RDX-020-05
SUBGRADE DRAINAGE - CONCRETE PAVEMENT.....	RDX-050-05
INTERMEDIATE AND END ANCHORS FOR CIRCULAR PIPE.....	RDX-060-04
INTERMEDIATE AND END ANCHORS FOR NON-CIRCULAR PIPE.....	RDX-065-04
SIDE TAPERED INLETS – 30” TO 60” DIA. ALL SLOPES - ALL SKEWS.....	RDX-150-06
SECURITY DEVICES FOR FRAMES, GRATES AND LIDS .....	RDX-160-06
TEMPORARY SILT FENCE.....	RDX-210-03
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SILT TRAP - TYPE A.....	RDX-220-05
SILT TRAP - TYPE B.....	RDX-225-01
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CHANNEL HABITAT IMPROVEMENT STRUCTURES (DUMPED STONE) .....	RDX-240-04

CHANNEL HABITAT IMPROVEMENT STRUCTURES (GABIONS) .....	RDX-245-04
PRECAST BOX CULVERT EXTENSION .....	RDX-300-04

~ FENCES AND GATES ~  
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WOVEN WIRE GATES .....	RFG-001-07
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WATER GATE TYPE 1 .....	RFG-010-05
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FENCING DETAILS .....	RFW-001-06
WOVEN WIRE FENCE TYPE 1 .....	RFW-005-08
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~ GENERAL ~

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CURVE WIDENING AND SUPERELEVATION TRANSITIONS .....	RGS-001-07
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## **PART III**

### **EMPLOYMENT, WAGE AND RECORD REQUIREMENTS**

**TRANSPORTATION CABINET  
DEPARTMENT OF HIGHWAYS**

**LABOR AND WAGE REQUIREMENTS  
APPLICABLE TO OTHER THAN FEDERAL-AID SYSTEM PROJECTS**

- I. Application
- II. Nondiscrimination of Employees (KRS 344)

**I. APPLICATION**

1. These contract provisions shall apply to all work performed on the contract by the contractor with his own organization and with the assistance of workmen under his immediate superintendence and to all work performed on the contract by piecework, station work or by subcontract. The contractor's organization shall be construed to include only workmen employed and paid directly by the contractor and equipment owned or rented by him, with or without operators.

2. The contractor shall insert in each of his subcontracts all of the stipulations contained in these Required Provisions and such other stipulations as may be required.

3. A breach of any of the stipulations contained in these Required Provisions may be grounds for termination of the contract.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age forty (40) and over, in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

Revised: January 25, 2017

**II. NONDISCRIMINATION OF EMPLOYEES**

**AN ACT OF THE KENTUCKY  
GENERAL ASSEMBLY TO PREVENT  
DISCRIMINATION IN EMPLOYMENT  
KRS CHAPTER 344  
EFFECTIVE JUNE 16, 1972**

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (forty and above); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age forty (40) and over. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, except that such a notice or advertisement may indicate a preference, limitation, or specification based on religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, when religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, is a bona fide occupational qualification for employment.



## EXECUTIVE BRANCH CODE OF ETHICS

In the 1992 regular legislative session, the General Assembly passed and Governor Brereton Jones signed Senate Bill 63 (codified as KRS 11A), the Executive Branch Code of Ethics, which states, in part:

KRS 11A.040 (7) provides:

No present or former public servant shall, within six (6) months following termination of his office or employment, accept employment, compensation, or other economic benefit from any person or business that contracts or does business with, or is regulated by, the state in matters in which he was directly involved during the last thirty-six (36) months of his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, or for which he received, prior to his state employment, a professional degree or license, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved during the last thirty-six (36) months of his tenure in state government. This subsection shall not prohibit the performance of ministerial functions, including but not limited to filing tax returns, filing applications for permits or licenses, or filing incorporation papers, nor shall it prohibit the former officer or public servant from receiving public funds disbursed through entitlement programs.

KRS 11A.040 (9) states:

A former public servant shall not represent a person or business before a state agency in a matter in which the former public servant was directly involved during the last thirty-six (36) months of his tenure, for a period of one (1) year after the latter of:

- a) The date of leaving office or termination of employment; or
- b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, 1025 Capital Center Drive, Suite 104, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: May 23, 2022

### **Kentucky Equal Employment Opportunity Act of 1978**

The requirements of the Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) shall apply to this Contract. The apparent low Bidder will be required to submit EEO forms to the Division of Construction Procurement, which will then forward to the Finance and Administration Cabinet for review and approval. No award will become effective until all forms are submitted and EEO/CC has certified compliance. The required EEO forms are as follows:

- EEO-1: Employer Information Report
- Affidavit of Intent to Comply
- Employee Data Sheet
- Subcontractor Report

These forms are available on the Finance and Administration's web page under ***Vendor Information, Standard Attachments and General Terms*** at the following address:  
**<https://www.eProcurement.ky.gov>**.

Bidders currently certified as being in compliance by the Finance and Administration Cabinet may submit a copy of their approval letter in lieu of the referenced EEO forms.

For questions or assistance please contact the Finance and Administration Cabinet by email at **[finance.contractcompliance@ky.gov](mailto:finance.contractcompliance@ky.gov)** or by phone at 502-564-2874.

# EMPLOYEE RIGHTS UNDER THE FAIR LABOR STANDARDS ACT

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

## FEDERAL MINIMUM WAGE

# \$7.25

 PER HOUR

BEGINNING JULY 24, 2009

### OVERTIME PAY

At least  $1\frac{1}{2}$  times your regular rate of pay for all hours worked over 40 in a workweek.

### CHILD LABOR

An employee must be at least **16** years old to work in most non-farm jobs and at least **18** to work in non-farm jobs declared hazardous by the Secretary of Labor.

Youths **14** and **15** years old may work outside school hours in various non-manufacturing, non-mining, non-hazardous jobs under the following conditions:

#### *No more than*

- **3** hours on a school day or **18** hours in a school week;
- **8** hours on a non-school day or **40** hours in a non-school week.

Also, work may not begin before **7 a.m.** or end after **7 p.m.**, except from June 1 through Labor Day, when evening hours are extended to **9 p.m.** Different rules apply in agricultural employment.

### TIP CREDIT

Employers of "tipped employees" must pay a cash wage of at least \$2.13 per hour if they claim a tip credit against their minimum wage obligation. If an employee's tips combined with the employer's cash wage of at least \$2.13 per hour do not equal the minimum hourly wage, the employer must make up the difference. Certain other conditions must also be met.

### ENFORCEMENT

The Department of Labor may recover back wages either administratively or through court action, for the employees that have been underpaid in violation of the law. Violations may result in civil or criminal action.

Employers may be assessed civil money penalties of up to \$1,100 for each willful or repeated violation of the minimum wage or overtime pay provisions of the law and up to \$11,000 for each employee who is the subject of a violation of the Act's child labor provisions. In addition, a civil money penalty of up to \$50,000 may be assessed for each child labor violation that causes the death or serious injury of any minor employee, and such assessments may be doubled, up to \$100,000, when the violations are determined to be willful or repeated. The law also prohibits discriminating against or discharging workers who file a complaint or participate in any proceeding under the Act.

### ADDITIONAL INFORMATION

- Certain occupations and establishments are exempt from the minimum wage and/or overtime pay provisions.
- Special provisions apply to workers in American Samoa and the Commonwealth of the Northern Mariana Islands.
- Some state laws provide greater employee protections; employers must comply with both.
- The law requires employers to display this poster where employees can readily see it.
- Employees under 20 years of age may be paid \$4.25 per hour during their first 90 consecutive calendar days of employment with an employer.
- Certain full-time students, student learners, apprentices, and workers with disabilities may be paid less than the minimum wage under special certificates issued by the Department of Labor.

For additional information:



# 1-866-4-USWAGE

(1-866-487-9243)

TTY: 1-877-889-5627



# WWW.WAGEHOUR.DOL.GOV

## **PART IV**

## **INSURANCE**

Refer to  
*Kentucky Standard Specifications for Road and Bridge Construction,*  
current edition

**PART V**

**BID ITEMS**

Section: 0001 - MICROSURFACE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	21652EN		MICROSURFACING-LEVELING COURSE	5,650.00	SQYD		\$	
0020	24958EC		MICROSURFACING-SURFACE COURSE - TYPE D	45,893.00	SQYD		\$	

Section: 0002 - THINLAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0030	00190		LEVELING & WEDGING PG64-22	232.00	TON		\$	
0040	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		\$	
0050	02677		ASPHALT PAVE MILLING & TEXTURING	60.00	TON		\$	
0060	21653ES403		CL2 ASPH SURF NO.4D PG64-22	1,600.00	TON		\$	
0070	24970EC		ASPHALT MATERIAL FOR TACK NON-TRACKING	18.00	TON		\$	

Section: 0003 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0080	02562		TEMPORARY SIGNS	290.00	SQFT		\$	
0090	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		\$	
0100	02697		EDGE LINE RUMBLE STRIPS	23,200.00	LF		\$	
0110	06510		PAVE STRIPING-TEMP PAINT-4 IN	27,000.00	LF		\$	
0120	06542		PAVE STRIPING-THERMO-6 IN W	27,500.00	LF		\$	
0130	06543		PAVE STRIPING-THERMO-6 IN Y	27,500.00	LF		\$	
0140	06565		PAVE MARKING-THERMO X-WALK-6 IN	220.00	LF		\$	
0150	06568		PAVE MARKING-THERMO STOP BAR-24IN	96.00	LF		\$	
0160	24858EC		POLYMER ASPHALT EMULSION FOR SCRUB SEAL	67.00	TON		\$	
0170	24961EC		ASPHALT SEAL AGGREGATE - TYPE D	42,875.00	SQYD		\$	

Section: 0004 - DEMOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0180	02569		DEMOBILIZATION	1.00	LS		\$	