KANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION TO THE
STANDARD SPECIFICATIONS, EDITION 2007

Page 600-42, change title from "ASPHALT SEALING" to "CHIP SEALS".

SECTION 608

CHIP SEALS

Add the following additions to TABLE 601-1:

TABLE 601-1: ASPHALT APPLICATION TEMPERATURES				
TYPE AND GRADE	TEMPERATURE RANGE (ºF)			
	Spraying		Plant Mixing	
	Min.	Max.	Min.	Max.
Asphalt Cement (AC-20-5TR)	325	350	n/a	n/a
Asphalt Cement (AC-20-XP)	325	350	n/a	n/a
Asphalt Cement (AC-10-2TR)	300	350	n/a	n/a
Asphalt Cement (AC-10-XP)	300	350	n/a	n/a

Page 600-42, subsection 608.1. Delete Bid Item "Manipulation (Asphalt Seal)" and replace with "Manipulation (Chip Seals)".

Page 600-43, delete TABLE 608-1, and replace with the

TABLE 608-1: RATES OF APPLICATION FOR CHIP SEAL				
Type	Composition	Aggregate Cu. Yd./Mile 24 foot width*	Asphalt Material Gal/Sq. Yd. Residue*	Asphalt Type**
CM-A	Sand-Gravel	105	0.20	CRS-1H
CM-B	Sand-Gravel	135	0.23	CRS-1H
CM-D	Crushed Sandstone	145	0.27	CRS-1H or RS-1H
CM-K	Limestone	140	0.24	RS-1H
CM-L-1	Lightweight	85	0.17	CRS-1H
CM-L-2	Lightweight	115	0.25	CRS-1H
CM-L-3	Lightweight	150	0.30	CRS-1H

*Rates shown are estimated and will be adjusted to comply with actual field conditions.
** Asphalt type may be changed with approval of the DME.

Page 600-43, delete subsection 608.3g, and replace with the following:

g. Manipulation. Immediately following the application of cover material, embed using pneumatic rolling. Provide a minimum of 3 self-propelled pneumatic rollers. Check the tire pressures of all tires on all rollers every morning. Inflate all tires on a roller to the same pressure. Provide this information to the Engineer before work begins. Complete the initial rolling within 5 minutes after application of cover material. If the air temperature is less than 70ºF, then complete the initial rolling within 2 minutes after applying the aggregate. Proceed at a speed

less than or equal to 5 miles per hour to prevent turning over aggregate. Make a minimum of 3 complete passes over the aggregate. Roll the aggregate so the entire width of the treatment area is covered in one pass of all the rollers. The total compacting width of each pneumatic-tired roller shall exceed 5 ft. The number of rollers for shoulders may be reduced based on the width of the shoulders and the width of the rollers.

If emulsified asphalt is used, cure the asphalt material a minimum of 4 hours before opening the roadway to unrestricted traffic. If polymer modified emulsified asphalt is used, the cure time shall be a minimum of 1 ½ hours before the traveled way is opened to unrestricted traffic. If traffic causes excessive chip loss, increase the cure time until excessive chip loss is eliminated.

On seals using CM-A, or B, the Engineer may require the use of a steel roller for one of the coverages, provided excessive crushing of the cover material does not occur.

Do not turn rollers on the sealed surface.

When required, apply additional cover material and roll it with the pneumatic rollers as directed by the Engineer.

Broom the loose cover material from the surface of the traveled way as soon as the asphalt material has cured enough to prevent damage by brooming or vehicular traffic. Continue periodic brooming until all loose aggregate has been removed. All seals shall receive 1 light brooming of the cover material before opening to traffic. Additional broomings may be required before opening to traffic to prevent the cover material from being picked up by moving vehicles. Broom excess cover material from the shoulder.

The Contractor may seal in 1 lane for the entire day.

When CM-B and cutback asphalt are specified in the Contract Documents, begin a second period of manipulation on the day following the first rolling, or as soon thereafter as weather conditions permit. This manipulation consists of spreading the loose cover material uniformly over the surface and rolling with the type of rollers specified by the Engineer. The rolling operation consists of 2 complete coverages of the previous day's work. Following the second day's rolling, broom excess cover material off the traveled way and shoulders, as directed by the Engineer.

Page 600-44, subsection 603.8h. In the last sentence change "Manipulation (Asphalt Seal)" to "Manipulation (Chip Seals)".

Page 600-45, add the following subsection 608.3l.:

l. Observation Period. If the chip seal is constructed in accordance with the seasonal limitations in **subsection 608.3k.**, the Engineer, along with the Contractor, will inspect the seal, 30 days after work is completed on the seal. If the seasonal limitations in **subsection 608.3k.** are modified, the Engineer, along with the Contractor, will inspect the seal between May 1 and April 1 the following year. Repair areas where there is no cover material left in place (bare areas) as directed by the Engineer:

- In 5% the wheel paths; and
- Individual areas ≥ 10 square yards; and
- Where the total square yards of bare areas is greater than 5% of the total square yards of the seal.

Page 600-45, subsection 608.4. In the fifth paragraph, change "Manipulation (Asphalt Seal)" to "Manipulation (Chip Seals)".

Page 600-45, subsection 608.4. In the sixth paragraph, change "asphalt sealing" to "chip seals".

See SECTION 1201 (07-12005, latest revision).

Add a new section to DIVISION 1200:

POLYMER MODIFIED ASPHALT CEMENT FOR CHIP SEALS

1.0 DESCRIPTION

This specification covers polymer modified (tire rubber and/or SBS) asphalt cement for use in chip seals.

2.0 REQUIREMENTS

Provide material that complies with **TABLE 1.0**.

TABLE 1.0: SPECIFICATIONS FOR ASPHALT CEMENT FOR CHIP SEALS

	AC-20-5TR		AC-10-2TR	
	Min.	**Max.**	**Min.**	**Max.**
Polymer	TR & SBS(1)		TR & SBS(2)	
Polymer Content, %	5	-----	3	-----
Dynamic shear, G*/sin δ, 64°C, 10 rad/s, kPa	1.0	-----	-----	-----
Dynamic shear, G*/sin δ, 58°C, 10 rad/s, kPa	-----	-----	1.0	-----
Viscosity, 140°F, Poise	2,000	-----	1,000	-----
Penetration, 77°F, 100g, 5sec	75	115	95	130
Elastic Recovery, ASTM D6084 50°F, % Recovery, 1 hour	55	-----	30	-----
Softening Point, °F	120	-----	110	-----
Test of Residues from RTFO Aging and PAV Bending Beam Rheometer at - 18°C, MPa				
Creep Stiffness m-value	----- 0.300	300 -----	----- 0.300	300 -----

(1) Produce the AC-20-5TR with a minimum of 5% scrap, group, whole tire rubber.
(2) Produce the AC-10-2TR will a minimum of 3% polymers to include a combination of tire rubber and SBS.

3.0 TEST METHODS

Test according to the applicable provisions of ASTM D 36 and D 6084 Procedure B, and AASHTO T 48, T 49, T 202, T 313, and T 315.

4.0 PREQUALIFICATION

Prequalify material according to **SECTION 1201**.

5.0 BASIS OF ACCEPTANCE

See applicable requirements under **SECTION 1201**.

07-23-14 C&M (BTH)
Oct-14 Letting