

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

**SECTION 503**

**PORLAND CEMENT CONCRETE PAVEMENT SMOOTHNESS**

**Page 500-33, subsection 503.3. Delete subsections 503.3b. and c. and replace with the following:**

**b. Equipment.** Use a California type profilograph, prequalified by the Bureau of Materials and Research, to determine the pavement profile. If approved by the Bureau of Materials and Research, other types of profilographs that produce results compatible to the California type profilograph may be used. If the profilograph has a mechanical recorder, provide a ProScan electronic scanner with motorized paper transport to reduce the trace. Use the motorized paper transport when scanning the profilograph traces. The Bureau of Materials and Research can provide the information necessary for the Contractor to obtain a ProScan electronic scanner. If approved by the Bureau of Materials and Research, other types of automated trace reduction equipment may be used. If the profilograph has a computerized recorder, the trace produced is evaluated without further reduction.

Provide a self-propelled grinding machine specifically designed to grind and texture portland cement concrete pavement using diamond blades mounted on a multi-blade arbor.

For bump grinding or continuous grinding of segments that are one or more parallel driving lanes and less than a mile in length, the arbor must contain enough blades to provide at least a 24 inch wide cutting head and provide 55 to 60 evenly spaced grooves per foot.

For all other conditions, the arbor must contain enough blades to provide at least a 36 inch wide cutting head and provide 55 to 60 evenly spaced grooves per foot.

Do not use equipment that causes excessive raveling, aggregate fractures or spalls. Use equipment that provides a flat plane surface without crown and a uniform texture for the full width of the lane. Grind a nominal depth of 3/16 inch. Transverse grooving is not required.

Use vacuum equipment or other continuous methods to remove grinding slurry and residue. Do not allow the grinding slurry to flow across lanes being used by traffic.

Bush hammers or other impact devices will not be permitted.

**c. Profilograph Operation.** Provide an operator for the profilograph certified according to KT-46, Part V.

Determine the pavement profiles for each lane according to the procedures for 1 lane shown in Kansas Test Method KT-46. Additional profiles may be taken only to define the limits of an out-of-tolerance surface variation. The Engineer may use a 10 foot straightedge (or other means) to detect irregularities outside the required trace paths. The Engineer may also use the straightedge to delineate the areas that require corrective action.

Determine a profile index (in./mi.) for each pavement section of finished pavement. A pavement section is a continuous area of pavement surface 0.1 mile long by 1 lane wide (12 feet nominal). A partial pavement section resulting from an interruption (such as a bridge) of the continuous pavement surface is subject to the same testing and evaluation as a whole section.

During the initial paving operations (and after long shutdown periods), profile the pavement as soon as the concrete has cured sufficiently to permit testing. The Engineer and the Contractor will use the results of the initial testing to evaluate the paving methods and equipment. If the initial paving operation produces acceptable results, the Contractor may continue paving. Repair or replace any PCCP curing medium that is damaged or removed during the testing.

On surfaces excluded from profilograph testing, the Engineer will determine the pavement smoothness using a 10 foot straightedge. The Engineer will select the locations to be tested. The variation of the surface from the testing edge of the straightedge shall not exceed  $\frac{1}{8}$  inch between any 2 contacts, longitudinal or transverse.

Correct all irregularities exceeding the specified tolerance using equipment and methods approved by the Engineer. After the irregularities are corrected, the Engineer will retest the area to verify compliance with the specified tolerance.

**Page 500-33, delete Note 3 of TABLE 503-1 and replace with the following:**

3Correct all areas within each section having high points (bumps) with deviations in excess of 0.3 inches (0.4 inches-Urban Type Projects) in a length of 25 feet or less regardless of the profile index value.

**Page 500-34, add the following after TABLE 503-1 (and associated TABLE information) in subsection 503.3:**

After the profilograph traces have been evaluated, make corrections according to **TABLE 503-4**.

<b>TABLE 503-4: GRINDING REQUIREMENTS</b>	
<b>Condition</b>	<b>Action*</b>
Greater than 25% (132 feet) of the 0.1 mi. section requires correction	Continuously grind the 0.1 mi. section.**
Greater than 25% (1320 feet) of 1.0 mi. segment require correction	Continuously grind the 1.0 mi. segment.
Greater than 25% of the project requires correction	Continuously grind the entire project.

\* Continuously grinding requires a minimum of 98% of the pavement be ground.

\*\*If the skip length between areas to be ground (either within a 0.1 mi. section or between 0.1 mi. sections) is less than either grind length, combine the grinds so the area between is also ground. This additional ground area (area between) will apply to the computation of the 25% of the 0.1 mi. section.

If the Contractor elects or is required by **TABLE 503-4** to continuously grind the entire project, the following apply:

- the areas excluded in **subsection 503.3a.** are not required to be ground;
- at intersections constructed with multiple transitions for drainage (especially in urban areas), if smoothness meets **SECTION 503**, the intersection is not required to be ground; and
- when transitioning from a ground area to an unground area, feather the grinding a uniform distance throughout the project.

Grind and texture the entire surface of the pavement in the longitudinal direction. Provide positive lateral drainage by maintaining a constant cross slope between grinding passes in each lane.

Maintain a uniform transverse slope that matches the existing cross slope to the extent possible with no depressions or humps greater than 1/4 inch in 12 feet when tested with a string line or straightedge. Do not exceed by more than 1/16 inch the vertical alignment between adjacent passes of the cutting head. Begin and end grinding lines normal to the direction of vehicle travel. Grind the surface so corrugations are parallel to the pavement edge with ridges 1/16 inch, ±1/32 inch higher than the valleys of the corrugations.

**Page 500-34, delete the first paragraph in subsection 503.4 and replace with the following:**

Pay adjustments will be based on the initial average profile index determined for the "sections" prior to performing any corrective work, unless the surface of the entire project is continuously ground.

If the Contractor elects or is required by **TABLE 503-4** to continuously grind the entire project, pay adjustments will be based on the average profile index determined after all grinding is performed.

If the Contractor elects to remove and replace the sections, the Contractor will be paid the price adjustment that corresponds to the initial average profile index obtained on the pavement sections after replacement.