Uniform Paving Platform
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Why Do we Need a Uniform Paving Surface?

Rideability
- Smooth base = smooth surface (usually)
- Uneven base = rough surface (always)
- Smooth pavements last longer and are safer for motorists

Density of Surface Mix
- Uneven support will result in uneven density
- Density is important for longevity of pavements

![Graph showing the relationship between percent pavement voids and percent loss service life. The graph is labeled "Washington State." ]
Life is Not Perfect...
Construction is Not Perfect Either…

Good
Variable Width of Base....
A Little Bit of Scabbing…
Variable Base Thickness...
Deterioration of Milled Surfaces...
What is the Solution?

Mill Deeper
- Contracts typically require 1.5” to 2” of milling
- Make a second pass of the milling machine
- Add a second layer of SM or IM mix

Patching
- Type I - <20 sf, < 5” deep
- Type II - >20 sf, <5” deep
- Type III - >5” deep

Scratch/Leveling Course
- *Localized* application of surface mix
- Level depressions, scabbing or distorted areas
Special Provision for Asphalt Concrete Scratch/Leveling Course Prior to Plant Mix Overlay

December 18, 2014

I. DESCRIPTION

This work shall consist of scratching and/or leveling a crack sealed, scabbed or distorted pavement surface (milled or unmilled) with the appropriate asphalt mix in areas designated by the Engineer. This work is applicable only to the routes or areas designated to be overlaid in this contract and where the Engineer has authorized the limits for scratching/leveling. This work will be accomplished prior to the overlay paving operation. After the scratching/leveling, the Contractor will be responsible for maintaining the prepared surface until the overlay has been completed.

Definitions: For the purpose of the Specification’s surface preparation is defined as the following:

TYPE I - A localized scratch/level of the pavement, including crack sealed, distorted or scabbed areas, no more than 50 percent of the surface area to be overlaid in each distinct paving site/location on the contract.

TYPE II - A widespread scratch/level of the pavement, including crack sealed, distorted or scabbed areas, more than 50 percent of the surface to be overlaid in each distinct paving site/location on the contract.

II. MATERIALS

Asphalt concrete scratch and/or leveling material shall be the surface mix asphalt designated in the contract or as approved by the Engineer. SWA should not be used as a scratch/leveling course material. Limestone bases (L) may be used in leveling courses when approved by the Engineer.

Tack coat shall conform to the requirements of the Special Provision for Non-Tracking Tack Coat or Section 210 of the Specifications and be the same material as used for the final surface course.

III. PROCEDURES

For surfaces that will receive a direct overlay, the Engineer will designate the limits of surface area for scratch/leveling course to be achieved prior to beginning the work. For pavements that are milled, the Engineer will identify and designate the limits of surface area for scratch/leveling course to be placed as the work progresses, with communication(s) frequency and method(s) agreed upon before the work begins.

Areas designated for scratch/leveling course shall be thoroughly cleaned prior to applying tack coat.

A tack coat shall be applied to all exposed surfaces of the area which will receive asphalt material.

The Contractor shall utilize the mix and type of asphalt for scratch/leveling course in accordance with Section II Materials that he shall use with that route’s overlay unless otherwise approved by The Engineer. Asphalt material shall be placed in a lift of no more than 2 inches in depth; typical lift is approximately 1 inch in depth. After each lift, it shall be compacted with equipment in accordance with Section 315.03(c) using a minimum of 5 passes of a minimum 8 ton roller. Density testing will not be required. Care shall be taken to ensure the surface of the finished repaired area conforms to the grade of the surrounding pavement.

IV. MEASUREMENT AND PAYMENT

When the bid proposal contains a pay item, corresponding to any of the types below, specified in the “Schedule of Items”, that type of scratch/leveling course will include the work designated in the corresponding type’s description and be paid for in accordance with the price designated by the bidder. If the bid proposal contains no pay item for the type of scratch/leveling course as described herein, such as may be discovered in the field; that scratch/leveling course shall meet the definition of Section I and will be measured and paid for in accordance with the following:

Scratch/Leveling Course Type I will be measured in tons of asphalt material and paid for at the rate of two times the contract unit bid price per ton of the mix type(s) of asphalt authorized by the Engineer. This price shall include preparing the area, furnishing and applying tack coat, furnishing and applying asphalt material, and compaction.

Scratch/Leveling Course Type II will be measured in tons of asphalt material and paid for at the rate of one and one-half times the contract unit bid price per ton of the mix type(s) of asphalt authorized by the Engineer. This price shall include preparing the area, furnishing and applying tack coat, furnishing and applying asphalt material, and compaction.

When included in the “Schedule of Items”, payment will be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scratch/Level Type I</td>
<td>Tons</td>
</tr>
<tr>
<td>Scratch/Level Type II</td>
<td>Tons</td>
</tr>
</tbody>
</table>
SP for Scratch/Leveling Course

General
- Localized application of surface mix
- Level depressions, scabbing or distorted areas
- The Engineer *must* authorize scratch/level prior to use

Definitions
- Type I - <50% of area to be paved
- Type II - > 50% of area to be paved

Materials
- Same as surface mix specified
- SM-4.75, SM-9.0, SM-9.5, etc.
- Not for SMA!

Measurement/Payment
- Type I - 2 x contract price for surface mix
- Type II - 1.5 x contract price for surface mix
- OR pay by the ton when specified as a bid item
It Is Not There Yet!
It Is Not There Yet!
What Would You Do?
What Would You Do?

A. Mill Deeper
B. Patch
C. Scratch/Level
D. Do Nothing
What Would You Do?

B. Patch
What Would You Do?
What Would You Do ?

A. Mill Deeper
B. Patch
C. Scratch/Level
D. Do Nothing
What Would You Do?

A. Mill Deeper
What Would You Do?
What Would You Do?

A. Mill Deeper
B. Patch
C. Scratch/Level
D. Do Nothing
What Would You Do?

D. Do Nothing
Conclusions

Uniform Paving Surface
- Promotes smoother pavements
- Helps with achieving uniform density

Condition of Milled Surfaces
- Very difficult to predict during contract preparation
- Can change with time, weather conditions and traffic
- Old pavements are prone to stripping
- Scabbing is a common problem

Tools to Achieve Uniform Paving Surfaces
- Deeper milling
- Patching
- Scratch/level
And now, the contractor’s perspective...