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NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

2024 Nebraska Asphalt Paving Workshop

Best Practices of Inspection and Construction for Asphalt Paving, Compaction, and Plant Operations

Learning Objectives

- Evaluate pavement distress and select repair treatment for given scenarios
- Describe best practices for patching
- Name reasons for leveling applications
- Name reasons for performing milling
- Discuss the benefits of milling
- Review milling equipment
- Understand the different milling drums and their uses

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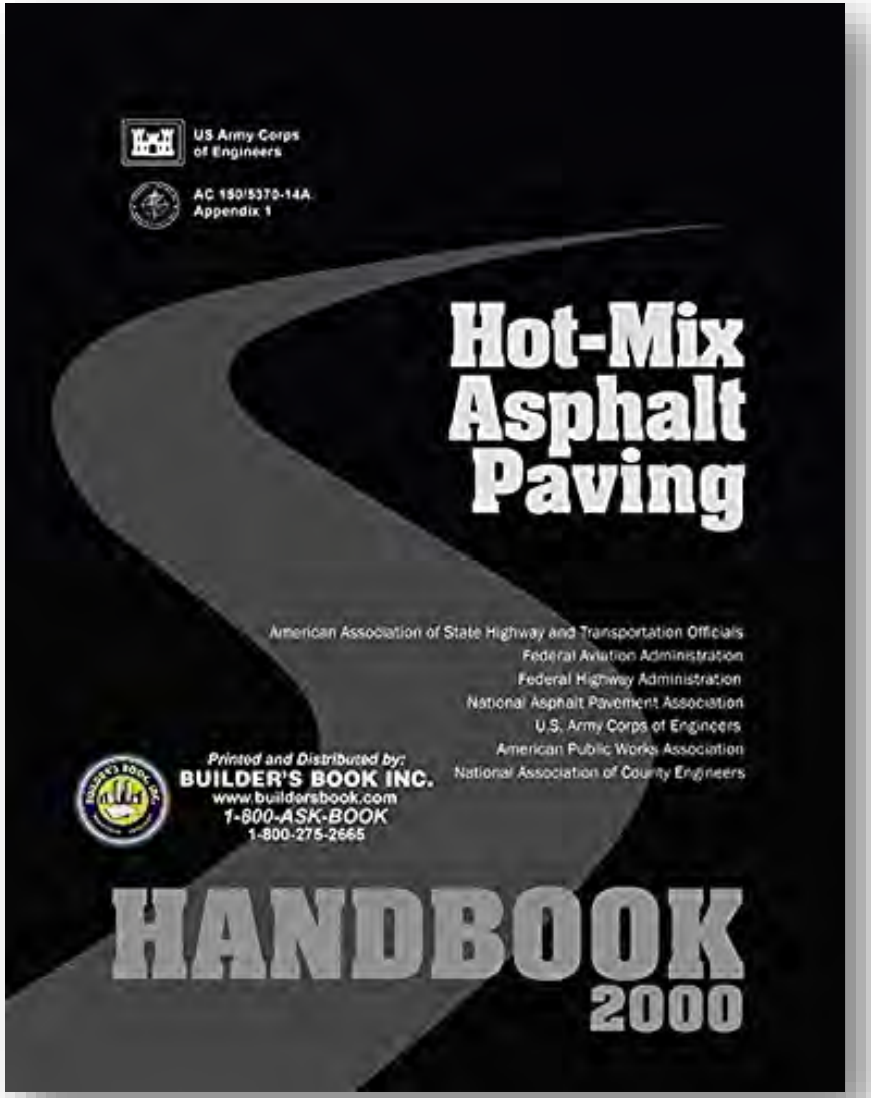
"The performance of asphalt pavements under traffic is directly related to the condition of the surface on which the pavement layers are placed."

HMA Handbook 2000



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Surface Preparation to Overlay an Existing Asphalt Pavement

Good Condition

Poor Condition

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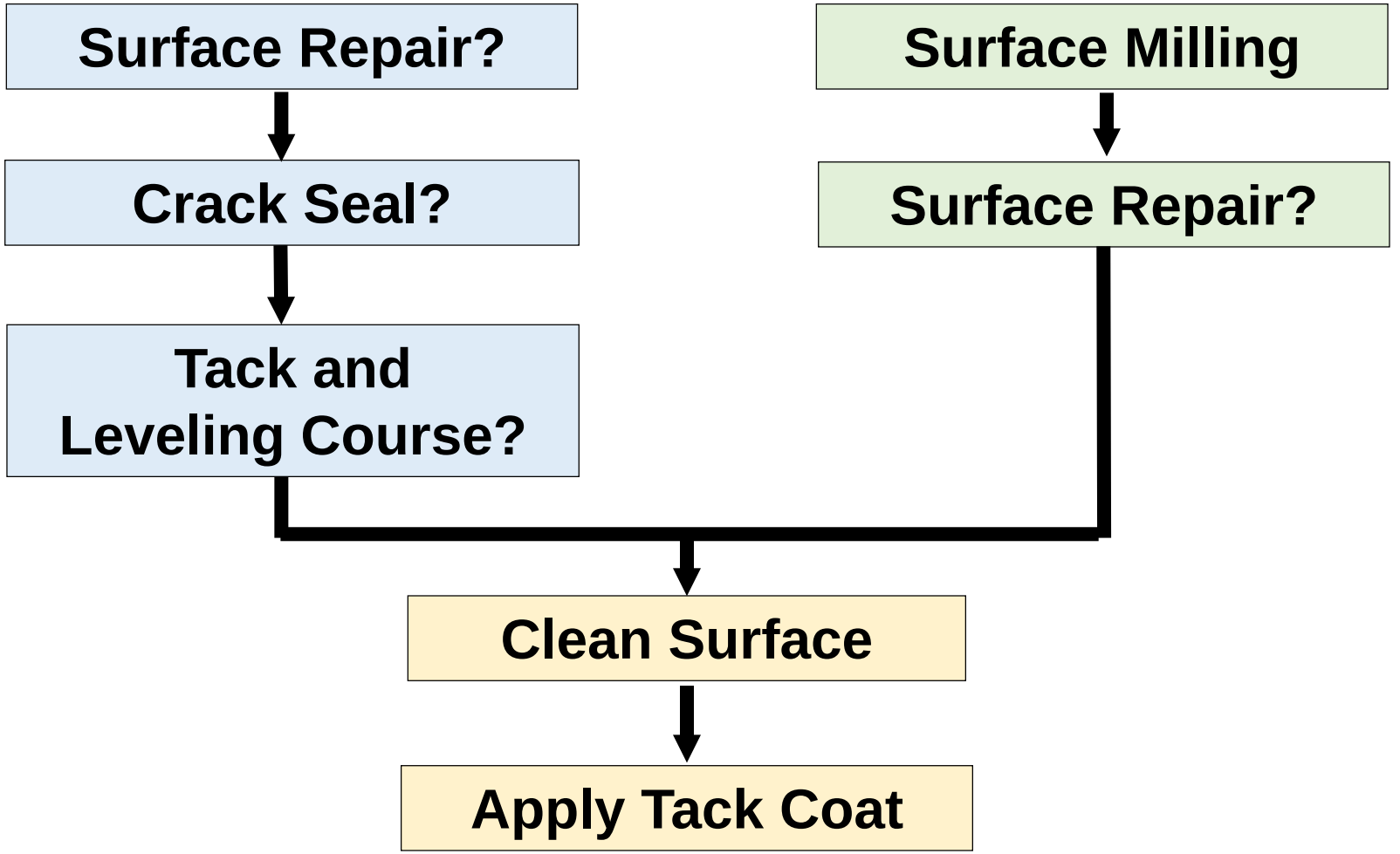
Asphalt Surface Preparation



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Pavement Surface Repairs Must

- Address the distress mechanism (as well as symptoms)
- Employ proper materials and construction procedures

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Is this old patch, okay?

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Patch Construction

1. Mark patch boundaries
2. Cut boundaries
3. Remove Asphalt and weak materials
4. Repair foundation
5. Apply tack coat
6. Place Asphalt patch material
7. Compact the patch

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Clearly mark patch boundaries

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Remove weak material

Back Hoe

Milling Machine

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Remove weak material

A demo saw may be used

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Repair Foundation

Compact base material

Replace if weak or yielding

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Address Drainage Problems

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Tack Vertical Faces

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What's wrong with these?

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Asphalt Patch Examples

Good

Poor

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Crack Sealing

1. Purposes
2. Sealant materials
3. Stepwise process
   - Remove old sealant
   - Rout crack?
   - Clean (air blast or hot-air lance)
   - Apply sealant
4. Sealing vs. filling
5. Pros and cons

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Good Candidate for Crack Sealing?

Poor Candidates for Crack Sealing

Cracks Too Narrow

Crack Severity Too High

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Typical Sealant Application

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Potential Problem with Crack Sealing

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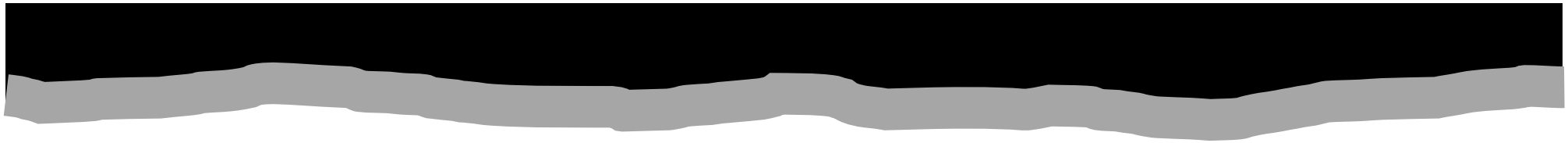
Applications for Leveling Course

- Restore cross-slope
- Correct rutting
- Improve smoothness



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ROUGH
ROAD

Asphalt Milling is…

The controlled surface removal of existing pavement to a desired depth

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Asphalt Milling Applications

- Conventional Milling
- Fine Milling
- Micro Milling

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Types of Asphalt Milling

Conventional

Fine Milling

Micro Milling

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Conventional Mill vs. Micro-Mill

Conventional Drum

Micro-Mill Drum

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Reasons for Surface Milling

- Remove surface distress
- Restore cross-slope
- Shift grade control point
- Maintain curb reveal
- Improve bond
- Improve smoothness
- Conserve natural resources

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Effect of Milling Speed on Texture

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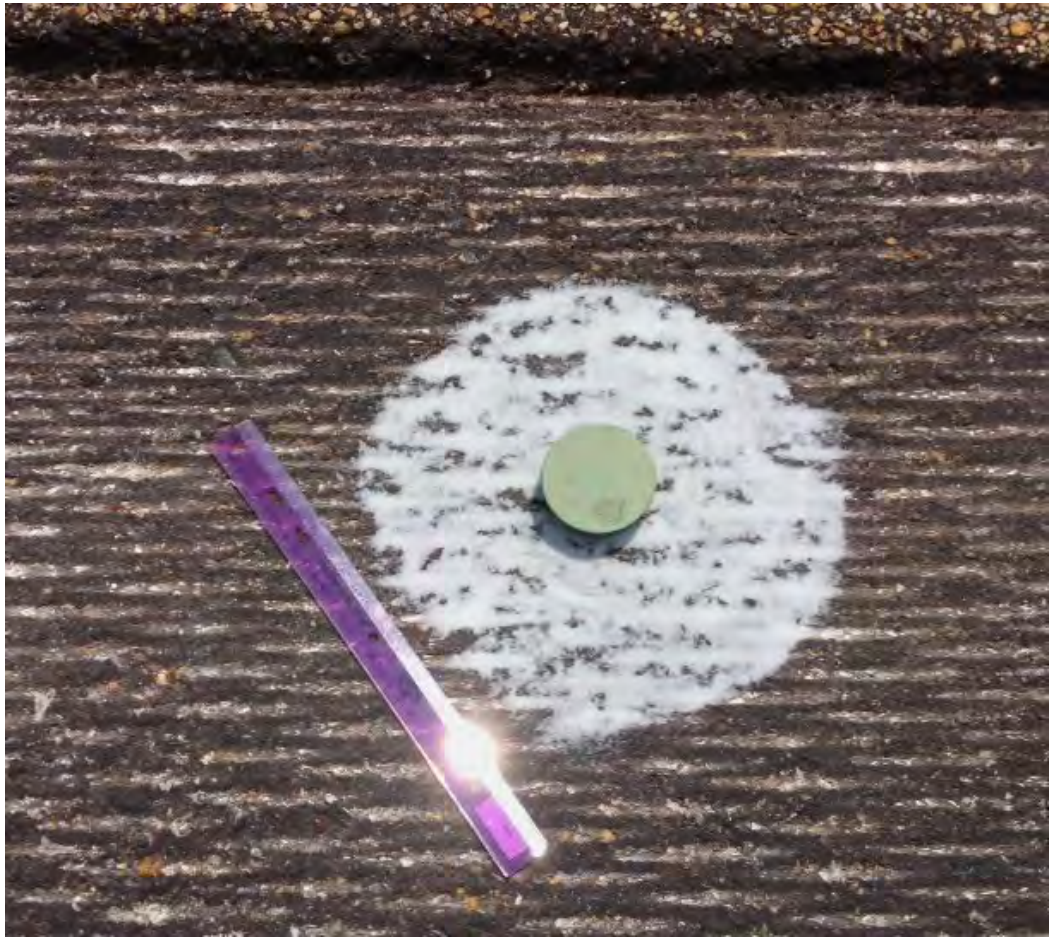
Evaluation of Micro-Milled Surface



Video

408.03(c) and (d)

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Scabbing

How would you handle this?

Mill deeper?

Slow down forward speed of milling machine?

Faster drum speed?

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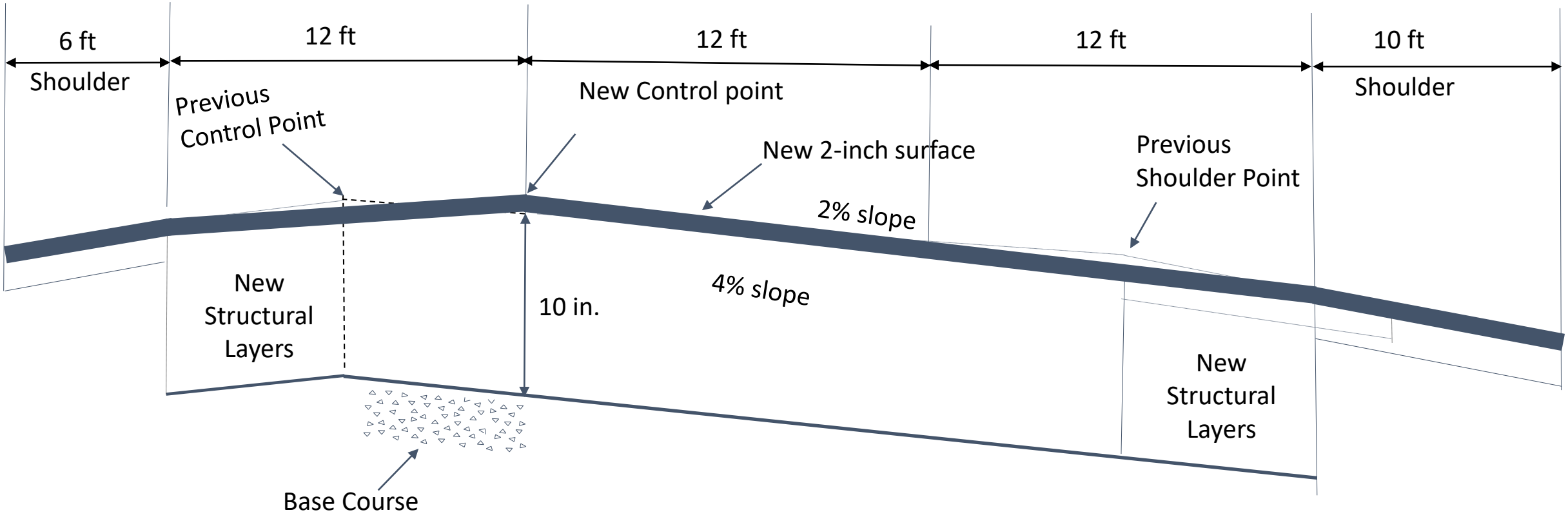
Shift Grade Control Point



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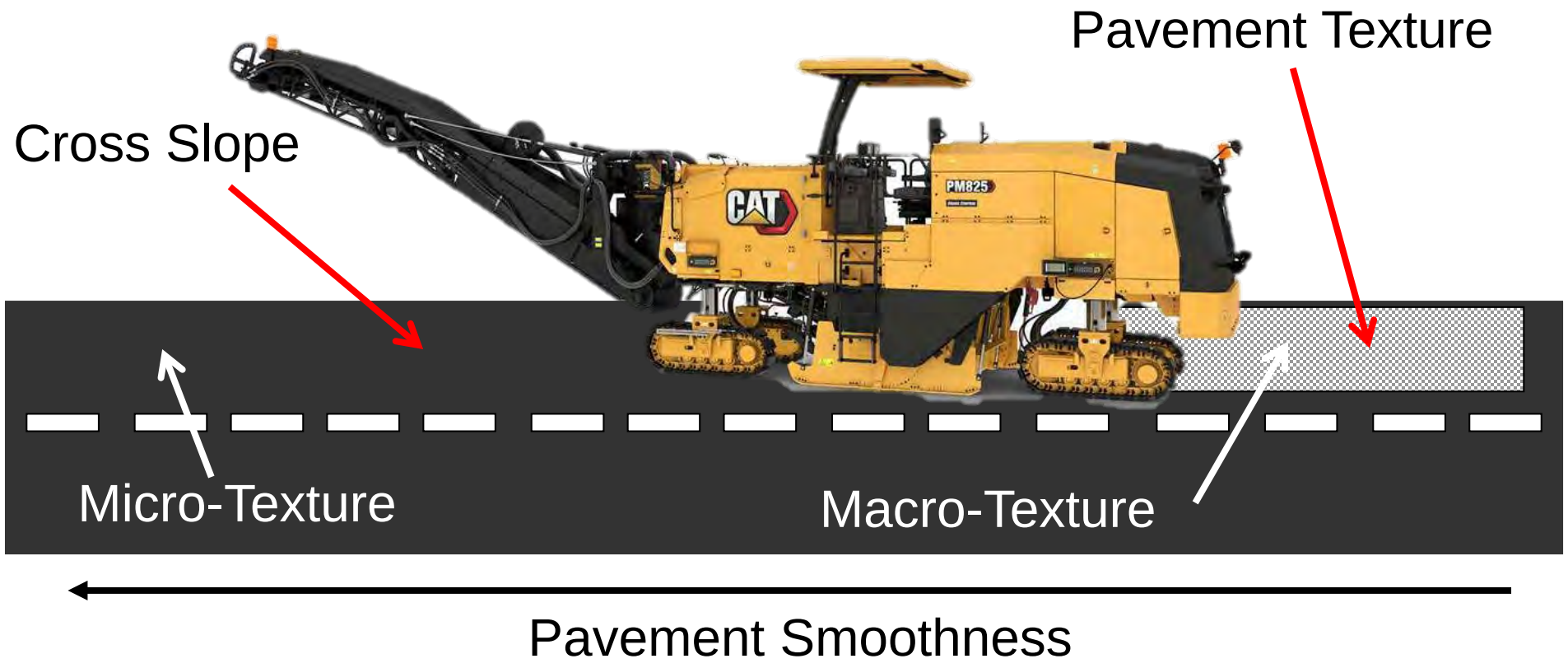
QUALITY CONTROL…..

What should we test for?



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ASTEC
ROADTEC
RX-700

What happened here…?

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5 Benefits of Milling

1. Restoration of Pavement Geometry
2. Material Recycling
3. Removal of Deteriorated Material
4. Surface Preparation
5. Maintaining Grade with Existing Infrastructure

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Section 516: Patching

Table 516.01

Material Requirements	
Applicable Materials	**Section**
Asphaltic Concrete	1028
Asphalt Cement	1029
Liquid Asphalt	1030
Emulsified Asphalt	1031, 1032
Aggregate	1033

Materials | Equipment | Methods | Measure | Payment

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Are We Good?

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Questions