

Milling Operations Inspection Checks

- ✓ Proper Location
- ✓ Proper Depth (uniform across width?)
- ✓ Proper Slope
- ✓ Properly Cleaned
- ✓ Need to go Deeper?
- ✓ Measure Area

Resources

- **2024 Oregon Standard Specifications for Construction**
Sec. 00620, 00730, 00745
- **ODOT Pavement Design Guide**
https://www.oregon.gov/odot/Construction/Documents/pavement_design_guide.pdf
- **ODOT ACP Inspector Certification Manual** <https://www.oregon.gov/odot/Construction/Pages/ACP-Inspector-Cert.aspx>

Contact Us

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Spec Notes are prepared by the Construction Section QA Unit for inspectors to provide background information around design elements and specifications to help with making field decisions.

If you have a topic you would like to see addressed in this format, please contact us.

00620 – Cold Plane Pavement Removal



Cold plane pavement removal is used for a variety of treatments including repairing localized failures and removing long segments of highways in preparation for new pavement. Like any construction, a bit of judgment is required to create a good quality milled

pavement that comes in on budget and results in a good quality finished pavement. Here are some questions and answers around the intent of the grinding and the associated specifications.

Q – Why grind?

A – Grinding is specified for a variety of reasons including:

- to remove all or part of the cracked surface to help control reflective cracking;
- to remove poorly bonded (delaminated) layers which can slide creating pot holes;
- to remove poor quality/unstable asphalt pavement;
- to remove an open graded wearing surface thereby removing a potential water-retaining layer;
- to restore the pavement surface without changing the pavement grade.

Q – Section 00620.43 in the Special Provisions sometimes states that *Traffic will not be allowed to travel on cold planed surfaces*. Why not?

A – The design reason is that traffic could damage a thin layer of pavement left in place that otherwise would be good enough to pave on. We don't want to delaminate or crack up a good base. Also, there may be safety issues including flying rock and friction.

Q – What happens if we grind deeper than the design?

A – Grinding deeper may result in leaving a thin section of pavement that could become dislodged and delaminate. In some areas, like shoulders, aggregate base may be encountered. Going deeper can result in significant pavement quantity overruns. If an extra 1/2" of mix is required for 500 feet for a 14-foot wide section, the added mix is more than 20 tons. It adds up!

Q – So then, how deep is deep enough?

A – For most situations, the design section should be adequate. For delaminated pavements, once the grinding starts, it is the inspector's duty to verify that adequate preparation has been made. Check for loose chunks or slabs of material that are left after the pavement has been swept. Can you kick off pieces around the edges? Can you dislodge large sections easily either with your boot or shovel?

Loose and delaminated sections need to be removed which should be readily accomplished with a shovel. When in doubt, check with your PM! The photo below shows a pavement ready for an inlay that was partially delaminated. The loose



slabs have been removed and the pavement swept. While it might not look perfect, all broken edges are

gone and the remaining section adheres well to the layer below it. Once prepared, try to minimize the truck traffic on the pavement to reduce the potential for dislodging more material.

Q – What happens if we are overrunning our quantities and decide to grind a thinner section?

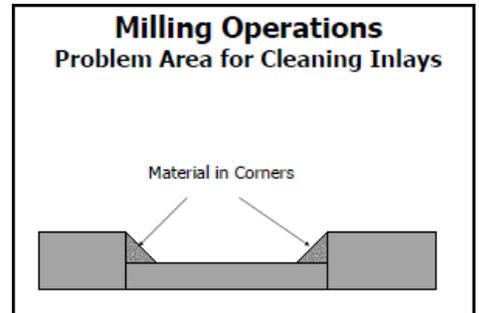
A – Grinding thinner can increase the potential for reflective cracking or increase the potential to leave delaminated pavement sections in place that will lead to shoving and pot holes. With an open graded wearing surface, we typically don't want to leave an open graded layer under a dense graded pavement because it can trap water and lead to

future problems. Also, depending on the pavement design, a thinner pavement could compromise the pavement life as the design may require new HMAC thickness to accommodate future traffic.

Q – We are done with the grinding, what should we look for during sweeping?

A – Per the specifications (00730.42 and 00745.42), prior to applying tack, *remove all material, loose or otherwise, that will reduce adhesion of the tack by brooming, flushing with water, or other approved methods.*

Dust behind a fast-moving vehicle driving on the milled



surface is an indicator of inadequate preparation. The areas to pay close attention to are the corners as shown in the graphic.

Q – The sweeping is done, can we start paving?

A – Maybe. If traffic has been running on the cold planed surface, Section 00620.43 states that *...Before beginning paving operations, make repairs to the existing cold planed surface as directed.* The intent of the specification is to locate any areas that have cracked or delaminated under traffic. Also, Section 00745.42 requires *Preparation of Underlying Surfaces* which refers to Section 00610 *Reconditioning Existing Roadway* which requires removal of unstable material. Now, back to the boilerplate for Section 00620.43, *Payment for the repairs will be made according to Section 00196.* Bottom line, repair the failed sections caused by traffic and pay for it as Extra Work.

Q – What's important about applying tack?

A –After the pavement is swept, per 00745.42 all surfaces that will be next to new HMAC, should be tack coated. This includes the edges of the trench; many joint failures have been attributed to missing tack. Be sure that enough tack is placed and that the trucks are not picking it up during paving. The goal is to glue the pavement layers together for long term performance.