Knox County, Ohio

Chip Seal Specification

The work to be performed under this contract shall consist of furnishing all labor, materials, and equipment required for the chip sealing and striping of the roads according to the applicable items with the Ohio Department of Transportation Construction and Material Specifications, latest addition or as modified.

The owner may employee an independent testing laboratory to perform periodic testing as specified in section 422.10 of the Ohio Department of Transportation Construction and Material Specifications, latest addition.

The Contractor shall be responsible for all traffic control in accordance with the Ohio Manual of Uniform Traffic Control Devices. Item 614 specifications apply only as specifically indicated within these specifications. Traffic must be maintained at all times, unless prior written arrangements have been made with the owner.

ITEM 422 Modified CHIP SEAL:

The work to be performed under this item shall consist of furnishing all labor, materials, and equipment that shall be required for the spraying of a bituminous liquid and the spreading of the specified aggregate according to the applicable items with the Ohio Department of Transportation Construction and Material Specifications, latest addition or as modified.

Bituminous material shall conform to Ohio Department of Transportation Construction and Material Specifications, 409 Seal Coat (1997 Edition) and shall conform to MC-3000 sealing grades.

Cover aggregate shall conform to Ohio Department of Transportation Construction and Material Specifications 703.05, Aggregate for Asphalt Concrete (Intermediate and Surface Courses), Prime Coat (408), Chip Seal (422) and Microsurfacing (421). The sizes of aggregate shall be No. 8, No. 9, No. 57 or a blend of those sizes, as specified.

A. Equipment.

Use equipment for binder distribution conforming to 407.03. In addition, ensure that it has a computerized rate control that automatically adjusts the binder pump to the unit ground speed and has a gauge or meter in plain view for reading gallons. Use appropriate spray nozzles for the material and rate specified.

Use Type II pneumatic tire rollers conforming to 401.13, except the maximum capacity shall not apply.

Use self-propelled aggregate spreaders with a variable width aggregate hopper capable of placing from single pass to full width in any increment and a computerized rate control that automatically adjusts the aggregate output to the unit ground speed. Equip spreaders with pneumatic tires, a screen to remove oversized material, revolving cylinders, and adjustments necessary to produce a uniform distribution of particles at the specified.

Use power sweepers or rotary brooms in initial surface preparation and for removing loose particles. Use pickup type sweepers in areas where the aggregate shoulder does not exist. Do not sweep loose aggregate onto lawns, curbed areas, intersections, and storm sewers.

Furnish accurate thermometers for determining any of the applicable temperature requirements of this specification.

B. Construction.

1. **Surface Preparation.** Clean the pavement according to 407.05. If necessary, clean areas of the pavement with a hand broom.

2. **Weather Limitations.** Place the chip seal when the pavement and atmospheric temperature is 60 °F or above. Do not place chip seal if any of the following conditions exist:

   a. Impending weather conditions do not allow for proper curing or if temperatures are forecasted below 50 °F within 24 hours from the time of work.

   b. The existing pavement temperature is 140 °F or above.

3. **Binder Application.** Before applying the binder, ensure that sufficient cover aggregate is available for immediate application. For single chip seal, apply the binder at a rate of 0.40 gallon per square yard. For double chip seal, apply the binder at a rate of 0.35 gallon per square yard for the first course and 0.38 gallon per square yard for the second course. Maintain the binder temperature from 150° F to 185° F during construction, including the start of each day. Reheat the binder at a rate of no more than 25°F per hour when the binder cools below 150°F.

Adjust the binder application rate to prevent excessive bleeding while maintaining proper cover aggregate embedment.

4. **Cover Aggregate Application**. Immediately after applying the binder, apply cover aggregate uniformly without ridges or laps at the specified rate adjusted as directed by the owner to produce a minimum of excess loose particles. Spread the material in such manner that the tires of the truck or aggregate spreader at no time contact the uncovered and newly applied binder. Before rolling, correct deficiencies in the application of cover aggregate in a manner satisfactory to the owner. Do not over apply cover aggregate with the intent on relying on vacuum and broom sweeping to pick up all excess. Stop work if nuisance to the public amounts of aggregate occur. If work is stopped, re-calibrate the aggregate spreader, re-verify the aggregate spread rate determining a new application rate, and apply cover aggregate at the new rate.

After rolling, protect the surface from traffic damage during the period required for the binder to cure sufficiently and prevent dislodging of the aggregate particles by normal traffic. During this period, correct deficiencies in cover aggregate by spreading additional aggregate or by light brooming.

Apply cover aggregate at a rate necessary to provide full coverage of the binder and to avoid tracking. If the target rate is not the optimum application rate due to the gradation of the aggregate or due to existing surface conditions of the pavement, immediately establish a new rate and document the new rate by stationing.

When specified, limestone aggregate shall have an absorption rate of less than 1.5%.

5. **Construction Operation.** Establish stations at 1000-foot intervals on the entire project before placing materials. Clearly identify and maintain the stations until project completion.

Keep the binder distributor, aggregate spreader, and rollers as close to each other as possible. Do not allow the binder distributor to be more than 150 feet ahead of the aggregate spreader.

Perform rolling immediately after placing the aggregate, but before the binder sets up. Do not leave aggregate unrolled for more than 5 minutes. Perform a minimum of two complete roller passes over the aggregate. A single complete pass is forward and backward over the same path. For each new pass, overlap the previous pass by about one-half the width of the roller. Use a minimum of two rollers, and roll in a longitudinal direction at a speed not greater than 5 miles per hour. Do not operate rollers at speeds that cause pick-up or dislodging of aggregate particles.

After the binder sets, and before placing a second course for double chip seals, and within 4 hours, sweep the pavement using a power broom or pickup sweeper as needed to remove all loose aggregate. Extend sweeping 1 foot beyond the edge of the pavement to help prevent migration of loose aggregate back onto the pavement Do not re- use aggregate from a chip seal that is swept from the pavement or that is already loose off the pavement edge.

If the pavement cannot be swept within the 4-hour period due to problems associated with the stone moisture, binder, breaking, humidity, or other unknown, the owner may suspend the operation until the problem is resolved or more suitable conditions are obtained to maintain the 4-hour time frame for sweeping. The Contractor is responsible for claims of damage to vehicles until the pavement and shoulders receive a final sweeping immediately before application of permanent pavement markings or a fog seal, if a fog seal is required.

Before placing the second course of a double chip seal, ensure that the first course is cured, swept, and capable of withstanding construction traffic without damage. Correct damage to the underlying chip seal before placing the final chip seal.

Place the longitudinal construction joint on a lane line or as directed by the owner. For double chip seal, place the longitudinal construction joint for the first course 6 inches (150 mm) off the centerline and place the second course so the longitudinal joint is at the centerline.