October 4, 2019

REVISION OF SECTION 412

SLOT STITCHING

1. **NOTICE**

This is a standard special provision that revises or modifies CDOT’s *Standard Specifications for Road and Bridge Construction*. It has gone through a formal review and approval process and has been issued by CDOT’s Project Development Branch with formal instructions regarding its use on CDOT construction projects. It is to be used as written without change. Do not use modified versions of this special provision on CDOT construction projects, and do not use this special provision on CDOT projects in a manner other than that specified in the instructions unless such use is first approved by the Standards and Specifications Unit of the Project Development Branch. The instructions for use on CDOT construction projects appear below.

Other agencies that use the *Standard Specifications for Road and Bridge Construction* to administer construction projects may use this special provision as appropriate and at their own risk.

**Instructions for use on CDOT construction projects:**

Use this standard special provision on projects with slot stitching of cracks in concrete pavement.

Section 412 of the Standard Specifications is hereby revised for this project to include the following:

**412.30 Slot Stitching.** This work consists of installing tie bars across cracks in concrete pavement in accordance with these specifications and the details shown on the plans. Slot stitching shall not be used for thin concrete overlays (4 inches or less).

**412.31 Materials.** Concrete patching material to be used as backfill shall be a product on the Department’s Approved Products List. Concrete patching material shall attain an average compressive strength of at least 4,500 psi at 24 hours. Concrete patching material compressive strengths shall be tested according to ASTM C39 or ASTM C109. Concrete patching material shall provide a minimum bond strength of 1,000 psi at 24 hours, as tested by ASTM C882. Concrete patching material shall have a relative durability factor greater than 90 as tested by ASTM C666 method A. Concrete patching material shall have a maximum shrinkage of 0.13 percent at four days as tested by ASTM C157.

Steel tie bars shall be 18 inches long #6 deformed steel tie bars, grade 60, and epoxy coated.

**412.32 Construction Requirements.** Slot Formation. Slots shall be made from multiple saw cuts made with a diamond impregnated saw blade to a depth as shown on the plans. Slots shall be approximately perpendicular to the general trend of the crack. Slots shall be 1.75 to 2.25 inches wide. Lightweight jackhammers weighing less than 35 pounds or hand tools shall be used to remove the “fins” formed by sawing. The length of the slot shall allow the tie bar to be placed at the mid-depth of the slab with a 1 inch space between the ends of the tie bar and the ends of the slot. Deviations from this method require a method statement detailing the means and methods for how the Contractor will perform the work.

The Contractor shall demonstrate slot stitching work for approval using the proposed equipment and procedures. The first five slots shall be visually inspected for bottom of the slab breakouts and minimum dimensions. Installation of tie bars and concrete patching material shall not occur until the Contractor’s method has been inspected and approved. After the Contractor’s method has been approved, the Contractor shall proceed with slot stitching as long as the method and equipment remain the same. Saw blade changes do not require re-inspection. If the Contractor’s method or equipment changes, the first five slots of the new method shall be visually inspected for bottom of the slab breakouts and measured for minimum dimensions. Tie bars shall be provided at locations and spacing as detailed on the plans.

Damages to the concrete pavement caused by the Contractor’s operations shall be repaired at the Contractor’s expense.

Slots shall be sand blasted or water blasted to remove saw slurry and blow cleaned with high pressure oil-free air to remove sand, water, and dust.

Tie bars shall be placed on support chairs to rest horizontal at the mid-depth of the slab.

Concrete patching material mixing, placement, placement during cold temperatures, consolidation, and curing shall be in accordance with the manufacturer’s recommendations. A mix may be extended with aggregate per the manufacturer’s recommendations up to 90 percent of the manufacturer’s maximum extension. The maximum aggregate size shall be 3/8 inch for the extending aggregate.

Patching material shall be placed and consolidated in the slot. Patching material shall fill the space under and around the bar. Tie bars shall not be dislodged or moved out of position.

The surface of the concrete patching material shall be level with the adjacent pavement.

**412.33 Opening to Traffic.** The pavement shall not be opened to traffic until all tie bars have been installed at a joint and the concrete has obtained a minimum compressive strength of 3,000 psi. Pavement shall be cleaned before opening to traffic.

**412.34 Method of Measurement.** Slot stitching will be measured for each completed and accepted tie bar complete in place.

**412.35 Basis of Payment.** The accepted quantities will be paid for at the contract unit price for the pay item listed below.

Payment will be made under:

# Pay Item Pay Unit

Slot Stitching Each

The work performed and materials furnished in accordance with this item will be paid for at the unit price bid. This price is full compensation for furnishing all materials, tools, labor, equipment and incidentals necessary to complete the work. Payment will not be made for extra work required to repair damage to the adjacent pavement that occurs during slot stitching.