

THE FOLLOWING IS ADDED TO THIS SECTION:

FULL DEPTH REINFORCED CONCRETE PAVEMENT REPAIR

Description.

This work shall consist of slab replacement with concrete surface course, to match existing slab thickness, at locations shown on the plans or as directed by the Engineer. This work shall include the complete removal of partial concrete slabs, recompacting the subbase, installing transverse joint ties, replacing and curing the concrete, and attaining specified concrete strength within the time restrictions set forth in Section 914.

Materials.

Portland cement concrete shall conform to the VES Class of concrete mix as per Section 914. Other materials shall conform to Subsection 405.02.

Set or hardener accelerator shall conform to Subsection 905.02

Transverse contraction joints shall conform to the 2001 Standard Roadway Construction Details, CD-306-1.

Construction.

Construction of full depth reinforced concrete pavement repair shall conform to the provisions of Subsection 306.04 and as set forth herein.

VES (very early strength) concrete shall not be poured if the ambient or subbase and base temperatures fall below 15 degrees C. The temperature of the VES concrete mixture shall be a minimum of 27 degrees C at the time of placement.

All concrete under these items shall be removed by the lift out method. Full depth saw cutting shall be done at all longitudinal joints as directed. For partial slab removal at a joint, additional relief saw cuts shall be made to relieve pressure whenever the temperature is such that the saw cut has closed and spalling will result when the existing piece is lifted out. In-place breaking of the concrete shall not be permitted. The concrete pavement that has been removed shall be disposed of in accordance with Section 202.12. After the existing concrete has been removed, the subbase shall be examined to determine its condition. The compacted depth of the concrete replacement shall match existing slab thickness. If water or excess moisture exists in the area, the subbase shall be removed to a depth specified by the Engineer and replaced with a material meeting the requirements of Section 208 and Subsection 901.09 before the concrete is placed. If a drainage problem exists at the site, it shall be corrected as directed. The subbase shall be recompacted using mechanical equipment as directed. Saw cutting of the slab and drilling of the lift out holes may be done up to five days in advance of the concrete removal. Removal of concrete shall be limited to the amount that can be replaced during the workday. Any damage to existing pavements scheduled to remain as a result of this work shall be repaired at the contractors expense.

Holes shall be drilled into the face of the existing slab not more than 6 millimeters in diameter greater than the dowels to be placed. A gang drill shall be used to install the dowels or reinforcement bars in the face of the slab and shall be capable of maintaining vertical and horizontal alignment and drilling the group of holes in 30 seconds. The drilling method shall not damage existing concrete surrounding the hole. Dowels shall be located as shown in the construction details. The holes shall be cleaned of all cement dust, standing water and all materials which interfere with proper bonding of the grout.

Grout shall be mixed in accordance with the manufacturer's instructions.

The epoxy grout gel shall be introduced by low-pressure injection through a polyethylene tube reaching to the end of the hole and slowly withdrawn as the hole is filled. The holes shall be filled to approximately 70 percent of the depth or length. Plastic grout-retention disks shall be provided to prevent the escape of grout. The dowel shall be introduced into the hole slowly and twisted one full revolution to evenly distribute the grout in such a manner that no bubbles are introduced within the grout. To insure proper metering, grout shall rise to the surface and overflow from the sides of the disk upon introduction of the dowel. All excess overflow grout shall be spread on the concrete face. Temporary support shall be provided for dowels after setting to prevent movement and damage to the grout bond. No load shall be applied to the dowels until the final cure of the grout is achieved.

The contractor shall use a concrete mobile mixer or transit mix truck to produce the very early strength concrete mixture. Whichever method is chosen, the contractor shall demonstrate that method's capability to produce and place a VES concrete as specified in Section 914.

Before a maximum of one hour after finishing, the concrete shall be cured by using wet burlap as specified in Subsection 405.14 and then covered with an insulation blanket to maintain the necessary heat from hydration. Insulation blankets shall be secured to prevent lifting from traffic wind. After the concrete surface temperature exceeds 49 degrees C the insulating blanket shall be removed and the concrete shall be cured using method (1) in Subsection 405.14.

The contractor shall submit a plan, subject to the approval of the Engineer, to maintain proper grade control.

Longitudinal joints shall not be tied to adjacent concrete pavement. Where new concrete pavement will be constructed against existing concrete to remain, the edge of the existing slab shall be coated with asphaltic oil (MC-250) prior to placement of concrete. Any patch sides not in contact with sound concrete shall be formed full depth with wood or metal forms adequately braced to maintain proper position. Where concrete must be placed against a longitudinal form, a keyway shall not be constructed. After removal of forms, properly place and compact hot mix asphalt to repair existing HMA pavements.

When replacing portions of slabs greater than 6 meters in length with VES concrete, install contraction joints to prevent cracking and provide load transfer. Contraction joints shall be set in line with existing joints in adjacent pavement, perpendicular to the baseline; and spaced equidistantly between transverse joints at not less than 4.5 meters or more than 6 meters apart, perpendicular to the baseline. Contraction joints shall have sawcut sealant reservoirs. To prevent uncontrolled shrinkage cracking, make an initial sawcut as soon as concrete has hardened sufficiently to permit sawing without damage to the pavement surface.

Method of Measurement.

The completed and accepted quantity of full depth reinforced concrete pavement repair will be measured by the square meter. Full depth repairs that crack will not be measured for payment and shall be removed and replaced at no additional cost to the Department. HMA for patching form areas will not be measured for payment but will be included in the price bid for full depth reinforced concrete pavement repair.

Basis of payment.

Payment will be made under:

<i>Pay Item</i>	<i>Pay Unit</i>
FULL DEPTH REINFORCED CONCRETE PAVEMENT REPAIR	SQUARE METER

Separate payment will not be made for removal of concrete pavement, underlayer preparation, transverse joint ties, contraction joints, sawcutting or for variations in slab thickness.

Payment for removal of any existing bituminous concrete overlay will be made in accordance with Section 202.