SECTION 02753

FULL DEPTH SLAB REPLACEMENT FOR CONCRETE PAVEMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Remove full panel or partial panel of existing pavement.

B. Clean, grade, and reconsolidate base.

C. Install dowels and/or tie bars.

D. Replace and cure repair material.

1.2 RELATED SECTIONS

A. Section 02752: Portland Cement Concrete Pavement

B. Section 03055: Portland Cement Concrete

C. Section 03390: Concrete Curing

PART 2 PRODUCTS

2.1 FULL DEPTH CONCRETE PAVEMENT REPAIR MATERIAL

A. Follow Section 02752, except:
   1. It is acceptable to use high range water reducers, (Super Plasticizers).
   2. It is acceptable to accelerate the rate of concrete strength gain to match the field placement schedule with written permission from the Engineer.

PART 3 EXECUTION

3.1 PREPARATION

A. Remove panel, panels, or panel section.
   1. Determine the extent/dimensions of the repair from the plan sheets, or as directed by the Engineer. Adhere to the requirements of PV series Standard Drawings.
   2. Complete removal, make full depth cuts around the perimeter of the rectangular section to be removed. Minimize saw overcuts.
   3. Remove panels by lift-out method. Use chains and lift pins to facilitate removal and minimize disturbance of the base material.
   4. Repair damage caused by removal operations to adjacent slabs and underlying base courses.
   5. Remove all loose particles of old Portland Cement Concrete (PCC), prior to placing new PCC.

B. Reconstruct base to grade, and compact to standard specifications.

C. Form any side that does not have an adjacent panel. Form to match existing panels, providing a vertical edge.

D. Place dowel and/or tie bars.
   1. Place bars in locations as per PV series Standard Drawings. Use tie-bars or smooth dowels where indicated on standard drawings.
   2. Stockpile bars in an area where they are kept clean and free from damage.
   3. Drill holes mid-depth of the slab without causing damage to the remaining pavement section such that bar placement tolerances can be met.
   4. Drill multiple holes simultaneously with drills held horizontally in a rigid frame. Prevent drill bits from wandering.
   5. Clean holes of dust, grease and other contaminants.
   6. Inject Type II epoxy resin adhesive into the back of the drilled hole.
      a. Use material on the UDOT Performance Data Products Listing.
      b. Provide sufficient quantity of bonding compound to completely fill the void between the bar and the outer limits of the drilled hole.
      c. Rotate one full revolution while inserting bar.
      d. Use retention rings to prevent the bonding compound from flowing out of the hole.
   7. Align bars horizontally and vertically to meet requirements of the standard drawings and allow them to stabilize prior to mix placement.
   8. Repair any bar coating damage with appropriate repair material.

9. Place tight fitting end caps made of non-metallic materials that allow ¼ inch movement, on protruding dowels used at expansion joints. Submit a sample of the end caps to the Engineer for approval prior to use on the project.
10. Coat protruding portion of dowel bar with lubricant consisting of paraffin wax, lithium grease or other semi-solid, inert lubricant approved by the Engineer.
11. Remove and replace loose bars, at the Contractor's expense, prior to placing concrete mix.

E. Prepare existing joints for placement.
1. Maintain existing pavement joint layout.
2. Place a bond breaker approved by the Engineer, on the existing pavement edges that compose existing joints, either transverse or horizontal.
3. Saw joint on the same line if repairs straddle an existing joint line. Perform sawing in accordance with Section 03390.

3.2 CONCRETE PLACING

A. Place concrete in compliance with Section 02752.

B. Consolidate the mix in compliance with Section 02752.

C. Weather Limitations – Section 03055.

3.3 CONCRETE FINISHING

A. Finish patch to ± 1/8 inch of existing profile.
1. Correct patch profiles in excess of 1/8 inch higher than the existing pavement profile through surface grinding or removal and replacement.
2. Correct patch profiles in excess of 1/8 inch lower than the existing pavement profile through removal and replacement of the patch.
3. Pay for any corrections to the finish of the patch.

B. Do not tool joints that are to be saw-cut and sealed.

C. Texture the surface to match the existing pavement.

3.4 CONCRETE CURING AND PROTECTION

A. Cure the concrete pavement according to Section 03390.

B. Do not open to traffic until 4000 psi strength is reached.

C. Cut all previously existing joints to original dimensions.

D. Fill all sawing overcuts with approved Repair Epoxy on the UDOT Performance Data Products Listing (PDPL).

E. Replacement slab must perform under traffic at specified time of opening without failure.

F. Pay for removing and replacing any defective panels. Refer to Section 02752.

G. Protect the individual placements with approved barricades.

3.5 LIMITATIONS

A. Refer to Section 03055.

END OF SECTION