NOTES TO DESIGNERS: When lane closures are limited to 8 hours or less or when concrete is required to achieve a compressive strength of 2,500psi in 6 hour or less specify that Class PRS concrete instead of Class P (fast track) be used and include the Class PRS specification. When these criteria are not met, specify Class P (fast track), however include the Class PRS Special Provision to allow the Contractor the option to substitute Class PRS concrete for Class P.

The plans shall indicate what materials are acceptable for replacing unsuitable subgrade. Flow fill, ABC class X, 206, etc.

# REVISION OF SECTIONS 412 REMOVAL AND REPLACEMENT OF CONCRETE PAVEMENT

Revise Section 412 of the Standard Specifications to include the following:

**412.41 Removal of Pavement.** The areas of concrete pavement to be removed shall be isolated in both the longitudinal and transverse directions by the double saw cut method per the plans. Sawing shall be accomplished with the use of a diamond blade saw capable of cutting through reinforcing steel 2.0 inches in diameter. Shall be sized to cut the full depth of the slab. Sawing of the concrete pavement shall be done to a true line, with a vertical face. Sawing shall be full depth and shall go through the existing tie-bars and dowel bars, leaving free vertical edges at the limits of the removal. Sawing may be accomplished in multiple passes if necessary. The inner cut shall not extend into adjacent slab. The outer saw cut shall follow the existing joints.

After sawing, the slab may be lifted vertically or broken and removed. All loose concrete materials shall be removed from the repair area. If spalls previously exist in the adjacent panels, the areas shall be documented, and the engineer shall be notified before saw cutting operations. Care shall be taken to prevent damage to the adjacent panels left in place. Damage to adjacent panels due to the removal process shall be repaired at the Contractor’s expense. Clean saw slurry residue from the edges of the pavement left in place. Removed concrete slabs and excavated soils shall become the property of the Contractor and shall be disposed of per subsection 202.07.

If failing slabs have failed due to water infiltration, mitigation may be required to stabilize the base. Temporary pavement consisting of Hot Mix Asphalt (Patching) (Asphalt) may be required at the concrete repair areas until mitigation and concrete repair work can continue. The Project Engineer shall approve all mitigation efforts and temporary patching before work is performed.

**412.42 Subgrade.** After concrete pavement is removed, the underlying material will be evaluated by the Engineer. Remove unsuitable material per subsection 206.03 and replace it, at the depth designated by the Engineer with material as specified in the contract. Place material shall be placed per Sections 206 or 304.

**412.43 Dowel and Tie Bars.** Placedowel bars and tie bars for replaced concrete pavement per the project details and subsection 412.13(a). Where using dowel bar or tie bar baskets, the assemblies shall be installed per section 412.13. Dowel bar and tie bar inspection using the MIT Scan shall not be required when there are less than 3 continuous slabs placed. Pull tests on tie bars shall not be required.

**412.44 Materials.** Concrete used in panel replacements shall be an approved Class P or PRS mix as specified in the Contract that will achieve 2,500 psi in the time indicated in the plans.

**412.45 Placing.** Placing shall meet the requirements of subsection 412.10

**412.46 Finishing.** Finishing shall meet the requirements of 412.12 with the following additions:

During finishing, water and finishing aids shall not be added or worked into the surface.

If the pavement will not be diamond ground, the surface texture of the panels shall meet the following:

* The finished transverse and longitudinal surface elevation of the pavement shall be measured using a 10-foot straightedge. Areas to be measured will be directed by the Engineer. The Contractor shall furnish an approved 10-foot straightedge, depth gauge, and operator to aid the Engineer in testing the pavement surface. Areas showing high spots of more than 3/16 inch in 10 feet shall be marked and diamond ground until the high spot does not exceed 3/16 inch in 10 feet.
* For placements in a lane with more than 250 continuous feet of paving in the direction of traffic, the surface texture will be considered acceptable when the average texture depth (ATD) of the panel is greater than 0.05 inch. The Contractor will perform surface texture testing per CP 77 Method B. Areas in a lane with more than 250 continuous feet of paving will be tested at a frequency of one test per 250 linear feet. Areas with deficient surface texture shall be diamond ground and retested.

**412.47 Curing**. Curing shall meet the requirements of subsection 412.10

**412.48 Joints.** Saw cutting of all joints shall conform to subsection 412.13. Where jointing does not match the saw cuts in adjacent panels or where overcutting occurs, the Contractor shall terminate the joints by cutting a 4-inch diameter core centered at the intersecting joints at the time of saw cutting. The core holes shall be filled with an approved epoxy material, or a PVC sleeve may be inserted and filled with an approved non-shrink grout. Seal the joints per subsection 412.18.

**412.49 Opening to Traffic.** Concrete shall have a minimum compressive strength of 2,500 psi before opening to traffic. Concrete compressive strength shall be determined by a maturity meter placed no more than 10 feet from the end of the final placement of the shift. The contractor shall provide maturity meters and all necessary wires and connectors. The Contractor shall be responsible for the placement and maintenance of the maturity meters and wires. For placements with multiple maturity meters, the lowest compressive strength shall determine when the pavement may be opened to traffic. Before opening the pavement to traffic, clean the roadway

**412.50 Basis of Payment.**

Payment will be made under:

# Pay Item Pay Unit

Replace Concrete Pavement Square Yard

Replace Concrete Pavement (Class PRS) (New Item) Square Yard

The price per square yard for replace concrete pavement shall be total compensation for: removing slabs as shown in the plans, disposal of concrete pavement, furnishing and placing all materials, including concrete, dowel bars, deformed tie-bars, joint materials, texture, sawing, sealing, finishing, curing, providing maturity meter for compressive strength tests, and all other work necessary to complete the item.

Instead?

The price per square yard for replace concrete pavement shall be total compensation for:

* Removing slabs as shown in the plans.
* Disposal of concrete pavement.
* Furnishing and placing all materials, including concrete, dowel bars, deformed tie-bars, joint materials.
* Texture.
* Sawing.
* Sealing.
* Finishing.
* Curing.
* Providing maturity meter for compressive strength tests.
* All other work necessary to complete the item.

Material used to mitigate the subgrade shall be measured and paid for at the contract unit price. If temporary pavement consisting of Hot Mix Asphalt (Patching) (Asphalt) is required at the concrete repair areas until mitigation and concrete repair work can continue, then it will be paid at the contract unit price.

When subgrade mitigation or temporary pavement are required, the approved quantities of Removal of Unsuitable Material, backfill material and patching will be paid for at contract unit prices for those items.

Diamond Grinding or other remediation measures necessary to bring the new pavement into compliance will not be measured and paid for separately but shall be included in the work.

It is the Contractor’s responsibility to replace concrete pavement per subsection 412.16. Replacement of concrete pavement or other remediation efforts used to mitigate excessive cracking due to unsatisfactory mix designs or field dosing will not be measured and paid for separately but shall be included in the work.