Section 415
Concrete Pavement Repair

PRECONSTRUCTION

Slab Replacement:
Locate and mark limits of repair areas in advance of showing the project. Partial slab replacement will require a full outline on the area with paint. Provide line and grade control when needed for larger slab replacement areas.

Review the contract to determine how drop-offs created by slab removal are to be mitigated until replaced. This could range from requiring a same day slab replacement to leaving several slabs open for a short period of time before replacing. After the project has been awarded, at the pre-construction conference, discuss with the contractor the safety of the traveling public and how that will be accomplished.

Spall Repair:
Designate for the contractor the areas to be repaired. Establish the material to be used for the repair and the bonding agent that will be used. Obtain copies of the Material Safety Data Sheets (MSDS) sheets from the contractor whenever possible for the material that will be used and become familiar with requirements for its use.

EQUIPMENT
The following equipment will be required for inspection purposes:

1. Measuring tape and/or measuring wheel.
2. Documentation resource.
3. 10' straight edge.
4. String line.

INSPECTION:
Be familiar at the outset of the job with what the specifications are regarding the submission of a mix design for concrete slab replacement and repair.

Observe specified weather condition requirements for concrete pavement repair work.

Slab Replacement: The contractor shall provide the necessary equipment that is capable of cutting full depth. As specified, load transfer dowel bars and reinforcing will be cut all the way through or cut down to the bars as long as the structural integrity of the bars and adjoining concrete is maintained.

Specifications may require the removal of crushed base and in some cases the removal of undesirable sub-grade material. Replace with select borrow, geotextile fabric and new base material, as specified. Should the specifications not require this extent of work, but removal of the existing slab exposes an unacceptable foundation for placement of the new slab, notify the engineer to discuss methods to remedy this condition and the manner in which the contractor will be compensated to remove and replace these materials. Compact dirt and base materials as specified.
Reinforce concrete as specified. Concrete will be mixed, placed and cured as specified.

Ensure planned joints are established and existing joints reflected in adjoining pavement are re-established. Joints shall be cut, prepared and sealed as specified.

Test the surface tolerance as specified, noting that specifications may require the use of a California Type profilograph, furnished by the contractor. Observe the contractor calibrating the profilograph when required.

Ensure the contractor grinds and textures slabs which do not meet the specified surface tolerances. Replace areas of excessive cracking, as determined by the engineer. Do not remove new slabs piecemeal, instead remove the entire new slab and replace.

Spall Repair:
Unless otherwise specified, ensure that the contractor opens no more repair areas than can be removed and replaced in one day.

If the repair area is to be provided mix from a mobile mixing unit, calibrate the unit. If a smaller portable mix is to be used, calibrate scales that will weigh the material for the mix.

Spalled or broken out areas, as specified, shall be saw cut square a minimum of 6" wide and long and 2" deep. Ensure the exposed surface is clean as specified. This is important for ensuring that the repair material bonds to the existing pavement. Bonding material shall be applied and place repair agent. Once material is placed in the repair by the contractor, no water shall be added. Ensure that the contractor cures the material as recommended by the manufacturer.

When a repair area spans a joint, the contractor shall maintain the integrity of the joint with a divider strip the width of the joint. Joints shall not be filled with repair material. Upon completion of the cure of the material, the contractor shall replace joint material as specified.

Inspection of the completed repair will be timely enough to allow for a determination for opening the section up to traffic.

Check the smoothness of the repair area with a 10' straight edge or a string-line. Use a string-line to check cross slope as well.

Require the contractor to remove and replace, at no additional cost to the department, repair areas with cracks that do not meet surface tolerances.

Grinding and Texturing:
Require the contractor to submit a detailed plan for grinding in order to ascertain that the least amount of grinding is being done to accomplish the specified ride tolerances.

Inspect the grinder to ensure that the diamond blades meet specifications. Determine in advance where water runoff from the grinding operation will end up and if water recovery system will be required.
The contractor shall furnish the profilograph read outs and summary of the tolerance review of the traces. Review the average profile index from the printout and determine if it meets the specification. Require the contractor to re-grind and re-texture as specified.

**DOCUMENTATION**
Measure and record the measurements of each slab replacement location. Record the weather on the day in which the slab was poured, and other pertinent observations. Calculate the measurements to determine the pay by using the following:

\[ SY = \frac{(\text{Length} \times \text{Width})}{9} \]

Record in the project records the location of each spall repair location. Document the placement of material and the weather conditions on the day it was done in a field book. Pay as specified using the following formula:

\[ SF = \text{Length} \times \text{Width} \]

Measure and record each day’s grinding operations and note the weather conditions for that day. Pay as specified using the above mentioned formula for the calculation of square yards.

**SAFETY:**
Use the following safety equipment:
1. Hard hat and vest
2. Safety glasses and hearing protection

Avoid bare skin contact with spall repair material unless familiar with the MSDS sheets and potential consequences.

Since most these operations are done under traffic, the inspector must remain alert to the presence of traffic.