

ITEM 10502.3410 M - LOAD TRANSFER DEVICE FOR CONCRETE PAVEMENT REPAIRS

DESCRIPTION. This work shall consist of furnishing and installing dowel load transfer devices at locations shown on the plans in accordance with the specifications and as directed by the Engineer.

MATERIALS. Smooth round bars incorporated into the work shall meet the Material and Coating Application Requirements of Subsection 705-15. Expansion material placed in the polyethylene expansion caps shall be a bituminous product conforming to Subsection 705-07.

Premoulded resilient joint filler, used in expansion joints, shall be a non-bituminous product meeting the requirements of Subsection 705-07.

CONSTRUCTION DETAILS. Hole Drilling Requirements - The existing pavement shall be drilled to allow the insertion of the dowel bars. The use of hand held drills will not be permitted. The holes shall be drilled with a drilling machine meeting the following requirements:

The machine shall produce holes such that each individual dowel's longitudinal axis is aligned parallel to the longitudinal axis of the pavement slabs.

The forward and reverse travel of the drills shall be controlled by mechanically applied pressure. The drills shall be equipped with tungsten carbide bits. Drill guide bushings will be required to prevent eccentricity of drilled holes.

The drill and the pressure mechanism shall be matched to drill the holes in 30 seconds or less.

The drills, pressure mechanisms, guide bushings, centralizer collars, and drill feeds shall be gang mounted and shall consist of not less than three independently powered and driven hydraulic drills. The drill feeds shall be constructed such that all drill bits shall be parallel to one another. Each drill bit shall pass through a centralizer collar which shall be replaced as wear demands. The hydraulically powered and driven drill bits shall impart a pressure against the face of the concrete not in excess of 275 kPa.

The drilling machine shall be mounted on a tractor or other suitable piece of equipment so that it can be easily transported and quickly positioned at each repair. The drilling machine shall be approved by the Engineer prior to actual use.

When in the opinion of the Engineer drill wear is such that the hole diameter is less than 30 mm and difficulty is experienced in freely placing the dowel elements therein, the Contractor shall replace the drill bits.

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Dowel Bar and Filler Installation - Due to the adjustments permitted on the dowel bar spacings, shown on the plans, the dowel holes in the filler cannot be prepunched. Unless other methods are approved by the Engineer, the following procedure shall be used to install the dowels and filler:

1. A 250 mm long by 28.6 mm diameter steel locating bar with a pointed end shall be inserted in each drilled hole with the pointed end protruding out of the holes.
2. The filler, resting on the subbase, shall be placed against pointed locating bar ends and pressed or tapped lightly against the bar points to mark the dowel locations on the filler. The locating bars shall then be removed from the holes.
3. Holes shall be drilled or punched in the filler in such manner as to produce neat clean holes without tearing the filler material around the holes. The maximum hole diameter shall be 31 mm.
4. After the locating bars have been removed, the holes and face of the existing concrete shall be cleaned with compressed air.
5. The filler material shall be positioned and the dowels inserted to the depth shown on the plans.

Any damage to the existing material caused by the Contractor's operation shall be repaired by the Contractor in a manner satisfactory to the Engineer.

METHOD OF MEASUREMENT. This work shall be measured by the number of dowels furnished and installed.

BASIS OF PAYMENT. The unit price bid for each dowel shall include the cost of all labor, materials, and equipment necessary to complete the work, including drilling the holes and furnishing and placing the dowels, bituminous joint filler plugs, polyethylene expansion caps, and non-bituminous resilient joint filler.

Damage to existing components due to Contractor's operation shall be repaired at the Contractor's expense.