

SECTION 02755

CONCRETE SLAB JACKING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Injection of a product to raise and support a failed section of concrete pavement back to an acceptable grade for a suitable ride.

1.2 RELATED SECTIONS **Not Used**

1.3 REFERENCES

- A. ASTM C 618: Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete
- B. ASTM C 1107: Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
- C. ASTM D 790: Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- D. ASTM D 1621: Compressive Properties of Rigid Cellular Plastics
- E. ASTM D 1622: Apparent Density of Rigid Cellular Plastics

1.4 DEFINITIONS **Not Used**

1.5 SUBMITTALS **Not Used**

1.6 QUALITY ASSURANCE

- A. Obtain approval from the Engineer for injection material properties prior to placement.
- B. Provide to the Engineer copies of invoices from mix suppliers.

1.7 WARRANTY

- A. Supplier warrants all materials and workmanship for a period of one year against shrinkage or deterioration.

- B. Supplier replaces by re-injection or slab replacement any material that fails during the warranty period.

1.8 PAYMENT PROCEDURES

- A. Accepted liquid quantities measured using a calibrated meter paid for at the contract unit price per cubic meter.

PART 2 PRODUCTS

2.1 HIGH DENSITY POLYURETHANE

- A. Use water based formulation of expanding high-density polyurethane for raising slabs that set to full compressive strength within 15 minutes after injection.

Table 1

High-Density Polyurethane		
PROPERTY	ASTM	LIMITS
Density	D 1622	Min 3.8 lb/ft ³ - Max 4.3 lb/ft ³
Tensile Strength	D 790*	Min. 100 psi
Elongation	N/A	Max. 5.1%
Compressive Strength at Yield Point	D 1621	Min. 90 psi

*Use the value of flexural strength or flexural yield as tensile strength.

2.2 PORTLAND CEMENT DRY MIX DESIGN

- A. Use standard mix design for jacking and grouting slabs with voids less than 30 inches as follows:
 1. One part (by volume) portland cement type I or II, refer to ASTM C 1107.
 2. Three parts (by volume) pozzolan (natural or artificial), refer to ASTM C 618 Type F.
- B. Use optional mix design for jacking and grouting slabs with voids greater than 30 inches as follows:
 1. One part (by volume) portland cement type I or II, refer to ASTM C 1107.
 2. One part (by volume) pozzolan (natural or artificial), refer to ASTM C 618 Type F.
 3. Two parts (by volume) clean sand.
- C. Obtain Engineer’s approval for any deviation from dry mix proportions of mix design including addition of liquefier or water reducing agents.

- D. Adjust water content to meet local conditions.

2.3 EQUIPMENT

- A. Equipment capable of supplying a homogenous product at the appropriate rate.
- B. Certified scales or measuring devices to measure delivered product and to proportion product components.
- C. Concrete drill or saw capable of producing circular holes of adequate size for the application type.
- D. Elevation measuring devices with an accuracy of $\frac{1}{8}$ inch.
- E. Concrete saw capable of cutting joints between failed and non-failed slabs.

PART 3 EXECUTION

3.1 PREPARATION

- A. Establish a finish target profile of pavement using elevation measuring device or string lines.
- B. Saw-cut joints between failed and non-failed slabs as necessary to prevent damage to non-failed slabs.

3.2 INSTALLATION

- A. Drill holes as determined in roadway slab.
- B. Inject product to evenly raise slab to finished grade profile.
- C. Fill injection holes with at least 4 inches of non-shrink grout.
- D. Final grade after jacking must be within $\pm \frac{1}{8}$ inch of finished grade profile.

END OF SECTION