

EXHIBIT 1
SOLICITATION NO. 0900000509
SW0721 - SLABJACKING

Sections 1 through 6 describes specifications for the slabjacking and subsealing/undersealing for PC Concrete Pavements and Concrete Bridge Approaches. Sections 7 through 12 describes specifications for the Full Depth Crack Repair for Asphaltic Concrete Pavements.

❖ SPECIFICATIONS FOR SLABJACKING AND SUBSEALING/UNDERSEALING FOR PC CONCRETE PAVEMENTS AND CONCRETE BRIDGE APPROACHES

1. DESCRIPTION

This item shall govern for slabjacking/raising and/or subsealing/undersealing of concrete slabs and bridge approaches, using polyurethane foam.

2. MATERIAL

The medium used is a high-density polyurethane formulation.

The Polyurethane shall exhibit the following physical characteristics and properties:

PROPERTIES

	Original	After 1 Year		After 10 Years	
		Control	Buried	Control	Buried
Property Density, LB/FT ³	2.1	2.2	2.2	2.1	2.1
Tensile Strength, PSI	54	68	59	58	58
Elongation, %	5.1	6.3	7.2	6.5	6.0
Compression Strength, PSI (At Yield Point)	47	51	38	50	46
K-Factor, BTU IN/HR° F	0.123	0.127	0.126	0.144	0.168
Volume Change, % of Original	--	0	1.7%	0	4.2%

APPLICABLE DOCUMENTS

ASTM TEST METHODS

Type Test	ASTM Designation
Compressive Strength	D1621
Water Absorption	D2842
Density	D1622
Dimensional Stability	D2126
Flexural Strength	D790
Fungus Resistance	G21
Coefficient of Expansion	D696
Shear Strength	C273
Solvent Resistance	D543

3. EQUIPMENT

The minimum list of equipment required shall be as listed below and shall not preclude the use of additional equipment.

A pneumatic drill, capable of drilling 1/2 - 5/8-inch diameter holes

A self-contained truck mounted pumping unit capable of storing, proportioning, blending, and injecting the polyurethane formulation under the concrete pavement. The equipment will be of size and nature to control the rate of rise of the pavement.

A laser leveling unit, straight edge, or stringline to ensure that the concrete is raised to an even plane and/or to the required elevation.

4. CONSTRUCTION METHODS

The 1/2-inch diameter hole shall be drilled in the following manner.

A series of holes shall be drilled at six to eight-foot intervals throughout the concrete. The exact location of the holes shall be determined by the Engineer.

The following construction procedures will be used:

A profile of the repair area will be developed to determine the extent to be raised. A series of 1/2-inch diameter holes will be drilled at the necessary locations and intervals. The polyurethane formulation is then injected under the slab. As the polyurethane chemically reacts it will expand, exerting the necessary lifting force, and harden to provide the structural strength required.

The amount of rise shall be controlled by the pumping unit and the injection gun.

The vendor shall be responsible for any pavement blowouts as well as excessive or uneven pavement moving which will cause ponding and shall replace or fix the damaged area to the satisfaction of the Engineer.

When the injection nozzle is removed from the hole, any excessive polyurethane material shall be removed from the area and the hole sealed with polyurethane material or a quickset concrete patch.

Traffic control and joint sealing will be provided by others.

5. MEASUREMENT

The polyurethane material shall be paid for by the pound which will include furnishing, blending, and injecting material.

6. PAYMENT

The quantity of material to be paid for shall be the quantity actually used based on the contract unit price shown on the pricing form.

Only those items shown on the pricing sheet shall be paid for directly. All other labor, tools, equipment, and incidentals necessary for the completion of the project shall not be paid for directly but shall be considered incidental to the contract items.

❖ SPECIFICATIONS FOR FULL DEPTH CRACK REPAIR FOR ASPHALTIC CONCRETE PAVEMENTS

7. DESCRIPTION

This item shall govern the repair of full depth cracks (sealing of the crack and sub-sealing of voids) in asphaltic concrete pavements, using polyurethane foam.

8. MATERIAL

The medium used is a high-density polyurethane formulation.

The Polyurethane shall exhibit the following physical characteristics and properties:

A. PROPERTIES

	Original	After 1 Year		After 10 Years	
		Control	Buried	Control	Buried
Property Density, LB/FT ³	2.1	2.2	2.2	2.1	2.1
Tensile Strength, PSI	54	68	59	58	58
Elongation, %	5.1	6.3	7.2	6.5	6.0
Compression Strength, PSI (At Yield Point)	47	51	38	50	46
K-Factor, BTU IN/HR° F	0.123	0.127	0.126	0.144	0.168
Volume Change, % of Original	--	0	1.7%	0	4.2%

B. APPLICABLE DOCUMENTS

ASTM TEST METHODS

Type Test	ASTM Designation
Compressive Strength	D1621
Water Absorption	D2842
Density	D1622
Dimensional Stability	D2126
Flexural Strength	D790
Fungus Resistance	G21
Coefficient of Expansion	D696
Shear Strength	C273
Solvent Resistance	D543

9. EQUIPMENT

The minimum list of equipment required shall be as listed below and shall not preclude the use of additional equipment.

A pneumatic drill, capable of drilling 1/2 - 5/8-inch diameter holes.

A self-contained truck mounted pumping unit capable of storing, proportioning, blending, and injecting the polyurethane formulation into the joint. The equipment will be of size and nature to control the amount of material injected into the repair area.

A straight edge or string line to ensure that the joint area is raised (if required) to an even plane and/or to the required elevation.

10. CONSTRUCTION METHODS

The 1/2-inch diameter hole shall be drilled in the following manner.

A series of holes shall be drilled at eight to twelve-foot intervals along the joint. The exact location of the holes shall be determined by the Engineer.

The following construction procedures will be used:

A profile of the repair area will be developed to determine the extent to be raised. A series of 1/2-inch diameter holes will be drilled at the necessary locations and intervals. The polyurethane formulation is then injected into the void space and the crack area. As the polyurethane chemically reacts it will expand, filling the void and sealing the crack and harden to provide the structural strength required.

The injection process shall be controlled by the pumping unit and injection gun.

The vendor shall be responsible for any pavement blowouts as well as excessive or uneven pavement moving which will cause ponding and shall replace or fix the damaged area to the satisfaction of the Engineer.

When the injection nozzle is removed from the hole, any excessive polyurethane material shall be removed from the area and the hole sealed with polyurethane material or a joint sealer.

Traffic control and joint sealing will be provided by others.

11. MEASUREMENT

The polyurethane material shall be paid for by the pound which will include furnishing, blending, and injecting material.

12. PAYMENT

The quantity of material to be paid for shall be the quantity actually used based on the contract unit price shown on the bid form.

Only those items shown on the pricing sheet shall be paid for directly. All other labor, tools, equipment, and incidentals necessary for the completion of the project shall not be paid for directly but shall be considered incidental to the contract items.