Sample Project Special Provision: 601sj
Date: 08-19-2011

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REVISION OF SECTION 601

SLAB JACKING

Section 601 of the Standard Specifications is hereby revised for this project as follows;

Subsection 601.01 shall include the following:

This work includes improving the soil density, raising and supporting the pavement.

Subsection 601.03 shall include the following:

The material used for soil improvement and raising the pavement shall be water blown two-component urethane polymer system conforming to the following:

|  |  |  |
| --- | --- | --- |
| **Property** | **Value** | **ASTM Test Method** |
| Density, lbs/ft³ minimum | 4 | D1622 without conditioning |
| Compressive Strength at yield point, psi minimum | 90 | D1621 without conditioning |
| Volume Change % of original | 0.0% | D2126 (Temperature to be selected) |

The polyurethane material shall reach 90 percent of full compressive strength within 15 minutes from injection.

The Contractor shall supply Certified Test Results to the Engineer on the above ASTM Test Methods for each lot used prior to placement on the project. Lots not meeting these requirements shall not be used on the project and shall be replaced and re-tested at the Contractor’s expense.

Add subsection 601.051 immediately following subsection 601.05 as follows:

**601.051 Slab Jacking.** The pavement shall be raised and supported in accordance with the following:

1. *Contractor Experience.*The Contractor shall have a minimum of three years of experience in using high density polyurethane material to raise concrete slabs.
2. *Equipment.* The Contractor shall provide all necessary equipment to perform the work including, but not limited to the following:
3. A pneumatic drill and an electric drill capable of drilling 5/8 inch diameter holes. A truck-mounted pumping unit capable of injecting the high density polyurethane formulation between the pavement and the subbase and capable of controlling the rate of rise of the pavement.
4. A laser leveling unit to ensure that the pavement is raised to an even plane and to the required elevations.
5. A portable dynamic cone penetromenter for on-site soils investigation to assist in locating weak subgrade soils and determining the injection pattern through tubes to improve the density of weak soils.

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Revision of Section 601

SLAB JACKING

1. *Construction Requirements.*

## Preparation. A preliminary profile shall be performed to determine where and how much pavement needs to be raised. The profile shall be taken in each wheel path of the area to be raised. At least one profile shall be taken in the shoulders of the area to be raised. The interval between each point on the profile shall not exceed 6 feet. The plot of the preliminary profile shall be provided to the Engineer prior to raising any pavement. Dynamic cone penetrometer testing may be required by the Engineer on each lane of the project to confirm the condition of the existing soils.

**Drilling**. A series of 5/8 inch holes shall be drilled at a maximum of 8 foot intervals through the pavement. The exact location and spacing of the holes shall be determined by the Contractor. The drilled holes shall not crack the pavement.

**Injecting**. The high density polyurethane formulation shall then be injected through injection tubes inserted into the drilled holes to the proper depth or depths as required to improve the weak soils or raise the pavement to the required elevations. The Contractor shall construct cofferdams or other temporary structures to ensure that excessive material does not escape. The amount of rise shall be controlled by regulating the rate of injection of the high density polyurethane material. When the nozzle is removed from the hole, all excessive polyurethane material shall be removed from the area and the hole sealed with a non-expansive cementitious grout, as approved by the Engineer.

**Final Profile.** Final elevations shall be within 1/4 inch of the elevations proposed by profile. A tight string line may be used to monitor and verify elevations for areas with a length less than 50 feet. For longer sections, a laser level shall be used to monitor and verify elevations. The Engineer may direct the Contractor to flood the area with water to confirm that the paving has been realigned properly. A final profile shall be performed to determine how much the pavement was raised. The profile shall be taken in each wheel path of the affected area. At least one profile shall be taken in the shoulders of the affected area. The interval between each point on the profile shall not exceed 6 feet. The plot of the final profile shall be provided to the Engineer for the project records.

All pavement blowouts, excessive pavement lifting which may result from the process and new cracks that form within 45 days of placement shall be repaired or replaced at the Contractor’s expense. .

Subsection 601.19 shall include the following:

Slab Jacking will be measured by the pound of injected polyurethane material. Injection tubes will be measured by the linear feet of installed tubing.

Subsection 601.20 shall include the following:

## Pay Item Pay Unit

Slab Jacking Pound

Injection Tubes Linear Feet

Payment will be full compensation for all work and materials necessary to bring the slabs to grade. All sampling, testing, and non-expansive cementitious grout will not be measured and paid for separately, but shall be included in the work.

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REVISION OF SECTION 601

SLAB JACKING

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**INSTRUCTIONS TO DESIGNERS** (delete instructions from final draft):

Use this Project Special Provision only after contacting your Region Materials Engineer. In order to select the most cost effective or most appropriate product for this project, the RME and the Project Engineer should meet with representatives from Uretek and Hayward Baker and get cost estimates along with constructability comments.