ITEM 586.35010007 - TEMPORARY SHORING SYSTEM

DESCRIPTION

The work shall consist of installing, maintaining, and removing a temporary shoring system to provide continuous support for the existing stone masonry arch barrels.

MATERIALS

Used materials, in good condition, may be used to construct the shoring system.

CONSTRUCTION DETAILS

The arches must be shored prior to the removal of any existing fill or stone masonry.

Each stone arch must be continuously supported by the shoring system through the use of plywood, planking or other means.

The purpose of the shoring system is to maintain the existing geometry of the stone arch and provide structural support for the effects of unbalanced loads after fill has been removed from the arch. The shoring system shall be designed to support all loads on the arch during construction, including the arch self-weight. The shoring shall be installed "snug tight" and not exert excessive upward pressure on the arch. The shoring system shall remain in tight contact with the arch at all times. The shoring shall be monitored by the contractor periodically and adjusted as necessary.

The shoring system shall remain in place until the proposed concrete arch saddle has been cured to attain sufficient strength or as directed by the Engineer. Removal of the shoring shall be performed in such a manner as to reduce the supporting pressure uniformly.

The shoring scheme depicted on the plans is for illustrative purposes only. The design of the actual shoring system shall be the responsibility of the contractor, subject to approval by the Deputy Chief Engineer (Structures). The Contractor shall engage the services of a New York State Licensed Professional Engineer to design and detail the temporary shoring system. The Contractor's Engineer shall be available for consultation in interpreting his plans and in the resolution of problems that may arise during the performance of the work.

The Contractor shall furnish working drawings, prepared, stamped and signed by a New York State Licensed Professional Engineer, for the system proposed.
The drawings shall include, but need not be limited to the following:

1. Supporting member locations.
2. Calculated support loads.
3. Details for all support systems.
4. Type and grade of all materials.

Three legible, standard sized (22 inch x 36 inch nominal, 21 inch x 33.5 inch working area) prints of each drawing, together with three copies of all design computations shall be submitted to the Deputy Chief Engineer (Structures) for approval. Failure to submit drawings of the required size will be cause for their return without examination.

The Deputy Chief Engineer (Structures) shall be allowed the longest of the following time durations to examine design computations and working drawings:

- Fifteen working days
- Two working days for each drawing of a set of working drawings
- One working day for every four (4) design computation sheets. Any design computation sheet written on both sides will be considered as two design computation sheets.

All time for examination shall begin upon receipt of all pertinent information by the Deputy Chief Engineer (Structures).

The Deputy Chief Engineer's (Structures) comments shall be indicated on the returned copies. Should the proposed system not be approved, the reasons shall be indicated with the return of the material. The Contractor shall then resubmit revised drawings for approval, subject to the same terms as the first submission. Resubmission shall not be considered a legitimate reason to request an extension of time.

All work shall be done in accordance with the approved working drawings. The Contractor must have approved working drawings prior to the start of any shoring operations.

All materials required for temporary support of the structure shall remain the property of the Contractor and shall be removed from the site after the work is completed, unless otherwise agreed to.

**METHOD OF MEASUREMENT**

Payment for the temporary shoring system will be made on a lump sum basis.
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BASIS OF PAYMENT

The lump sum price bid shall include the cost of all labor, materials and equipment necessary to complete this work for all spans where shoring is required.

After the shoring system has been installed under the first span, payment will be made for 50% of the lump sum price bid.

After the shoring system has been installed in each of the remaining spans, a payment will be made for $x\%$ for the lump sum price bid (where $x$ is equal to $40$ divided by the number of spans where shoring is required minus the first span).

The remaining 10% of the lump sum will be paid upon completion of the removal of the shoring from all spans.