

DESCRIPTION	REVISIONS	DATE

GENERAL NOTES

SPECIFICATIONS:

Comply with the requirements of the 2009 Oklahoma Standard Specifications for Highway Construction, except as modified by the Plans and Special Provisions.

VERIFICATION OF EXISTING CONDITIONS:

All dimensions shown on the Plans are approximate. The Contractor shall verify all dimensions and shall be solely responsible for the accuracy thereof.

Bidders will fully inform themselves of the nature of the work and condition under which it will be performed. The Contractor shall adopt methods consistent with good construction practice and shall take all necessary precautions to prevent damage to the existing structure and roadway facilities. Any damage to the existing structure or roadway due to the Contractor's negligence shall be repaired at the Contractor's expense to the satisfaction of the Engineer.

MATERIALS:

Post-Tensioning Grout: Use grout which meets or exceeds the requirements of the 2009 Oklahoma Standard Specifications Section 701.18 and in accordance with the Manufacturer's recommendations.

Epoxy: Seal all grout ports and access holes with epoxy which meets or exceeds the requirements of the 2009 Oklahoma Standard Specifications Section 701.13, Type J and in accordance with Manufacturer's recommendations.

Elastomeric Coating System: Coat all anchorage protection replacement pour-backs with an elastomeric polyurethane waterproof coating system in accordance with the 2009 Oklahoma Standard Specification Section 737.03.

REMOVAL OF MATERIAL:

All material removed during this project shall become the property of the Contractor and shall be disposed of in a manner approved by the Engineer.

CONTRACTOR QUALIFICATIONS:

The Contractor must submit, with their bid, their qualifications to perform the work, or those of their grouting subcontractor. ODOT has the right to reject bids at their discretion from nonqualified Contractors. The documentation of the Contractor's qualifications shall include, but is not limited to, the following:

- a. Records of the Contractor's past successful experience in performing remedial post-tensioning grouting. A minimum of three projects within the last four years is required. The documentation shall include project locations, names and contact information of clients, costs, method of grouting utilized, and volume of grout used. The method of grouting used in these projects must be similar to the methods proposed in the "Grouting Operations Plan."
- b. Documentation of the experience of the superintendent and grouting foreman including length of employment with the Contractor (or subcontractor), work experience, work resume, and specialized education and training history. The superintendent and grouting foreman must have five years of experience in post-tensioned grouting and must be an ASBI Certified Grouting Technician.

EXISTING BRIDGE PLANS:

Plans are available from:

Technology Services Plans Section
Oklahoma Department of Transportation
200 N.E. 21st St.
Oklahoma City, OK 73105

The existing bridges were originally constructed under the following Federal Aid Project Numbers:

BRIDGE	PROJECT NO.
A	DPB-BRF-0001(001)
B	DPB-BRF-0001(001)

VOID DEFINITION:

Throughout this contract set, the term "void" describes voids, bleed trails, and/or a combination thereof. For payment purposes, one tendon void is defined as a continuous cavity, with air transfer, within a single tendon and/or anchorage.

REMEDIAL GROUTING SPECIFICATIONS:

Grouting Operations Plan: At least 6 weeks before the scheduled grouting operations, a Grouting Operations Plan shall be submitted to the Resident Engineer for review by the Department's Materials Engineer and approval by the Resident Engineer. The general grouting procedure and its requirements shall conform to 2009 Oklahoma Standard Specifications Section 517.04H. In the Plan, the Contractor shall describe the proposed remedial grouting method for each type of void, and locations and sizes of proposed grout ports and valves. The Contractor shall propose a remedial grouting method for each void location that reduces or eliminates the potential for water and air pockets in the grouted areas (pressure grouting, vacuum grouting, vacuum assisted grouting, or an approved alternate). The plan should also outline the Contractor's schedule, method of ingress and egress, and security of the work area, including preventing unauthorized access into the bridge. Work shall not start until the Grouting Operations Plan has been approved.

Personnel: Perform all post-tensioning field operations under the direct supervision of the qualified grouting foreman who must be on site at all times and directly involved with the grouting operations.

Contractor Locations: The external tendon ducts which contain voids are indicated on the plans. Before beginning grouting operations, the Contractor shall determine the extents of the tendon voids in accordance with the Tendon and Anchorage Inspection Specifications (See Sheet 3).

Grout Ports: At voided areas, install grout ports (inlet or outlet) at anchorages and drilled holes along the tendon, as needed to perform remedial grouting. One grout port may be sufficient for the smaller voids; however, two grout ports per void usually are required. Install additional grout ports as directed by the Engineer. The Engineer must approve the installation of all grout ports beyond the first grout port at each void.

Debris Removal: The contractor shall remove all debris and water from the voided areas. If possible, drain the water from low points along the tendon. Use oil free high volume compressed air or vacuuming techniques to remove debris and eliminate any remaining free water from the voids prior to the grouting operation.

Remedial Grouting: The Contractor shall perform Remedial Grouting in accordance with the approved grouting operations plans and section 517.04H of the 2009 Oklahoma Standard Specifications as applicable to cover and protect the post-tensioning tendons from water infiltration. The Contractor shall record and submit key data for each void filled, including the void volume and grout volume used to the engineer.

Sealing: After the grout cures, the contractor shall remove all grout inlet and outlets (including those previously installed within the limits of the void). Use a slightly larger drill to remove the grout tubes. Clean the hole with compressed air and plug the hole by fusing a compatible material into the opening (in accordance with the Manufacturer's recommendations) to make a complete waterproof seal. Grind the plug smooth with the pipe. The cost of all work associated with this specification shall be included in the contract unit price for "Repair Bridge Item, Type D".

Equipment: The Contractor shall provide all necessary equipment to grout the voids. Equipment shall be in accordance with Section 517.03B of the 2009 Oklahoma Standard Specifications; or the Contractor may propose different means or methods in their Grouting Operations Plan for approval. Any drilling equipment used shall have an automatic shut-off when steel is encountered to protect the tendons from damage. The Contractor is responsible for providing electrical power and lighting for their operations. Furnish vacuum grouting equipment with volumeters to determine void and grout volumes.

Protection of Structure: The Contractor shall take measures to protect the concrete, all post-tensioning steel, and all mild reinforcement from damage and/or future corrosion. The Contractor shall be responsible for any damage or additional corrosion to the structure that is caused by the Contractor's actions. The Contractor shall remove any construction debris from their activities in the structure.

The cost of all work associated with the Remedial Grouting Specification shall be included in the contract unit price for "Repair Bridge Item, Type C" and "Repair Bridge Item, Type D".

The contractor shall provide documentation that the proposed remedial grout properties are compatible with the existing grout properties of the bridge. The existing grout properties may be located in the submitted inspection and testing reports as prepared by URS Corporation for the Oklahoma Department of Transportation. The contractor shall submit both remedial and existing grout properties to the engineer for approval of the proposed remedial grout.

DRAWN	IRM	2-13	OKLAHOMA DEPARTMENT OF TRANSPORTATION DELAWARE COUNTY
CHECKED	CRK	2-13	
APPROVED	DEM	2-13	
URS			GENERAL NOTES (SHEET 1 OF 2)
STATE JOB NO. 30223(04)			SHEET NO. 2