

ITEM 01603.94 M - INSTALLING SPLICE PLATES IN EXISTING MULTIPLATE PIPES

DESCRIPTION:

Work shall consist of installing and in-place grouting corrugated steel splice plates into existing corrugated steel multi-plate pipes in accordance with this specification and Contract Documents.

MATERIALS:

Materials shall meet the requirements of the following specifications and subsections.

Corrugated Structural Steel Plate for Pipe,
Pipe Arches and Underpasses, "L" Bolts,
Nuts, and Washers 707-09
Galvanized Coatings and Repair Methods 719-01

Corrugated structural steel splice plates shall have injection ports located where specified on the contract plans or where ordered by the Engineer. Injection ports may be manufactured into the splice plates or field installed.

Grout shall consist of:

Portland Cement, Type 2 701-01
Flyash 711-10
Grout Sand 703-04
Water 712-01

Grout mix design shall be proportioned by weight in accordance with the following one (1) cubic meter mix.

Cement 284.2 kilograms
Flyash 459.2 kilograms
Grout Sand 1156.4 kilograms

Slump shall be between 138 mm and 200 mm.

The Contractor may propose an alternate mix design to the Director Materials Bureau for approval. Such submission will not be a cause for an extension of time as provided under Subsection 108-04.

Grouting equipment shall be capable of placing grout at all locations required by the plans. All equipment shall be approved by the Engineer at least five (5) working days prior to its intended use. A working demonstration of the pumping equipment's capability of completely filling the void will be required as part of the approval process.

CONSTRUCTION DETAILS:

Locations are to be repaired as shown in the Contract Documents. The area to be repaired shall be cleaned of all loose dirt, rust or other deleterious material by power wire brushing prior to installing splice plates.

Cracks in the existing culvert plate shall be prepared and welded in accordance with details and procedures shown on the contract plans.

All welding shall be done in accordance with the 1981 New York State Steel Construction Manual with current modifications.

Splice plates shall be installed in the dimensions as shown on the contract plans. The plates shall be installed and

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bolted one plate at a time at any one repair location. A maximum of two repair locations may be worked on simultaneously within any one culvert and shall be separated laterally by a minimum of 12.2 meters.

All nuts for field assembled plates shall be installed in the manner required by the plans. Final nut tightening shall be at least 204 but not more than 406 newton meters of torque. The Contractor shall furnish for the use of the Engineer-in-Charge an approved torque wrench.

The Contractor may place the grout in accordance with the scheme shown on the plans, or may submit an alternate scheme to the Regional Construction Engineer for approval. Such a submission will not be a cause for an extension of time as provided under Subsection 108-04.

Grout shall be transferred from the point of mixing to the point of deposition only by approved equipment. The grout shall be pumped in such a manner that the grout does not dilute or separate, and all voids between the splice plate and existing culvert are completely filled.

Agitation shall be continuous and shall be continued during all shut-downs. If a shut-down equals or exceeds 15 minutes, the grout shall be recirculated through the pump and delivery lines. If required by the Engineer, the delivery lines shall be flushed clean of grout with clean water.

If in the opinion of the Engineer, the grout has begun to set in the agitator, pump or lines, it shall not be placed. Grout not placed within 90 minutes after mixing shall not be placed regardless of reason.

After the grout is in place for three days, the interior surface of the repaired pipe shall be sounded by hammering. Hollow sounding areas shall be rejected. A repair procedure for the rejected areas shall be submitted by the Contractor to the Engineer for approval. Upon approval, the Contractor shall perform the repairs, at no cost to the State, to the satisfaction of the Engineer.

Any damage to materials to remain in place shall be repaired by the Contractor at no cost to the State.

METHOD OF MEASUREMENT:

The method of measurement will be linear meters measured along the horizontal length of splice plate completely installed. Completely installed is defined as welding of cracks, bolting in splice plates and in-place grouting between the splice plate and culvert accepted.

BASIS OF PAYMENT:

The unit price bid per linear meter shall include the cost of furnishing all labor, materials and equipment necessary to complete the work.

Field drilling of holes in existing culvert will be paid for under a separate item.