

**ITEM 01603.90 M - LINING EXISTING CULVERT WITH CORRUGATED ALUMINUM STRUCTURAL ARCH**

**DESCRIPTION:**

Under this item the Contractor shall furnish, assemble and install a corrugated aluminum structural plate arch, into an existing concrete box culvert in accordance with this specification and Contract Documents. The arch shall be placed such that grout may later be placed in the annular space between the new arch and existing culvert. The arch shall have the following nominal dimensions:

Span            4.267 m  
Rise            1.423 m  
Radius        2.318 m  
Corrugations 230 mm x 64 mm  
Thickness    16 mm

**MATERIALS:**

Materials shall meet the requirements of the following specifications:

Corrugated Aluminum Structural Plate for Pipe and Pipe Arches, Bolts and Nuts	707-14
Portland Cement Concrete - General	501
Zinc Chromatic Primer	708-04

Thoroughly coat the pipe exterior (area of pipe adjacent to grout backfill) with zinc chromatic primer. Repairs of damaged coatings shall be made in accordance with written procedures of the Materials Bureau.

Corrugated aluminum plates shall have grout holes and fittings located as specified in the contract plans or as recommended by the manufacturer. Plugs shall be inserted into a grout fitting after the grouting operation is complete at that fitting. Grout fitting shall be compatible with the plugs and grout delivering equipment.

The requirements of Subsection 603-3.04A, Damage Pipe and Repair - General of the Standard Specifications shall apply.

**CONSTRUCTION DETAILS:**

Assembly. All elements of the structure shall be handled and assembled in accordance with Subsection 603-3.02B, E (excluding geotextile), G and the manufacturer's instructions, except as modified herein, on the plans, or where by the Engineer in writing. The manufacturer's instructions, including erection drawings shall be submitted to the DCES for review. The DCES will be allowed seven (7) working days to review the Contractor's submittal. All drawings shall be submitted in accordance with Subsection 202.2, 202.3, 202.5 and 202.10 of the New York State Steel Construction Manual. The Contractor shall distribute prints of approved drawings and manufacturer's instructions, in accordance with Subsection 202.7 of the New York State Steel Construction Manual. Should the DCES not approve the Contractor's submission, the Contractor shall be required to resubmit the drawings with appropriate changes or corrections. This resubmission shall not entitle the Contractor to an extension of time, as allowed for by Subsection 108-4, of the Standard Specifications.

The Contractor shall maintain the shape of the structure during all stages of assembly and grout backfilling. The Contractor will be responsible for any bracing of the aluminum arch as the manufacture deems necessary for grout backfilling. In order to prevent distortion and maintain structure shape within specified limits, the following methods or combination of methods may be used:

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1. Field strutting and temporary shoring.
2. Sequencing of grouting.

The Contractor shall meet with the manufacturer's representative prior to assembly of the aluminum arch and prior to grout backfilling.

Grouting. Grouting shall be done in accordance with the details indicated on the plans and this specification, unless otherwise modified by the Engineer. The differences in grout elevation from one side of the structure to the other shall not exceed 300 mm at any time.

A form vibrator shall be used to ensure consolidation of the grout. Care shall be taken during vibrating of the grout material so as to not damage the structure.

**METHOD OF MEASUREMENT:**

Corrugated aluminum structural plate arch pipe, shall be measured in meters along the centerline of culvert as designated on the plans and specifications or where directed by the Engineer in writing.

**BASIS OF PAYMENT:**

The unit price bid per meter shall include the cost of furnishing all labor, materials and equipment necessary to manufacture and install the corrugated aluminum structural plate arch, including: cleaning, inspecting, strutting, bracing, installing grout holes, plugs, fittings and damaged pipe repairs. The price bid shall also include the cost of the manufacturer's representative required during construction. Grout used to fill the annular space shall be paid for under the appropriate item.

Concrete for walls will be paid for under appropriate item.