

**ITEM 09603.0523 M - LINING EXISTING STRUCTURAL PLATE PIPE ARCH WITH CORRUGATED ALUMINUM STRUCTURAL PLATE PIPE ARCH**

**DESCRIPTION:** Work shall consist of inserting a corrugated aluminum structural plate pipe arch into an existing structural plate pipe arch in accordance with this specification and contract documents. The inserted structural plate pipe arch is placed such that grout may later be placed in the annular space between the new and existing structural plate pipe arches. The insert structural plate pipe arch has the following characteristics:

|       |                     |
|-------|---------------------|
| _____ | Span                |
| _____ | Rise                |
| _____ | Pipe Wall Thickness |
| _____ | Corrugations        |

**MATERIALS:** Materials shall meet the requirements of the following specifications:

Corrugated Aluminum Structural Plate 707-14

Portland Cement Concrete - General 501

Zinc Chromatic Primer 708-04

The structural plate exterior shall be thoroughly coated with zinc chromate primer. End sections, when used, shall meet the requirements of 707-11, Aluminum End Sections.

Corrugated aluminum structural plate shall have grout holes and fittings located as specified in the contract plans. If grout hole and fitting locations are not specified on the plans the Contractor shall determine their locations to the satisfaction of the Engineer. Plugs shall be inserted into a grout fitting after the grouting operation is complete at that fitting. Grout fittings shall be compatible with plugs and grout delivery equipment.

**CONSTRUCTION DETAILS**

**Existing Structural Plate Pipe Arch Preparation:** The Contractor shall dewater, inspect, and clean the existing structural plate pipe arch. The Engineer and Contractor shall identify voids in the backfill around the existing structural plate pipe arch by visual inspection or by chain drag or other sounding method acceptable to the Engineer. The Contractor shall fill all voids by cutting holes in the structural plate pipe arch and pumping grout into the areas of lost backfill. The Contractor shall provide strutting and bracing to insure the stability of the existing structural plate pipe arch during this operation.

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Handling and Assembly of Structural Plate: The structural plate shall be inserted in reasonably close conformance to line and grade. To facilitate placement and proper alignment of the new structural plate pipe arch, the Contractor shall install skids in the existing structural plate pipe arch or construct a concrete bed in the existing invert. The Contractor may propose an alternate method to place and align the new structural plate pipe arch, subject to the approval of the Engineer.

If the Contractor chooses to install skids, the skids shall be 2.0 meter minimum lengths and staggered along the entire length of the existing structural plate pipe arch. The staggered skids shall be spaced such that grout will freely flow beneath the entire inserted structural plate pipe arch. The skids shall be securely attached to the existing structural plate pipe arch near the invert such that the invert of the new structural plate pipe arch does not drag along the invert of the existing structural plate pipe arch during placement.

If the Contractor chooses to construct a concrete bed in the invert of the existing structural plate pipe arch, the concrete shall be Class A and meet the requirements of NYSDOT Specifications Section 501, Portland Cement Concrete - General, and Sections 555-3.04 and 555-3.06. No water shall pass through the existing structural plate pipe arch during concrete placement. The concrete shall be finished such that the new structural plate pipe arch lays reasonably close to line and grade. The edges of the placement shall be feathered back to allow grout to pass freely between the corrugations of the new structural plate pipe arch and the concrete bed. The Contractor will not be required to grout voids where the concrete bedding will fill voids caused by the loss of the existing structural plate pipe arch invert.

Adjacent structural plate sections shall be aligned such that the grout holes are placed as detailed in the contract plans regardless of the placement and alignment system used. The displacement between adjacent structural plate ends shall not exceed 13 mm.

Structural plate pipe arch sections may be pushed or pulled into place. As structural plate pipe arch sections are placed, each end shall be braced against the existing structural plate pipe arch such that the new structural plate pipe arch shall remain in place during a grouting operation. Bracing material shall not significantly impede grout flow into the annular space between structural plates. Bracing bolts which cannot be fully turned out shall be cut off and ground smooth to the new structural plate pipe arch interior seven days after the completion of the grouting operation.

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**Joints:** Internal expanding joint bands with flat gasket material shall be placed at all joints to contain grout. Sealant or caulk material shall be placed at each joint before the placement of the internal band and gasket. The sealant or caulk shall be a material recommended by the supplier of the structural plate. Before grouting, these bands shall be strutted to the satisfaction of the Engineer. The internal bands and struts shall remain in place for seven days after the completion of the grouting operation. Alternate joint methods may be submitted to the Director, Materials Bureau, for approval. Such a submission is not cause for an extension of time as provided under Subsection 108-04.

**Seals:** Plywood, or an equivalent material of adequate strength, shall be placed in the annular space at each end of the structural plate pipe arch to retain grout. Seals may be left in place providing they do not interfere with bank protection.

**Damaged Structural Plate and Repair:** Prior to placement, structural plates shall be inspected and repaired in accordance with the written procedures of the Materials Bureau. Structural plate sections damaged or disturbed through any cause prior to contract acceptance shall be repaired, realigned, or replaced as directed by the Engineer at the Contractor's expense. Structural plate sections which are defective from any cause, and determined by the Engineer to be unrepairable, are unacceptable and shall be replaced at no cost to the State.

**METHOD OF MEASUREMENT:** Corrugated aluminum structural plate placed as structural plate pipe arch linings shall be measured in linear meters along the invert centerline.

**BASIS OF PAYMENT:** The unit price bid per linear meter shall include the cost of furnishing all labor, materials, and equipment necessary to manufacture and install the corrugated aluminum structural plate pipe arch, including: dewatering, cleaning, inspecting, strutting, bracing, skids, concrete, joint bands, seals, installing grout holes, plugs, fittings, and damaged structural plate repair. Grout used to fill the annular space and backfill voids shall be paid for under a separate item.