

ALUMINUM/ALUMINIZED STEEL PIPE LINER

**From Irasburg STP CULV(20)

**From Sharon IM CULV(18)

- xx. DESCRIPTION. This work shall consist of lining an existing culvert(s) (pipe(s)) at the location(s) indicated in the Plans and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 601 of the Standard Specifications.

- xx. MATERIALS. Materials for the Aluminum Pipe Liner system shall meet the following requirements:

- (a) Pipe Liner. Pipe liner shall be 2.6 mm (10 gauge) with 75 mm x 25 mm (3 inch x 1 inch) corrugations and meet the requirements of Section 601.

Aluminized steel pipe liner shall be 2.6 mm (10 gauge) with either 75 mm x 25 mm (3 inch x 1 inch) or 125 mm x 25 mm (5 inch x 1 inch) corrugations and shall meet the requirements of Section 601.

- (b) Rubber Gaskets. Rubber gaskets at pipe liner joints shall meet the requirements of Subsection 707.11.
- (c) Caulking Compound. Caulking compound meeting the requirements of Subsection 707.13 shall be used as necessary to provide adequate grout seal on Aluminum Pipe Liner.
- (d) Mortar. Mortar used to fill the annular space between the existing culvert and pipe liner shall meet the requirements of Subsection 707.03, with the exception that the minimum 28-day compressive strength shall be 3.5 MPa (500 psi) as measured by 100 mm diameter x 200 mm high (4 inch diameter x 8 inch high) cylinders.

Prior to contract award, the Contractor shall consult with the pipe manufacturer on their proposed installation, shoring, and grouting procedures to determine the allowable unit weight for the mortar. The Contractor is solely responsible for providing a mortar design that meets the stated requirements and is workable for the construction conditions.

The mortar mix design shall be submitted to the Structural Concrete Engineer for approval. The Contractor shall supply test data to confirm that the mix design will produce the specified properties.

- xx. HYDRAULIC CAPACITY. The pipe liner shall have a minimum diameter as shown on the Plans. The hydraulic cross section shall be maintained as large as possible.

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- xx. SUBMITTALS. Prior to installing the pipe liner, the Contractor shall submit a work plan that will include necessary forming details, method of placement, and methods of maintaining the location of the liner during installation operations.

The work plan shall also include the actual methods to be employed to repair and/or fill existing voids outside of the annular space, including materials and sequencing to be employed. The Contractor may submit for approval alternative materials to those shown in the Contract Documents for repair of voids.

The work plan shall be approved by the Engineer prior to commencing with the work.

- xx. INSTALLATION.

(a) Temporary Relocation of Stream. Temporary relocation of stream, when required, shall be performed in accordance with the requirements of TEMPORARY RELOCATION OF STREAM of Section 900.

(b) Internal Debris and Obstructions. The Contractor shall remove all internal debris and obstructions from the existing pipe, and perform any necessary repairs to existing pipe conditions that would interfere with the installation of the pipe liner, in accordance with the manufacturer's recommendations and as directed by the Engineer.

(c) Setting Liner. The Contractor shall be responsible for all measures required for positioning the pipe liner inside the existing pipe, including resisting flotation forces encountered during placement.

(d) Grouting Annular Space. The Contractor shall place grout from the low end to the high end to displace any water in the annular space. The actual method to achieve this shall be included in the work plan.

- xx. METHOD OF MEASUREMENT. The quantity of Special Provision (Aluminum Pipe Liner) of the size specified to be measured for payment will be the number of meters (linear feet) installed in the complete and accepted work, measured along the centerline of the pipe liner.

- xx. BASIS OF PAYMENT. The accepted quantity of Special Provision (Aluminum Pipe Liner) of the size specified will be paid for at the Contract unit price per meter (linear foot). Payment will be full compensation for furnishing, transporting, handling, and placing the materials specified; for cleaning and repairing the existing pipe prior to pipe liner installation; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

When designated in the Contract Documents for a specific location, payment for work associated with access and staging or temporary relocation of stream will be made under Contract items

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900.645 Special Provision (Temporary Access Road and Staging Areas, Culvert) and 900.645 Special Provision (Temporary Relocation of Stream), respectively.

When not designated in the Contract Documents for a specific location, payment for work associated with access and staging or temporary relocation of stream will be included in the unit price bid for Contract item 900.640 Special Provision (Aluminum Pipe Liner).

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.640 Special Provision (Aluminum Pipe Liner) (X mm)(X")(Existing X mm (X") Pipe)	Meter (Linear Foot)
900.640 Special Provision (Aluminized Steel Pipe Liner)(X mm)(X")(Existing X mm (X") Pipe)	Meter (Linear Foot)