FOLDED/FORMED PVC PIPELINER

Effective: April 1, 2004
Revised: April 15, 2022

Description. This work shall consist of the rehabilitation of pipe culverts, sewer lines, or conduits 4 to 30 in. (100 to 750 mm) in diameter by the insertion of a folded/formed polyvinyl chloride (PVC) pipe liner.

Materials. The folded/formed PVC pipe liner shall conform to ASTM F 1871 or ASTM F 1504. Folded/formed PVC pipe liners with diameters different or larger than the standard sizes shown in the ASTM documents will be accepted based upon manufacturer's certification.

Construction Requirements. The Contractor shall submit the following to the Engineer at least 15 days prior to the start of work, detailing the following:

(a) References. A list containing at least three projects completed within the last three years prior to this project's bid date in which the Contractor performing this work has installed Folded/Formed PVC liners. The list of projects shall contain names and phone numbers of representatives who can verify the Contractor's participation on those projects.

(b) Experience. Name and experience record of the Folded/Formed PVC liner supervisor

(c) Materials. Manufacturer's published literature for the proposed Folded/Formed PVC liner.

(d) Installation Procedure. Proposed methods of water diversion, cleaning and preparation of the existing culvert, ASTM standard practices for the proposed Folded/Formed PVC liner, setup locations for inserting the liner, testing and inspection methods, and final clean-up operations. Quality control procedures for conformance with applicable water testing and stormwater management requirements.

The Contractor shall submit a design report for each installation, sealed by an Illinois Licensed Structural Engineer, prior to the installation of the Folded/Formed PVC liner. Prior to completion of the design report, the Contractor shall clean and inspect the host pipe as described in the work plan. The Contractor shall provide a recording of the inspection to the Engineer. Authorization from the Engineer shall be requested to clear any obstructions not able to be removed by conventional sewer cleaning equipment.

The design report shall be submitted to the engineer for approval prior to installation and shall include the following:

(a) The anticipated length and diameter of Folded/Formed PVC liner.

(b) The location and characteristics of cavities in and around the existing structure, and the location and quantity of any additional materials required, such as grout,

pea gravel, or flowable backfill, to repair the existing structure and fill these cavities.

(c) The location of any deformities such as jagged edges that may impact the liner installation or its function, and a plan to correct the deformities.

(d) Design calculations and required in-place liner thickness of the Folded/Formed PVC liner. The wall thickness shall be calculated using the methodology provided in the applicable ASTM standard practice for the approved Folded/Formed PVC liner. The design loads shall be as per the AASHTO LRFD Bridge Design Specifications. The host pipe shall be considered fully deteriorated. The proposed Folded/Formed PVC liner shall have a 50-year design life, with a factor of safety of two (2).

(e) The final in-place hydraulic opening shape and dimensions of the Folded/Formed PVC liner.

Liner shall not be installed until the design report has been approved by the Engineer. Liner shall not be installed if rain is in the forecast for the day of installation.

After completion of the design report, but prior to installation of the Folded/Formed PVC liner, the Contractor shall confirm that the host pipe is in suitable condition for the installation of the proposed Folded/Formed PVC liner.

Pipes shall be drained and flow shall be diverted.

The Folded/Formed PVC liner shall be installed according to the installation procedure in the approved work plan.

A resin impregnated sample (wick) shall be provided by the Contractor to provide verification of the curing process taking place in the host pipe.

The Folded/Formed PVC liner thickness installed by the Contractor shall be the Required In-Place Liner Thickness calculated in the design report, with allowable tolerances as per the applicable ASTM documents. Measured sample thickness will not include any portion not considered by the Engineer to be considered a structural component of the system.

The Contractor shall inspect the Folded/Formed PVC liner and provide the Engineer with a recording showing and describing the entire length of the completed liner. Any excessive wrinkling or damaged liner areas shall be repaired or modified at the Contractor’s expense.

Method of Measurement. This work will be measured for payment in place in feet. When the Folded/Formed PVC liner enters a manhole, inlet, or catch basin, the measurement will end at the inside wall of the manhole, inlet, or catch basin.

Basis of Payment. This work will be paid for at the contract unit price per foot for FOLDED/FORMED PVC PIPELINER, of the diameter specified.

Debris removal requiring equipment beyond conventional sewer cleaning equipment, repair of existing pipes and filling of voids prior to the installation of the Folded/Formed PVC liner will be paid for according to Article 109.04.