

STATE

OF

TENNESSEE

January 1, 2021

SPECIAL PROVISION

REGARDING

SPRAY APPLIED PIPE LINERS (SAPL)

Description:

This specification shall govern all work, materials, and equipment required for pipe and culvert rehabilitation using a “spray applied method” for the purpose of eliminating infiltration and exfiltration, repair of voids, and restoration of the structural integrity of the pipe or culvert.

Material:

Products meeting this provision shall have been submitted and evaluated through AASHTO’s National Transportation Product Evaluation Program (NTPEP) or AASHTO Product Evaluation List (APEL). Only products that are on the TDOT Qualified Products List (QPL) 42, SPRAY APPLIED PIPE LINERS (SAPL), may be used.

Grouts for the reestablishment of pipe inverts and for filling voids shall meet the requirements of section 921.09- Type 1 of the Standard Specifications. Alternate grouts recommended by the SAPL manufacturer may be used upon approval of the Engineer.

Spray Applied Pipe Lining Method

The spray applied lining material shall be used to form structurally enhanced monolithic liner covering all interior surfaces of the structure, including benches and inverts of manholes.

The spray applied slip lining shall conform to the minimum physical requirements as tested and approved during the initial NTPEP Evaluation. The physical requirements must be verified by an independent, certified, third party testing laboratory within the last five years.

Submit to the project engineer manufacturer's detailed product data with complete information on liner pipe materials (pipes, joints, gaskets, fittings, entrance bells), physical properties, dimensions, installation minimum / maximum allowable parameters such as maximum recommended external grout pressure, axial compressive stress, minimum bending radius or maximum joint angular deflection.

The SAPL will include applying a self-leveling grout to repair eroded inverts followed by the application of a TDOT approved spray applied liner process.

Equipment

Applicator must use approved equipment designed and manufactured by the material supplier specifically for the application of the spray applied liners. Other models may be approved after review by the manufacturer.

The spray equipment shall be specifically designed to accurately ratio and apply the specified protective coating materials and shall be regularly maintained and in proper working order.

Existing Pipe Inspection

Applicator shall inspect all surfaces specified to receive a protective coating prior to the existing pipe preparation.

The interior of the host pipe shall be thoroughly inspected to determine the location of any conditions which may prevent proper installation, and it shall be recorded so that these conditions can be corrected.

Applicator shall notify Owner of any noticeable disparity in the surfaces which may interfere with the proper preparation or application of the repair mortar and protective coating.

Existing Pipe Prep

All aspects of the existing pipe prep shall be in accordance with the manufacturer's recommendation.

Any and all obstructions shall be removed using a high pressure water jet or other means necessary to the satisfaction of the project engineer. The pipe preparation will also include the following:

- removal of any loose and unsound material
- cleaning and preparing the area to be sprayed
- elimination of active infiltration prior to liner application
- repair and filling of voids
- repair and sealing of the invert and benches
- repair of collapsed pipe sections by jacking or other approved methods

Application of Repair Material

Grout all voids beneath and around the pipe where infiltration, erosion, or scour have occurred and reestablish the invert of the pipe.

Repair materials shall be used to; fill voids, bug holes, structurally reinforce and/or rebuild surfaces, etc. as determined necessary by the protective coating applicator.

Repair materials must be compatible with the specified coating and shall be applied in accordance with the manufacturer's recommendations.

The repair materials shall be permitted to cure according to manufacturer recommendations. Curing compounds should not be used unless approved for compatibility with the specified protective coating.

Areas where structural steel has been exposed or removed shall be repaired with a non-shrink grout or approved alternate per the Project Engineer's recommendations.

Application of the repair materials, if not performed by the coating certified applicator, should be inspected by the protective coating certified applicator to ensure proper finishing for suitability to receive the specified coating.

Application of Spray Applied Liner (SAPL)

The applicator shall be approved and trained by the manufacturer using the specially designed equipment for the application.

Application procedures shall conform to the requirements and recommendations of the protective coating manufacturer, including material handling, mixing, environmental controls during application, safety, and spray equipment.

Apply the SAPL to a minimum thickness of 1.0 inch for Geopolymer and Cementious based material: and a minimum thickness of 0.5 inch for resin based material, unless otherwise specified.

Ground water shall not be permitted to infiltrate into the host pipe during the liner process.

Method of Measurement

Grouts for the reestablishment of pipe inverts and for filling voids will be measured by the cubic foot (CF).

The spray applied pipe liner (SAPL) shall be measured by the linear foot (CF) of pipe repaired and accepted. The Department will measure, in place, end to end along the centerline of the pipe section repaired.

Basis of Payment

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| 607-25.02 | SPRAY APPLIED PIPE LINER (SAPL) | Cubic Foot (CF) |
| 607-25.01 | SAPL TYPE 1 GROUT (REPAIR) | Cubic foot (CF) |

Payment for grout is full compensation for all labor, materials, and equipment used for the batching, mixing, pumping placing, and finishing of grout, and all other incidentals necessary to complete the work.

Such payment for the spray applied pipe liner is full compensation for all labor, materials, and equipment used for the proper repair of the pipe including inspection, cleaning, drying, removing obstructions, preparation of pipe, repairing voids, jacking collapsed areas of pipe, diversion of existing water sources, application of materials, and all other incidentals necessary to complete the work.