Reviewed by:

R F Cauley

Robert F. Cauley, P.E.
Materials and Research Engineer

Prepared by:

Philip Carter

Philip Carter
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RESEARCH UPDATE   U97-11

Insituform Pipe Lining Process

Reference   Work Plan 91-R-9, U96-1, U96-26

Background

Insituform is a system used to repair deteriorating pipelines without the need of excavation. The system uses a fiber felt liner which is impregnated with resins. The liner is fed into the pipe and sealed at the ends. The liner is then filled with water, pressing it onto the existing pipe. The water is heated, setting the adhesive, then cooled. The water is then drained, leaving a durable resurfaced interior. The advantage of this system is that roadways can remain open to traffic during installation. Three Insituform culvert liners were installed by the manufacturer, Insituform of New England, during the Fall of 1992 on the following structures:

- Interstate 89 MM 73.57, Town of Richmond-
  1830mm x 116m corrugated metal pipe

- VT Route 22A MM 4.65, Town of Bridport-
  1830mm x 51m corrugated metal pipe

- VT Route 22A MM 0.23, Town of Addison-
  1830mm x 40m corrugated metal pipe

In each case it was determined that excavation was an impractical approach given the lengthy detours required. Consequently, the use of Insituform was considered prudent.

Inspection

The culverts have been inspected each year since installation of the product. In each case the Insituform lining appears unchanged. When the liner was installed, the Bridport culvert was showing signs of collapse and had a pronounced elliptical shape. It was hoped that the Insituform would add structural strength to the pipe and avoid the need for complete replacement. Measurements made at the axes of the ellipse have been identical each year, indicating no movement. It is possible that the liner has strengthened the pipe. Likewise, the Richmond and Addison linings show no signs of movement or deterioration.

Follow Up

The culverts will be inspected again next summer and an update report will follow.