Snap-Tite® Culvert Rehab

Product Brochure

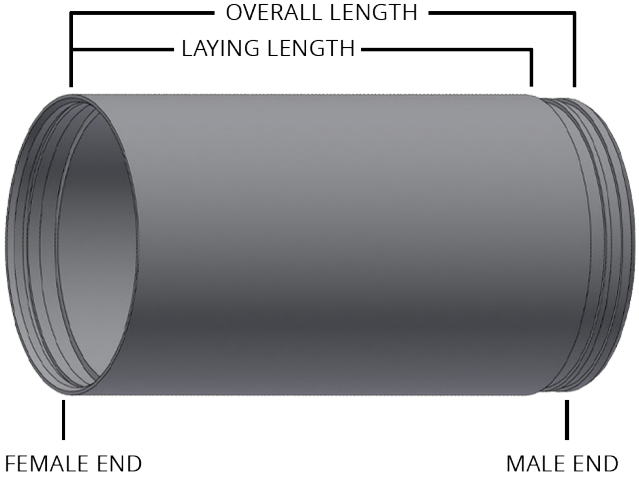
ISCO

The Problem

State Departments of Transportation, counties and municipalities are facing a critical problem. Culverts installed fifty to sixty years ago are failing at an alarming rate nationwide. Thousands of corrugated metal culverts are so significantly rusted that a danger of sink holes, road collapse or flooding exists. Concrete culverts have cracked or pulled apart at the joints, creating similar dangerous scenarios. Conventional repair methods of the past have been to dig up the old piping and replace the failed culvert. Snap-Tite provides a solution that is economically feasible, quick, avoids road closures, detours for the motoring public, and provides unmatched service life once installed.

The No-Dig Structural Solution

Utilizing solid wall high density polyethylene pipe (HDPE), a Snap-Tite® system actually outperforms the pipe it replaces. HDPE's smooth interior surface is hydraulically efficient – and with the inclusion of a gasket, assures a watertight seal at all joints, meeting ASTM D3212 requirements. Snap-Tite's® male/female machining at each end of the HDPE allows it to be 'snapped' together, piece by piece, and pushed into the full length of the existing pipe. The annular space between the host pipe and the new Snap-Tite® pipe is filled with grout, filling in any voids around the existing host culvert to provide consistent support and eliminating backfill movement along unseen groundwater channels. A complete Snap-Tite installation delivers a truly rehabilitated culvert.



Snap-Tite® is also easy to install. Nearly all the culvert renewal can be done off road with minimum disturbance to the right of way, and without road closures. Most jobs can be completed with a backhoe, shovels, a come-a-long and chains – and most highway or road contractors can use their own crews without the need for special training or specialized equipment.

Flow Comparison Snap-Tite vs. Corrugated Metal Pipe		
Existing CMP (I.D.)	Snap-Tite (O.D.)	% of Flow
15"	12.75"	142%
18"	14"	112%
21"	18"	145%
24"	20"	135%
30"	24"	121%
36"	32"	160%
42"	36"	145%
48"	42"	154%
54"	48"	160%
60"	54"	166%
72"	63"	154%
84"	63"	102%

Once Snap-Tite has been installed, the rehabilitated culvert will maintain or improve the hydraulic capacity of the culvert pipe. The smooth interior walls of the pipe allow water to glide through the pipe quicker and easier than the existing legacy pipe. The chart to the left demonstrates the flow rate percentage increase going from an existing Corrugated Metal Pipe (CMP) to a Snap-Tite® rehab.

O.D. = Outer Diameter, I.D. = Inner Diameter
n CMP = 0.024, n Snap-Tite = .00914
Other sized liners are also available for the sizes listed
Consider Soirolite for 48"-120" liner sizes

AASHTO M326

Looking for confidence and ease in specifying your culvert and storm drain rehabilitation? M326 is the only AASHTO standard that addresses culvert lining. It is the standard specification that covers the requirements and methods for tests of solid wall polyethylene(PE) liner pipe from 12"-63", incorporating an array of other reference standards from ASTM, simplifying the bidding process. Snap-Tite meets the requirements for material, workmanship, dimensions, pipe stiffness, joining systems and markings laid out in the AASHTO M326 standard.

MEETS AASHTO STANDARD M326

Installation: Overview of Key Steps

Snap

Align the ends of the male spigot inside the female bevel. Pull the ends together slowly, forcing the female end to expand and allowing the male end to slide in. It is usually easier to get one side started, then apply force to the other side by straightening the alignment of the joint. Look for the female side to increase in OD as force is applied. Listen for two distinct popping sounds as they "snap" together.

Seal

Once the entire culvert is lined, seal the annular space at both ends. Bulkheads are the best way to seal the annular space and prevent grout from escaping. Bulkheads should be about one to two feet in distance at both ends to ensure sufficient strength to sustain hydrostatic pressure during annular grout placement. The end seal in the annulus can be made by using various materials. A relatively dry cement grout is used in most situations.

Grout

It is recommended that the annular space between the existing culvert and the liner be grouted. This will help fill the voids created by previous washouts, provide additional structural support, maintain grade/alignment, and secure the liner from movement and flotation. Annular space grouting is discussed in greater detail in chapter 7 of the Design Manual and in the Snap-Tite Installation Guide.

Scan here to view more Snap-Tite literature.