SLIPLINING WITH FUSIBLE PVC® PIPE REHABILITATES AGING PIPELINES

Fusible PVC® provides a robust solution for water and wastewater pressure pipelines

Overview

With many older water and wastewater pipelines now surrounded by adjacent utilities or located beneath ever busier roadways, sliplining offers a low-dig replacement solution that reduces construction risk and minimizes disruption to the public. Difficulties with accessing congested utility corridors via open-cut, combined with escalating restoration expenses, make sliplining a cost effective and environmentally attractive design alternative to direct bury replacement.

Prior to 2004, pipeline rehabilitation was primarily accomplished using liners such as cured-in-place-pipe (CIPP), epoxy coatings, cement mortar lining, or swaged/folded HDPE. While popular in gravity sewer and other non-pressurized pipe rehabilitation, lining solutions are often performance limited in higher pressure water transmission/distribution lines and some force mains. Liners typically rely to some degree on the host pipe and are generally not stand-alone, fully structural systems. Liners also normally require custom fittings and connections which can add cost, complexity and long term operating risk. While HDPE liners may provide a stand-alone structural solution, pipe wall thickness increases rapidly with escalating pressure requirements, sacrificing ID and constricting flow.

PVC pipe's high strength-to-weight ratio, long-life, corrosion resistance, and flexibility have made it a popular sliplining alternative. Fusible PVC® pipe systems provide a structural solution free of reliance on the deteriorating host pipe while preserving high flow capacity. PVC pipe has excellent resistance to the oxidizing effects of chlorine based disinfectants, and PVC pipes have superior resistance to hydrocarbon saturated groundwater. These qualities make Fusible PVC® pipe systems an ideal choice to ensure safe, reliable drinking water conveyance, while PVC's chemical resistance makes it an effective, long-term solution for deteriorating concrete, steel, and ductile iron wastewater lines.

Since its introduction in 2004, Fusible PVC® pipe has been successfully utilized in over 350 sliplining projects and is often sole source specified due to its unique advantages in preserving maximum flow capacity while providing a fully structural, long-term renewal solution that is independent of host pipe condition.

Milestones

- More than 350 projects completed, with over 1,600 separate pulls
- Continuous pulls of 7,000' (14"), 3,510' (12"), 3,200' (16"), 2,800' (24"), 2,200' (24"), 1,810' (30")

Fusible PVC® Pipe Advantages

Use standard fittings to reconnect to PVC and ductile iron pipe

- Eliminates electro-fused couplings or in-pit fusion of adaptors
- Simplifies maintenance and fittings inventory

Significantly greater flow capacity

- Larger ID for equal OD and pressure versus HDPE (≥ 25%)
- PVC C-Factor of 150 often offsets ID reduction

Fully stand-alone structural solution

- No reliance upon host pipe for pressure rating

Enables downsizing of casings due to smaller OD

- Smaller OD for similar ID and pressure class versus HDPE

Greater pull strength and less pipe weight

- More than 2X the tensile strength and pull force of HDPE
- Enables longer pulls requiring fewer installation pits
- No relaxation period required for reconnection

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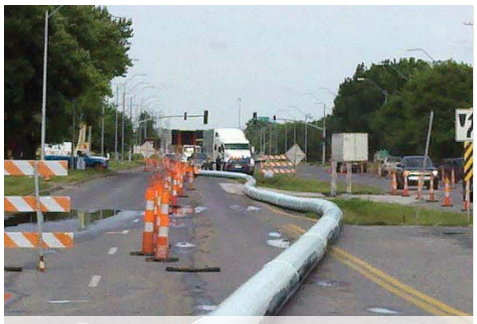
INSTALLATION PROFILE: SLIPLINING
FUSIBLE C-900® | FUSIBLE C-905® | FPVC®

Las Vegas, NV: 5,800 LF of 30”

Moneroeville, PA: 260 LF of 16”

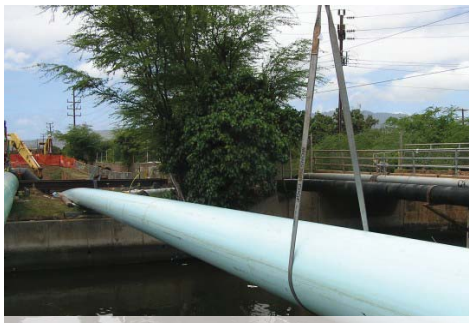
Norwich, CT: 3,500 LF of 24”

Navarre, FL: 2,800 LF pull of 20”



Kansas City, MO: 1,000 LF of 16”

Northern CA: 7,000 LF pull of 14”



Honolulu, HI: 2,720 LF of 24” & 36”

Helena, MT: 5,100 LF of 16”

Dare County, NC: 1,320 LF of 20”

South Jordan, UT: 1,400 LF of 30”

Thornton, CO: 1,960 LF of 16”

Moorhead, MN: 3,015 LF of 12”

Underground Solutions, Inc. provides infrastructure technologies for water, wastewater and power cable conduit applications. Underground Solutions’ Fusible PVC® pipe products, including Fusible C-900®, Fusible C-905® and FPVC®, utilize patented technology to produce a fused monolithic, fully-restrained, gasket-free, leak-free piping system ideal for trenchless (horizontal directional drilling, pipe bursting and sliplining) or conventional “open-cut” installations and are available in 4-inch to 36-inch diameters. The combination of standard fittings and lower weight with higher flow for a given pressure class versus other thermoplastic pipes ensures that Fusible PVC® pipe brings greater economy to most pipeline projects.

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