

CENTRIFUGALLY CAST CONCRETE PIPE



Corrugated metal pipe (CMP) commonly suffers structural damage from soil erosion, abrasion, corrosion and buckling. Washouts and collapse are disastrous and costly.

Centrifugally Cast Concrete Pipe is a cost effective, NO DIG solution for structural lining of culverts. A new, structural concrete pipe is spuncast throughout the entire length of the culvert using the CCCP method. The PL-8000 concrete liner is designed for H-20 wheel loading. It contains rust inhibitors to prevent corrosion of the old metal culvert and it is highly resistant to abrasion for extended wear.

Benefits:

- fully structural pipe within the old pipe
- full flow capacities maintained
- completely monolithic – no joints
- sealed against ground water erosion
- high abrasion resistance
- internal rust inhibitors
- least expensive alternative
- quick return to service
- no excavation required
- impermeable – cannot leak
- certified applicator network

Another Trenchless Solution from AP/M PERMAFORM



800.662.6465
AP/M PERMAFORM
Box 555 Johnston, IA 50131
515.276.9610
515.276.1274 Fax
www.permaform.net



CENTRIFUGALLY CAST CONCRETE PIPE

PERMACAST® PL-8,000 PIPE LINER

PERMACAST® PL-8,000 is a high strength, high build, abrasion resistant and corrosion resistant mortar, based on advanced cements and additives. The special mortar is designed to be fluid, but very sticky to enhance adhesion and to allow for high build within the crown of the pipe.

PERMACAST® PL-8,000 is applied by a robotic SpinCaster™ operating at 5,000 rpm. The SpinCaster™ is placed in the center of the sewer pipe and retrieved as the cementitious liner is centrifugally cast evenly around the pipe interior. If operations are interrupted for any reason, retrieving the SpinCaster™ is temporarily stopped until operations can resume. The retrieval speed is easily varied to apply the proper thickness as conditions may dictate. Because of its even application around the circumference, thickness is easily verified at any point.

PERMACAST® PL-12,000 INVERT LINER

PERMACAST® PL-12,000 is an ultra high strength, high build, abrasion resistant and corrosion resistant flowable mortar, based on advanced cements and additives. PL-12,000 provides for the structural refurbishment and abrasion resistance of damaged inverts of buried concrete and corrugated steel storm or culvert pipe by the safe, quick and economical application of a high-strength, rapid setting, factory-blended, construction grout that easily flows into voids, under and around damaged or missing inverts and sets rapidly in place to form a new invert.

PERMACAST® PL-12,000 is placed by positioning the material hose at the far end of the deteriorated pipe. As the mortar fills the invert void, the hose is retrieved to the entry end. The mortar is shaped to conform generally to the radius of the original invert or it may be flat without significantly impacting the flow characteristics of the original pipe.

Physical Properties

	PL-8,000	PL-12,000
ASTM C-403 Set Time @ 70°F		
Initial Set	Approximate 150 minutes	Approximate 150 minutes
Final Set	240 minutes	240 minutes
ASTM C-293 Flexural Strength		
24 hours	600 psi	800 psi
28 days	1,080 psi	1,200 psi
ASTM C-109 Compressive Strength		
24 hours	3,000 psi	5,000 psi
28 days	8,000 psi	11,500 psi
ASTM C-496 Split Tensile Strength	650 psi	700 psi
ASTM C-882 Shear Bond	2,100 psi	1,700 psi
ASTM C-469 Modulus of Elasticity		
28 days	3.56 X 10 ⁶	3.48 X 10 ⁶
ASTM C-666 Freeze Thaw-300 Cycles	Pass	Pass
ASTM C-1202 Chloride Permeability	<550 Coulombs	<550 Coulombs



800.662.6465
 AP/M PERMAFORM
 Box 555 Johnston, IA 50131
 515.276.9610
 515.276.1274 Fax
 www.permaform.net