

TRENCHLESS PIPELINE POINT REPAIR TECHNIQUES



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- Stabilization
 - Primarily for leak sealing
 - Some increase in load capacity
- Structural
 - Secondarily leak sealing
 - Significant increase in load capacity

Types of Repair Systems

- Injection grouting
 - Chemical
- Mechanical inserts
 - Quick Lock
 - Weko Seals
 - Link pipe
- Segmented Linings
 - FRP
 - CIPP

Point Repair Methods



Injection Grouting





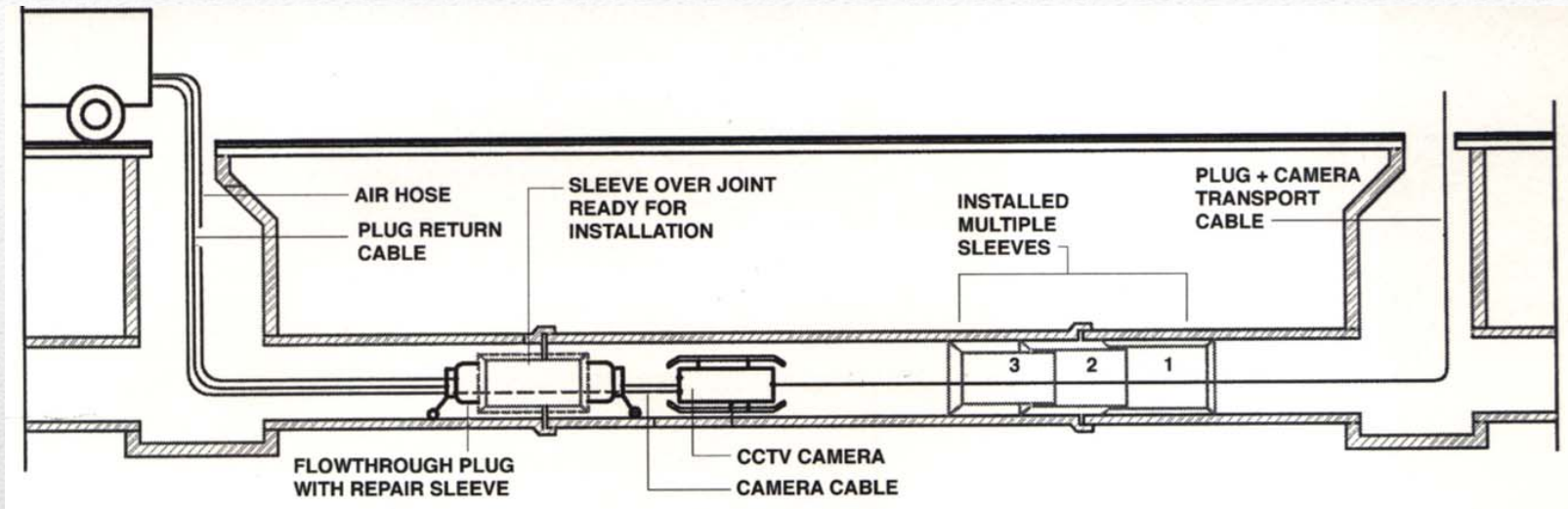
- Service Lateral - Annular Space Sealing

Injection Grouting



- Grout types
 - acrylic gel like AV-100, pumped 1:1
 - hydrophilic urethane gel pumped 8:1
- Inexpensive
- Life expectancy 5 to 15 years avg.

Injection Grouting



- Small diameters installed with robotic device

Mechanical Inserts

- Quick Lock

Mechanical Inserts



- Quick Lock

Mechanical Inserts





- Weko Seal

Mechanical Inserts



- Weko Seal

Mechanical Inserts



- Link Pipe

Mechanical Inserts

A Patent Pending Technology

Developed By:



- Fiber Reinforced Polymer

Segmented CIPP Linings

- Fiber Reinforced Polymer
 - Carbon (CFRP) or Glass (GFRP)
 - Very Thin (0.025 in or 0.7 mm) Laminate
- Epoxy binder

Segmented CIPP Linings



Before Repair



After Repair

Segmented CIPP Lining





Segmented CIPP Lining

City of Bellevue : SS and SD Point Repair Project

- 15 Point Repairs
- 8 in. to 24 in. Diameter VCP and RCP Pipe
- Average cost
 - \$ 3500/ 8 in. repair
 - \$15,000/ 24 in. repair
- Average time 3 hours / repair

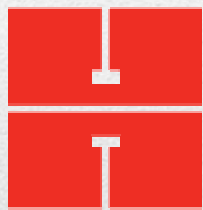
Segmented CIPP Lining

City of Bellevue : SS and SD Point Repair Project

- 6 Point Repairs, 3 CIPP + 3 Open Trench
- 6 in. and 8 in. Diameter VCP
- Average cost, CIPP
 - \$ 2400 to \$ 7000
- Average cost, Open Trench
 - \$ 4500 to \$ 9000

Segmented CIPP Lining

City of Concord : Downtown Sewer Point Repair Project



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Questions ?
