Denton's use of Quick Cam and Quick Lock to meet CMOM goals

PUB Presentation

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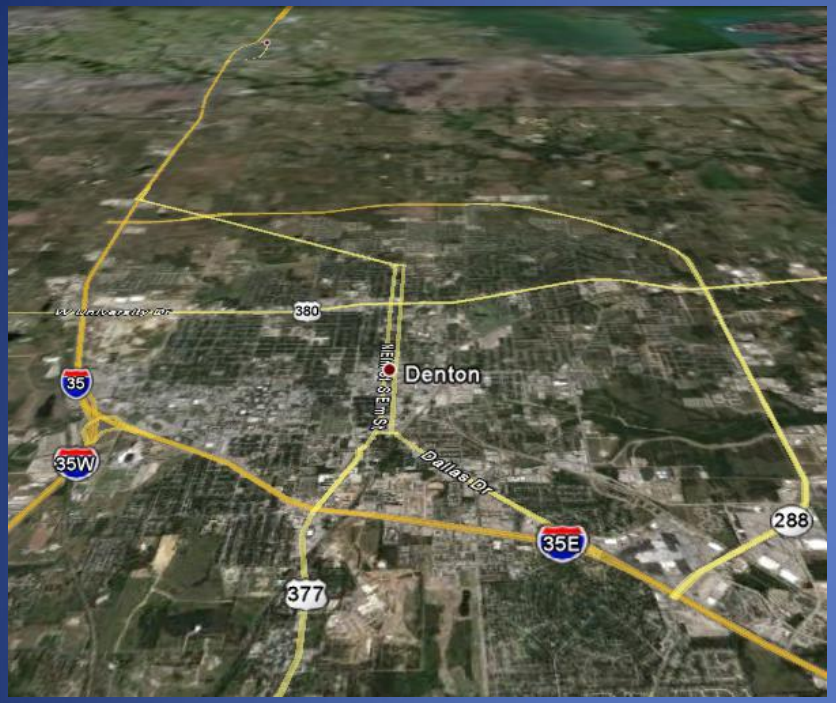


2,756,000 linear feet

522 miles of mainline sewer

(Denton to Kansas City)

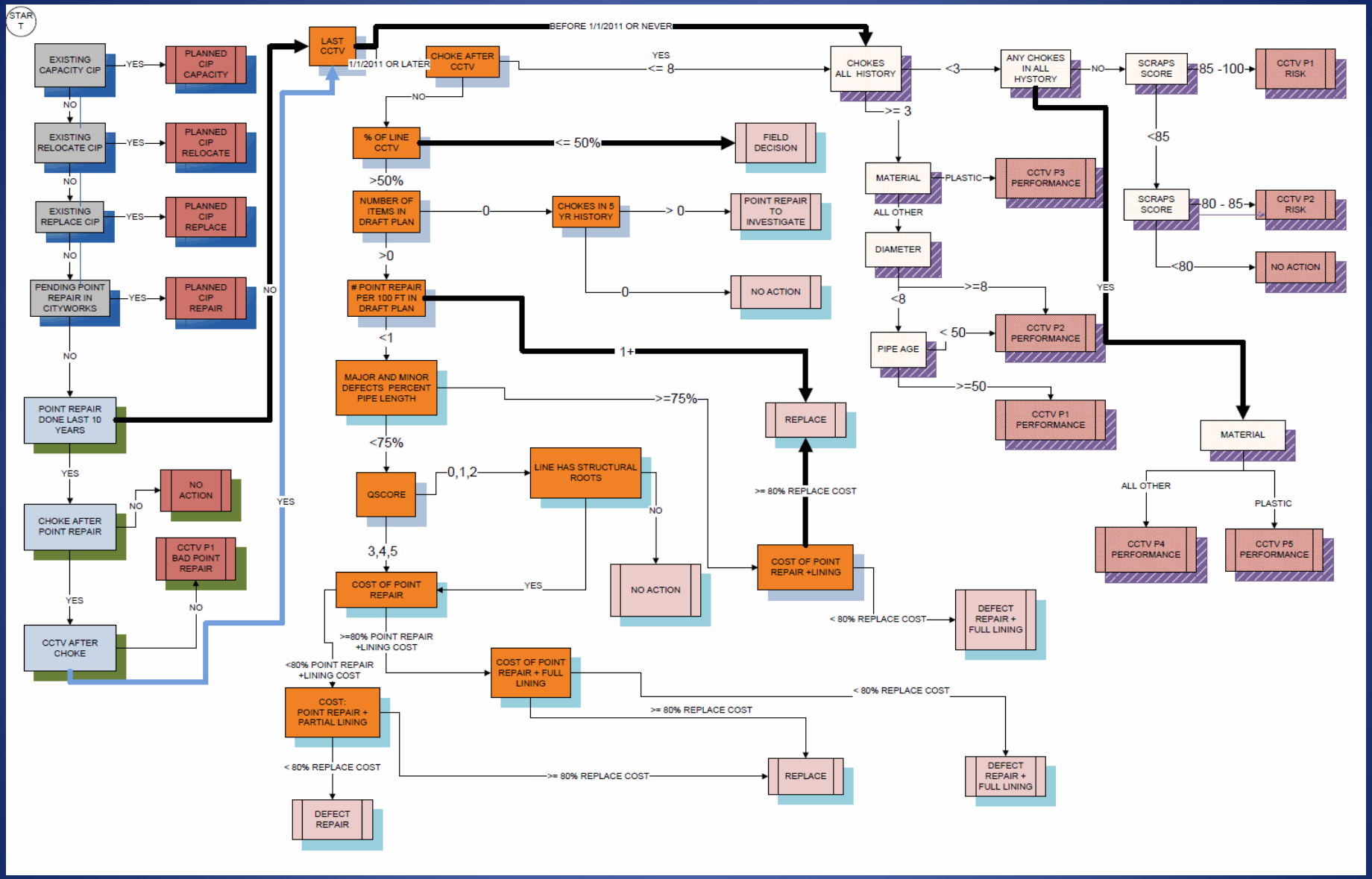
Replacement Cost Over $400,000,000

Sewer System History

- The first sewer lines in Denton were constructed around the Court House square along Elm, Hickory and Oak Streets in the mid 1910's
- The first major interceptor, the Pecan Creek Interceptor serving the core of the city was constructed in 1925
- Currently consists of over 522 miles of sewer lines, 27 lift stations and 2 treatment plants
- Including the private lateral lines from the customer premises to the wastewater main the total system length is about 800 miles

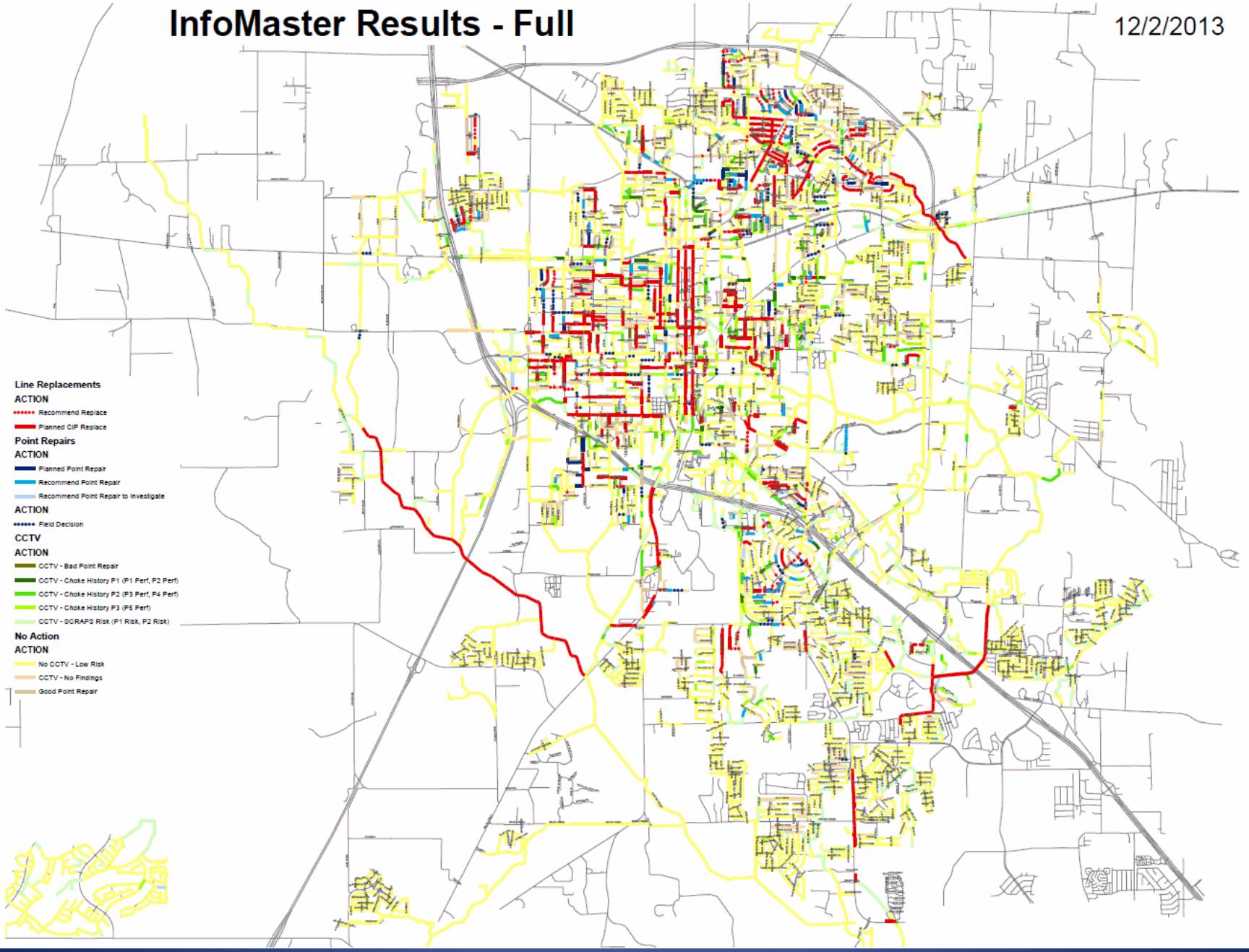
Current Denton State of Asset Management

- ESRI GIS
- Cityworks CMMS
- WERF SCRAPS Model
- Infoworks Sewer Model
- InfoMaster Sewer Model


START
EXISTING CAPACITY CIP
YES
PLANNED CIP CAPACITY
NO
EXISTING RELOCATE CIP
YES
PLANNED CIP RELOCATE
NO
EXISTING REPLACE CIP
YES
PLANNED CIP REPLACE
NO
PENDING POINT REPAIR IN CITYWORKS
YES
PLANNED CIP REPAIR
NO
POINT REPAIR DONE LAST 10 YEARS
YES
CHOKE AFTER POINT REPAIR
NO
NO ACTION
YES
CCTV P1 BAD POINT REPAIR
NO
YES
CCTV AFTER CHOKE
NO
LAST CCTV
1/1/2011 OR LATER
BEFORE 1/1/2011 OR NEVER
CHOKE AFTER CCTV
YES
<= 8
NO
% OF LINE CCTV
<= 50%
FIELD DECISION
>50%
NUMBER OF ITEMS IN DRAFT PLAN
0
CHOKES IN 5 YR HISTORY
> 0
POINT REPAIR TO INVESTIGATE
0
NO ACTION
>0
POINT REPAIR PER 100 FT IN DRAFT PLAN
<1
1+
MAJOR AND MINOR DEFECTS PERCENT PIPE LENGTH
>=75%
REPLACE
<75%
QSCORE
0,1,2
LINE HAS STRUCTURAL ROOTS
NO
NO ACTION
YES
3,4,5
COST OF POINT REPAIR
>= 80% REPLACE COST
COST OF POINT REPAIR +LINING
< 80% REPLACE COST
DEFECT REPAIR + FULL LINING
>=80% POINT REPAIR +LINING COST
<80% POINT REPAIR +LINING COST
COST OF POINT REPAIR + FULL LINING
< 80% REPLACE COST
>= 80% REPLACE COST
DEFECT REPAIR + FULL LINING
COST: POINT REPAIR + PARTIAL LINING
< 80% REPLACE COST
>= 80% REPLACE COST
REPLACE
DEFECT REPAIR
CHOKES ALL HISTORY
<3
>= 3
ANY CHOKES IN ALL HYSTORY
NO
SCRAPS SCORE
85 -100
CCTV P1 RISK
<85
SCRAPS SCORE
80 - 85
CCTV P2 RISK
<80
NO ACTION
YES
MATERIAL
PLASTIC
CCTV P3 PERFORMANCE
ALL OTHER
DIAMETER
>=8
CCTV P2 PERFORMANCE
<8
PIPE AGE
< 50
CCTV P2 PERFORMANCE
>=50
CCTV P1 PERFORMANCE
MATERIAL
ALL OTHER
CCTV P4 PERFORMANCE
PLASTIC
CCTV P5 PERFORMANCE

InfoMaster Results - Full

12/2/2013



Why We Decided to Use Quick Cam

- **EPA Requirement**: CCTV all of the clay pipe by the end of 2015
- **Cleaning Confirmation:** Easily document that cleaning was successful
- **Pass/Fail Pipe Assessment:** Quickly identifies offsets, collapses, infiltration, cross bore, and any other maintenance issue

Why We Decided to Use Quick Cam

- **Cost Savings:** Keep CCTV crew on-plan with the ability to not waste time on good lines that do not need full PACP review.

- **Tool Selection:** See whether a pipe is clogged with gravel, grease, mud, roots or sludge, and pick the best nozzle to quickly eliminate the problem.

- **Safety:** Confirm absence or presence of cross-bore electrical, water or gas, and preview pipe before mechanical root cutting or milling.

CCTV Equipment Technology Upgrades


17 AUG 15 -
PC A1-008
CYC A1-007
228897
ERIC R
801 TEXAS ST.
jetscan


jetscan

Quick Cam Clay Pipe Goal

- Majority of the blockages, dry weather overflows from the old clay pipes
- Total estimated clay pipe in the collection system 674,000 feet
- Set a goal to Quick Cam to complete the remaining clay pipes to meet EPA schedule

Quick Cam Video
10" VCP
No Problems Observed

Quick Cam Video
10" VCP
Fractures Observed

CCTV versus Quick Cam

- CCTV conventional cost $1.33 per foot.
- Quick Cam Video cost $0.19 per foot.
- Compared with in-house CCTV, the City saved $323,607 for 283,866 feet of sewer line CCTV using Quick Cam.

Use of Quick Lock for Point Repairs


CAT

Why we Chose Quick Lock

- Trenchless no-dig point repair
- Utility Locates are not required. No wait time.
- Permanent, reliable, and instant fix
- Can be installed with flow present
- No resins = no cure time or restricted time frame to position sleeve
- Cost Savings = average of $800 per point repair vs open cut
- We have completed 124 repairs for an approximate savings of $99,200 using this system

OCK
OCK

QUICK LOCK
UHRIG

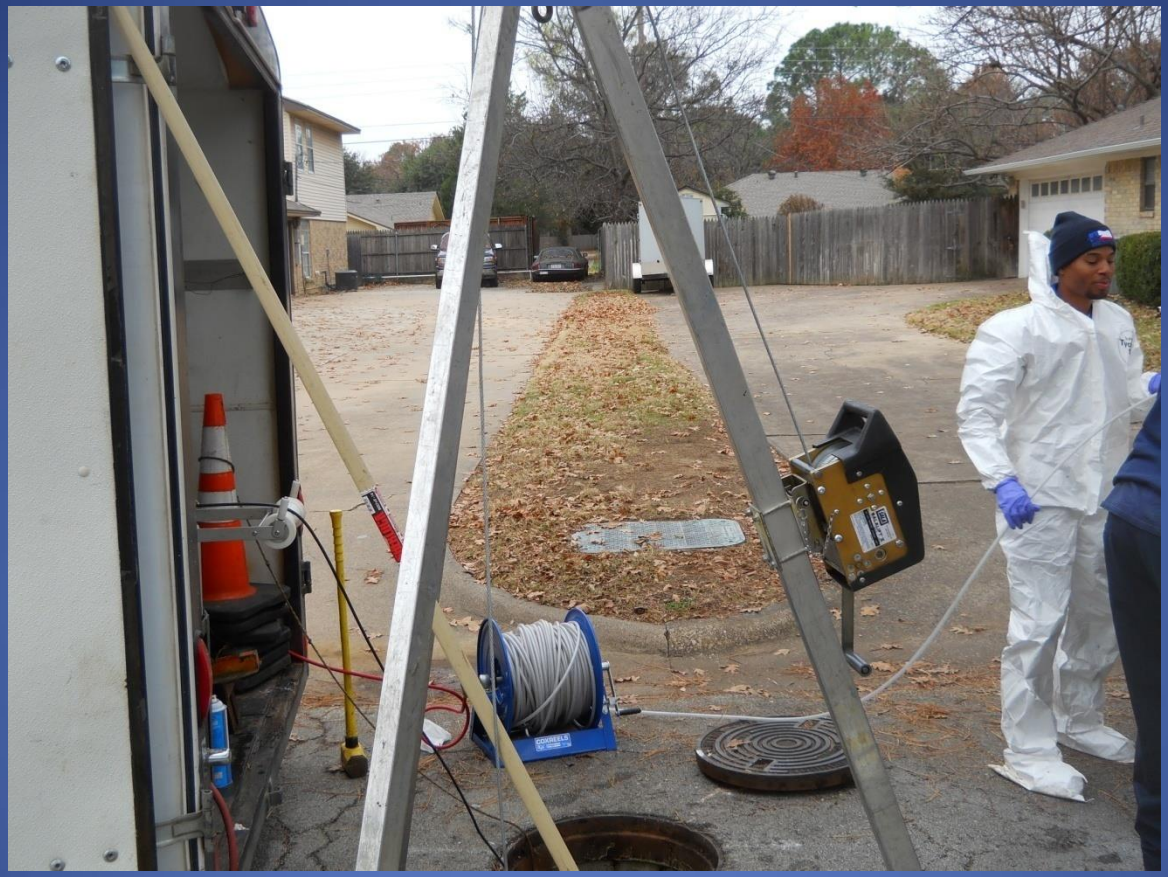
Packer and Crawler combination, using 6”-8” packer

Air hose reel. 3/8” plastic braided hose. 500 feet.

Small 110v air compressor

Quick Lock Control Unit

PPE required for the Packer Insertion



Tripod and winch setup

Quick Lock Packer Insertion


NORTHRIDGE
6
PN-H2-302
BOLIVAR
ELM
1st repair 141 ft. D.S.
Fenceline
2nd repair 170 ft. D.S.
BOLIVAR
MAGNOLIA
8
PN-H2-298
BOLIVAR


GMC

CCTV picture of fracture allowing infiltration.

After 1st repair


WINDSOR
CD-A3-034
8
10
Repair here under large tree
DUNES
CD-A3-032


SANITARY SEWER
BIRD & HAYS FOUNDRY


COD
Repair 2'0's BOC


3333

Before Repair

After Repair

Quick Lock Internal Repair
8" VCP
Spiral Fracture at Joint
Upstream