



# **NORTH OLMSTED WASTEWATER ANNUAL REPORT FOR 2015**

## **Department Summary:**

During the 2015 the focus for the wastewater department was on learning and fine tuning the new wastewater treatment plant. The collections department focused on assessing and repairing sanitary sewer mains and addressing carry over issue identified by major storms in 2014. The following areas were also addressed:

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### **WASTEWATER TREATMENT PLANT**

- Finished Phase 2 WWTP construction.
- Started energy curtailment program with Enternoc (payments of \$4,377.07 on 8/31/15 and \$13,187.25 on 11/16/15)
- Worked to minimize sludge produced by the treatment plant through extended solids holding times. (approx. \$7,500 in polymer savings)
- Completed demolition in the Zimpro area making room for the new shower, locker room and crew conference/ training area.
- Worked to minimize chemical usage for the precipitation of phosphorus. Phosphorus was removed through operational control, biologically. (approx. \$18,000 in savings)
- Added new concrete pad and sidewalk for access to NE corner of the plant effluent building. Paved former admin parking area, left out of phase 2 construction.
- Replaced roof on chemical storage building (spring 2015)
- Replaced roof on blower building (fall 2015)
- Install new air handler for Blower Building.
- Added landscaping to NE and SW corners of plant
- Work with systems integrator in making the S.C.A.D.A. system operational.
- Started design of new structure for maintenance storage (west side of maintenance building)

- Renovation of old carbon storage room, refurbish into mud room/ foul weather storage and PPE storage room.
  - Install scale for accurate Biosolids hauling.
  - 2015 chemical usage:
    - Sodium Hypochlorite –(odor and filter) \$3,324.04
    - Sodium Aluminate –\$24,618.20
    - Sodium Hydroxide (odor and cleaning) - \$8,165.53
    - Citric Acid (cleaning odor) – \$1,509.48
    - Centrifuge Polymer –\$140,015.60
  - The treatment plant division replaced 2 operators in 2015, with Jay Lowther and John Eyring hired as new employees and replaced 1 manager (Carrieanne Rosemark) with an internal promotion of CJ Wowk. The staffing for 2016 remains at the same level as the start of 2015 with 1 manager, 6 plant operators, and 1 operations laborer.
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## **NOWWTP Flow / Permitting**

- During the year 2015 the City of North Olmsted WWTP treated 2.0326 Billion gallons of wastewater for an average daily flow of 5.5686 million gallons per day.
- The estimated peak flow through the WWTP was 26.455 MGD, on June 27<sup>th</sup>, 2015.
- During 2015 the plant used 55.143 million gallons of non-potable water, providing substantial saving vs. paying for water from Cleveland Division of Water.
- During the 2014 year 66.84 dry tons of biosolids were hauled to the landfill; 941.76 dry tons where transferred to Quasar's French Creek and Collinwood (Methane Generation) Green Waste Facilities, we hauled 93% of all biosolids internally for 2015.
- In 2015 we spent 172,468.22 on disposal of biosoilds and 17,689.16 on transportation costs; in 2014 we spent 143,228.17 on disposal and 41,349.81 on transportation. These costs are expected to decrease slightly as we work to optimize sludge storage.
- Flow at the wastewater plant Achieved 99% compliance with the current National Pollutant Discharge Elimination System permit from January 1, 2015 through December 31, 2015. The treatment plant entered a state of non-compliance 2 times during the year, down 26 from the preceding year. The NOWWTP reported non-compliance for Phosphorus. Mechanical failure was the main reason for non-compliance reported to OEPA for the month of May.
- The wastewater treatment personnel completed a local limits technical justification for the current NPDES operating permit 3PD00016\*MD.

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## NOWWTP Sanitary Sewer System Operations

Along with normalized duties found in the Sewer Master Plan; as well as, specialized service during major rain events, the system crew completed the following projects:

- Responded to 216 sewer service requests – there are approximately 12,000 total sanitary sewer system connections in North Olmsted.
- Sanitary mains televised 19.7 miles.
- Sanitary laterals televised, Lateral Launch– 87.
- Sanitary laterals televised Snake- 51.
- Sanitary mains cleaned with sewer jet – 25.9 miles.
- Sanitary manhole sealed – 36 manholes.
- Sewer Main Pipe Patch Repairs 31.
  
- Moen Pump Station saw the replacement of the foundry walls, entry steps, exterior fencing and a rebuild of the entrance.
- Moen also underwent exterior renovations and a power study for upgrades in 2016 which are scheduled to include replacement of the pumps, upgrades to the variable frequency drive and up-sizing the onsite backup generator.
- Bradley Pump Station- Completed Hot-Tap and valve installation on Bradley Force Main, necessary for future construction at Bradley LS.
- Completed RFQ and selected design firm CT Consultants to being design of Bradley Lift Station.
- Broxbourne Pump Station- Poured new pad, completed power study, sized and installed new backup generator and added new walkway on north side of the station.
- Purchased 1 inline Hach Flow-Dar combination flow meter, as a backup for monitoring flow from Olmsted Township service area. Currently being used to assess manhole rehabilitation program.
- Sewer mains cracks, offsets, breaks and repairs were located by our CCTV crews. All repairs were done in-house with our trenchless technology patch equipment with the exception of two which were contracted out due to depth or hazards.
- Staffing remained constant for the collections division in 2015. The staffing for 2016 remains the same as the previous year at 1 manager, 1 supervisor, and 2 maintenance technicians and 6 operators.

## NOWWTP Maintenance

The maintenance department is responsible for monthly, quarterly, and semiannual "heavy" preventative maintenance in the collection system and the treatment plant.

The maintenance department cooperatively assists or takes the leads on various projects (lists above) in both the treatment plant and collection system. Other projects are fully accomplished with just maintenance staffing, those include:

- Fabricated and installed missing elevation weirs in aeration basin.
- Replaced support cables and guide cables in all three secondary clarifiers
- Disassembled and correctly reinstalled flow/density baffle in secondary clarifier number three.
- Adjusted, releveled secondary scum troughs and flushing mechanisms.
- Began project to replace existing ORP probes due to drift problems and worked to fabricate new probe support columns.
- Removed, adjusted and reinstalled, effluent weirs (tertiary filtration) due to improper installation.
- Re-plated sludge hauling boxes (bottom runners) modified one existing boxes with new unloading (swing) doors and new tarp system.
- Worked to replace rollers on all sludge and street sweep boxes
- Installation of D.I. water system in plant lab.
- Rebuild grinder at Dover Lift Station.
- Rebuild 1 pump at Bradley lift station.
- Fabricated new gates on the dump pit system to aid in dewatering.
- Rip Rap project at north side of the W.W.T.P. to stabilize embankment and reduce erosion into plant boundary.
- The maintenance division saw the loss of 1 employee due to retirement in 2015, Raymond Gilchrist and the promotion of 1 manager in CJ Wowk, Ron Ramsey was promoted in turn to fill that vacancy. The projected staffing for 2016 remains the same as the previous year with 1 supervisor and 4 mechanics.

## NOWWTP Lab

- All reports were prepared and submitted on time to the Ohio EPA as mandated under our current NPDES permit requirements:
    1. Completed Priority Pollutant Scan including enforcement of local industrial user limitations to prevent the introduction of pollutants into the WWTP which will interfere with the operation of the WWTP, pass-through the WWTP, or limit sludge application.
    2. Completed the USEPA thirty DMRQA Study – USEPA determined that the City's Laboratory performance was accurate for all tested parameters.
    3. Completed all monthly EDMRs and noncompliance follow-up reports.
    4. Completed all pretreatment quarterly and annual reports
    5. Completed all quarterly and annual collection system reports as well as all SSO reports and 24hr bypass reports
  
  - Completed Local Limits Technical Justifications part of 2015 NPDES permit requirements.
  
  - Normal QC/QA and control study were completed to generate defensible data.
  
  - Performed Chronic and Acute Toxicity tests to determine compliance with OEPA.
  
  - Purchased a new deionized water system to better suit our needs and eliminate rental of existing water DI unit.
  
  - Completed conversion of e-coli to F-coliform testing.
  
  - Ran many extra samples at locations throughout the plant to help best determine plant optimization.
  
  - Began program using lab results to make daily adjustments to the UV system to reduce the electricity cost.
  
  - Staffing for 2015 remained constant with 1 Chemist and 1 Laboratory Technician. 2016 staffing projects a possible retirement of the Lab Technician
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Part of our focus each year is on optimization, in 2015 optimization efforts included:

#### PLANT OPTIMIZATION

- Biological treatment optimization: Using extended holding and processing times as well as varying oxygen levels to cause competition and selection in the biological process, this increases sludge removal through biology. This in turn reduces sludge production, reduces centrifuge operation,
- U.V. Disinfection optimization: in conjunction with the lab analysis, reduce the amount of UV light banks or units in service and/or the light intensity of in-service units. This in turn reduces electricity used, lengthens lamp life (replacement cost) and prolongs the life of the system.
- Sludge thickening process optimization: Uses extended holding times, cycling of air and removal of water. This in turn lessens the overall volume of solids, reduces odors, lessens centrifuge run time, cuts electricity usage, polymer usage, sludge hauling and tipping fees.

#### ODORS REDUCTION OPTIMIZATION

The treatment plant uses several mechanisms to reduce odor including mixing, oxidation, and sequencing to help minimize odor or regulate releases to early am. hours. All odor complaints are investigated and each complaint leads eventually to a solution or change in the process. Odor sources at the plant include: the incoming sewage, the biological process, sludge production and storage, street sweep storage, catch basin cleaning (which may contain decaying organic or biological material. Optimization for Odors includes:

- Clean and cover sludge hauling dumpsters after each use.
- Cleaning and solids handling in the plant dump pit.
- Keeping all sludge in an aerobic state.
- Cleaning and good housekeeping throughout entire plant.
- Properly maintain and operate odor control equipment.
- Keep all buildings and doors, closed that may have offensive odors.

#### STORMWATER POLLUTION PREVENTION OPTIMIZATION

The storm water outfall for the NOWWTP is located inside the Cleveland Metroparks Rocky River Nature Center, creating a higher priority for this area. SWPPP Optimization include:

- Finding a place for everything and keeping everything in its place.
- Cleaning wheels inside the dump pit to reduce tracking.
- Cleaning equipment and vehicles in designated areas.
- Having useable spill kits in various, accessible locations.
- Training employees on housekeeping and spill prevention/reaction techniques.
- Having clear contingency plan(s).

## **NOWWTP Assistance with Storm Water Conveyance**

- During the year 2015 the Wastewater department cleaned, cut and removed debris from 30 miles of open ditches and creeks inside the City of North Olmsted. Many times revisiting those ditches on more than one occasion.
  - Major reconstruction projects for stormwater were conducted in Noreen Ditch and the South Barton Ditch from Barton to I-480.
  - Smaller stormwater projects included Pine School Ditch and improvements at the North Olmsted Recreation Center.
  - Made site visits to each of the 30 hot spot locations after each major rainfall (11).
  - For the first time we hired a seasonal inspector for the purpose of inspecting residential properties that were inappropriately disposing of green waste inside the City's open ditches. This included photo documentation, violation letters, and follow up inspections.
  - Assisted with 46 stormwater sewer inspections (lateral or mainline inspections).
  - The wastewater department also cosponsored the purchase of a mini-excavator for use in 2016.
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# Sanitary Sewer Totals

2015

Sanitary Sewer Service Calls: 216

Sanitary Mains Televised: 19.7 Miles

Laterals Launched with T.V. Truck 87

Sanitary Laterals Televised 51

Sanitary Mains Cleaned w/sewer jet  
25.9 Miles

Sanitary Manholes Repaired and  
Chimney Sealed for I&I  
36

Sanitary Main Sewer Trenchless Pipe  
Patch Repairs  
31

## **:SANITARY SEWER YEARLY AVERAGES:**

### **SANITARY SEWER MAINS CLEANED W/JET**

2001 : 16.5 Miles	2006 : 10.6 Miles	2011: 33.1 Miles
2002 : 14.0 Miles	2007 : 12.8 Miles	2012: 39.4 Miles
2003 : 17.5 Miles	2008 : 17.1 Miles	2013: 22.3 Miles
2004 : 23.5 Miles	2009 : 22.6 Miles	2014: 26.7 Miles
2005 : 17.7 Miles	2010 : 25.6 Miles	2015: 25.9 Miles

### **SANITARY SEWER SERVICE CALLS**

2001 : 299	2006 : 249	2011: 162
2002 : 281	2007 : 273	2012: 174
2003 : 256	2008 : 263	2013: 177
2004 : 238	2009 : 205	2014: 268
2005 : 271	2010 : 191	2015: 216

### **SANITARY SEWER HOUSE LATERALS T.V.ed**

2001: 124	2006: 91	2011: 62
2002: 119	2007: 100	2012: 57
2003: 112	2008: 97	2013: 127
2004: 112	2009: 76	2014: 193
2005: 142	2010: 91	2015: 138

### **SANITARY SEWER MAINS TELEVISED**

2001: 0	2006: 2.0 Miles	2011: 10.1 Miles
2002: 0	2007: 2.1 Miles	2012: 12.7 Miles
2003: 0	2008: 5.0 Miles	2013: 7.9 Miles
2004: 3.9 Miles	2009: 6.1 Miles	2014: 9.8 Miles
2005: 5.4 Miles	2010: 11.3 Miles	2015: 19.7 Miles

### **SANITARY MANHOLES INSPECTED**

2008:162	2009:112	2010:78	2011:216	2012: 385
2013: 179	2014: 206	2015: 192		

# **STORM DITCH CLEANING 2015**

SOUTH SIDE OF LORAIN RD 9.7 MILES

NORTH SIDE OF LORAIN RD. 11.3 MILES

:DREDGE OUT DITCHES :

NOREN DITCH

7000 BARTON RD. DUG UP ALL GABION  
BASKETS INSTALLED NEW SILT FABRIC

EAST SIDE OF REC CENTER

PINE SCHOOL NORTH SIDE OF DRIVE

TELEVISED STORM SEWERS FOR TEE OR  
LATTERAL LOCATIONS 46 LOCATIONS

CHECKED STORM TROUBLE SPOTS ON  
LOG SHEET AFTER EVERY SIGNIFICANT  
RAINFALL FOR A TOTAL THIS YEAR OF  
11 VISITS. THERE ARE 30 LOCATIONS ON  
THE LOG SHEET

# **2015 PROJECTS & GOALS**

1. PUMP STATION CELLULAR SCADA  
MODEMS & ALARMS
2. BRADLEY PUMP STATION UPGRADE  
SCHEDULE
3. RENT T.V. TRANSPORTER FOR SOUTH  
INTERCEPTOR LARGE MAIN SEWERS
4. FRONT HALF OF BRENTON RIDGE  
MANHOLES IN SIDEWALK REPAIR
5. LANDSCAPPING AT DOVER PUMP  
STATION
6. STORGE SHED AT DOVER STATION
7. TURN AROUND AT DOVER STATION

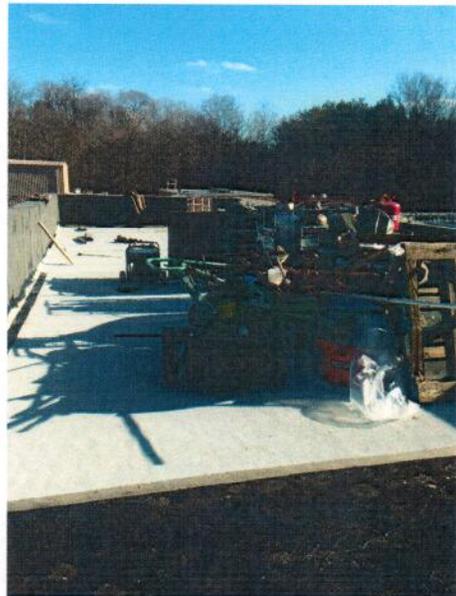


# NORTH OLMSTED WASTEWATER ANNUAL REPORT

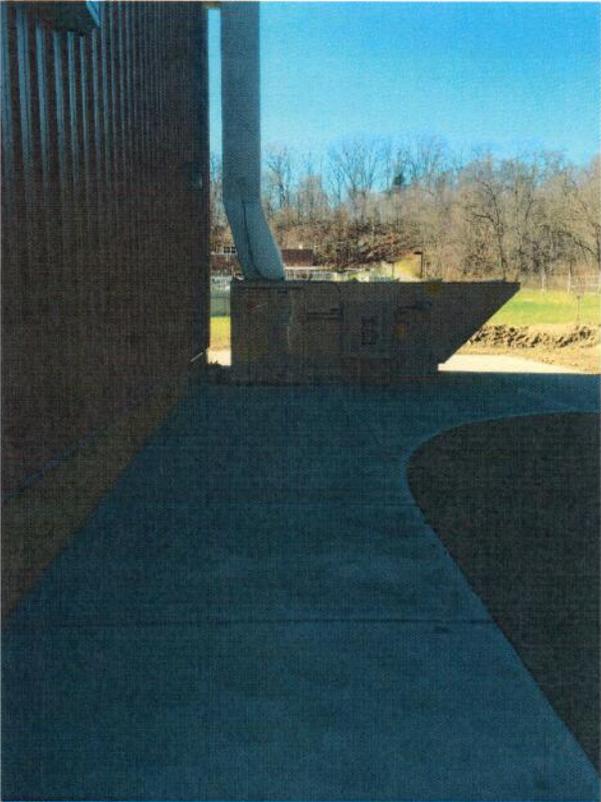
## 2015 PROJECT PHOTOS

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### Plant Roofing Projects



**Plant General Improvements**



Plant  
Zimpro Area Renovation Project



## Plant Phase 2 Improvements Complete



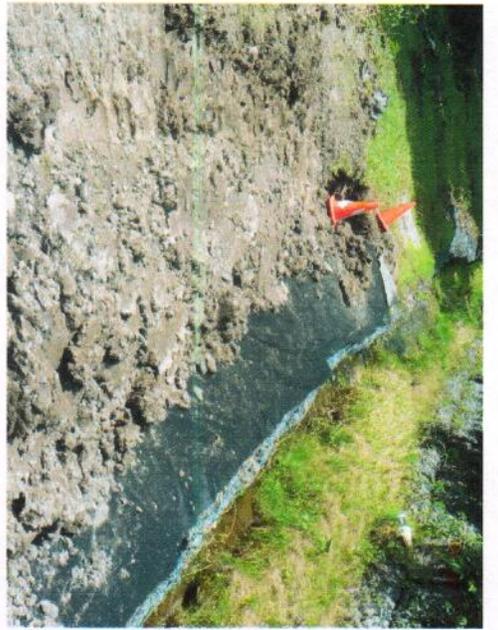


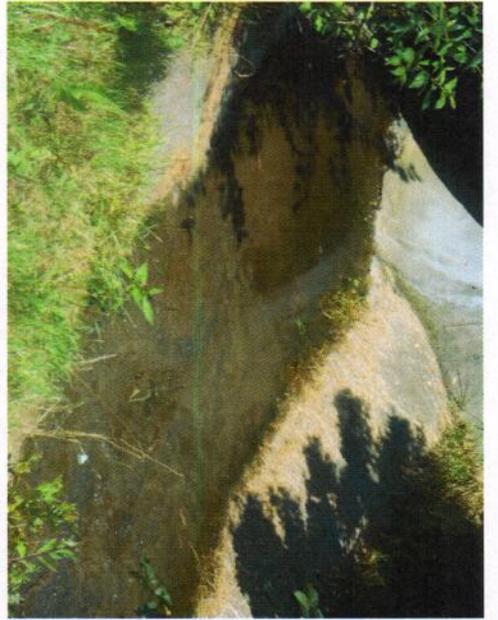
# NORTH OLMSTED WASTEWATER ANNUAL REPORT

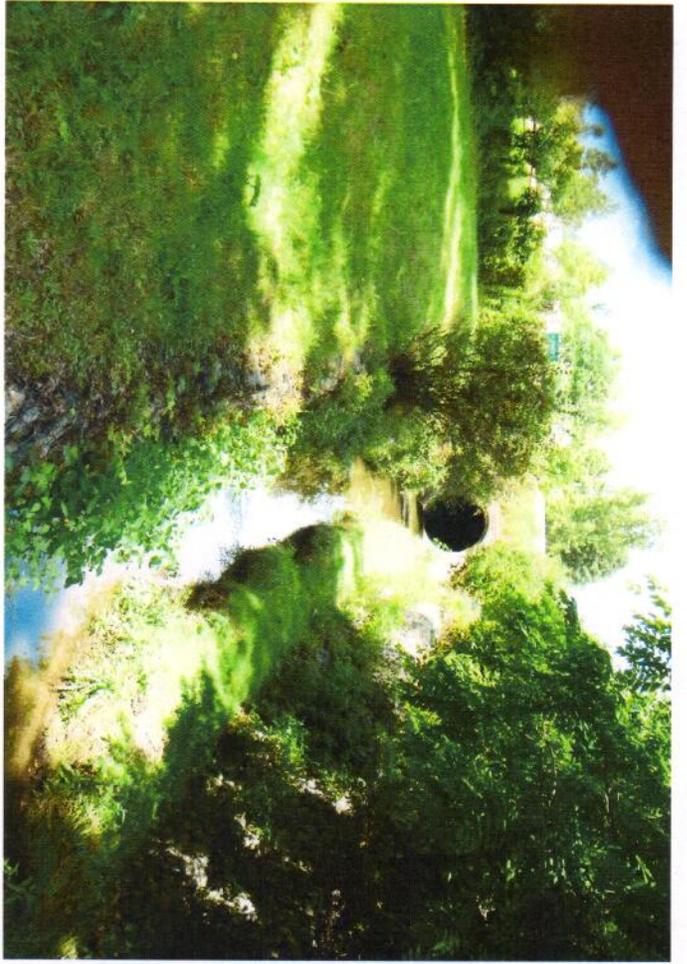
## 2015 Collection System And Stormwater Improvements





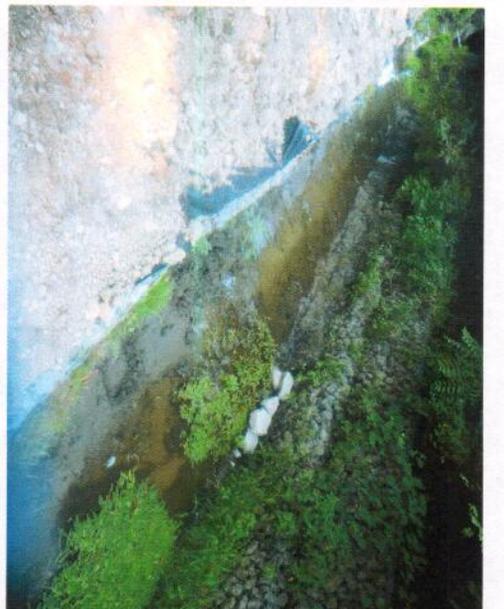
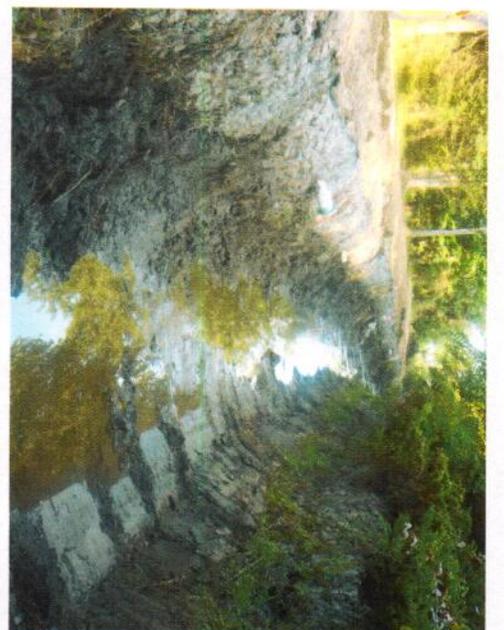


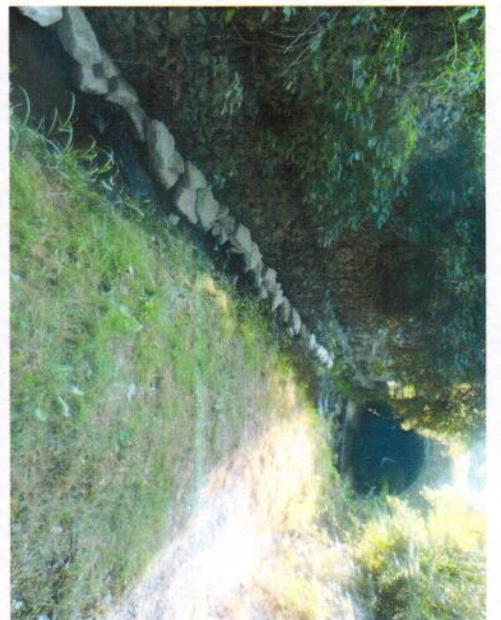
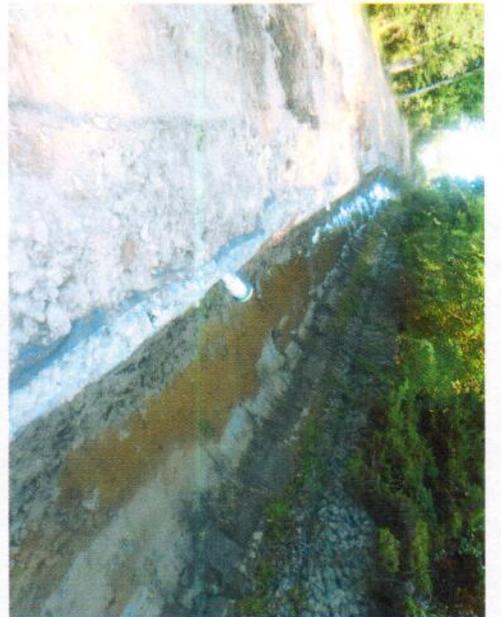
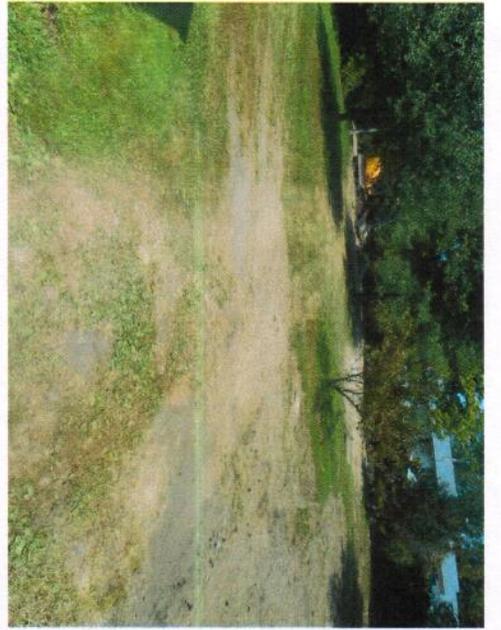


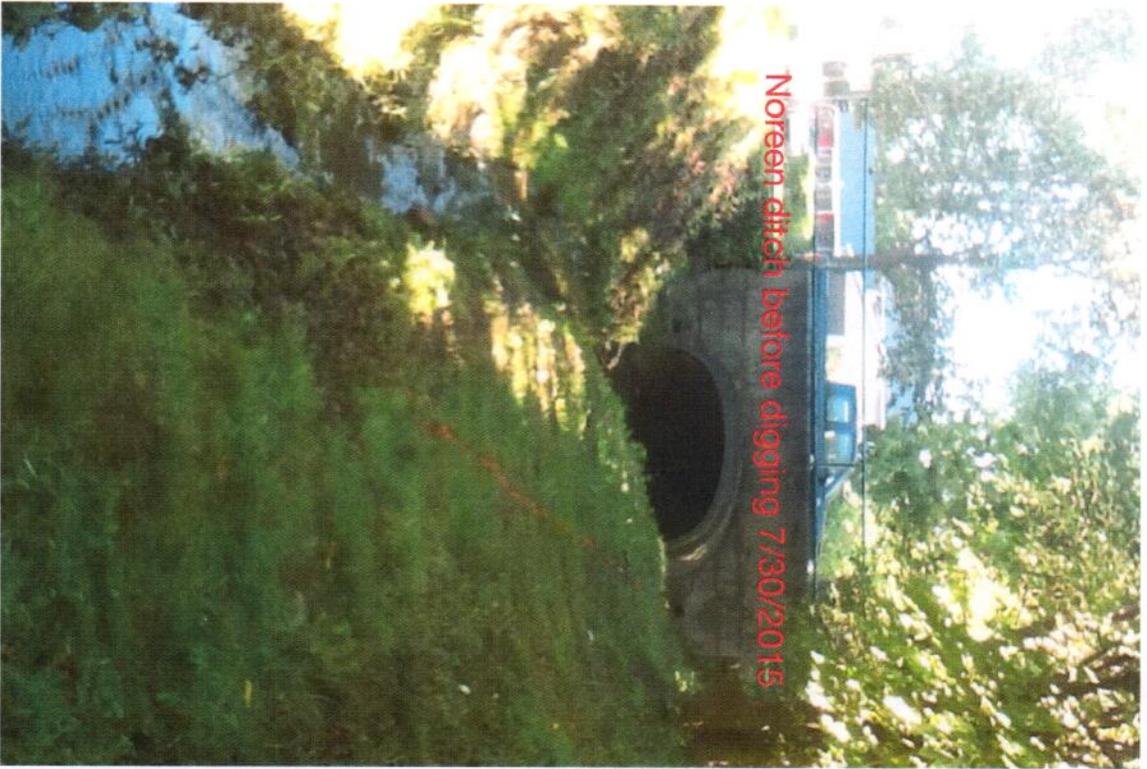












Noreen ditch before digging 7/30/2015

7-30-2015

NOREEN



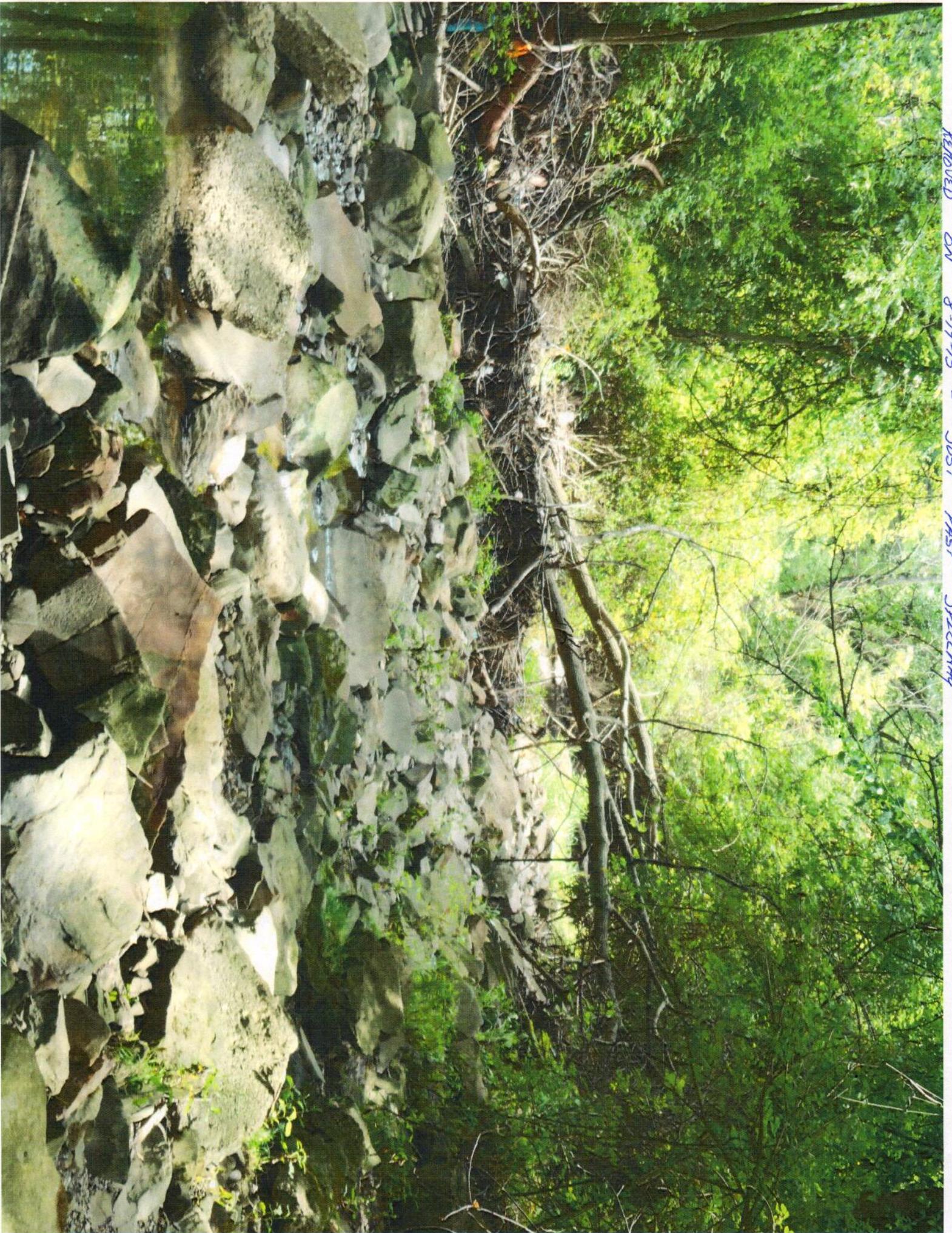
Noreen ditch after digging 7/30/2015



July 2015 7000 Barton Rd.



JULY 2015 7000 BARTON Rd



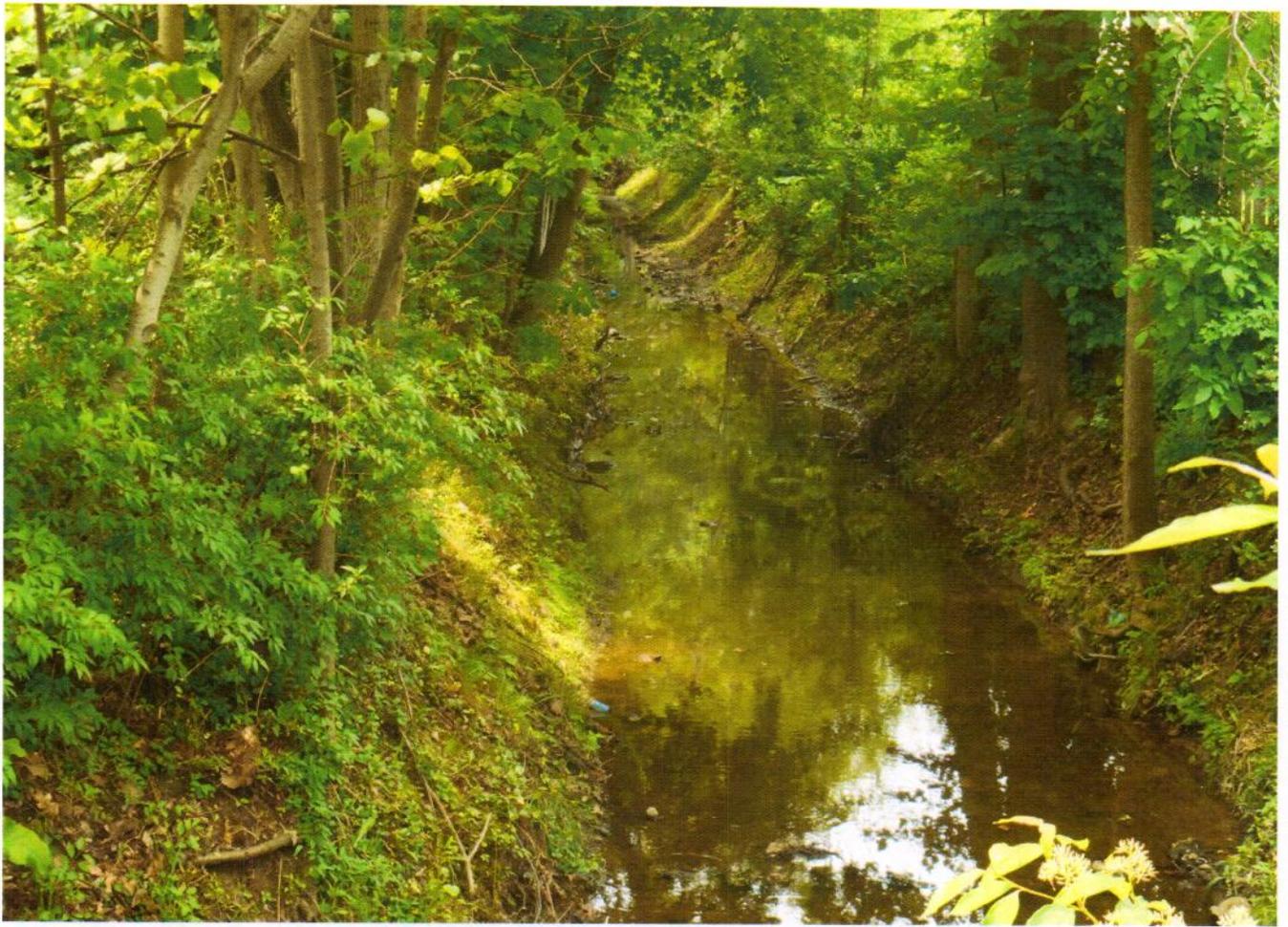
REMOVED ON 8-19-15 - JUST PAST SPELLING



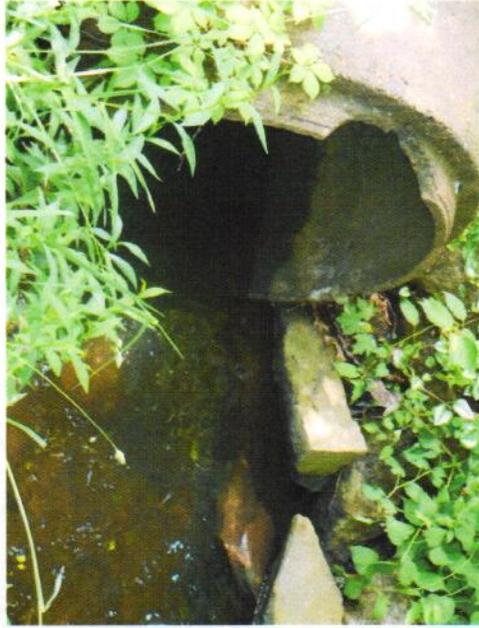
Noreen ditch before digging 7/30/2015

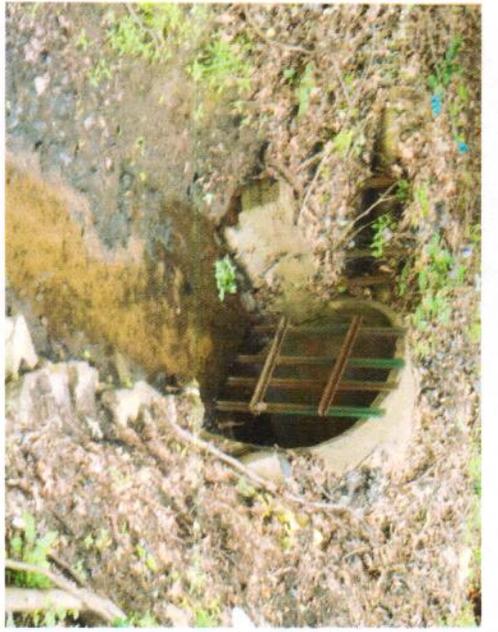


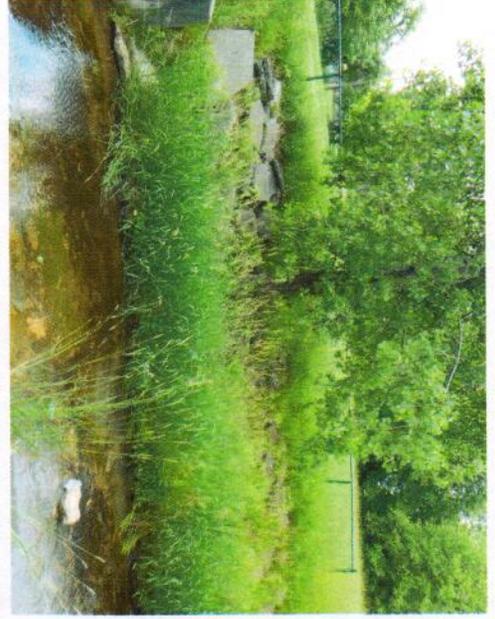
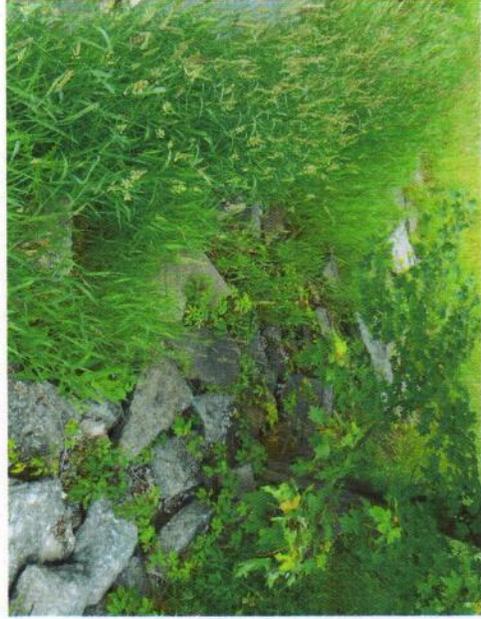
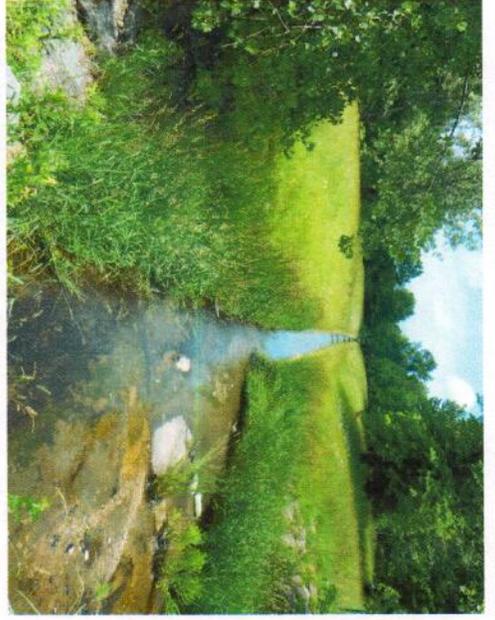
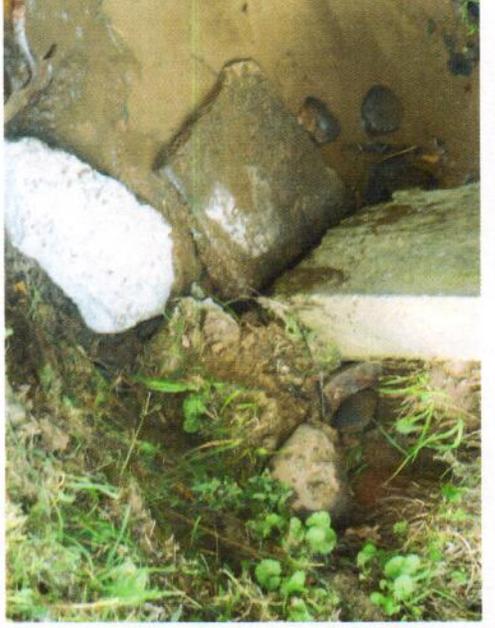
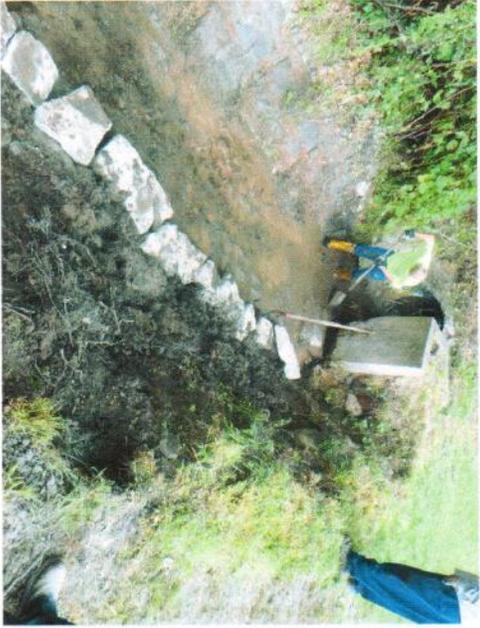
Noreen ditch after digging 7/30/2015











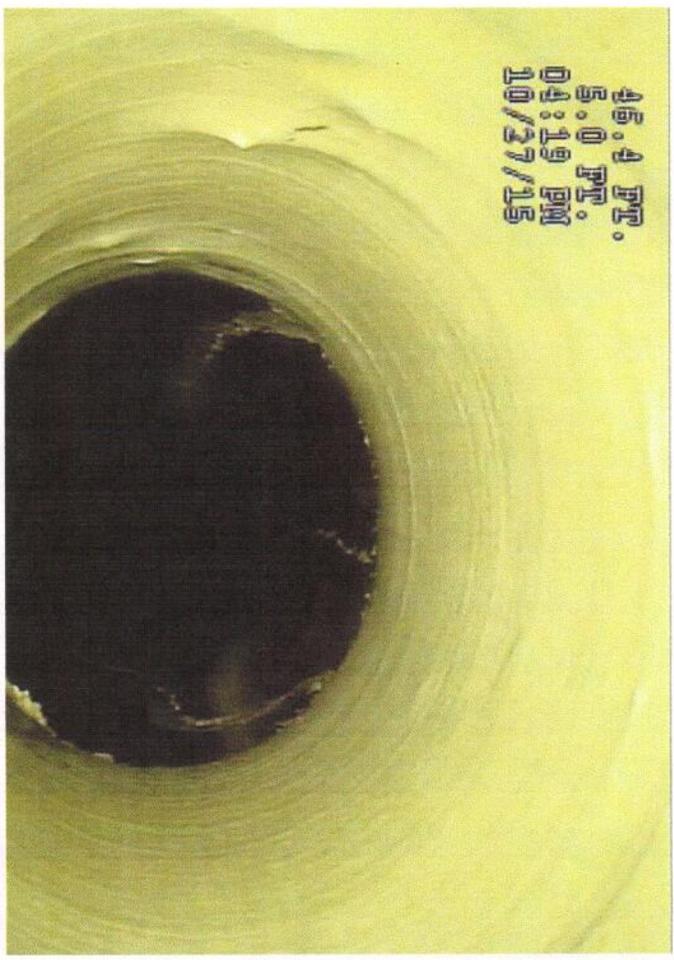
24020 BEAMSOUT MH # 1-180402 TO 1-180403

10/27/15



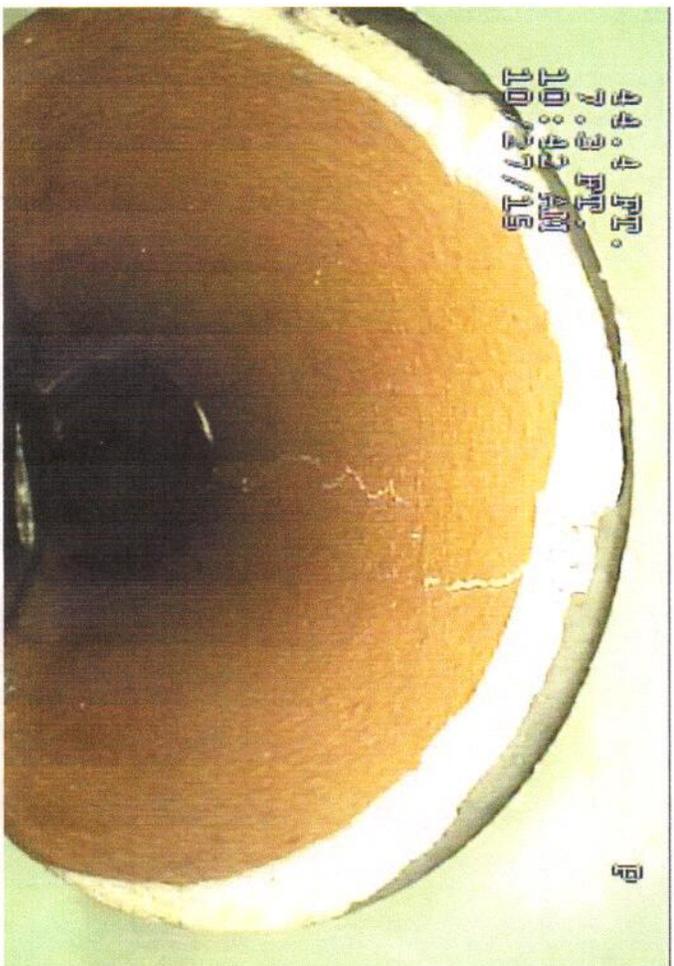
47:6 PT.  
7:5 PM.  
10:43 AM  
10/27/15

BEFORE

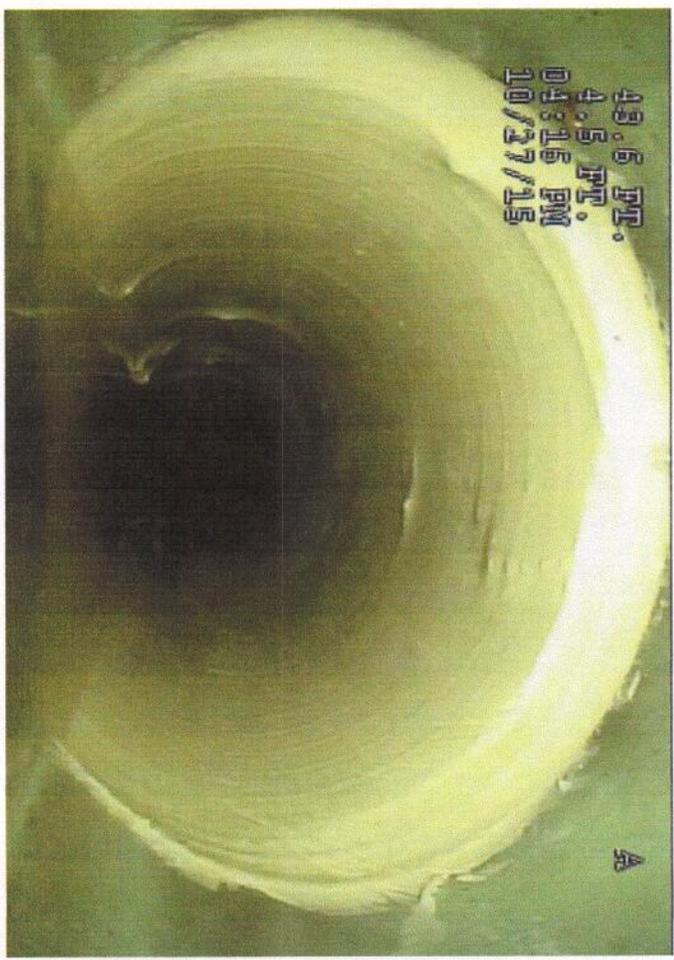


45:4 PT.  
5:0 PM.  
04:19 PM  
10/27/15

AFTER



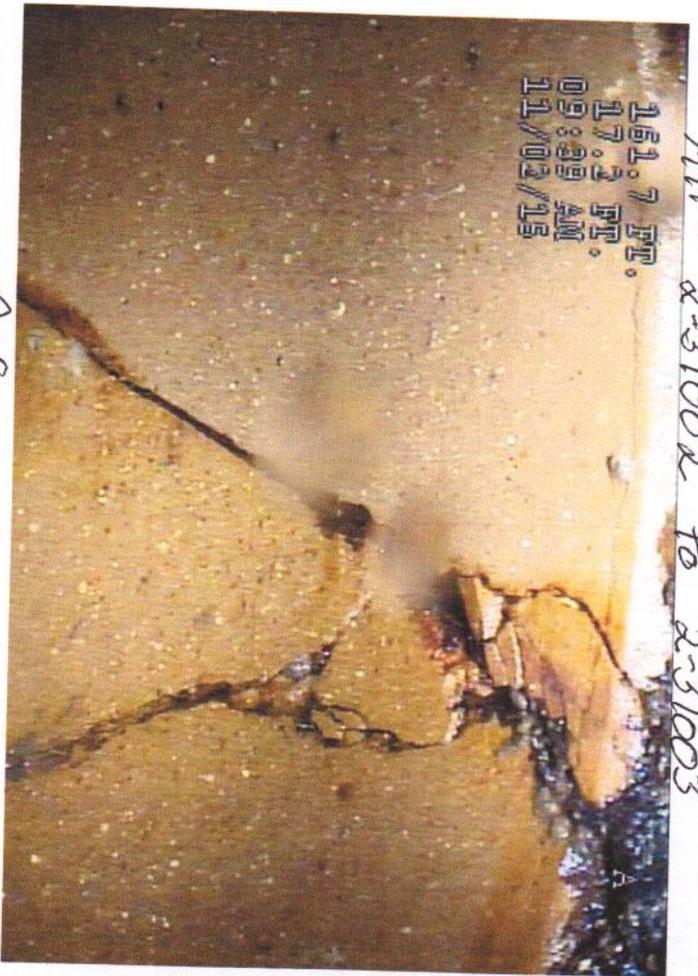
44:4 PT.  
7:3 PM.  
10:42 AM  
10/27/15



43:6 PT.  
4:5 PM.  
04:16 PM  
10/27/15

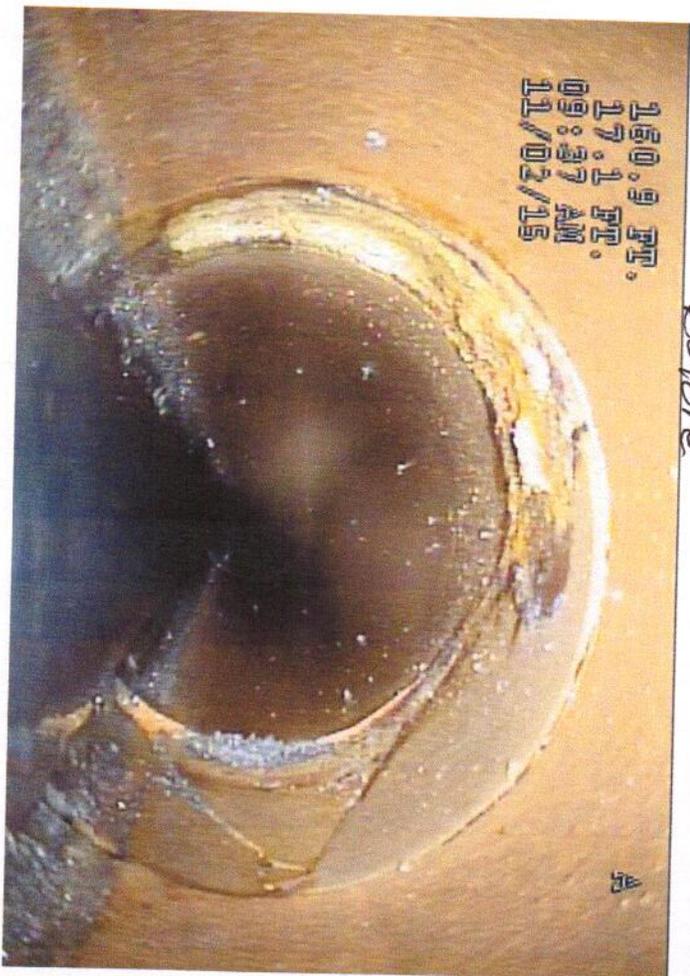
5226 Berkshire

MH # 2-31002 to 2-31003



151.7 FT.  
117:32 FT.  
09:39 AM  
11/02/15

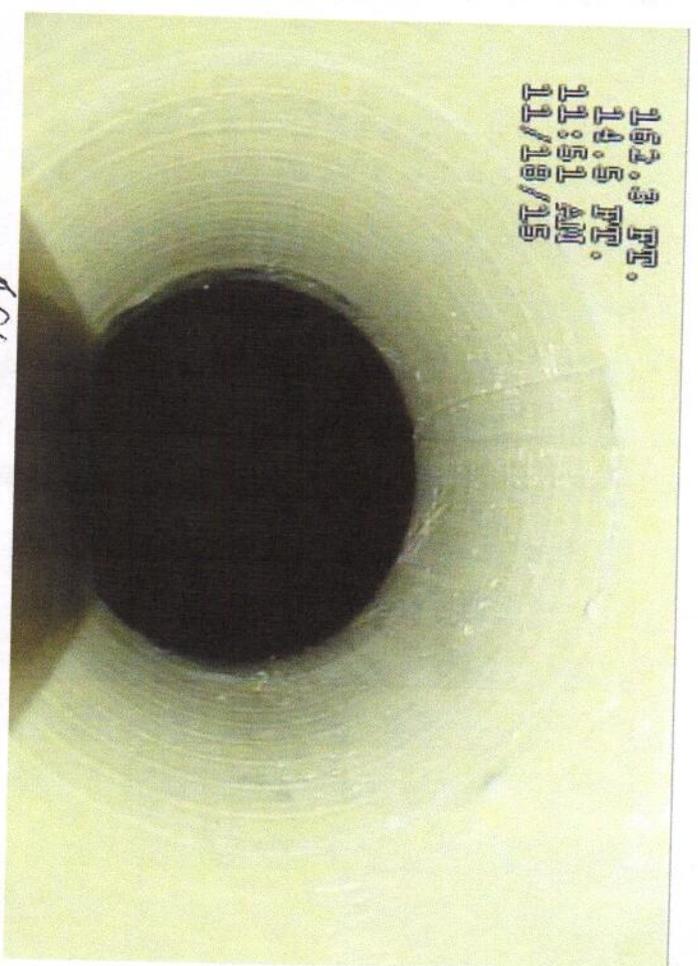
Before



150.9 FT.  
117:11 FT.  
09:37 AM  
11/02/15

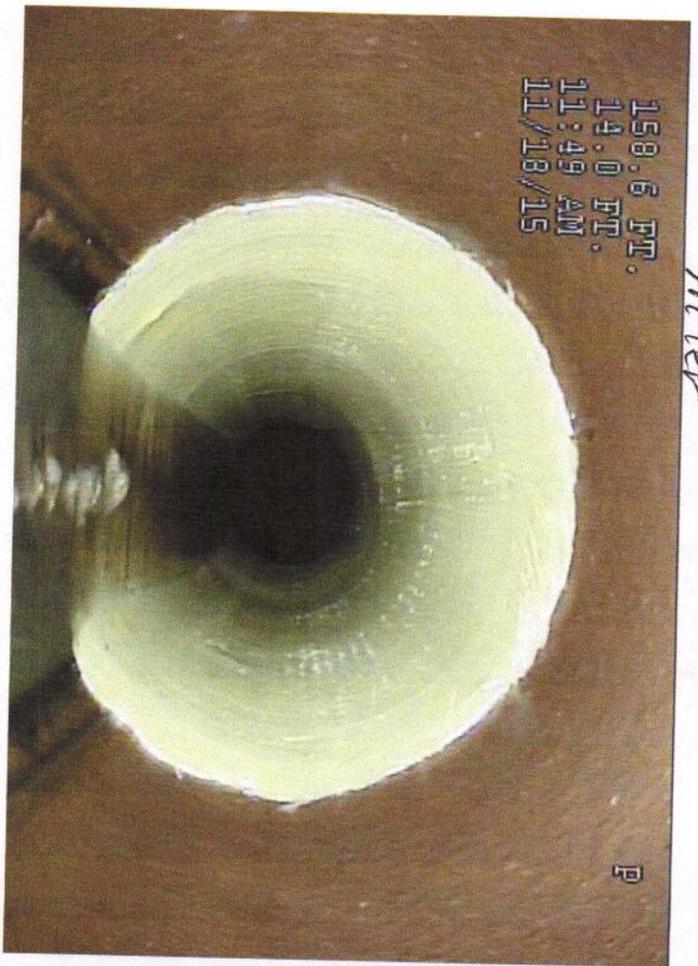
A

11-18-15



152.3 FT.  
114.5 FT.  
11:51 AM  
11/18/15

After



158.6 FT.  
114:00 FT.  
11:49 AM  
11/18/15

B

PIPE PATCH 27930 ANDORRA  
MH # 2-32003 TO MH # 2-32201

40:2 PT.  
5:11 PM  
09:31 AM  
12/02/15



BEFORE

PATCH #2

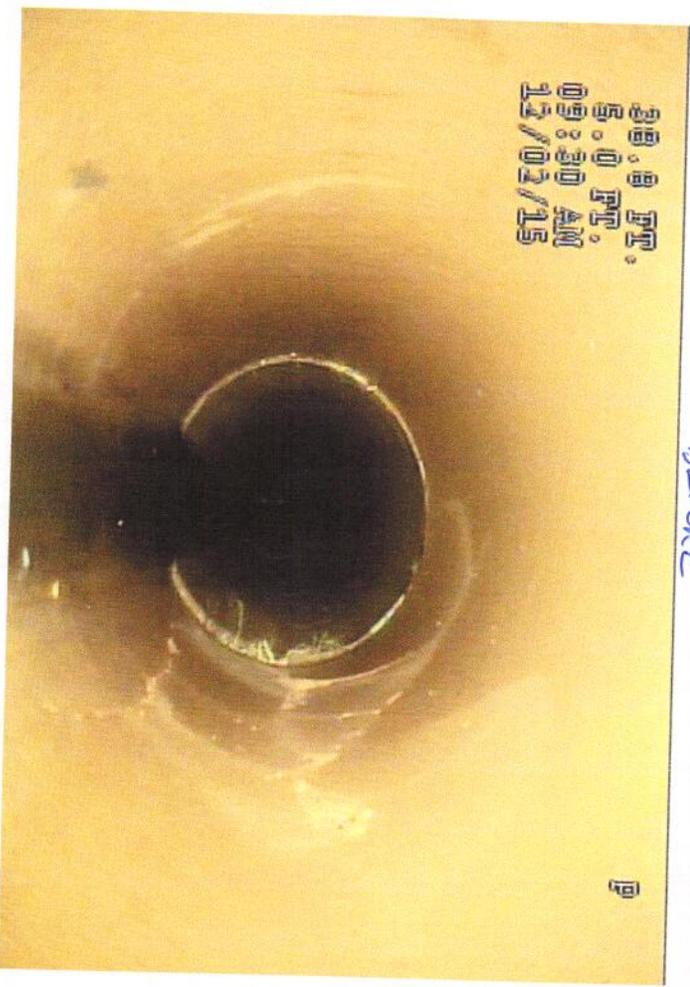
12/4/15

39:2 PT.  
4:21 PM  
02:31 PM  
12/04/15

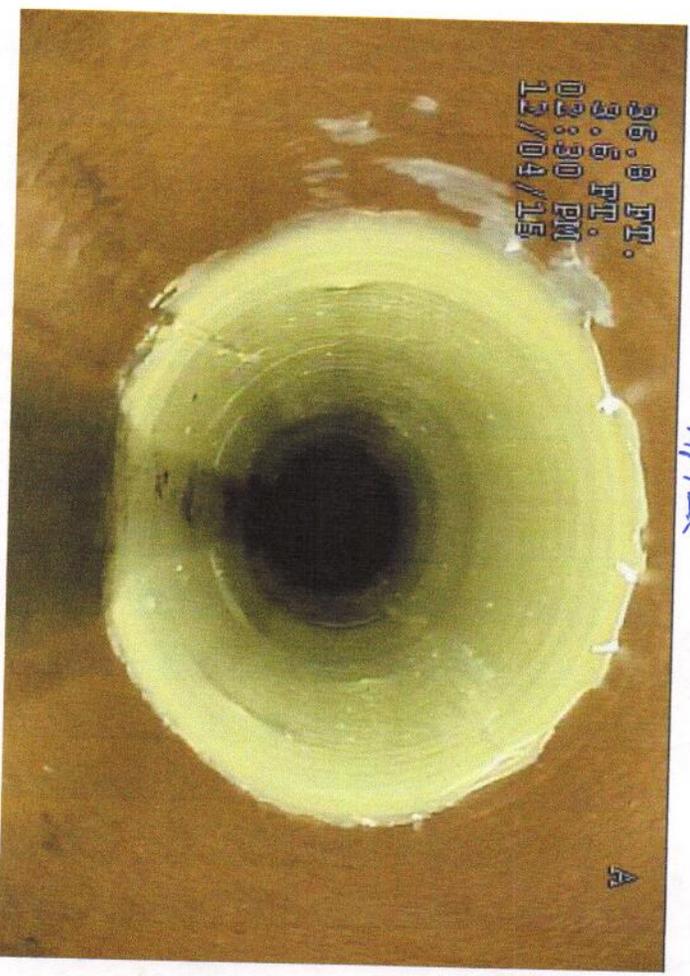


AFTER

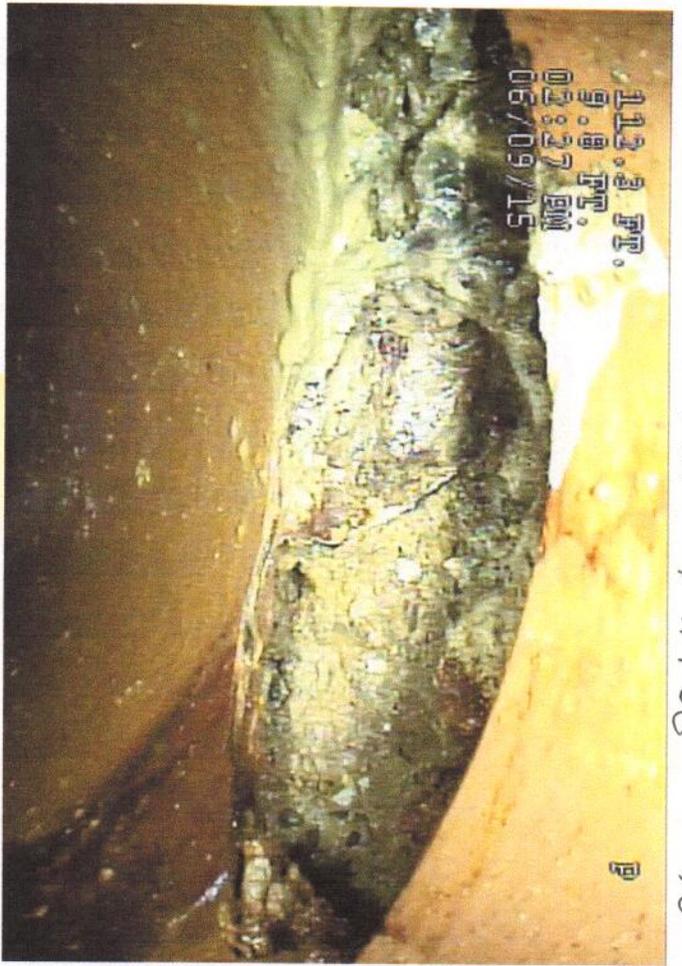
38:8 PT.  
5:01 PM  
09:30 AM  
12/02/15



36:8 PT.  
3:51 PM  
02:30 PM  
12/04/15

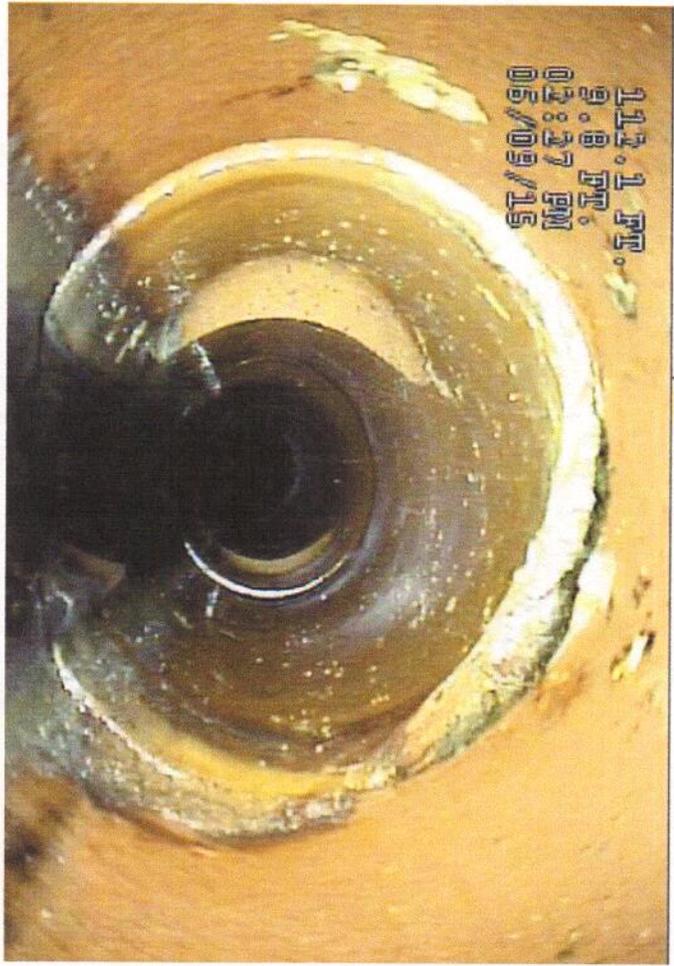


23326 SHARON  
MTH # 1-11706 TO



113.3 FT.  
9:18 PM  
02:27 PM  
06/09/15

BEFORE



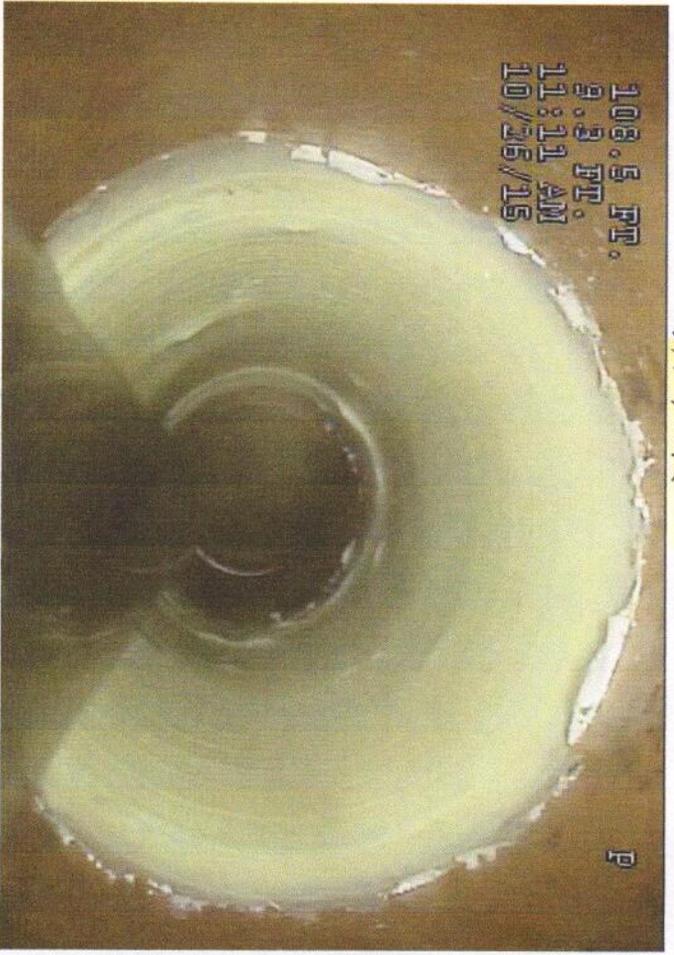
113.1 FT.  
9:18 PM  
02:27 PM  
06/09/15

10/26/15  
158'  
MTH # 1-11705



110.9 FT.  
9:5 PM  
11:19 AM  
10/26/15

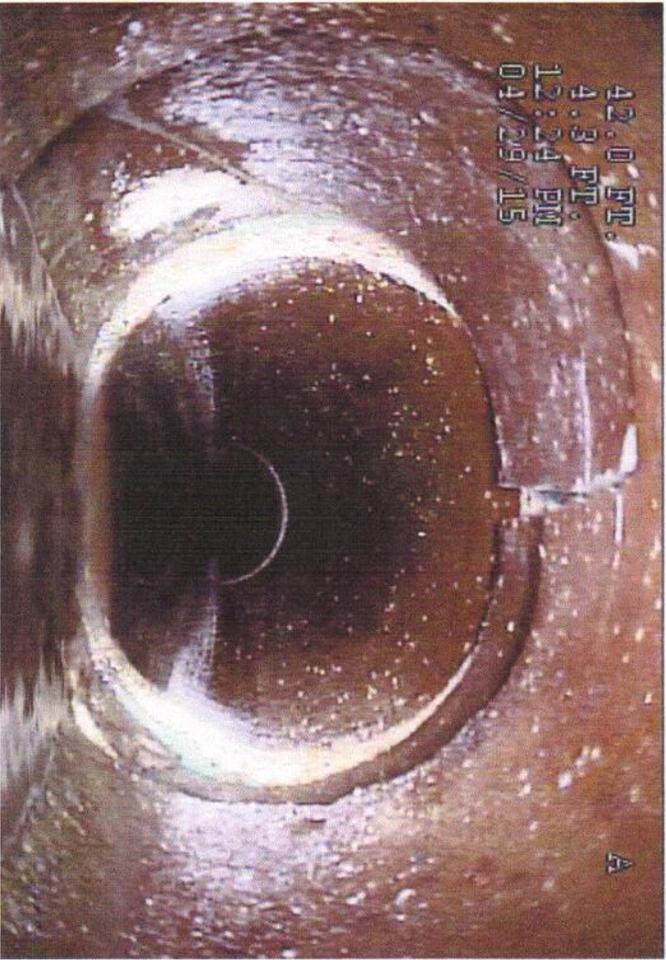
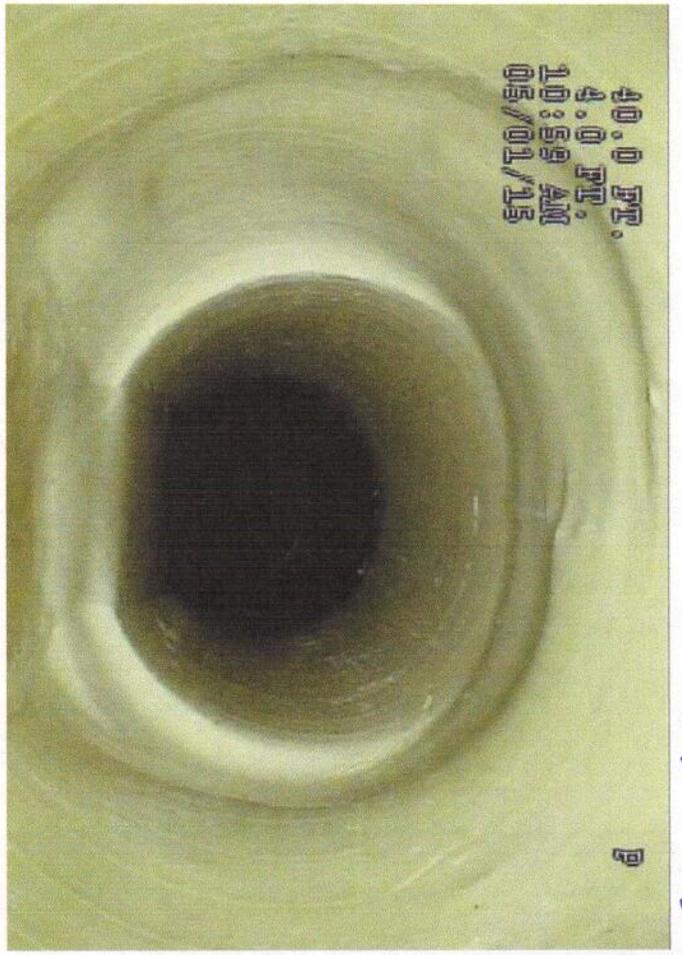
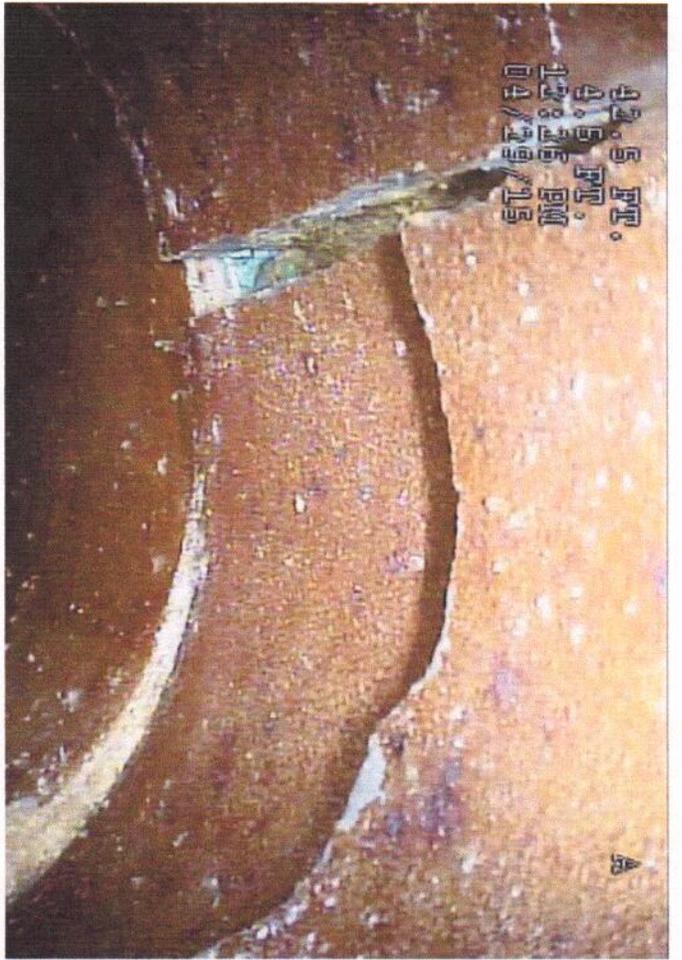
AFTER



108.5 FT.  
9:2 PM  
11:11 AM  
10/26/15

6023 FOREST RIDGE - PIPE PATCH

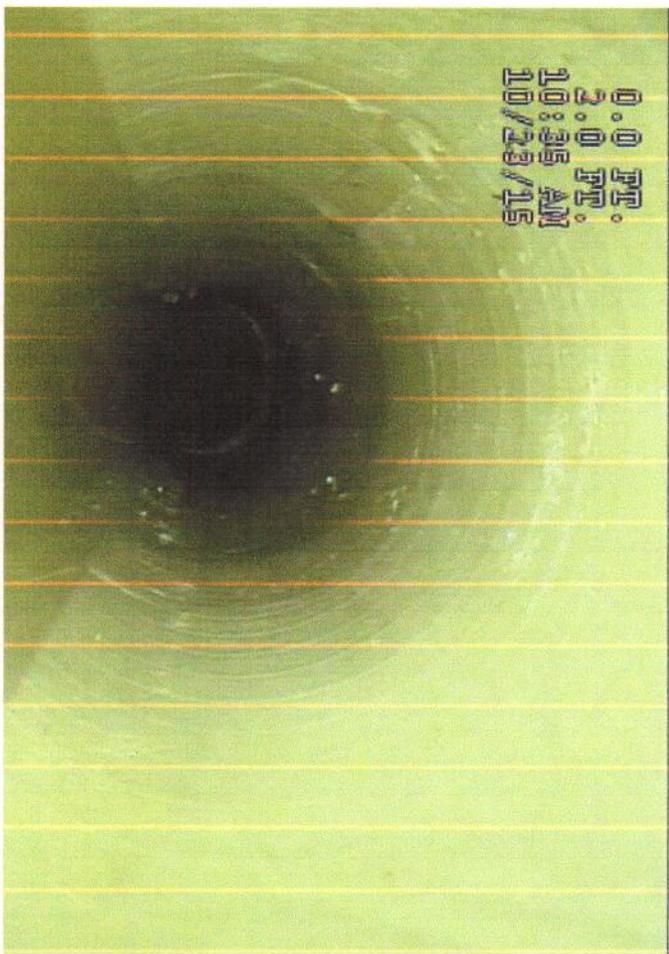
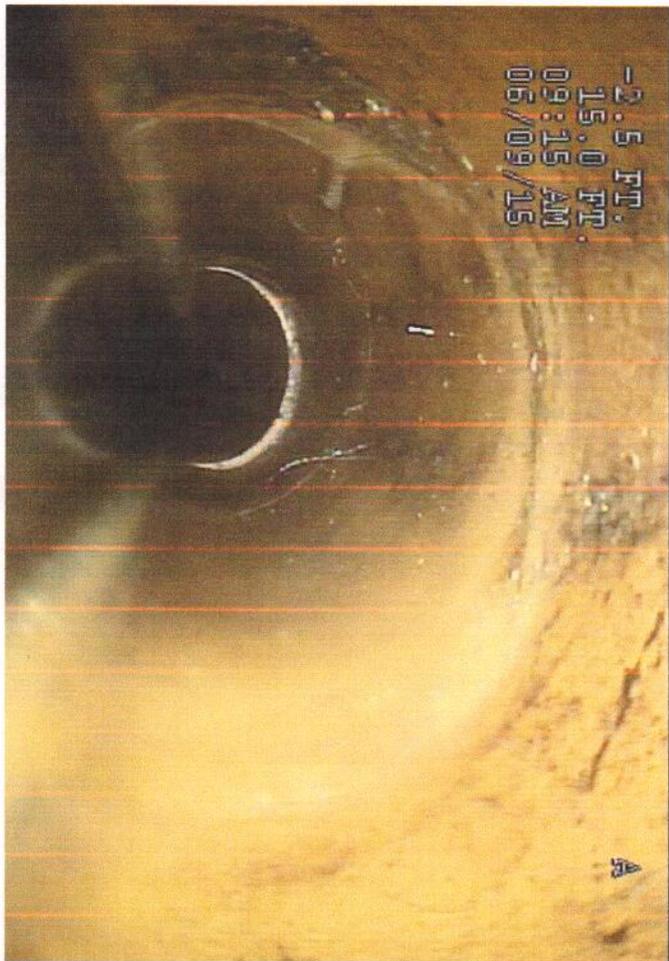
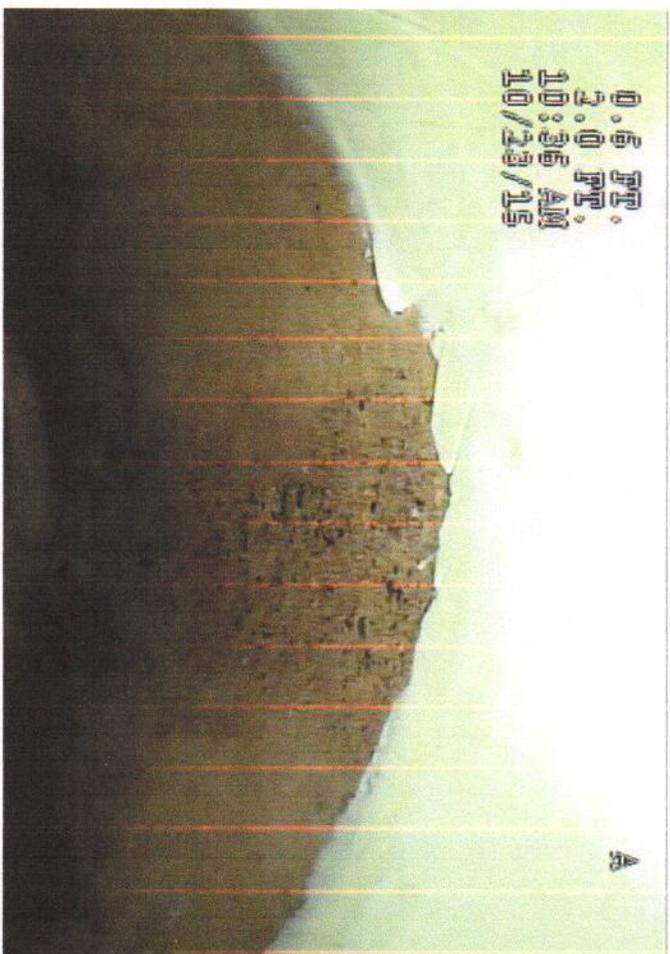
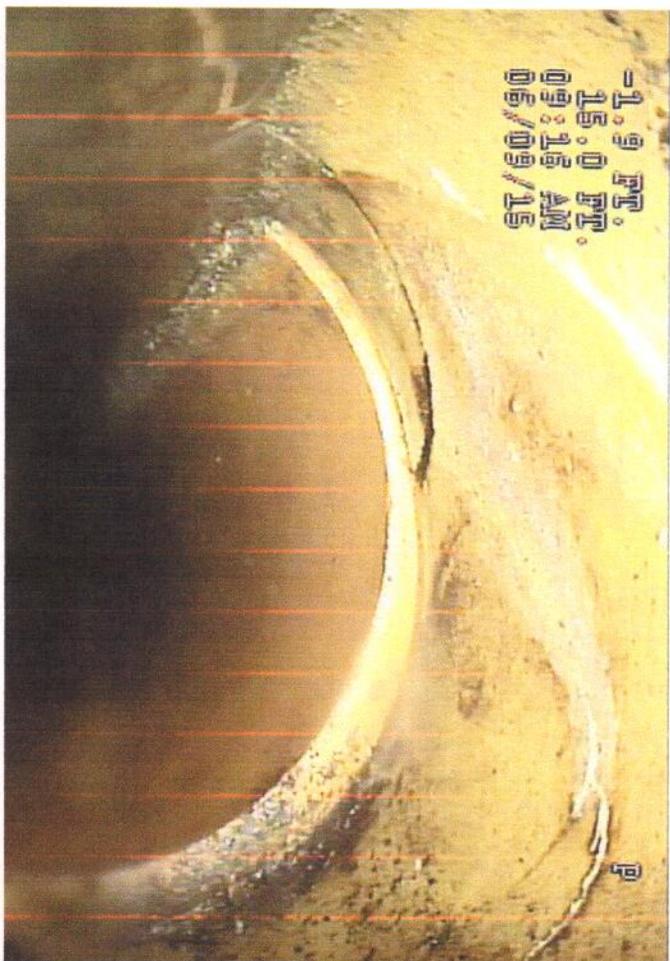
5/1/15 USTREAM MH 3-20902  
DOWNSTREAM MH 3-20903



BEFORE

AFTER

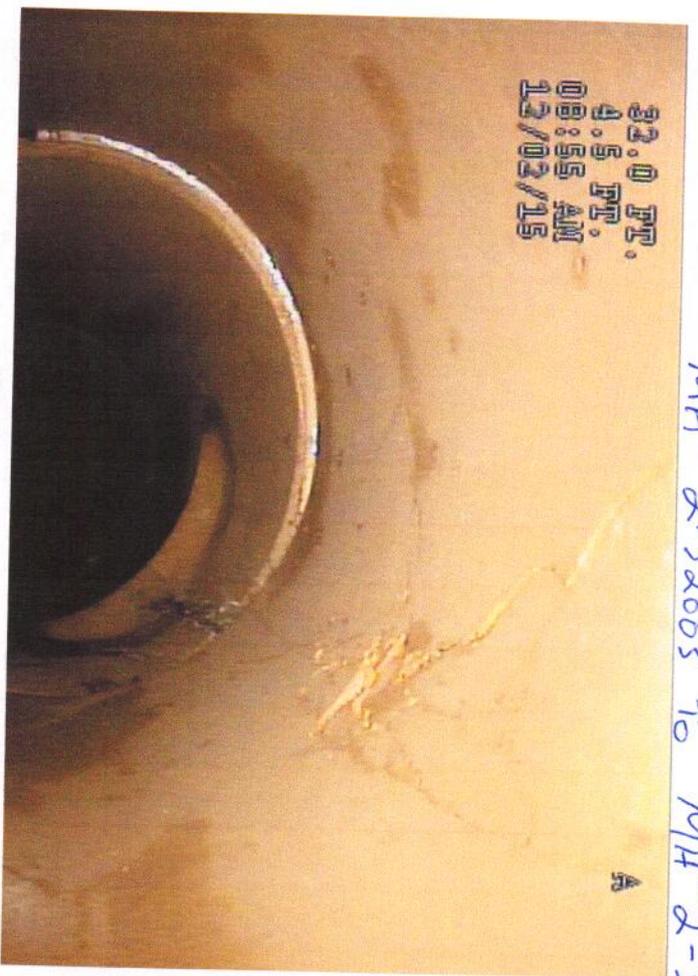
PIPE PATCH 29499 BRETON RIDGE 10-23-15



PIPE PATCH 27930 ANDORRA  
MH # 2-32003 TO MH # 2-32201

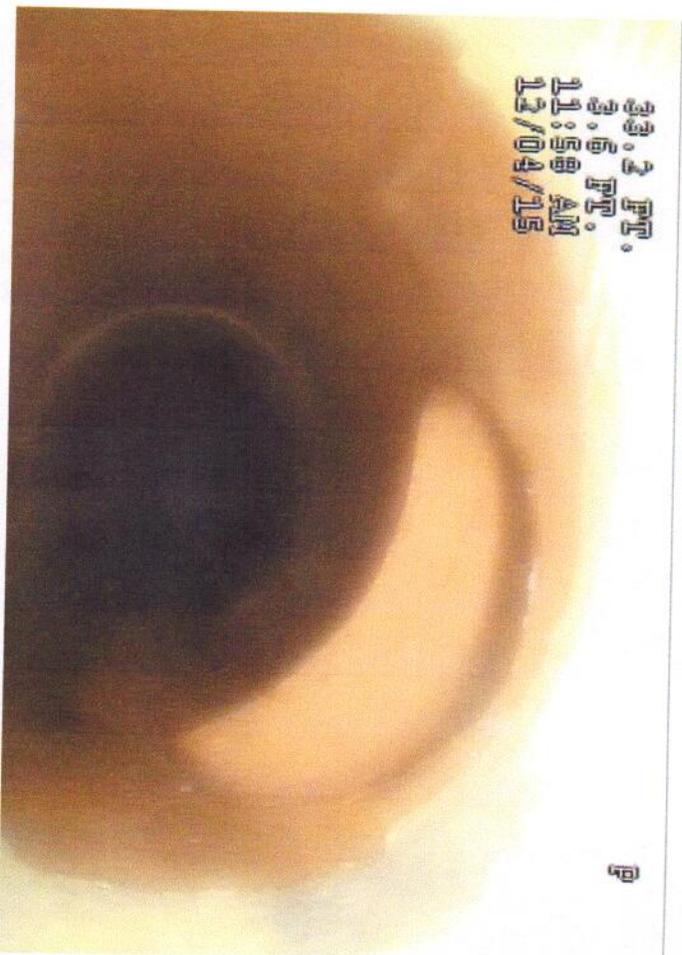
PATCH # 1

12/4/15



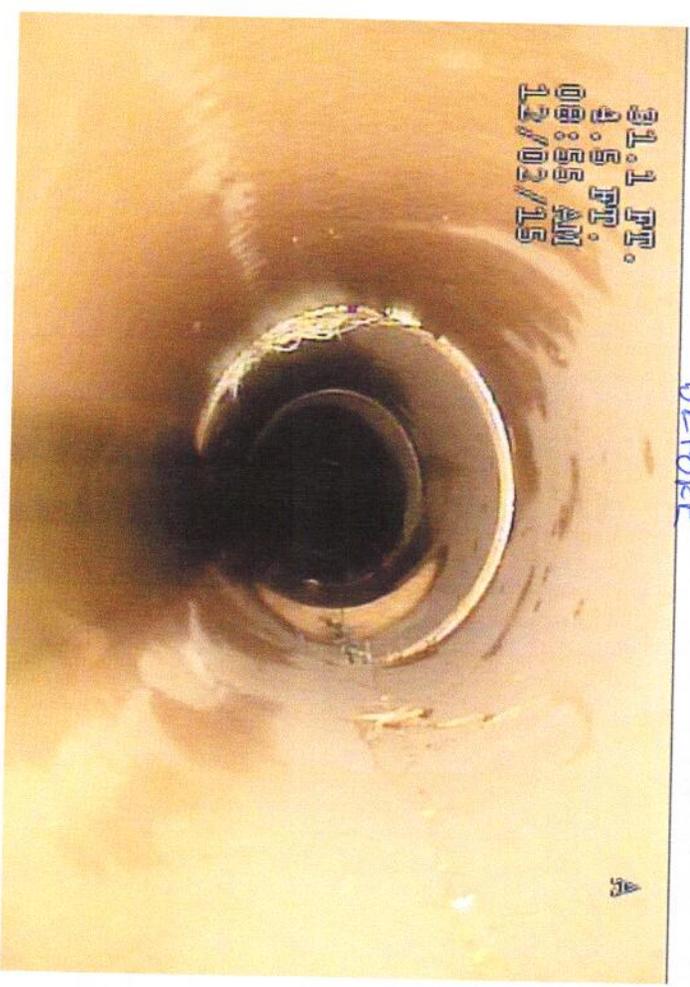
32:0 PT.  
4:5 PT.  
08:55 AM  
12/02/15

BEFORE

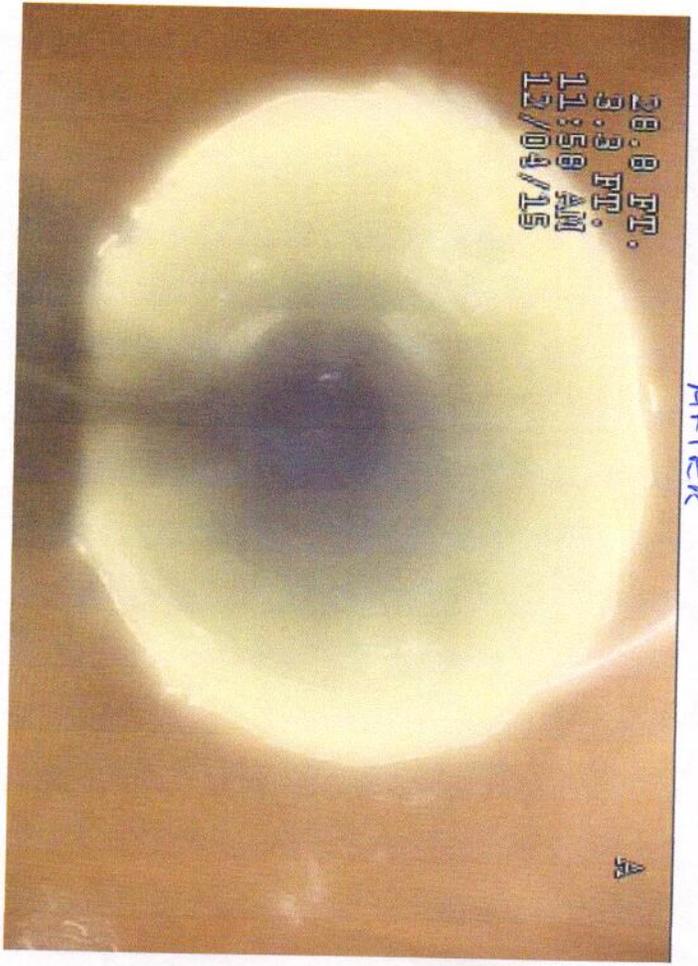


33:2 PT.  
3:5 PT.  
11:58 AM  
12/04/15

AFTER

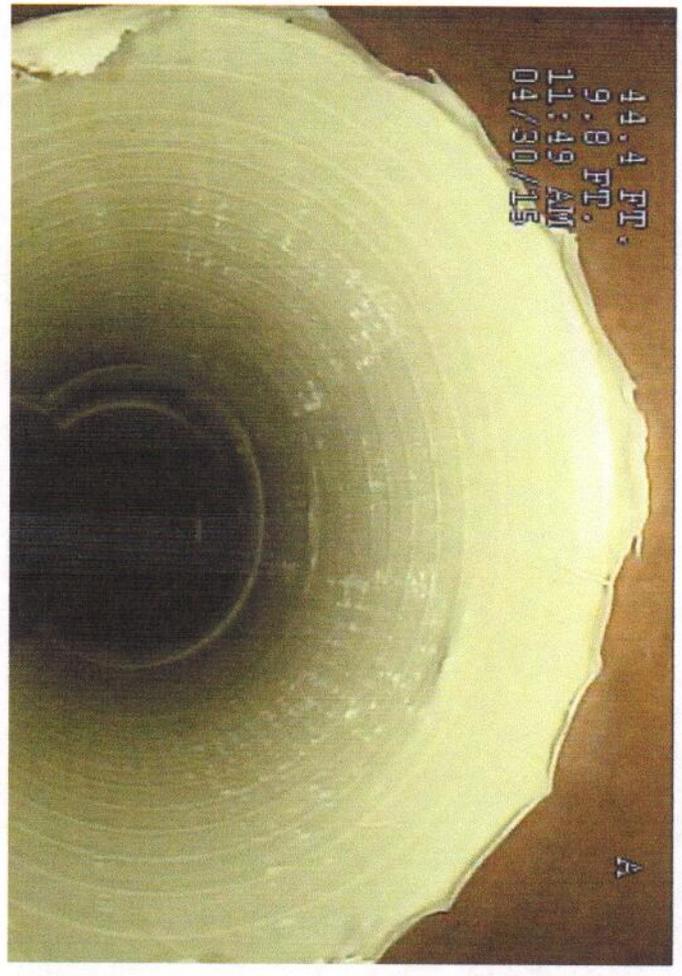
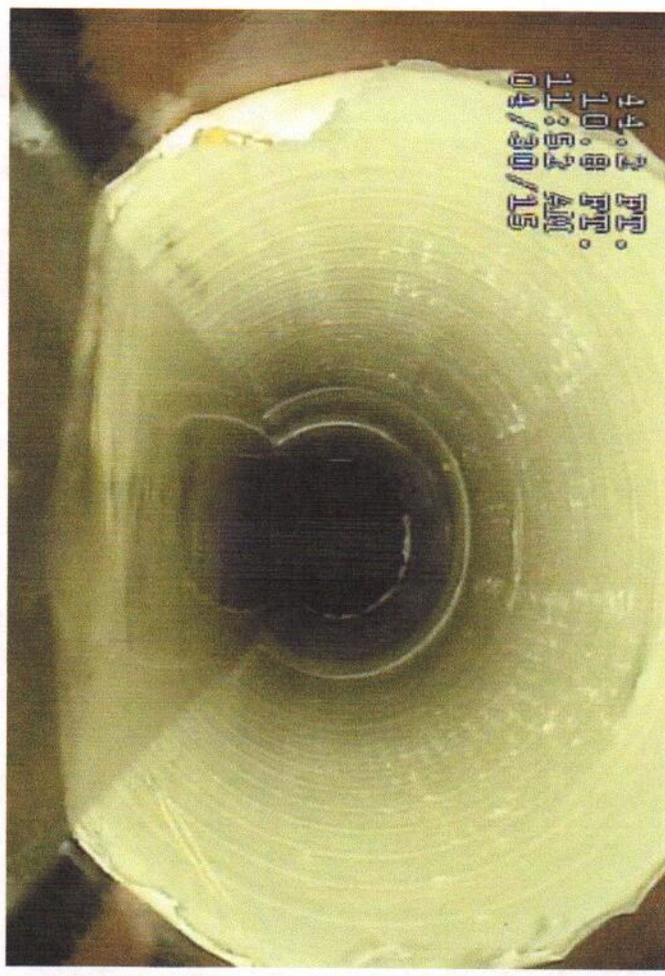


31:1 PT.  
4:5 PT.  
08:55 AM  
12/02/15



28:8 PT.  
3:3 PT.  
11:58 AM  
12/04/15

MH# 3-20301 TO MH# 3-20302



5974 Carreau Pipe Patch 4-30-15

