

# “Small Holes, Big Wins”

Onondaga County’s CSO Abatement Program’s  
Approach to Optimizing CSO Regulator Performance

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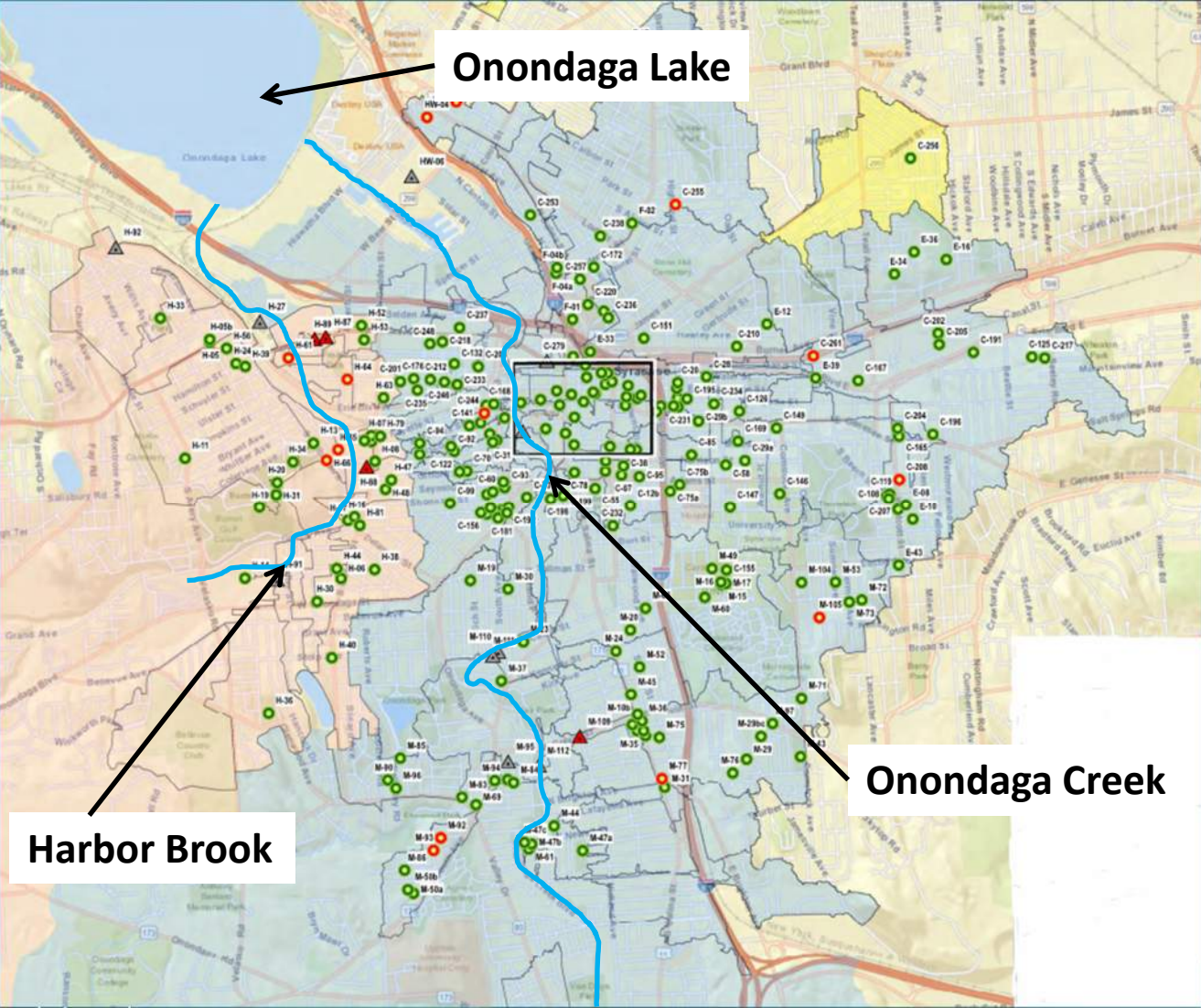


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# Onondaga County - America's First Green Infrastructure Consent Order

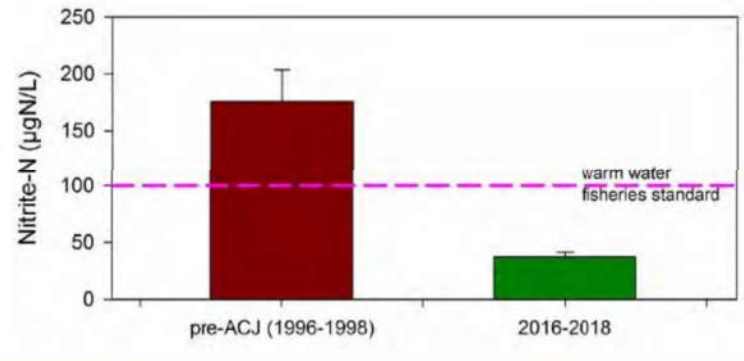
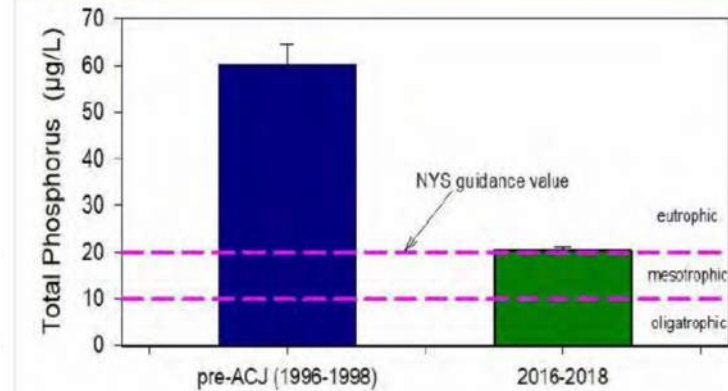
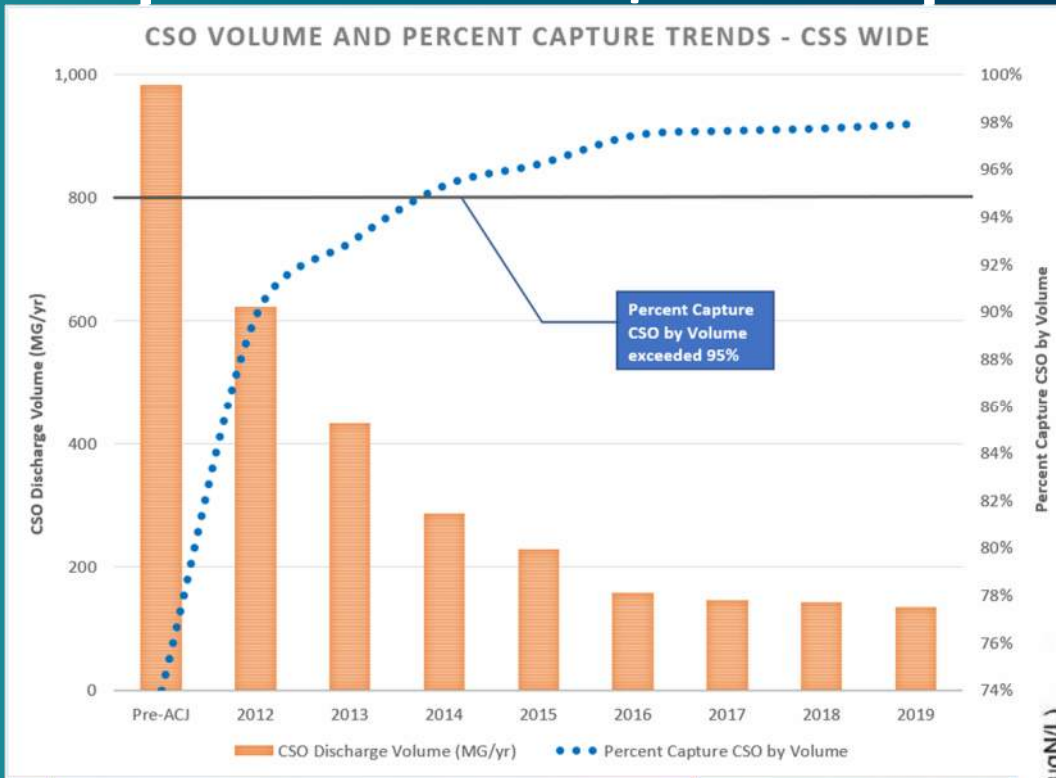


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# Significant Progress and Water Quality Improvement! - \$750M spent (green and gray)



# Green Infrastructure Program Summary 2009 – 2020

- 225+ green projects throughout CSS → 190+ MG runoff reduced
- 157 MG CSO capture; \$90M



Leavenworth Park Bioswale

Before/After



OnCenter 66,000 sq.ft. Green Roof (Completed 2011)



# Gray Infrastructure Program Summary 2009 - 2020

- 2 major storage facilities
- CSO conveyances improvements
- Several sewer separations
- Regulator modifications
- WWTP Upgrades at Metro Plant
- 469 MG CSO capture/elimination; \$305M



Clinton Storage Facility



Lower Harbor Brook Storage Facility



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# Affordability – Main Driver of County’s CSO Program

Project Type	Average County Construction Cost/Gallon of Runoff Captured or Eliminated
Offset/Voluntary Projects with no County Contribution	\$0.00
City Road Reconstruction GI	\$0.21
GIF – Ground Based	\$0.23
Gray Infrastructure – CSO Regulator Optimization	\$0.38
Green Parks	\$0.42
Green Vacant Lots	\$0.47
Green Streets (Excluding Road Reconstruction Projects)	\$0.58
GIF – Green Roofs	\$0.90
Gray Infrastructure – Sewer Separation	\$5.13
Gray Infrastructure – Storage	\$12.28



# Sewer Separations

“Big Holes, Small Wins”

- CSO 015 – 100,000 gal CSO Capture, \$245,000 (\$2.45/gal)
- CSOs 022 and 045 – 1MG CSO Capture, \$5.5M (\$5.50/gal)
- CSO 061 – 100,000 gal CSO Capture, \$400,000 (\$4.00/gal)
  - Average cost per gallon is \$5.13



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# Sewer Optimizations

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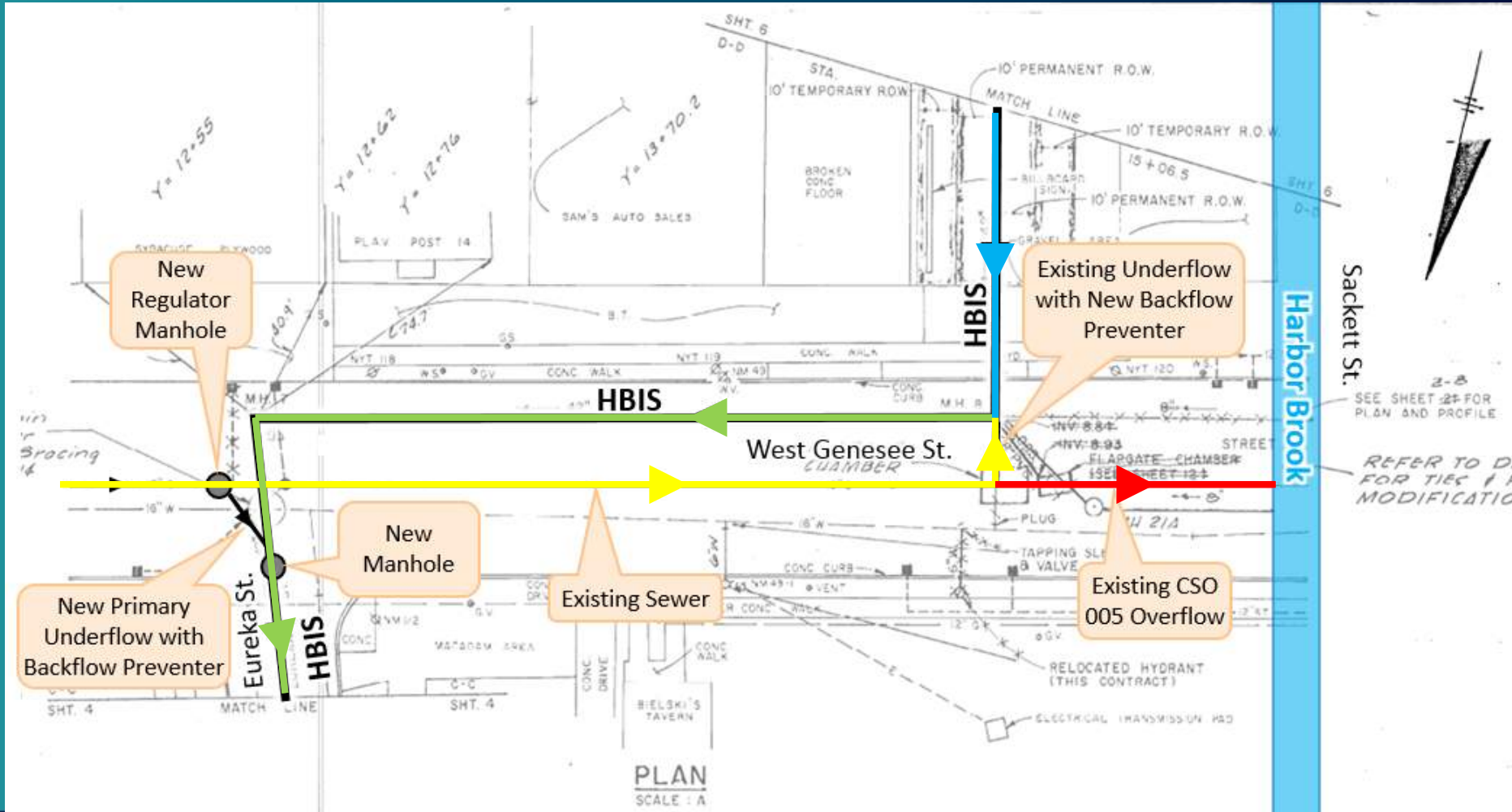
- CSO 005 – 1 MG CSO reduction, \$200k (\$0.20/gal)
- CSO 010 – 600k gal CSO reduction, \$657k (\$1.10/gal)
- CSO 011 – 800k gal CSO reduction, \$0 cost
  - Constructed by the City for the County at no cost
- CSO 014 – 100k gal CSO reduction, \$78k (\$0.78/gal)
  - 10.5 MG Flow reduction
- CSO 075 – 1.9 MG CSO reduction, \$350k (\$0.18/gal)
- CSO 077 – 7 MG CSO reduction, \$200k (\$0.03/gal)
- **Average cost per gallon is \$0.38**





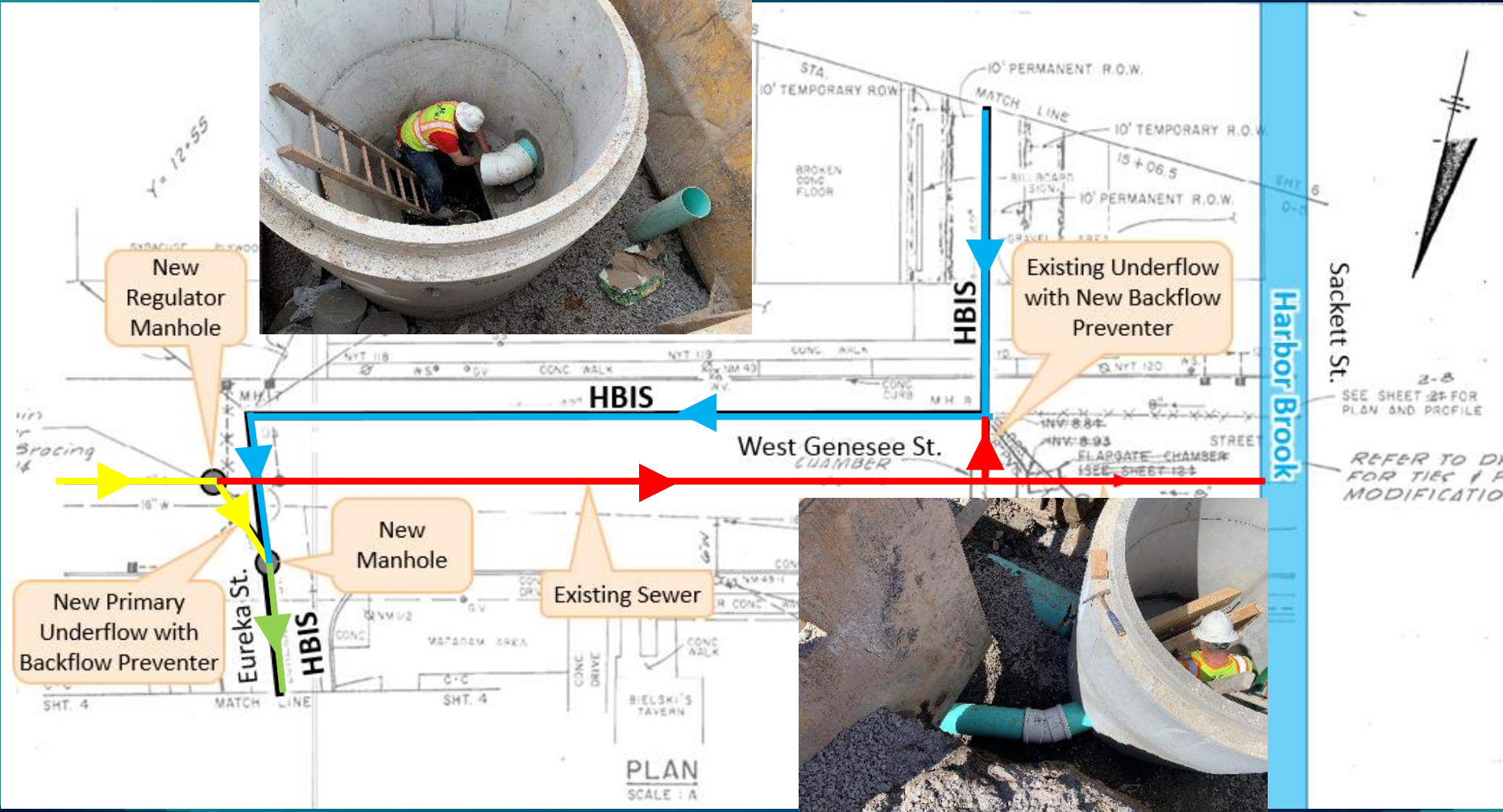
# CSO 005 Reconfiguration

## Pre-Existing Conditions



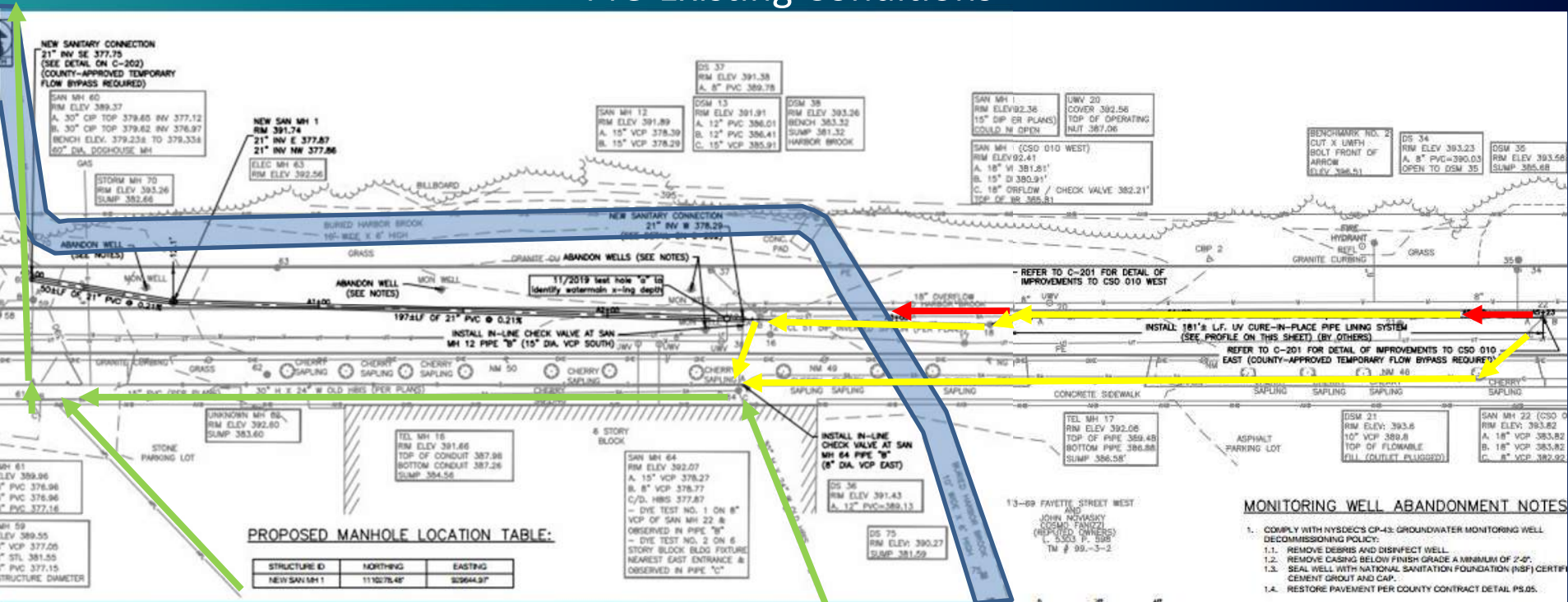
# CSO 005 Reconfiguration

## Current Conditions



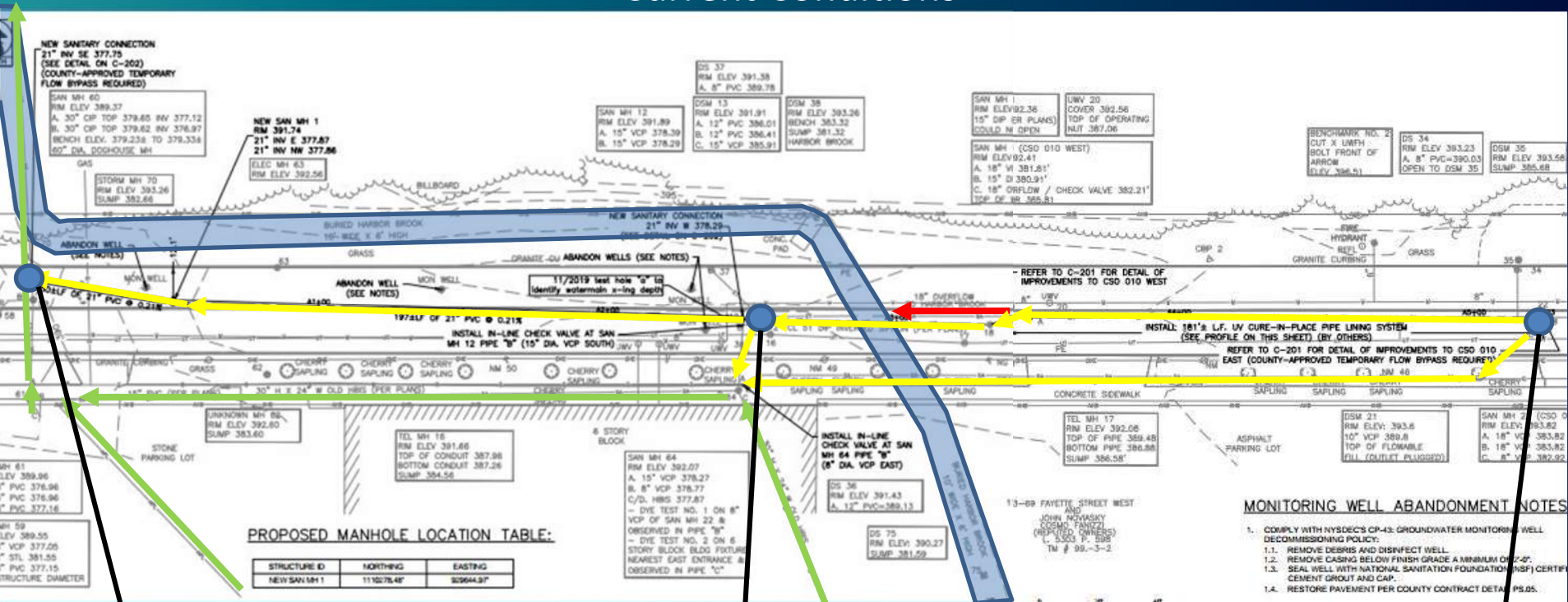
# CSO 010 Reconfiguration

## Pre-Existing Conditions



# CSO 010 Reconfiguration

## Current Conditions



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n, II

10/28/2020

# CSO 011 Reconfiguration

## Pre-Existing Conditions



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# CSO 011 Reconfiguration

## Current Conditions

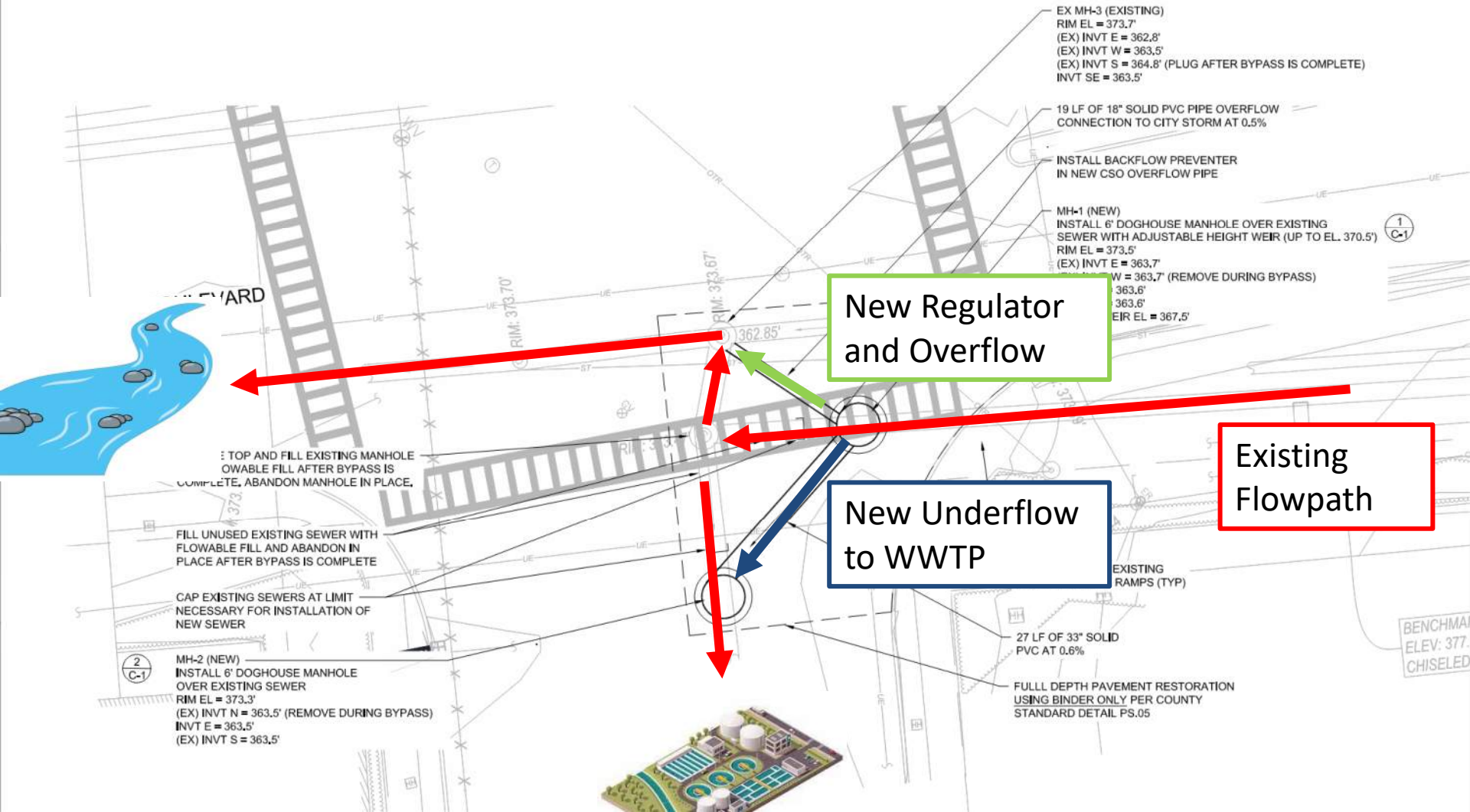


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# CSO 075 Reconfiguration



# CSO 075 Reconfiguration

Current Conditions



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# CSO 075 Reconfiguration

Current Conditions

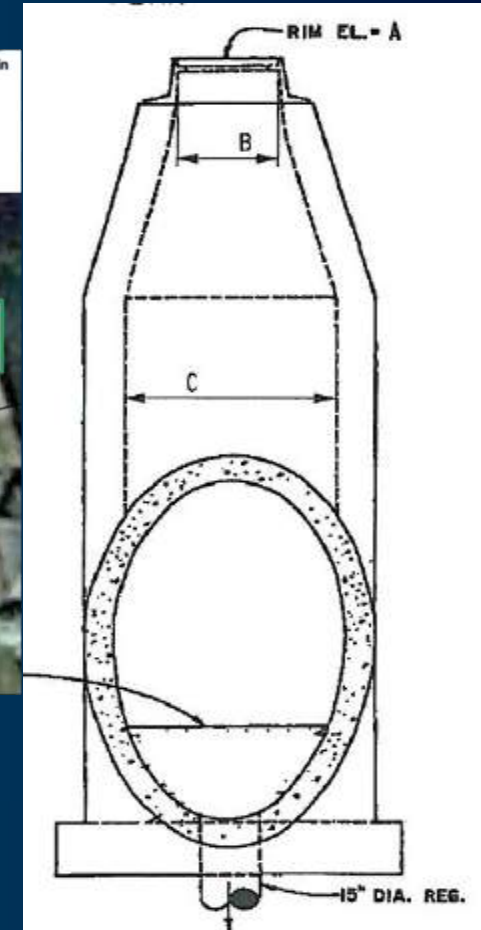


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# CSO 077 Reconfiguration

## Pre-Existing Conditions



# CSO 077 Reconfiguration

## Current Conditions



# Summary

- Green Average cost is \$0.30/gal
- Sewer Separation Average cost is \$5.13/gal
- CSO Regulator Modifications/Sewer Optimizations Average cost is \$0.38/gal
- Important to analyze system performance BEFORE doing work
- Working relationships with boots on the ground staff is key to understanding the systems and maintenance issues



# Closing

- Any Questions?
- Contact information
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