

Threading a pipe through a needle: Finding the right path for a new drain along Retreat Avenue.

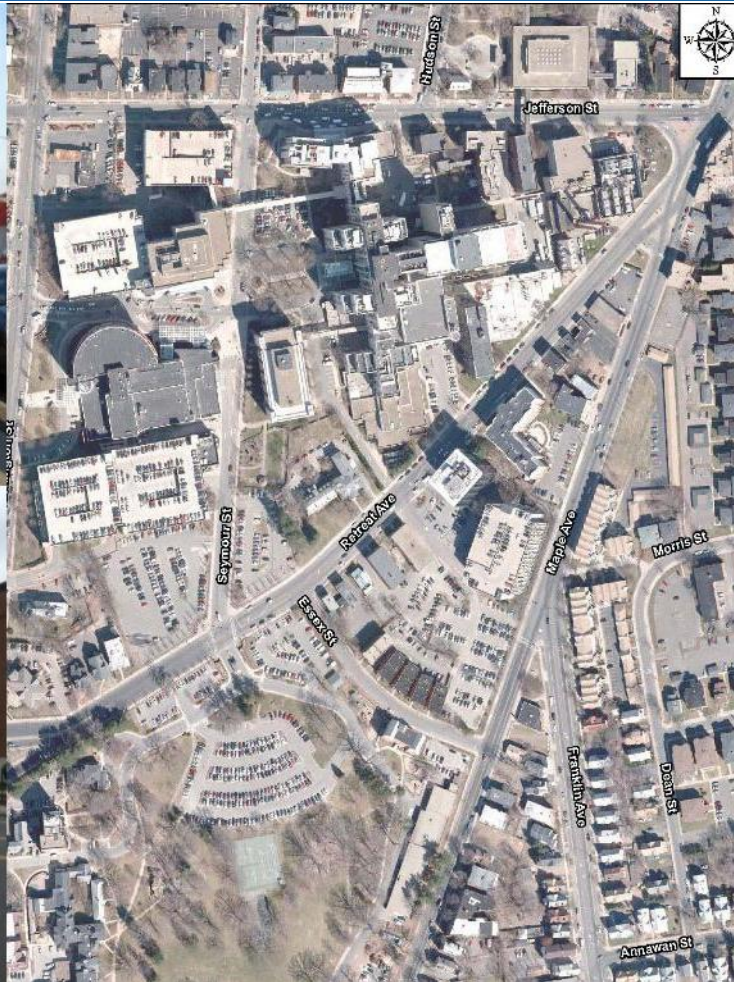


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NEWEA Annual Conference 2015
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**CDM
Smith**



Overview

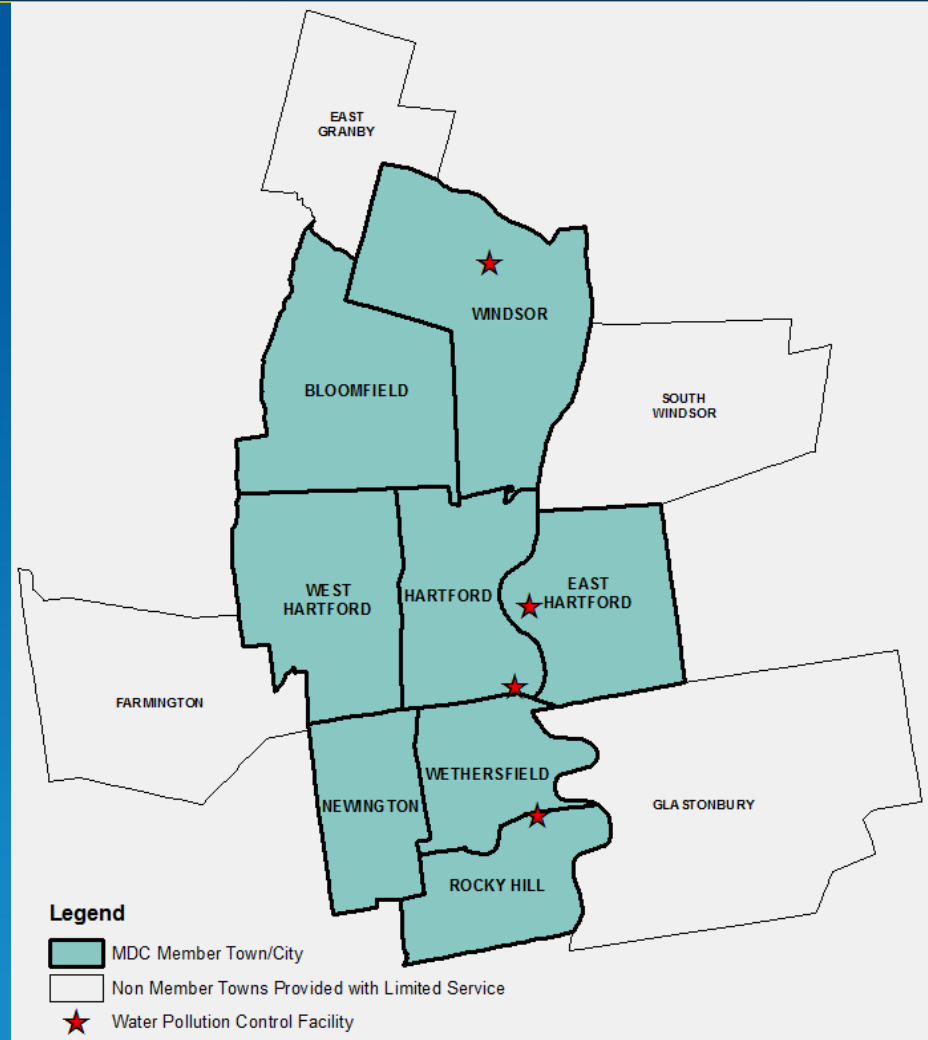
- Introduction
- Park River Area CSO Planning
- Existing Utility and Conditions Challenges
- Preliminary Design Report (PDR) Alternatives
- Finding a Corridor Alternatives and Constructability
- Preferred Plan
- Construction Summary
- Questions

Introduction

A nonprofit municipal corporation chartered by the Connecticut General Assembly in 1929

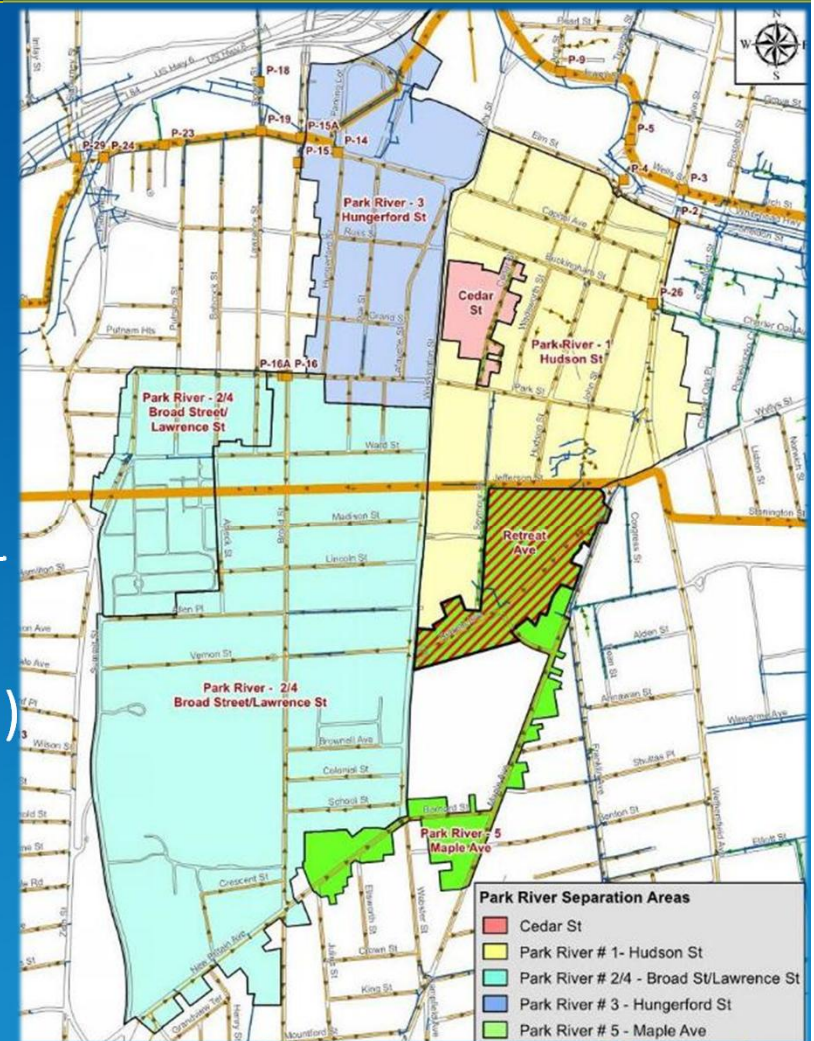
Our mission is to provide our customers with safe, pure drinking water, environmentally protective wastewater collection and treatment and other services that benefit the member towns

We provide water, sewer and household hazardous waste collection to its member towns and treated water to portions of non-member towns



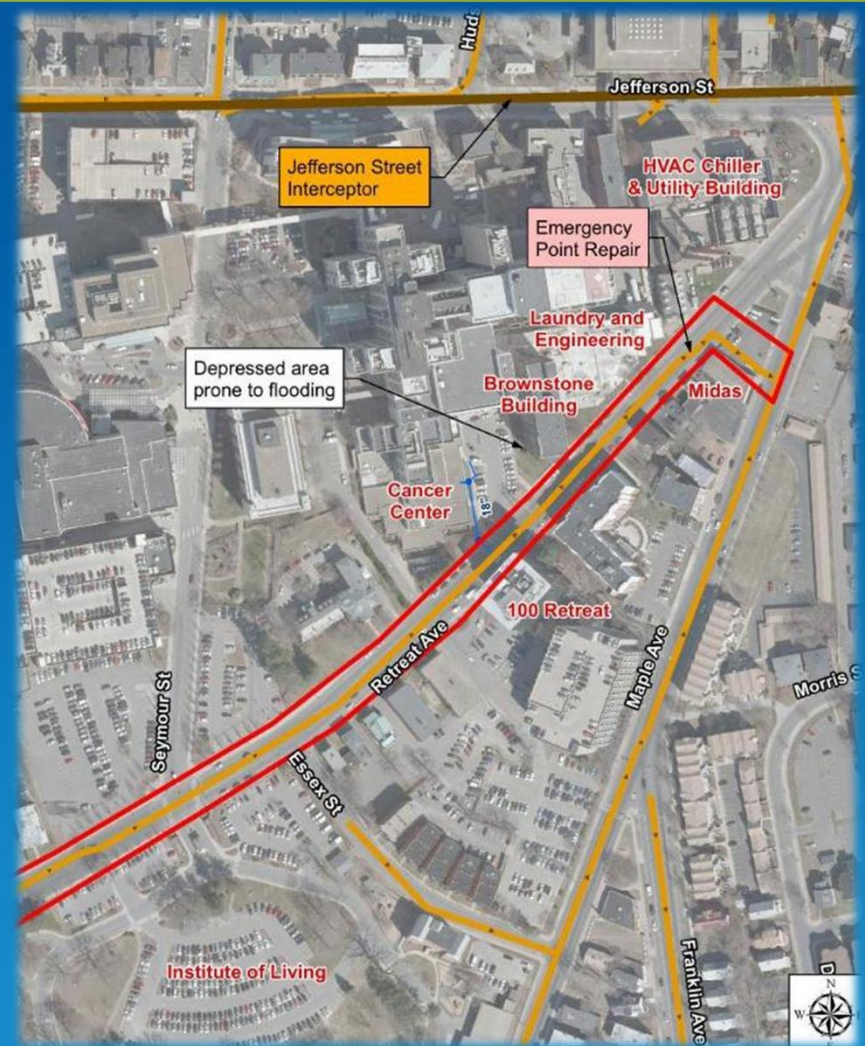
CSO Planning in Park River Area

- 2005 CSO LTCP – Separation
- Park River Area – Densely developed combined sewer area
- 2009 Preliminary Design Report (PDR) for Park River separation completed by CDM Smith
 - Retreat Avenue Separation Contract 5 – Maple Avenue
 - 72-inch Jefferson Street Interceptor (JSI)
 - Sewer system questionnaires
 - Contract 5 – New drains to Franklin Avenue drain



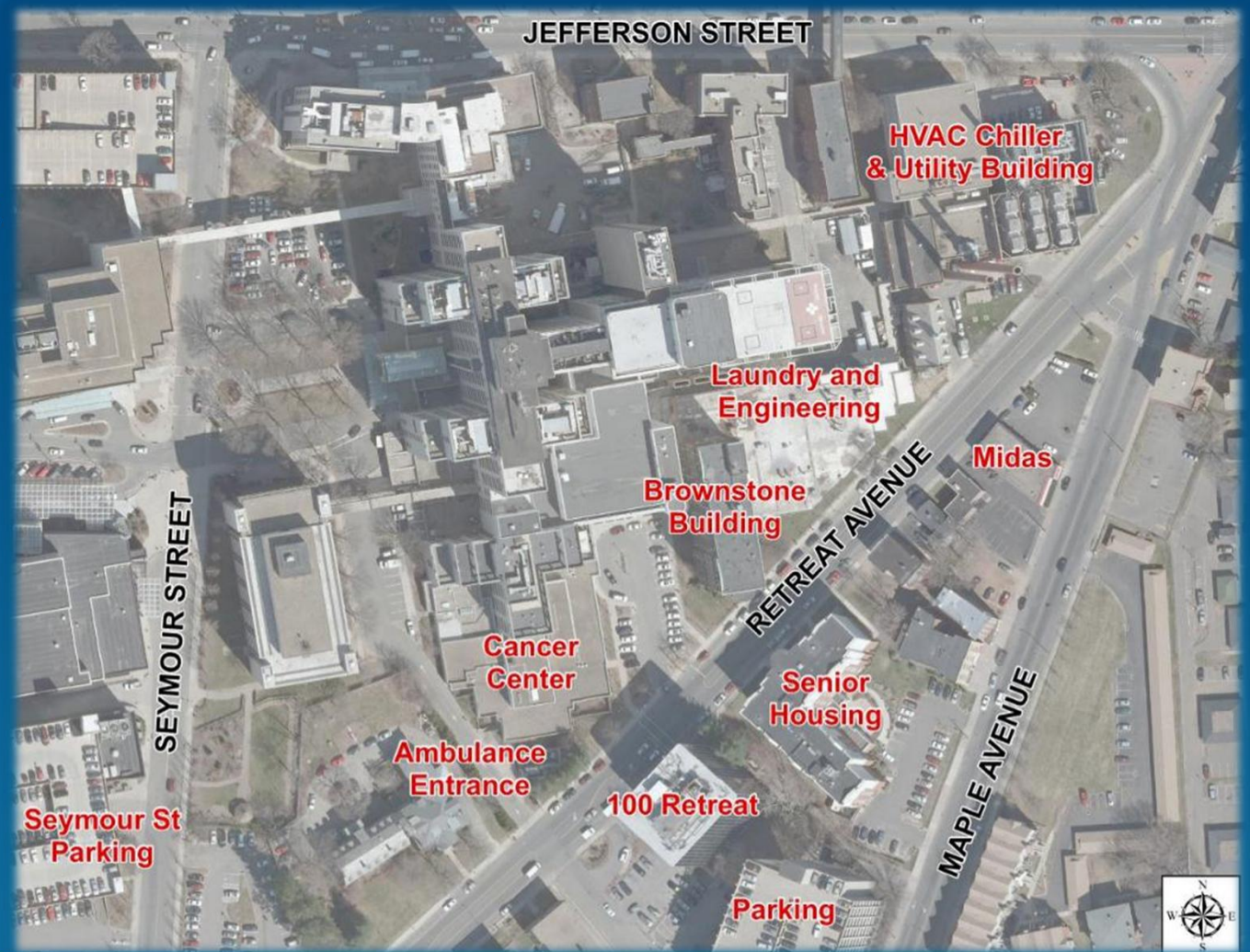
Retreat Avenue Requires Immediate Response

- Existing sewer: 10-inch ductile iron to 24-inch brick
- Surcharging along combined sewer – More frequent and severe (Tropical Storm Lee & Hurricane Irene)
- 2011 Emergency repair
- District assessment of sewer conditions (CCTV)
- District re-prioritizes



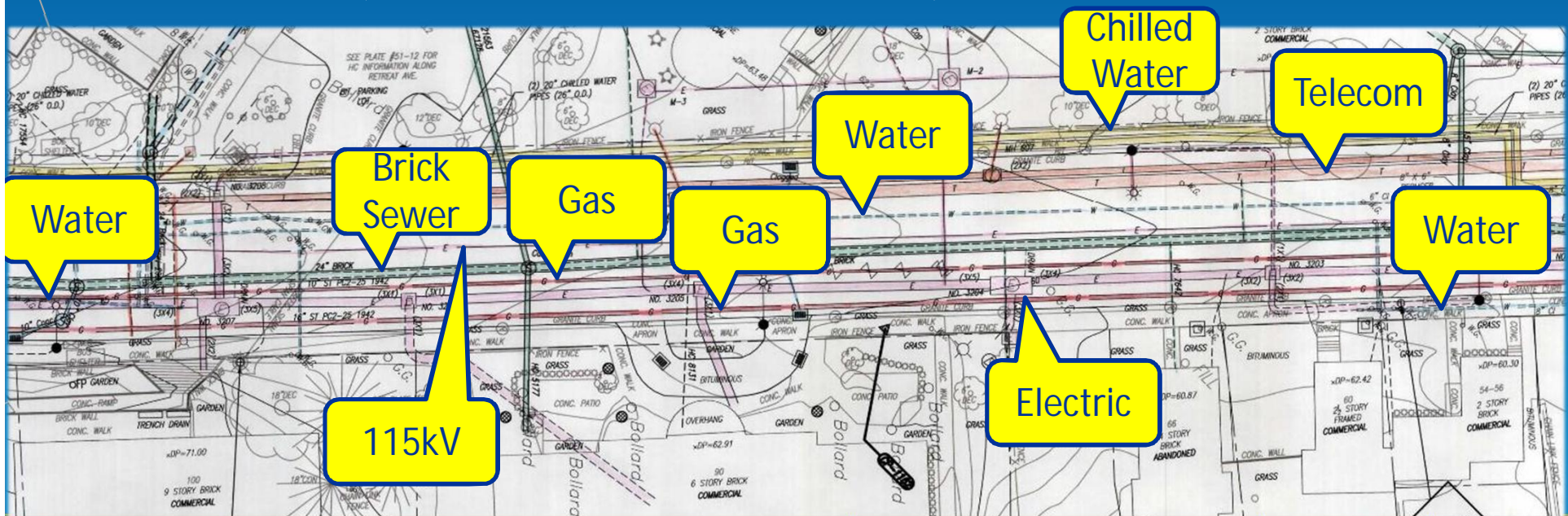
Surface Congestion Challenges

- Traffic and Pedestrian Access
 - Medical facilities
 - Past pedestrian fatalities



Subsurface Congestion Challenges

- Heavily Congested Underground Utilities-Local and transmission
 - Brick combined sewer, service laterals and drain connection
 - Natural gas (16-inch steel high pressure & 10-inch CI mod. pressure)
 - Water mains (6-, 8-, 12-inch CI)
 - Chilled water, steam and condensate pipes for medical facilities
 - Cable/Telecommunications ducts and vaults
 - Electrical (local and 115kV transmission) ducts and vaults.

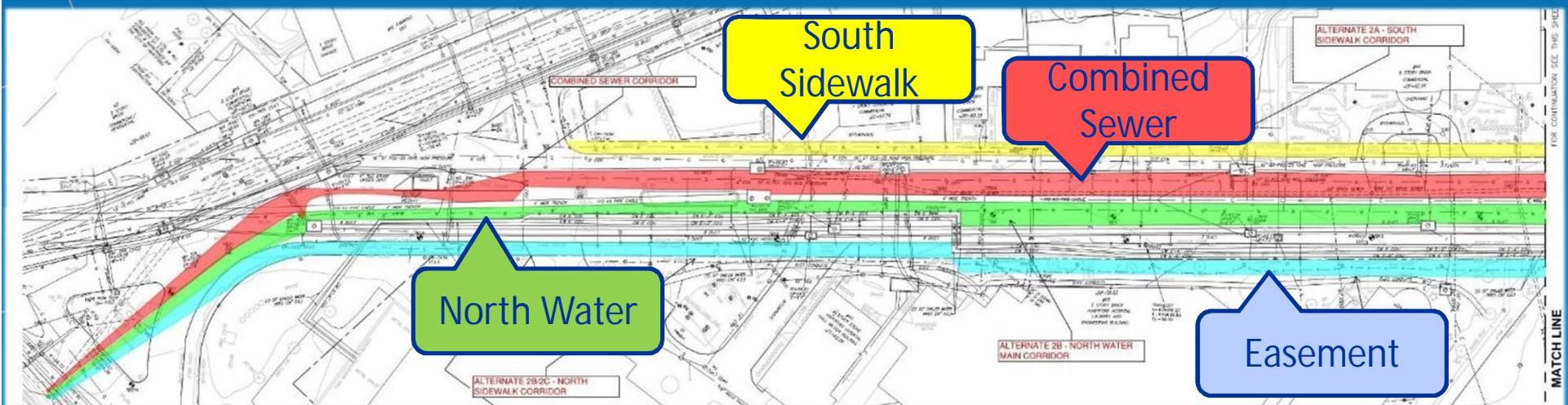


Development of Preliminary Design

- Localized hydraulic model – 4 flow meters
 - Range of design storms
- CCTV review and rehabilitation assessment
- New capacity required
 - New 36-inch combined sewer
 - Variety of connection alternatives
 - New 36-inch drain and rehabilitated sewer
- Geotechnical assessment
- Survey

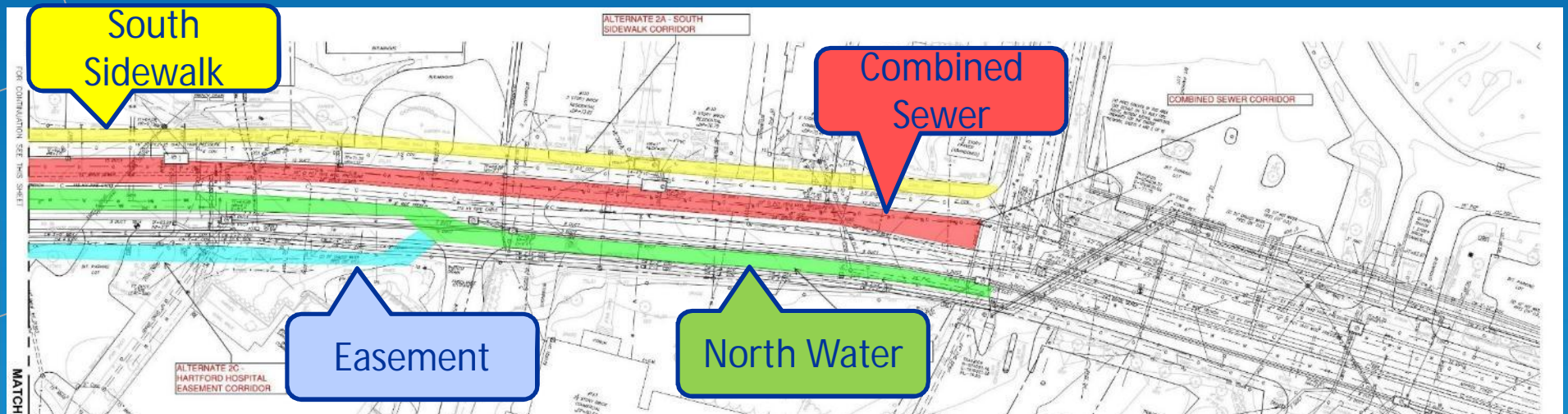
Corridor Alternatives

- Pipe corridors
 - Combined sewer (10-inch CI mod. pressure gas & 6-inch CI water)
 - South sidewalk (16-inch steel high pressure gas & 8-inch CI water)
 - North water main corridor/North sidewalk (8-inch CI water & chilled water)
 - HH Easement/North sidewalk



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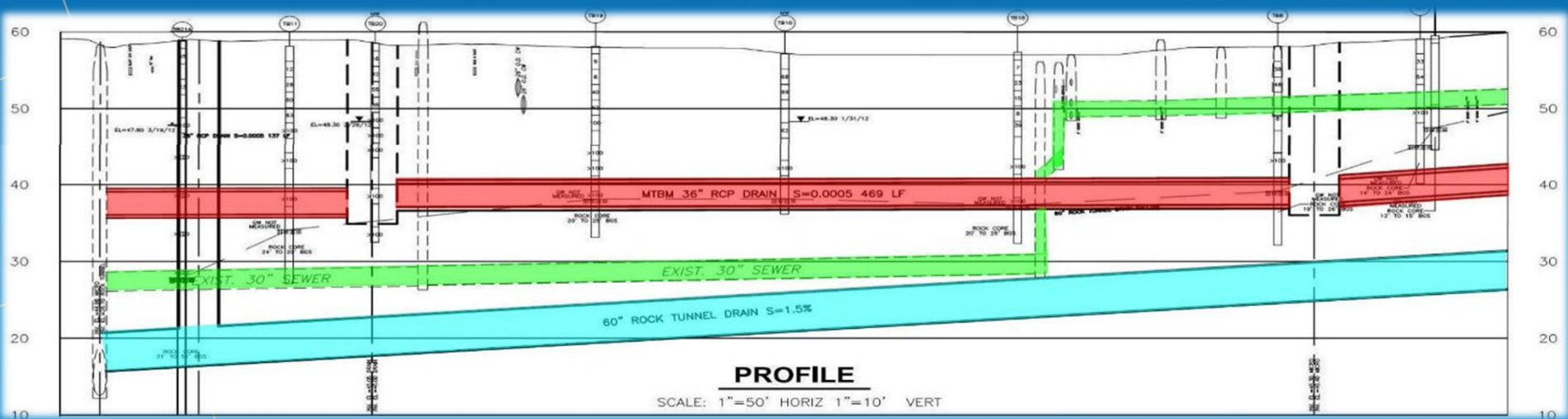


Easement

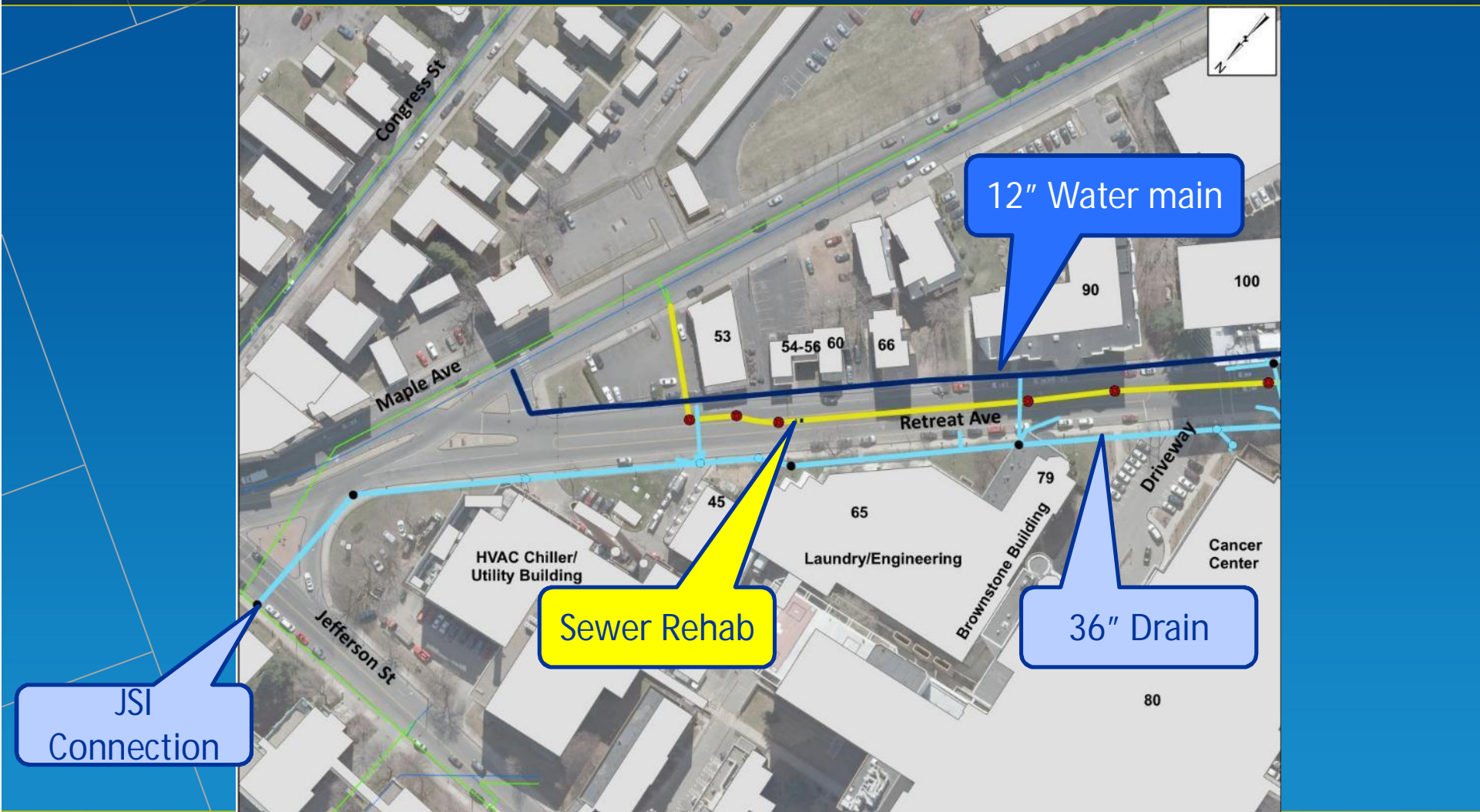


Pipe Installation

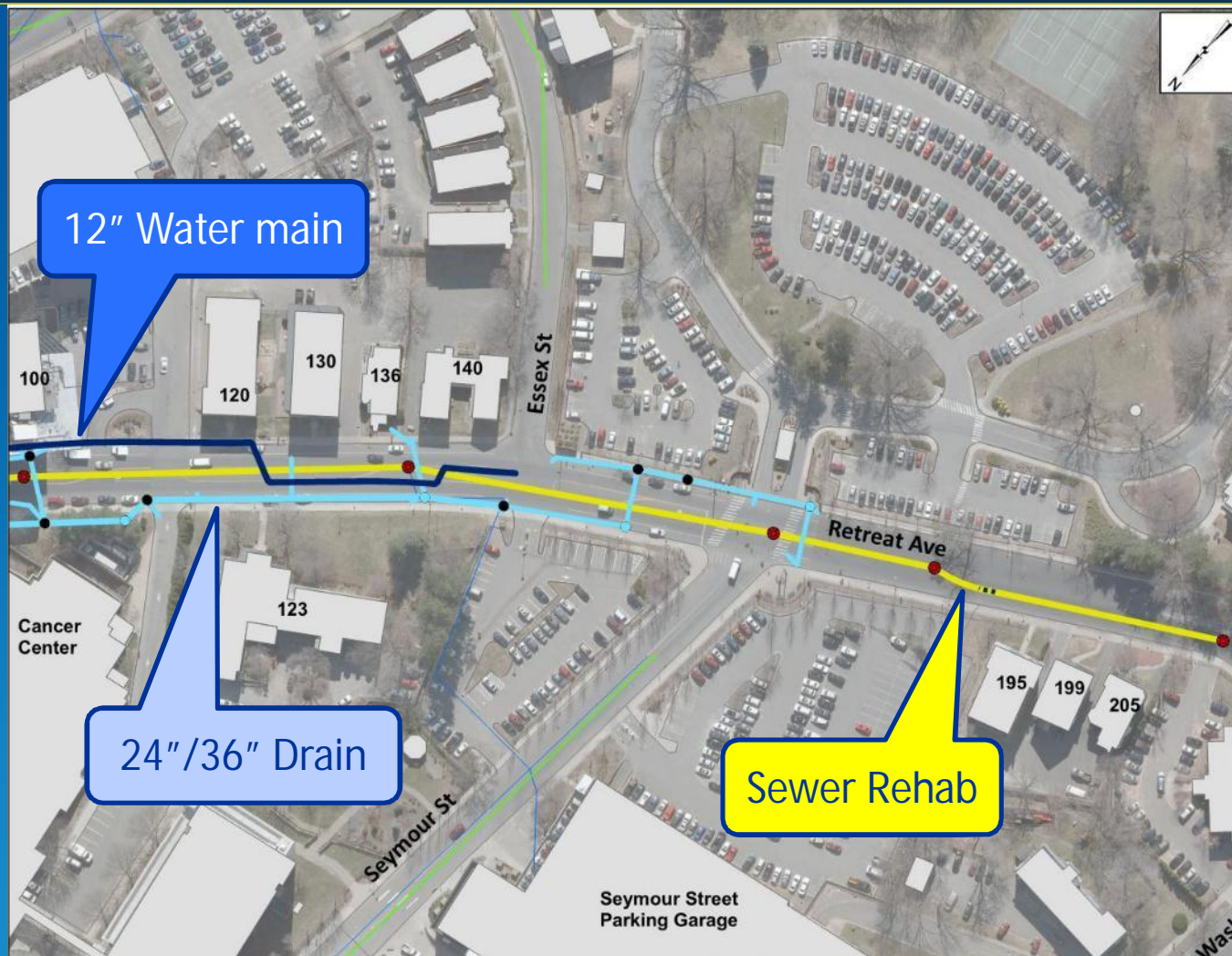
- Open cut
- Micro tunnels
- Rock tunnels



Preferred Plan- Construction Phasing 2012 - 2014



Preferred Plan- Construction Phasing 2012 - 2014



Sewer Rehabilitation

- 10-inch to 24-inch CIPP Lining
 - Point repairs
 - 1,300 feet total CIPP installed
 - Lining approach for brick sewer
 - Water cure
 - Styrene odor management
 - Coordinated with services and operations (HH Laundry Facility)
 - Traffic Management – Impact minimized with night work
 - 500 feet sewer replacement identified after heavy cleaning



Water Mains Construction

- 1,300 feet of 12-inch water main designed along south sidewalk
- Services replaced to property line
- 3 Fire hydrants replaced
- Unanticipated utility conflict in field requires redesign of 500 feet
- New connection at Essex Street



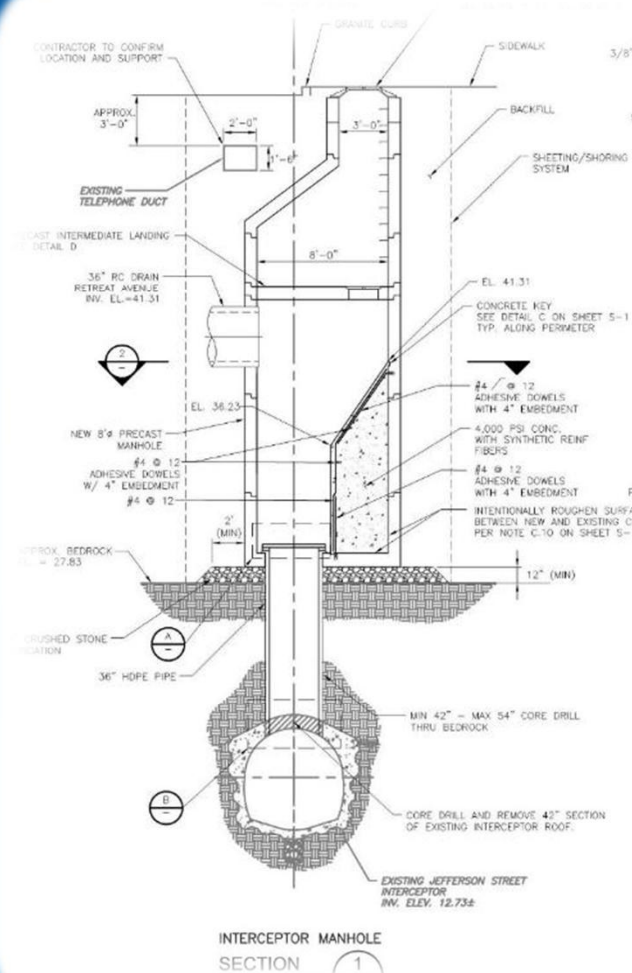
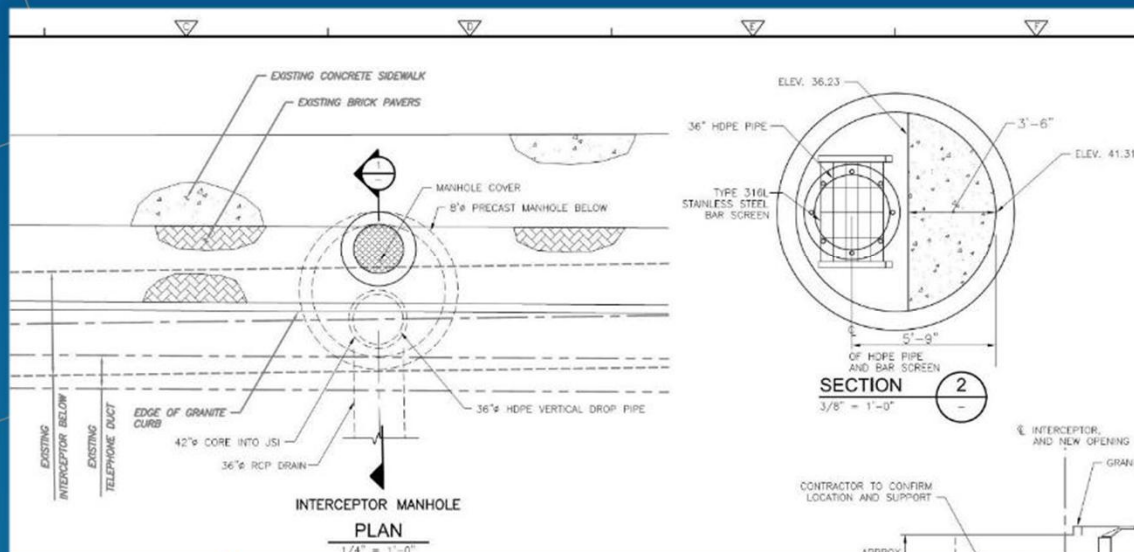
Drain Construction

- 24-, 36-inch Drain within easement
- Traffic Management
 - Wide street to move lanes
 - Entrances kept open
 - Bus stops relocated
- Relatively clear of utilities
- Weathered rock
- Catch basin laterals
 - Crossing time consuming
 - 115 kV transmission line



JSI Connection Construction

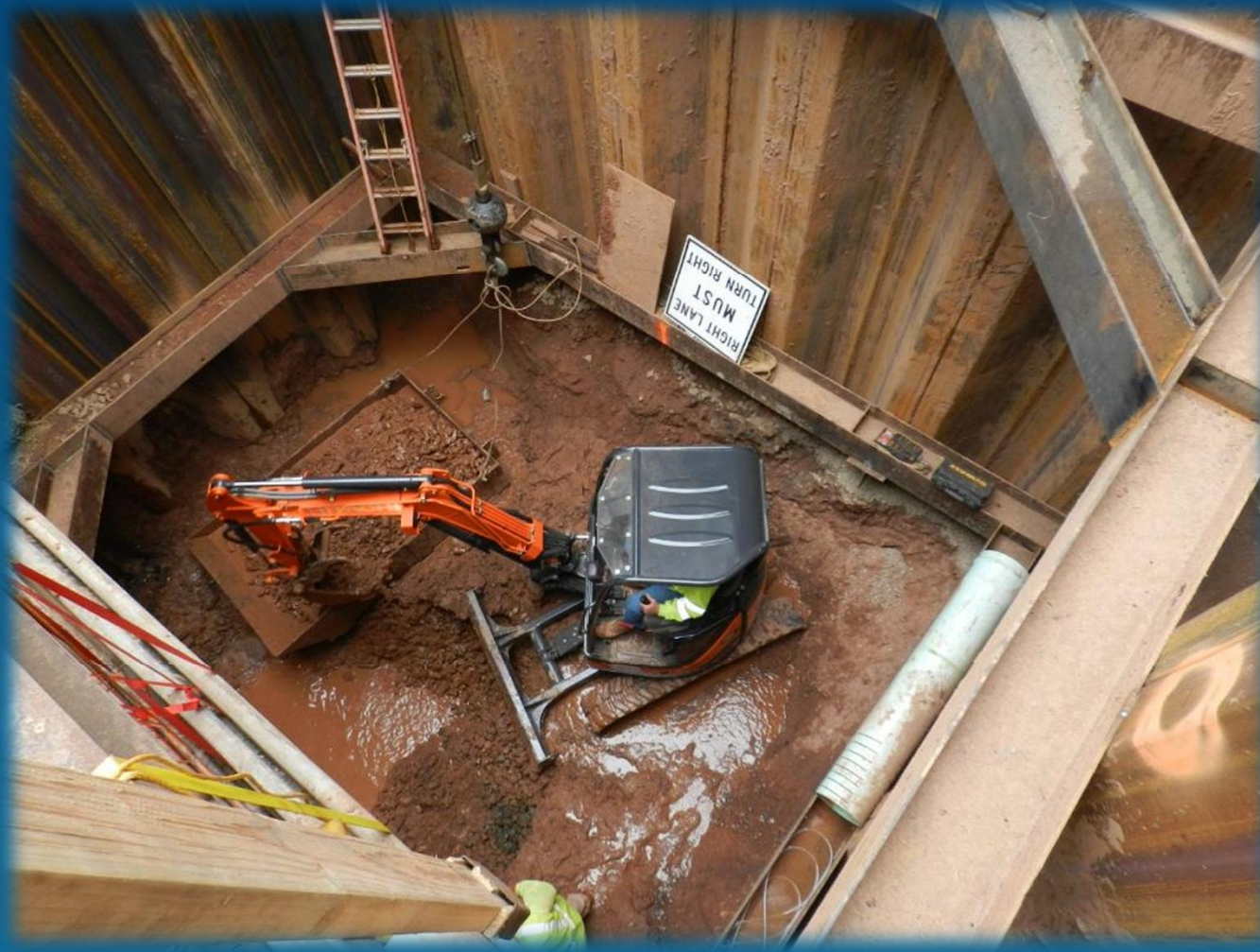
- 40 feet deep
- Designed as a precast structure and 12-foot vertical core
- Intermediate landing redesigned
- Contractor proposed alternate method



JSI Connection Construction



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QUESTIONS



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