

# OVER THE RIVER AND THROUGH THE...RIVER

Wednesday, March 5, 2:30-2:55

Track IX-Sewer/Water



**Underground Infrastructure Conference**

Construction. Rehabilitation. Asset Management.

March 4-6, 2025 | Houston, TX



# AGENDA

- Types of Installation
  - Aerial Crossing
  - Siphon
- Methods for Crossing Under a Creek
  - Open Cut
  - Tunneling



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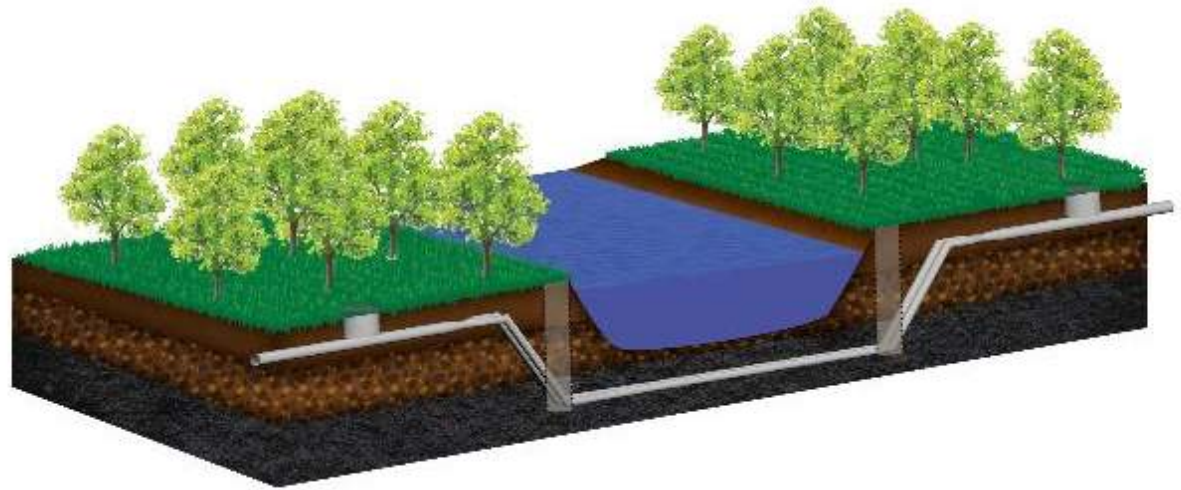
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# SIPHONS

- Internal Maintenance
- 3 FPS Velocity Constraints
- Double Barrel
- Minimum 6"
- Cleaning Appurtenances



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# CASE STUDY

- Year: 1985
- Material: DI
- Length: 225 LF
- Concrete Encased
- Plugged US
- Open DS

VIDEO





# AERIAL CROSSINGS

- External Maintenance
- Structural Design
- Hydrology Considerations
- Material Selection
- Bank Stabilization



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# CREEK CROSSINGS METHODOLOGY

- Open Cut
- HDD
- Microtunneling
- Hand Mining
- EPBM
- Auger Boring



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# OPEN CUT

- Cofferdam
- Flow Control
- Embedment
- Erosion Control
- Permitting



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# HORIZONTAL DIRECTIONAL DRILLING

- Limited Install Options
- Machine and Crew At Ground
- Stabilized Pilot Hole



# MICROTUNNELLING

- Can be Closed-Faced
- Suitable for Pressurized Groundwater
- Wide Range of Soil Conditions
- Crew in the Tunnel



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**UIC**  
CELEBRATING 30 YEARS 1995 - 2025



# HAND MINING

- Open Face
- Slow Process
- Stable Subsurface Conditions
- Risky
- Crew in the Tunnel





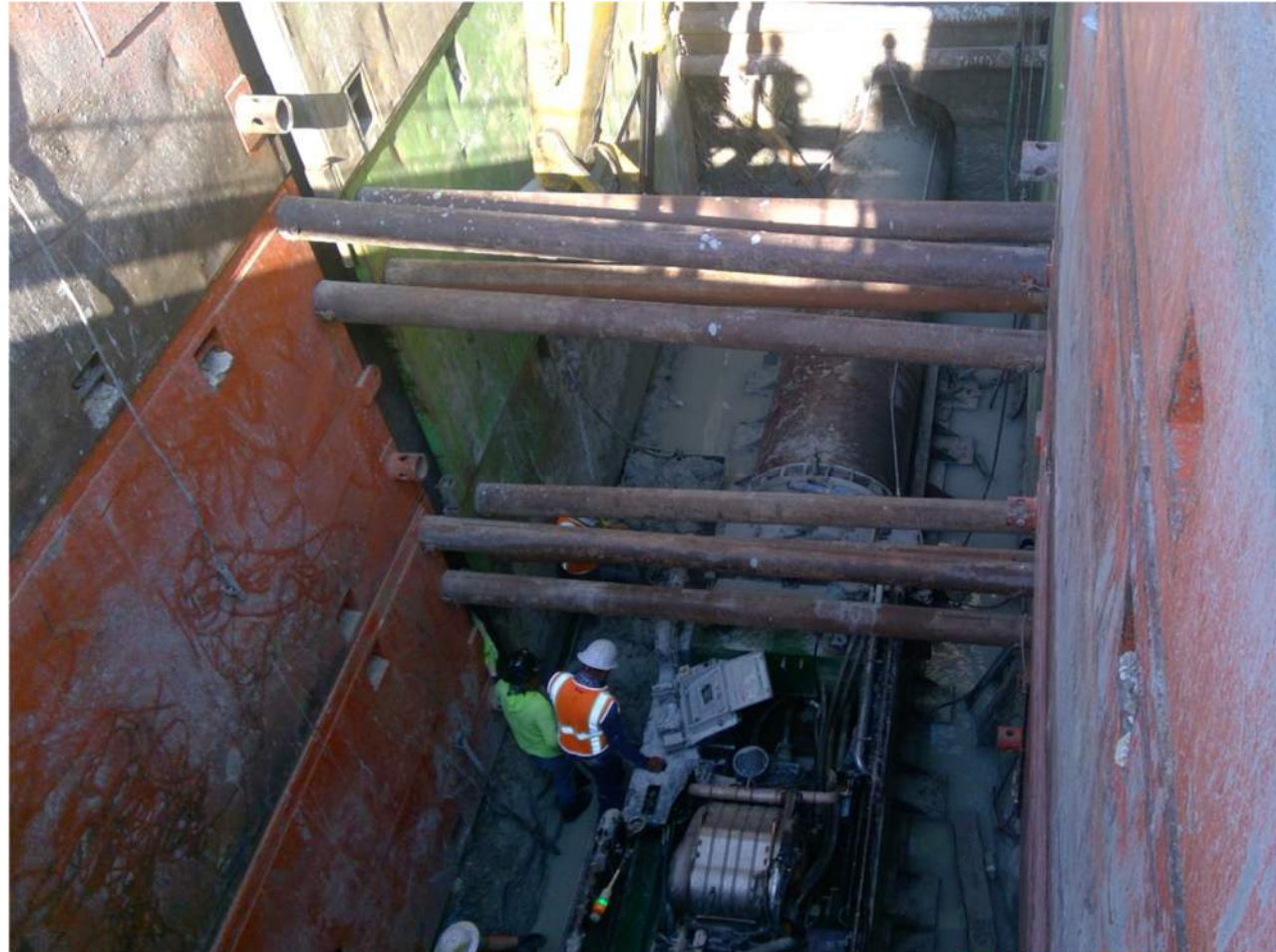
# EARTH PRESSURE BALANCING

- Closed System
- Keeps Water/Ground Stable
- Costly
- Crew in the Tunnel



# AUGER BORING

- Limited Drive and Diameter
- Encasement Pipe
- Jacking
- Alignment Variability
- Costly
- Crew in the Pit





# DESIGN CONSIDERATIONS

- Subsurface Conditions
  - Geotech Bores
- Tunnel Shafts
- Depth Under Water
- External Hydrostatic Pressure
- Erosion Control



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# DESIGN CONSIDERATIONS

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A background image showing a large, orange-colored pipe being installed in a trench. Workers in safety gear are visible around the pipe.

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The logo for the Underground Infrastructure Conference (OUIC) is displayed, featuring a stylized building icon. To the right of the logo is a banner celebrating 30 years from 1995 to 2025.

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**Newnam, Inc.**  
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Special Thanks to Farouq Esmail,  
P.E. | **HB Trenchless**



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