



THE Event For The Utility Infrastructure Industry

Underground Construction Technology
International Conference & Exhibition

What Young Professional Engineers, Contractors Need To Know

Lauren Kubin, PE | North Texas Municipal Water District

John Durbin | Trinity River Authority of Texas

Paul Banschbach, PE | Lockwood, Andrews & Newnam, Inc.

Tim Peterie | Insituform Technologies/Fiberwrap

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Wednesday, February 1, 2017



What you need to know: **Agenda**

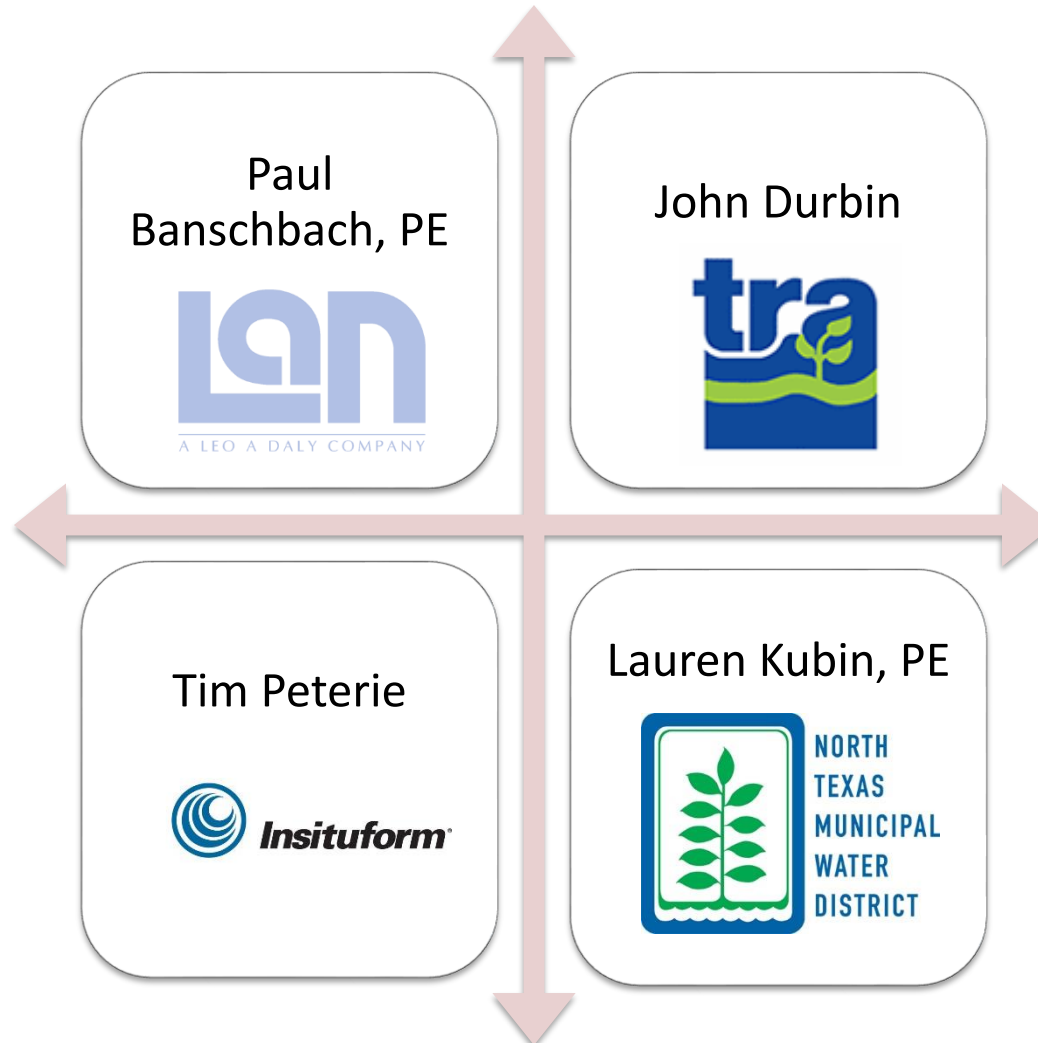
- **Introductions**
- **Trenchless Technology Overview**
- **Project Considerations**
- **Lessons Learned**
- **Key Takeaways**
- **Questions**



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What you need to know: **Introductions**





What you need to know: **Trenchless Overview**

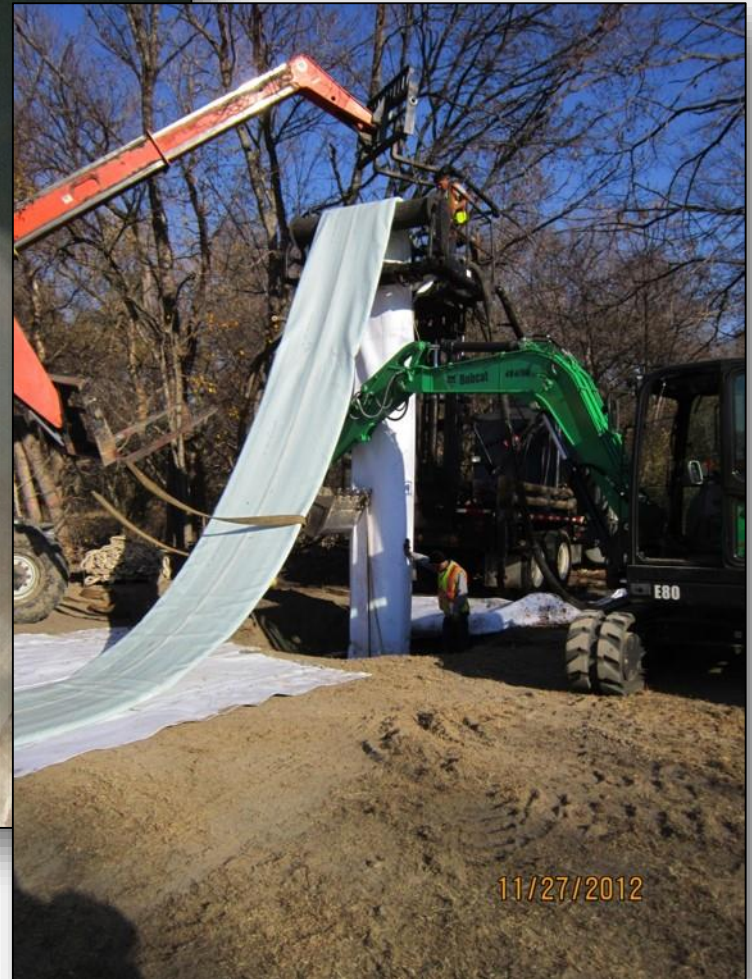
- **Cured-in-Place Pipe (CIPP)**
- **Pipe Bursting**
- **Sliplining**
- **Point Repairs**
- **Carbon Fiber**



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What you need to know: **Trenchless Overview**

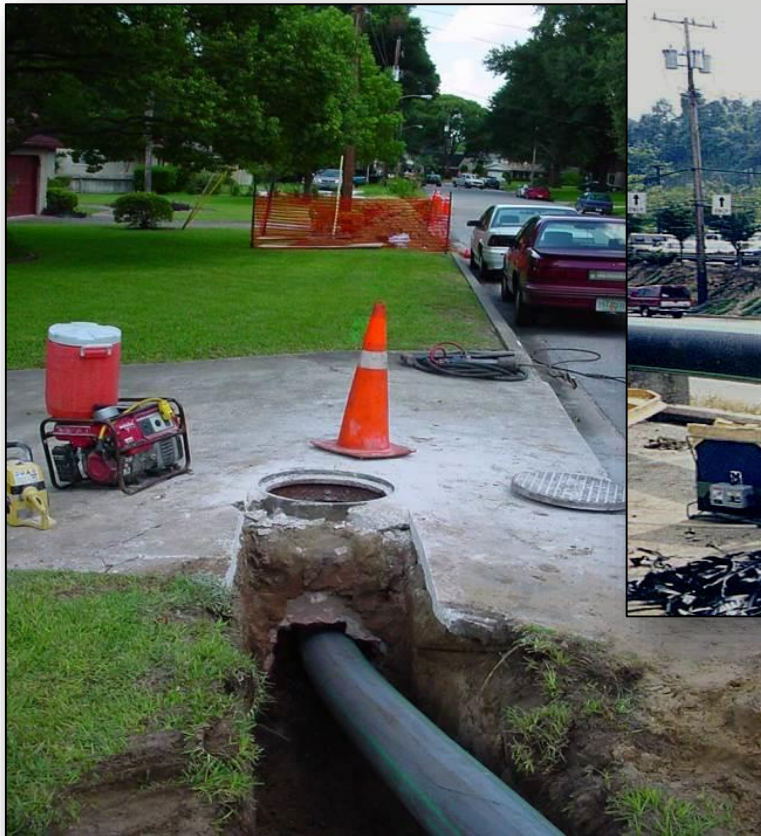




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What you need to know: **Trenchless Overview**





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What you need to know: Project Considerations

- **What do I need to know during condition assessment?**
 - Age of Data
 - Debris Levels
- **What do I need to pay attention to during design?**
 - Constructability
 - Access/Easements (ROE)
 - Getting into the Pipe
 - CIPP Design Loading requirements
 - Geotechnical..yes, even in trenchless design!
 - Permitting
 - Small diameter design vs. large diameter design



What you need to know: **Project Considerations**

- **What kind of bidding strategies can I use?**
 - Alternates
 - Alternative Delivery
 - Minimum Qualifications
 - Additional Bid Items
 - Emergency Response/Shutdown
- **What do I need to remember when planning construction?**
 - Bypass Pumping!
 - Traffic Control
 - Time of year
 - Review of submittals



What you need to know: **Project Considerations**

- **What about operations and long-term maintenance?**
 - TCEQ Requirements
 - Accessibility
 - Production Life Cycle
 - Maintenance and Inspection



What you need to know: Lessons Learned

- **Lines fail – loadings different than expected**
- **Environmental**
- **Bypass sizing**
- **Metering coordination flow range**



What you need to know: Key Takeaways

- **Don't boiler plate - every project is different, check your specs!**
- **Work with bidders during design**
- **Construction Access!!!**
- **Manage Expectations**
- **Think about whole project cost**
 - Bypass
 - Pre/post TV
 - Access
- **Think about the whole system during design**



QUESTIONS

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