



EDUCATE • TRAIN • RESEARCH • PUBLISH



TRENCHLESS NORTH AMERICA



The Official Magazine of the North American Society for Trenchless Technology



NASTT 2025 NO-DIG NORTH & ISTT INTERNATIONAL NO-DIG

OCTOBER 27-29, 2025 | VANCOUVER, BRITISH COLUMBIA

NASTT Member Organizations List Inside

FALL 2025

Volume 15 • Issue 4

nastt.org



MAG X GEO



PRECISION GPS DATA LOGGING

- » RTK-Enabled GPS with 1–3 cm Accuracy
- » GPS Tracking including Elevation
- » Automatically Record Rod-by-Rod Metrics



ON-THE-FLY FUNCTIONALITY

- » Views: Overhead Aerial, Side Profile Chart, Rod Table
- » Tools: Bore-To Steering, GPS Dropline, Pitch Guide
- » Logging: Rod Pitch, Roll, Temp, Depth, and GPS Data



REPORTING REDEFINED

- » Add Utility Crossings with Type, GPS, and Depth
- » Generate, Share, and Sync Reports from Receiver
- » Real-time Project Monitoring





EDUCATE • TRAIN • RESEARCH • PUBLISH

TRENCHLESS NORTH AMERICA



The Official Magazine of the North American Society for Trenchless Technology

FALL 2025 – VOLUME 15, ISSUE No. 4

8

JOIN US AT THE ANNUAL NASTT NO-DIG NORTH CONFERENCE IN VANCOUVER!

The 2025 No-Dig North Show October 27 – 29 at the beautiful Vancouver Convention Centre is a noteworthy signature event because it is held in conjunction with this year's ISTT International No-Dig Show. A unique and rare networking opportunity, this joint conference will feature two full days and an amazing five tracks of technical sessions on leading edge trenchless applications. Another highlight is the series of refreshed NASTT Good Practice Courses on the opening day of the conference. Join us for this special unparalleled occasion and some unforgettable times!



FEATURES

14 Q&A: David O'Sullivan

Long a mainstay and proponent of the trenchless technology industry in Western Canada, David O'Sullivan was one of the founding members of the North West chapter of North American Society of Trenchless Technologies in 1997. He served tirelessly as President and lifetime member of what is now the NASTT-BC Chapter volunteering his time organizing trade shows and informational sessions raising awareness of the many benefits of trenchless technology applications. David offers his well informed perspective on the current and future state of the trenchless world.

17 Morty's Trenchless Academy: Unseen Risks to Unseen Data

Horizontal Directional Drilling (HDD) has been the trenchless workhorse of the pipeline industry for decades. In the Western Canadian Sedimentary Basin (WCSB), HDD became the dominant method of pipeline installation across rivers as early as the 1980s. On average however, pipelines in the WCSB cross a landslide every 16 km, yet instrumenting every landslide is cost prohibitive. The industry needed a new tool. Ultimately, the solution wasn't gathering new data.

26 NASTT Member Organizations List

NASTT offers special recognition to its Corporate and Government, Utility and Education members in appreciation of their ongoing promotion of NASTT and the industry. The member lists are up to date as of September 2025. The NASTT Corporate, Government & Education Members are highlighted here, along with key contacts, websites and corporate logos – the NASTT community!

42 Don't Drain The Pond - Rehabilitating the City Of New Bedford's Grape Street Collector Sewer

This paper was selected as the Outstanding Paper – Rehabilitation from all the presentation at the 2025 NASTT No-Dig Show in Denver CO. The award-winning paper outlines a rehabilitation project undertaken by the City of Bedford MA to improve access and repair 2,000 LF of the Grape Street Collector, an historic brick and vitrified clay (VC) pipe sewer constructed in 1912. Completion of this project significantly reduced the I/I from the City's collector system.

DEPARTMENTS

- 4 Executive Director's Message
- 6 Welcome from NASTT Chair
- 12 NASTT 2025 Municipal Scholarships
- 20 Meet the NASTT Staff
- 22 NASTT Membership Benefits
- 38 Eye on Industry
- 58 NASTT Regional Chapters
- 60 NASTT Student Chapters
- 61 Events Calendar
- 63 Index of Advertisers

NASTT OFFICERS

Chair
Greg Tippet, P.Eng. – Senior Principal – Delivery Leader, Stantec Consulting Ltd.

Vice Chair
Andrea Long – Principal Engineer, Aurora Water

Treasurer
Dan Buonadonna, P.E. – Senior Technology Leader, Jacobs Engineering Group

Secretary
Kim Hanson, P.E. – Senior Associate, Hazen & Sawyer

Officer-at-Large
Chris Knott – Director of Business Development & Estimating, BTrenchless

Immediate Past Chair & International Representative
Matthew Wallin, P.E. – Partner & Senior Project Manager, Bennett Trenchless Engineers LLP

2025 BOARD OF DIRECTORS

Brian Avon – Vice President, Carollo Engineers
Kevin Bainbridge – Vice President, Robinson Consultants
Jeff Boschert – President, National Clay Pipe Institute
Andrew Costa – Vice President, Sales, Insituform Technologies, LLC
Todd Kilduff – President, Kilduff Underground Engineering Inc.
John Kraft IV Ph.D. – Research Scientist, Adjunct Professor, Trenchless Technology Center (TTC)
George Mallakis – Regional Manager, TT Technologies Inc.
Stephanie Nix-Thomas, P.E. – President, Claude H. Nix Construction Co.

Carl Pitzer – Director, Trenchless Markets, Thompson Pipe Group
Chris Schuler – Vice-President, Operations, Underground Solutions
Eric Schuler – Deputy Commissioner, Onondaga County Dept. of Water Environment Protection
Andrew (Drew) Sparks – Director of Engineering/ Principal Geotechnical Engineer, Integrated Trenchless Engineering Inc.
Tucker Toelke – Director of Alternative Delivery, Michels Preconstruction Services, Inc.
Jim Williams, P.E., PMP – Senior Consultant, Brierley Associates

NASTT STAFF

Executive Director
Matthew Izzard – mizzard@nastt.org

Conference & Sales Director
Jessie Clevenger – jclevenger@nastt.org

Conference Services Director
Michelle Hill – mhill@nastt.org

Marketing & Brand Manager
Jenna O. Hale – jhale@nastt.org

Membership Outreach & Database Manager
Carolyn Hook – chook@nastt.org

Education Manager
Kari Webb – kwebb@nastt.org

Regional Chapter Manager
Victoria Cox – vcox@nastt.org

Conference Program Manager
Amy Shipp – ashipp@nastt.org



662 Dudley Avenue
Winnipeg, MB R3M 1R8

EDITORIAL:

Andrew Pattison
204.275.6946
marcomap@shaw.ca

ADVERTISING SALES:

Bert Eastman
204.997.6371
bert@atobpublishing.com

Wayne Jury
204.803.1300
waynej@atobpublishing.com

harper media
your social media strategy & web marketing partner

700 - 200 Main Street
Winnipeg, MB R3C 1A8

DIRECTOR:

Aaron Harper
204.318.1121 xt. 101
aharper@harpermedia.ca

LAYOUT & DESIGN:

Joel Gunter
204.318.1121 xt. 108
joel@harpermedia.ca

© Copyright 2025 A to B Publishing Inc. All rights reserved. Contents of this publication may be reproduced or transmitted with written permission from the Publisher. Views expressed in this publication are not necessarily those of NASTT or of A to B Publishing Inc. • Printed 10/25 in Canada

Canada Post Publications Mail Agreement #43839013

Return undeliverable Canadian addresses to: marcomap@shaw.ca

Executive Director's Message



WELCOME TO THE FALL 2025 EDITION OF NASTT'S TRENCHLESS NORTH AMERICA

Dear NASTT Members and Trenchless Advocates:

As we look ahead to Fall and Thanksgiving, I am reminded once again that the true strength of the North American Society for Trenchless Technology (NASTT) lies in its members. Our community of volunteers and corporate partners continues to drive innovation and growth across the trenchless industry. It is through your commitment, expertise, and passion that NASTT remains a leading force in advancing trenchless solutions across Canada, Mexico, the United States of America and beyond.

This issue of **Trenchless North America** focuses on YOU – our amazing members. As we highlight your business, we also continuously work to bring you more benefits, greater value and investment in the future.

This year, we are especially excited to showcase that spirit of collaboration on the world stage. For the first time since 2017, NASTT will host the ISTT International No-Dig alongside the 2025 NASTT No-Dig North in Vancouver, British Columbia. This combined event will bring together trenchless professionals from every corner of the globe – a unique opportunity to share knowledge, explore new technologies, and strengthen the international trenchless community.

We are proud to welcome the International Society for Trenchless Technology (ISTT), their staff, Board, and Council, along with the many international exhibitors and delegates who will join us in Vancouver. Together, we will create an unparalleled gathering that reflects both the global importance of trenchless methods and the leading role our North American members play in shaping the industry's future.

I encourage every NASTT member to be part of this historic occasion. Whether you are attending to learn from the technical sessions, to connect with colleagues and clients, or to explore the largest collection of trenchless technologies under one roof, your participation will help make Vancouver an event to remember.

On behalf of the NASTT Board of Directors, I thank you for your continued membership and support. We look forward to welcoming you – and the world – to Vancouver in October 2025.

Enjoy your read!

Matthew Izzard, Executive Director
North American Society for Trenchless Technology (NASTT)
mizzard@nastt.org

*“NASTT remains
a leading force in
advancing trenchless
solutions.”*

*“Showcase that spirit
of collaboration on
the world stage.”*

*“Thank you for your
continued membership
and support.”*



YOUR BYPASS CHALLENGES. OUR PUMP SOLUTIONS.

EXPERTISE AND EQUIPMENT FOR EVERY FLOW SCENARIO

Don't let sanitary sewer overflows flood your budget or your streets. Sunbelt Rentals provides comprehensive strategies to safeguard your municipality's valuable collection system. With our advanced equipment and expertise, our Pump Solutions team can help you maintain system integrity, minimize environmental impact, and avoid costly disruptions — all while keeping your infrastructure projects on track.

VISIT US IN DENVER, CO AT NASTT'S NO DIG



SCAN HERE TO LEARN
TIPS TO PLAN AND MITIGATE
SANITARY SEWER OVERFLOWS.

[SUNBELTRENTALS.COM](https://www.sunbeltrentals.com)



“This is truly a must-attend event.”

“Together, we are shaping the future of underground infrastructure.”

EXCITING OPPORTUNITIES AHEAD!

Dear Members and Friends of NASTT!

As Chair of the NASTT Board of Directors, it is both an honor and a privilege to share with you the exciting opportunities ahead for our trenchless community. The coming months will be a defining period for NASTT and our global partners as we bring together industry professionals, researchers, and innovators to advance the science and practice of trenchless technology.

This fall, we are thrilled to host the **NASTT 2025 No-Dig North & ISTT International No-Dig**, October 27–29 in Vancouver, British Columbia. This unique collaboration marks the first time that the International No-Dig event will be held in conjunction with No-Dig North, and it promises to be an extraordinary gathering. With delegates and exhibitors from around the world, the Vancouver conference will showcase the latest innovations in both installation and rehabilitation, highlight cutting-edge research, and provide countless opportunities to share best practices. From technical sessions and training courses to networking events set against the stunning backdrop of Vancouver, this is truly a must-attend event for anyone committed to advancing trenchless technology.

Looking ahead, we are equally excited to welcome you to sunny California for the **2026 No-Dig Show**, March 29–April 2 in Palm Springs. Known as the premier trenchless technology conference in North America, the No-Dig Show continues to set the standard for technical excellence and industry collaboration. The Palm Springs event will offer a robust program of peer-reviewed papers, industry panels, an expansive exhibit hall, and unparalleled networking. It will also serve as an important platform to recognize and celebrate the achievements of trenchless professionals and organizations who are pushing our industry forward.

Beyond these flagship conferences, NASTT remains committed to providing year-round education and engagement opportunities. Our highly regarded **Good Practices Training Courses** continue to deliver practical, real-world knowledge to professionals across North America. These courses, taught by volunteer experts, are designed to equip attendees with the tools and skills they need to apply trenchless solutions effectively and responsibly. Whether you are new to trenchless technology or an experienced practitioner, our training programs are an invaluable resource. Visit <https://nastt.org/training/upcoming-events/> for the current offerings.

Equally vital are the activities of our **Regional Chapters**, which provide opportunities for trenchless professionals to connect locally, share ideas, and collaborate on projects that make a difference in their communities. These chapters host workshops, networking events, and technical sessions that strengthen our industry from the ground up and ensure that trenchless innovation continues to thrive across North America.

As we move forward, I encourage you to take full advantage of the opportunities NASTT offers, whether that means joining us in Vancouver this October, planning ahead for Palm Springs in 2026, enrolling in a training course, or engaging with your local chapter. Our strength as an organization lies in the dedication, expertise, and passion of our members. Together, we are shaping the future of underground infrastructure.

On behalf of the NASTT Board of Directors, thank you for your ongoing support and commitment to trenchless technology. I look forward to seeing you in Vancouver, Palm Springs, and at NASTT events across North America.

Greg Tippet

Greg Tippet P. Eng., Board Chair
North American Society for Trenchless Technology (NASTT)

Is reline a viable option for your project? Find out today using the online **Contech Reline Tool**.



Reline Done Right™

With over 75 years of reline experience, Contech Engineered Solutions partners with owners, designers, and installers to develop permanent, fully structural solutions based on time-proven design methods. We know what works and what doesn't, and we don't play games with the hydraulics, structural design, or long term performance. Knowing pipe assessment, structural design & hydraulic analysis is what we do. The result is the right solution for your project needs – done right, on time and under budget.

- Storm Sewers
- Sanitary Sewers
- Culverts & Structures
- And More





UNDERGROUND INFRASTRUCTURE SUSTAINABILITY:

**No-Dig North, Vancouver Convention Centre
October 27 - 29, 2025**

*Explore the Future of Trenchless Innovation at the
NASTT 2025 No-Dig North & ISTT International No-Dig*

Join industry leaders from across North America and around the world at the 2025 No-Dig North & ISTT International No-Dig conference, happening October 27-29 at the Vancouver Convention Centre. No-Dig North is an annual event that brings together professionals in engineering, construction, manufacturing, and municipal planning to exchange ideas and discover cutting-edge trenchless technologies that support sustainable, cost-effective infrastructure development. With this year's partnership with ISTT, the conference brings a global vision of trenchless technology into focus.

No-Dig North is the largest trenchless technology conference in Canada where municipalities, contractors, consulting engineers, public utilities, industrial facilities, and damage prevention professionals attend to learn new techniques that will save money and improve infrastructure. This show offers topic tracks over the course of two days with peer-reviewed, non-commercial presentations, including case studies detailing environmentally friendly trenchless solutions and cost-saving opportunities. Additionally, an exhibition hall and networking events are offered throughout the week for opportunities to exchange ideas with colleagues. NASTT's suite of Good Practices Courses is offered on the first day of the conference as well.



Networking and access to industry expertise is a central feature of the annual No-Dig North



The exhibit hall features the latest innovations in trenchless technology from around the globe

For information and registration link please visit:
<https://nastt.org/no-dig-north/>



Meet Us in Vancouver

October 27-29 | Vancouver Convention Centre

No-Dig North is the premier annual conference focused on trenchless technology in Canada. Attendees include engineers, contractors, manufacturers, and municipal representatives who seek to learn about and discuss sustainable, cost-effective solutions for infrastructure needs. The 2025 No-Dig North and ISTT International No-Dig conference is coming to Vancouver, BC at the Vancouver Convention Centre, October 27-29, 2025.

Learn more at
nastt.org/no-dig-north



No-Dig North is owned by the North American Society for Trenchless Technology (NASTT), a not-for-profit educational and technical society established in 1990 to promote trenchless technology for the public benefit. For more information about NASTT, visit our website at nastt.org.

No-Dig North Schedule Summary



Saturday, October 25, 2025

NASTT Board Meeting

8:00 AM – 3:00 PM – Room 8

Sunday, October 26, 2025

ISTT Board Meeting

9:00 AM – 10:00 PM – Room 8

ISTT Council Meeting

10:30 AM – 3:30 PM – Room 8

ISTT Chairman's Dinner (*ticketed event*)

5:30 PM – 9:30 PM - Offsite

Monday, October 27, 2025

Attendee & Exhibitor Registration

7:00 AM – 6:00 PM – East Lobby

NASTT's Introduction to New Installations Good Practices Course

8:00 AM – 12:00 PM – Room 10

NASTT's DSPT Good Practices Course

8:00 AM – 5:00 PM – Room 11

NASTT's HDD Good Practices Course

8:00 AM – 5:00 PM – Room 12

NASTT's CIPP Good Practices Course

8:00 AM – 5:00 PM – Room 13

GLSLA Regional Chapter Meeting

12:00 PM – 1:30 PM – Room 7

Northwest Regional Chapter Meeting

12:00 PM – 1:30 PM – Room 9

BC Regional Chapter Meeting

12:00 PM – 1:30 PM – Room 16

NASTT's Introduction to Rehabilitation Good Practices Course

1:00 PM – 5:00 PM – Room 10

Regional Chapter Chair Meeting

4:30 PM – 5:30 PM – Room 9

Student Orientation Meeting

4:30 PM – 5:30 PM – Room 8

Exhibit Hall Open & Networking Reception

5:30 PM – 7:30 PM – East Exhibit Hall AB

Tuesday, October 28, 2025

Attendee & Exhibitor Registration

7:30 AM – 5:00 PM – East Lobby

Breakfast & Keynote Address

8:00 AM – 9:45 AM – East Exhibit Hall A

Technical Paper Session (Track 1)

10:00 AM – 11:55 AM – Room 8

Technical Paper Session (Track 2)

10:00 AM – 11:55 AM – Room 10

Technical Paper Session (Track 3)

10:00 AM – 11:55 AM – Room 11

Technical Paper Session (Track 4)

10:00 AM – 11:55 AM – Room 12

Technical Paper Session (Track 5)

10:00 AM – 11:55 AM – Room 13

Exhibit Hall Open & Lunch

12:00 PM – 5:00 PM – East Exhibit Hall AB

Lunch Concessions

12:00 PM – 3:00 PM – East Exhibit Hall AB

Technical Paper Session (Track 1)

2:30 PM – 3:55 PM – Room 8

Technical Paper Session (Track 2)

2:30 PM – 3:55 PM – Room 10

Technical Paper Session (Track 3)

2:30 PM – 3:55 PM – Room 11

Technical Paper Session (Track 4)

2:30 PM – 3:55 PM – Room 12

Technical Paper Session (Track 5)

2:30 PM – 3:55 PM – Room 13

Exhibit Hall Social Hours

3:00 PM – 5:00 PM – East Exhibit Hall AB

Gala Awards Dinner (*ticketed event*)

6:00 PM – 10:00 PM – East Exhibit Hall A

Wednesday, October 29, 2025

Attendee & Exhibitor Registration

7:00 AM – 2:00 PM – East Lobby

Coffee Break

8:00 AM – 8:30 AM – Session Area

Technical Paper Session (Track 1)

8:30 AM – 10:55 AM – Room 8

Technical Paper Session (Track 2)

8:30 AM – 10:55 AM – Room 10

Technical Paper Session (Track 3)

8:30 AM – 10:55 AM – Room 11

Technical Paper Session (Track 4)

8:30 AM – 10:55 AM – Room 12

Technical Paper Session (Track 5)

8:30 AM – 10:55 AM – Room 13

Exhibit Hall Open & Lunch Concessions

11:00 PM – 2:30 PM – East Exhibit Hall AB

Technical Paper Session (Track 1)

2:30 PM – 4:25 PM – Room 8

Technical Paper Session (Track 2)

2:30 PM – 4:25 PM – Room 10

Technical Paper Session (Track 3)

2:30 PM – 4:25 PM – Room 11

Technical Paper Session (Track 4)

2:30 PM – 4:25 PM – Room 12

Technical Paper Session (Track 5)

2:30 PM – 4:25 PM – Room 13

No-Dig North Networking Events



The NASTT No-Dig North offers numerous **networking events** and a chance to enjoy a little fun with industry leaders in addition to extensive track sessions, educational opportunities and exhibit floor.



Exhibit Hall Opening & Networking Reception

Date: Monday, October 27, 5:30 PM – 7:30 PM

Location: East Exhibit Hall AB

About: There is no better way to celebrate the start of the NASTT 2025 No-Dig North & ISTT International No-Dig in Vancouver than joining us for welcome drinks and appetizers as we open the hall! Kick off your conference with excitement as we all look forward to the days ahead greeting friends and welcoming new faces. Be sure to check in on Monday to get your attendee badge and drink tickets.

This event is open to everyone and includes 2 drink tickets: Join us!



Opening Breakfast & Keynote Address

Date: Tuesday, October 28, 8:00 AM – 9:45 AM

Location: East Exhibit Hall A

About: Full Conference attendees are invited to the opening breakfast to visit with colleagues and learn all that is in store for the week! Breakfast promptly served at 8:00 AM. Keynote address to follow. You will want to arrive on time to get your seat!

Breakfast is first come, first served. Be sure to check in on Sunday to get your attendee badge.



Exhibit Hall Social Hours (Cash Bars)

Date: Tuesday, October 28, 3:00 – 5:00 PM

Location: East Exhibit Hall AB

About: Join colleagues in the exhibit hall after an action-packed day of learning and networking to continue those conversations and switch gears before joining us at the Gala Awards Dinner later in the evening! Cash bars will be located throughout the exhibit hall for all attendees to enjoy a refreshing beverage and socialize on our buzzing exhibit hall floor.

Open to everyone with an exhibit hall pass!



Gala Awards Dinner (Ticketed Event)

Date: Tuesday, October 28, 6:00-10:00 PM

Location: East Exhibit Hall A

About: This formal celebration features a complimentary cocktail reception, plated dinner, awards ceremony and continued connection with your global trenchless community. Come dressed to impress for a night to remember—black tie encouraged!

Cost: \$75 with early registration by October 1, 2025. \$100 after October 1.

The Gala Awards Dinner is a ticketed event taking place during the NASTT 2025 No-Dig North & ISTT International No-Dig. Purchase your ticket(s) when you register to attend the conference.

NETWORKING EVENTS | EXHIBIT HALL | TECHNICAL SESSIONS

<https://nastt.org/no-dig-north/>

NASTT Municipal & Public Utility Scholarship

APPLICATION DEADLINE: NOVEMBER 1



The NASTT No-Dig Show Municipal & Public Utility Scholarship awards employees of North American municipalities, government agencies and utility owners who have limited or no training funds with a Full Conference and Exhibition registration to the NASTT No-Dig Show. Hotel accommodations for three nights at the host hotel are provided for selected applicants. Recipients have full access to all exhibits and technical paper sessions.

Join us in Palm Springs! Applications should be submitted by November 1, 2025 at nastt.org/no-dig-show



**NORTH AMERICAN SOCIETY FOR
TRENCHLESS TECHNOLOGY**

The No-Dig Show is owned by the North American Society for Trenchless Technology (NASTT), a not-for-profit educational and technical society established in 1990 to promote trenchless technology for the public benefit. For more information about NASTT, visit our website at nastt.org.

HDPE PE4710 PIPE

The Best Choice for Water Systems

	TOP 10 Features & Benefits	HDPE	D. Iron	Sample References
1	Applications: Potable Water (Lead Free), Raw Water, Reclaimed Water, and Wastewater	✓	✓	AWWA C901, C906, C151, and NSF 61 + Health Effects of HDPE Pipes and Fittings for Potable Water Applications, NSF 2024
2	Open Cut Construction: Design and install per AWWA Standards and Manuals	✓	✓	AWWA M55, M41 + MAB-3, MAB-6
3	Trenchless Construction: Material of choice for HDD, Creek Crossings, Pipe Bursting, Sliplining, and Compression Fit	✓	✗	ASTM F585, F1962, F3508 + MAB-5, MAB-7, MAB-11
4	Fully Restrained Joint-Free System: Minimize need for fittings to facilitate horizontal and vertical deflections	✓	✗	AWWA M55, M41
5	Longevity & Corrosion: Pipes, Fittings, and Joints have the least potential for corrosion or tuberculation	✓	✗	Durability and Reliability of Large Diameter HDPE Pipe for Water Main Applications, EPA/WRF/WERF 2015 + The Critical Need for Corrosion Management in the Water Treatment Sector, NACE 2019 + PPIPPACE.com + Long-Term Aging of Polyethylene Pipes, UKWIR 2020
6	Flow Capacity: New pipes have similar flow capacity per AWWA Standards and Manuals	✓	✓	AWWA M55, C906, M41 + PPIPPACE.com
7	Water & Energy Conservation: Fused joints have zero allowable water leakage, zero infiltration, and lowest carbon footprint	✓	✗	AWWA M55, M41 + ASTM F2620, F3190, F3565 + MAB-1, MAB-2, MAB-8 + TEPPFA Polyethylene Plastic Pipe Systems vs Ductile Iron Environmental Impact Comparison, TEPPFA EPD Calculator
8	Cost Effective: Has the lowest initial cost, lowest life cycle cost, and lowest restoration cost for trenchless installations	✓	✗	Life Cycle Analysis of Water Networks, CSIRO 2008 + Annual Drinking Water Quality Report for 2014, Kittery Water District, 5/31/2015
9	Resilient: Ability to resist ground movements due to droughts, freeze/thaw, earthquakes, hurricanes, with ability for flow control/squeeze off	✓	✗	Recent Earthquakes: Implications for U.S. Water Utilities, WRF 2012 + Polyethylene Pipeline Performance Against Earthquake, Kubota 2018 + MAB-9
10	Permeation/BTEX: Pipes and elastomeric joints need to be properly engineered for contaminated conditions	✗	✗	AWWA C901/C906 and C111/C151, Sec. 4

Additional information including MAB-3 Model Spec Guide can be found at
www.plasticpipe.org/mabpubs





with
David O'Sullivan

Long a mainstay and proponent of the trenchless technology industry in Western Canada, David O'Sullivan founded PW Trenchless in January 2000, which continues to grow and lead the trenchless construction sector in British Columbia. Since then, David has been working tirelessly to expand his expertise across multiple trenchless methodologies. David was one of the founding members of the North West chapter of North American Society of Trenchless Technologies in 1997. Encompassing Alberta, Washington & British Columbia, he served as President and now is a lifetime member. He is still active in what is now the NASTT-BC Chapter volunteering his time organizing trade shows and informational sessions at various engineering firms and government offices.

David offers a valuable well informed perspective on the current and future state of the trenchless technology industry, based on his lifetime of experience in growing and developing the trenchless footprint in British Columbia.

What first inspired you to become interested in construction & engineering field, particularly underground construction?

I never wanted to do Municipal Engineering. I wanted to get into Structural Engineering, but when I came to Canada in 1978, I ended up with Mecman Engineering in Invermere, a small consulting company working in utilities. I remember, upon seeing a foundation, being built for a wine cellar, with no rebar, commenting to the contractor that he needed rebar. I then reported back to my old Boss at the time, and he told me to "keep quiet", as I was not qualified to give advice. Oh, the innocence of youth.

As Mecman did not get the work on the Panorama Ski Hill (and it turned out this was why they hired me), I was laid off after 6 months and ended up moving to Vancouver. Ironically, in 1980 I started with Morgan Stewart, who did get the Panorama contract, and I worked on the planning and design of that project for 3 years. I finished Morgan Stewart in 1986 and moved into the contracting side of the business, with P Baratta Construction. Within about 2 years I was the CEO (although we did not use titles), moving the company to utility replacement work for cities, and away from private work.

Outline your experience of first being introduced to trenchless technology methods and applications.

In 1993 we bid on the installation of some sewer work in the Queensborough area of New Westminster, BC. The job was



"In 1993 we proposed to use HDD and blew away the competition."

designed for open cut, but we proposed to use HDD and blew away the competition. The city extended our contract for 3 years and we installed about 10km of gravity sewers using HDD. This was a first, as the walkover control systems were only in development at the time with a Seattle-based company. This is when my light came on and we continued with the drilling subcontractor to complete numerous large Municipal HDD projects, including two crossings of the Fraser River, and a 900mm gravity sewer for the GVRD (Metro Vancouver). We even tried a 3km gravity sewer in the City of Abbotsford, which at the time was Moon shot (or even a Mars shot), and unfortunately failed. Our last HDD contract was in 1999, the crossing of False Creek in Downtown Vancouver, which was the seismic fireline for the City.

Our first Pipe Bursting trial was in 1995 in New Westminster, at the start of the City's 20-year program of sewer replacement using bursting and CIPP. In 1998, we completed the first Micro tunnel project in BC using an Iseki Machine, and the first job in North America with Myers pipe.

By 1999 the owner of P Baratta was not totally comfortable with the trenchless market. Therefore, at the end of that year

"I'm more interested in challenging engineering projects."

I approached Pat Barratta for permission to set up my own company, PW Trenchless, within the structure of his company, to specialize in trenchless alone.

This worked very well, as Pat really was ready to wind down his company (he was 70), but still wanted to ensure his family remain employed. P Baratta stopped operating in 2004 and PW Trenchless was on its own.

The new company went for strength to strength and was turning over \$5m annually, within 5 years. We have developed into leaders of Sliplining and we support Pipe Bursting. We have also recently entered the HDD market, and support other trenchless experts in fields such as CIPP, guided auger boring and pipe jacking. After 25 years we have grown to a \$16m a year company, which I think is an achievement, considering we operate in a market just shy of 6m people, not a California or Texas population. This is enough for me, as I'm more interested in challenging engineering projects than becoming a large company, however the structure is in place to grow further, should the present or future management wish to achieve this.

How did you first get involved with NASTT? What are some of the goals and initiatives you would like to see NASTT pursue?

I was, with about ten others, a founding director of the NASTT Northwest Chapter in 1997 at the No Dig Conference in Seattle. The reason for NASTT is to educate and set the standards for the use and applications of the various trenchless technologies. Our catchment area was broad, with the chapter covering from Oregon to Saskatoon. One of our members, Marek Pawlowski, introduced the WRC system of CCTV inspection and operator certification in the late 90s, which allowed the BC part of the chapter to boom.

In 2000, by working with the NASTT chair, I was able to split off the BC group as the only Provincial or State chapter in North America. At that time, the US part of the NASTT NW Chapter was not very active and the distances to Edmonton meant that Lunch and Learns etc. were simply not feasible. The chapter continues to educate and set standards to this day in BC, and I am still a director. However, I have taken a step back recently, encouraging others to take the lead where possible. I feel this is key to a healthy future for the organization, but I remain in the background if needed.

"NASTT-BC continues to educate and set standards to this day."

I would like to see NASTT continuing to be proactive in educating the masses on trenchless, both on a regional and national level. For example, NASTT should explore new ways to get knowledge in the mind of owners and decision makers. Organizations such as NASTT can play a key role in advancing our industry and advocating for more trenchless inclusion in engineering curricula.

What are your thoughts on the current state of the trenchless industry? What areas do you see evolving in STEM education and post-secondary academics?

Trenchless technologies and methods have come a long way from their roots. Back when I was in college in Ireland, Eric Wood was still covered in resin, Ryan/British Gas were still trying different bursting processes in the UK, Charrington had only been drilling for 6 or 7 years in California, and the Japanese still led in Microtunneling. That is the change in just one career.

Having worked with the University of Alberta, Queens and Waterloo Universities in Canada, I note that utilities in general continue to form just a small part of Civil Engineering. When presenting, I often joke that Trenchless is taught in a single 60-minute lecture, once, in Year 3 of engineering programs. As more universities move to include utilities and trenchless it will grow, however the reach of these programs is limited. I do a couple of lectures a year in BC, but again, my reach is limited to those who attend. It would be great to see trenchless forming a substantial part of the standard civil engineering curriculum, perhaps even a module or course on its own, but I don't think we are quite there yet.

Is the trenchless industry generally doing a good job of attracting young professionals? What do you think can be done to better engage students and young professionals in the trenchless industry?

Because there is little or no mention in college curriculums (in BC, at least), young engineers have little to no exposure to trenchless upon graduating. The three universities I work with (Queens, Waterloo and U. O. Alberta) do teach trenchless as a solution to our utility challenges, but I feel that the academic conviction is based on only 5 or 6 professionals in total. God help us if they leave.

I think that increasing emphasis on sustainability in utilities projects could form a bigger part in education programs in

“Organizations such as NASTT can play a key role in advancing our industry.”

future. Perhaps introducing modules or projects focused on sustainability, would be another great opportunity for engineering students to be exposed to trenchless technologies, and the positives they can bring. It would be great to see and hear young students come up with their own ideas for improvements to existing practices, and as a result, to have the industry learn lessons and make further advancements.

Biggest challenges facing the trenchless industry today? Has acceptance and understanding of trenchless technology improved?

To have the various trenchless technologies accepted, a contractor must be successful. To do that they have to do their homework and prepare. One bad job can kill the good value of five or ten good projects. Trenchless projects are always in the spotlight, so we must perform well and showcase the advantages and any lessons learned.

We need the municipalities and consultants to be educated and to exercise care and diligence when tendering trenchless programs or standalone projects. Set the standards properly, set the experience guidelines strictly and use those guidelines to control who does the work. Reach out and discuss with contractors for their thought or suggestions. Price alone is not the answer. You do not buy kitchen cabinets for your house based on price alone. At least, not if you intend to live there.

I would like to see consultants and owners asking more questions of the contractors during the construction process. This would cause the contractor to up their game and for potential problems to be seen ahead of time. This could be used to develop a deeper knowledge by already thinking of other related projects and how to make them better.

We also need to educate the public and the politicians in numerous ways as to the benefits of trenchless, from the 90 percent reduction in carbon emissions, to the vastly reduced degradation to asphalt because of the lack of utility cuts, to the reduced traffic disruption. I feel that trenchless also ties in very well with asset management and the repairs/rehabilitation that comes from that asset management.

“Witnessing progress is another big positive.”

Utilities are a funny object in our society. Their design has not changed in 2000 years or so, therefore as they reach the end of their service life, rehabilitation is a feasible option, while their function is still acceptable.



The function and design of pipes has changed very little in the last 2000 years

On the other hand, the functionality of buildings, bridges and various other infrastructure can change in less than 100 years, therefore full replacement is required much more often. Think about the functionality of a bridge. In the 1910s it may have designed to accommodate the space and loading from a horsedrawn wagon, whereas in the 2020s the same bridge may be expected to accommodate a 45-tonne truck.

What do you personally enjoy most about working in the trenchless technology field?

One of the most enjoyable and elements of trenchless, is the ever-growing number of “tools” available within the “toolbox”. It’s fun to tackle challenges because there are usually several different ways of achieving the goals of project, and sometimes this involves thinking outside the box or combining multiple different trenchless methods. Brainstorming multiple approaches to a project, based on the information shared is engaging and rewarding, and is an approach I have instilled into the team at PW.

Witnessing progress is another big positive to this industry. Trenchless technologies are continuing to evolve, new methods are coming out all the time, and old technologies are becoming better. Take the pipe bursting field, we are proposing that the guidelines now set by NASTT and the IPBA are too conservative, based on the work we have completed. It is certainly not a static industry.



From Unseen Risks to Unseen Data:

The Inertial Measurement Unit (IMU) Transformed Geohazard Risk Management for HDDs

By: Jeremy Groves, M.A.Sc., P.Eng.,
Senior Geotechnical Engineer, BGC Engineering Inc.

Horizontal Directional Drilling (HDD) has been the trenchless workhorse of the pipeline industry for decades. In the Western Canadian Sedimentary Basin (WCSB), HDD became the dominant method of pipeline installation across rivers as early as the 1980s – and it's easy to understand why. Conventional construction through rivers is technically challenging, expensive, and environmentally disruptive. Worse, river channels migrate over time, exposing and even rupturing trenched pipelines during floods. HDD avoids these construction headaches, while also mitigating the integrity risk posed by rivers to a negligible threat.

Over time, however, another risk emerged – one that was largely unseen. Many HDD installations did not consider the presence of landslides on the valley slopes beside rivers. The result: HDDs avoided the river but often failed to avoid the landslides.

The Unseen Risk of HDD Crossings in Landslides

When HDDs intersect active landslides, they become the most likely place for geohazard failure on an entire pipeline system. The deep burial depth of HDDs amplifies the stresses imposed by ground movement.

A recent study showed that HDDs accounted for 35 percent of all landslide-related pipeline failures in Western Canada, even though they make up a much smaller fraction of landslide crossings. The failure rate for HDDs impacted by landslides is 15 times higher than for trenched pipelines.

And the consequences of failure are severe. Unlike trenched pipe, HDDs impacted by landslides cannot be dug up and stress-relieved. Once critically damaged, replacement is often the only option – leading to long outages, costly replacement bores, and the risk of environmental impact.

Identifying the riskiest HDDs is conceptually simple – find the HDDs that cross active landslides. In reality, it's an enormous



Figure 1. Landslide-pipeline intersections leading to failure by installation type. HDDs are far more vulnerable: out of 162 landslide intersections, HDDs produced 6 failures. By contrast, more than 4,000 intersections with trenched pipe led to only 11 failures

challenge. On average, pipelines in the WCSB cross a landslide every 16 km. Most of these are slow-moving landslides: creeping at millimeters per year, below the detection threshold of conventional methods, but moving fast enough to accumulate damaging strain over decades. Instrumenting every landslide is cost prohibitive. The industry needed a new tool.

Ultimately, the solution wasn't gathering new data. It was learning to leverage the data that was already there.

The Untapped Power of IMU

In-line inspection (ILI) tools have long been run through pipelines to detect corrosion, dents, and other anomalies. One type of ILI – the Inertial Measurement Unit (IMU) – uses accelerometers and gyroscopes to measure tool orientation as it travels. From this, operators can reconstruct a 3D profile of the pipe's centerline.

For years, the value of IMU for geohazard management was largely unrecognized until a multi-disciplinary team responding to a landslide caused pipeline failure recognized that the IMU could have alerted the operator to landslide impact years before the

"Landslide-caused bending can be spotted earlier and more reliably."

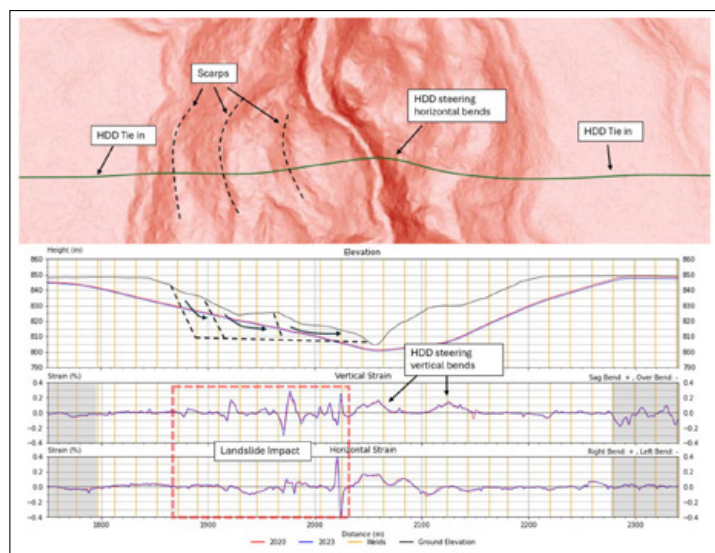


Figure 2. An IMU Bending Strain Signature of an HDD Impacted by a Landslide

failure. By carefully analyzing bend patterns, IMU can reveal whether a pipeline is being deformed by ground movement. In other words, the pipeline itself becomes the instrument, deforming in response to landslide loading.

This was a breakthrough. Where traditional geotechnical tools struggle to detect slow-moving landslides, IMU often revealed clear evidence of interaction. And unlike expensive slope instrumentation, IMU data already existed across tens of thousands of kilometers of pipeline.

IMU is particularly powerful for HDDs. Trenched sections often contain factory bends, field bends, and construction-induced roped bends that complicate interpretation. By contrast, HDDs have smooth, predictable curvature from installation. That “blank slate” means landslide-caused bending can be spotted earlier and more reliably, and provide insight into the activity of the landslide, whether the landslide and pipeline spatially intersect, and the strain demands on the pipeline.

The Results: Fewer Failures and Proactive Risk Management

As part of the systematic geohazard management programs BGC executes, we track both failure rates and “critical interventions.”

Since 2015, annual failure rates have dropped by more than 10 times. Where we previously would have expected 6–8 failures per year, in recent years we’ve now had multiple years with zero failures.

Critical interventions represent sites where failure was imminent, but risk was identified in time for proactive action. More than 50 percent of these sites were first flagged by IMU data, underscoring its role as one of the most impactful tools in pipeline risk management.

Lesson Learned: Leverage the Data You Already Have

The IMU story carries a broader lesson: the most powerful data is often the data we already collect, but underutilize.

By learning to interpret IMU bending strain, the industry unlocked a tool that transformed landslide risk management for HDDs. It didn’t require inventing new sensors or costly investigations – just smarter analytics.

Breaking New Ground:

Managing HDD Installation Risk with Drilling Data

A similar opportunity is emerging on the construction side of HDD. Drilling rigs on HDD projects are often equipped with an Electronic Data Recorder (EDR), digitally recording drilling parameters such as torque, thrust, rate of penetration and rotations per minute.

Traditionally, these data have been used sparingly – often only to document production on the job. But the analysis and insights that can be generated through these data opens the door to a number of applications that could help improve the approach to managing risk, reducing costs and enhancing the capability of HDD.

For example, amassing clear, continuous, accessible records of drilling activities digitally from project-to-project provides a key tool for advanced risk analysis and planning by utilizing analytics to better understand and plan for the challenges and risks in upcoming projects. It also enables collaboration and transparency across project teams to assess the various parameters across the HDD operation and to provide a basis for decisions made during drilling. In addition, it enables significant learning and technical growth of HDD project teams to develop deep expertise.

Additionally, building on other qualitative geotechnical investigation techniques that have been conducted across the industry such as the geo-pilot bore, these data can also be used to leverage HDD as an alternative geotechnical investigation tool to provide a continuous quantitative profile of the drilling

"The most powerful data is often the data we already collect, but underutilize."

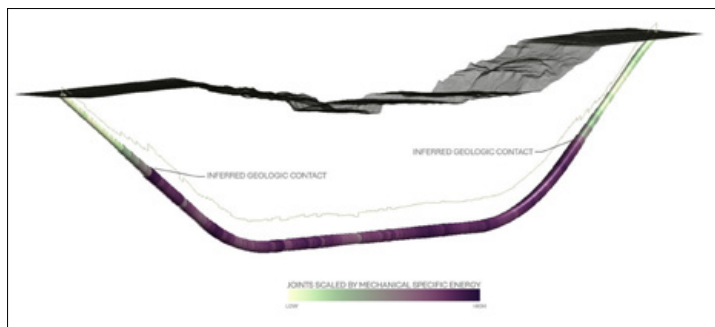


Figure 3. Example of drilling data indicating changes in ground conditions along an HDD pilot hole. (Image for representation only. Not actual project data)

parameters and identify changes in ground conditions. An example of this application is represented in Figure 3 where changes in mechanical specific energy (MSE) can indicate changes in ground conditions – in this case showing the intersection of the bedrock contact on either side of the valley.

BGC's Role: Turning Data into Insight

For more than 20 years, BGC Engineering has partnered with dozens of North America's largest pipeline operators to manage geohazard risk. Our team brings together geoscientists, engineers, and data scientists, and serves as a hub for industry-wide collaboration on the most challenging and impactful problems.

The IMU success story shows what happens when underutilized data is unlocked. The next chapter – drilling data – has the same potential.

Conclusion

HDD was once viewed as a silver bullet for crossing rivers and slopes. But in Western Canada, HDDs that intersect landslides became the most likely location for a geohazard caused failure.

IMU changed that. By unlocking the insights from the bending strain data that was already being collected, many geohazard-related failures were prevented.

"The pipeline itself becomes the instrument... this was a breakthrough!"

Now, the next frontier lies ahead. Just as IMU revealed unseen risks in operating HDDs, drilling data are poised to reveal unseen risks during HDD construction, enabling smarter, lower risk, and higher efficiency HDDs.



Jeremy Groves, M.A.Sc., P.Eng., is Senior Geotechnical Engineer with BGC Engineering Inc., an international consulting firm specializing in applied earth sciences. He has over 15 years of experience in geotechnical engineering for oil and gas pipeline and facility development throughout Canada and the United States. Jeremy specializes in supporting HDD projects through routing, planning, design and construction. He has extensive experience with feasibility and risk assessments, and geotechnical drilling investigations for HDD projects.



**HORIZONTAL
DIRECTIONAL
DRILLING, AUGER
BORING, GUIDED
AUGER BORING, PIPE
RAMMING,
TUNNELING**

**CONTACT
US**

320-685-7578
Drilling@Atlas-Trenchless.com

www.Atlas-Trenchless.com

Atlas Trenchless specializes in trenchless construction methods, excelling in complex and environmentally sensitive terrains.

YOUR PREFERRED SPECIALTY CONTRACTOR

Capabilities

- Install pipe with diameters up to 48" and distances over 7,500 LF through soil and rock
- Spread capabilities from 40,000 up to 750,000 lbs of pullback
- Custom fabrication for HDD tooling as necessary

Meet the NASTT Staff



Meet the NASTT Staff



NASTT is staffed by 8 full time employees who are dedicated association professionals, passionate about serving our members and the trenchless industry at large. With varying backgrounds and located throughout North America, we are equipped to assist our trenchless community with competent efficiency served with a smile!

To learn more about the NASTT Staff, visit us at <https://nastt.org/about/staff/> and contact us at info@nastt.org.

Left to right: Jenna O. Hale, Marketing & Brand Manager; Victoria Cox, Regional Chapter Manager; Michelle Hill, Conference Services Director; Amy Shipp, Conference Program Manager; Jessie Clevenger, Conference & Sales Director; Matthew Izzard, Executive Director; Kari Webb, Education Manager; and Carolyn Hook, Membership Outreach & Database Manager

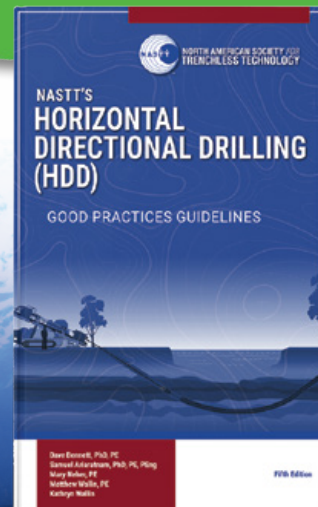
NEW! Fifth Edition HDD GOOD PRACTICES Now Available!

The Fifth Edition of the HDD Good Practices guidelines combines practical guidance available from engineers, contractors, manufacturers, vendors, and trade associations into a comprehensive resource for the successful execution of HDD crossings.

Access the e-book online from any device.



**NORTH AMERICAN SOCIETY FOR
TRENCHLESS TECHNOLOGY**



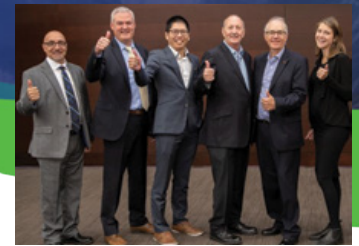
Visit the NASTT
**TRENCHLESS
KNOWLEDGE HUB**
to order your copy!

knowledgehub.nastt.org



**Bring more to your career.
Save time and money.**

Empower the world of trenchless technology.



Be part of the premier network of trenchless professionals.

NASTT members have worked through challenges, celebrated success and are ready to share their know-how at events, volunteer activities and online.

Be a solution provider.

Whether you're just starting out or are in the C-suite, NASTT's exclusive education and training supports your certification goals, grows your skillset and brings answers to your project, job site, team meeting and KPIs.

Be on the front lines of trenchless issues and products.

NASTT brings you emerging trends, innovative technologies, and who's who in the profession so you can keep up to date on the information you need to stay on the cutting edge of the industry.

Be the best with support from the best.

With members at every stage of their career, NASTT gives you access to a wide spectrum of members to give or receive support, advice and mentorship wherever you are in your career journey.



nastt.org/membership

membership@nastt.org
888-388-2554

**NASTT membership
equips and empowers you
to thrive in your career.**

Join as an individual or get group savings as an organization with a corporate or government/education/utility membership.

Boost Your Professional Presence: Three Ways to Leverage NASTT on LinkedIn

By: Carolyn Hook, Membership Outreach & Database Manager

LinkedIn launched in 2003 and today has more than 1 billion members across 200 countries and territories. Its mission? “Connect the world’s professionals to make them more productive and successful.”

NASTT is reaching more than 7000 followers through LinkedIn connecting them daily to events, education, award programs, local networking, industry updates, resources and more.

Here’s how you can become more productive and successful by following NASTT.

1. Announce that you follow NASTT.

Whether you’re new to following us or have been for a while, announcing that you follow NASTT affirms your commitment to the trenchless industry and signals professionalism to your contacts, clients and potential employers.

“Excited to follow the North American Society for Trenchless Technology to stay connected to impactful updates in the industry. NASTT is a leader in trenchless best practices and industry leadership.”

Don’t forget to tag @NASTT and add hashtags like #TrenchlessTechnology #UndergroundConstruction.

2. Engage with NASTT content.

We love getting thumbs up and heart emojis. But you’ll love the boost to your professional *presence* when you post an impactful comment. According to Ivana Todorović, founder of AuthoredUp (authoredup.com) – a tool that makes regular people look like a pro on LinkedIn – an effective LinkedIn comment leaves the reader with something to think about. She suggests acknowledging the original post, adding value by bringing something new to the discussion and encouraging further response.

Skip the basics (“Great post,” “Thanks,” “I’ll be there”). Instead, become an influencer with open-ended questions, stories and insights:

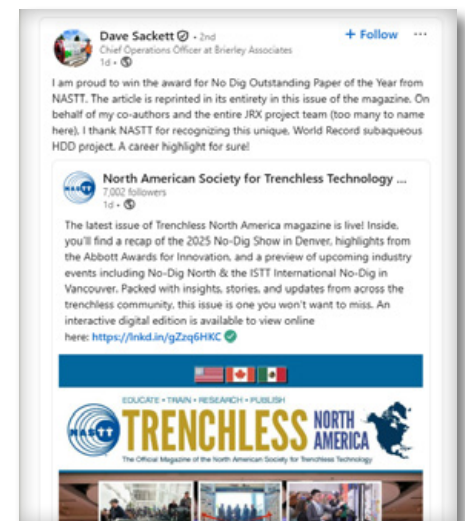
“This is a great NASTT event. Last year, our team returned with techniques we implemented immediately. We found a new client and collaborator for a project. This year @Company is bringing our young professionals to help them build their network. What will you be looking to accomplish?”

Todorović recommends skipping AI, negativity or hijacking the thread. Comment early and stick with 2-3 sentences (about 60 words) to maximize your reach.

3. Repost NASTT content with your own perspective.

LinkedIn tells us that reposting will result in more profile views. It’s a relatively quick way to stay active on LinkedIn without having to create original content. Just add a short comment that adds your perspective, credit NASTT as the original source and include your own hashtags. Use LinkedIn’s analytics to track engagement, views and clicks.

About now you might be thinking, “Aren’t these tips really about helping NASTT get more followers?” Sure. But at NASTT, nothing matters more than supporting our members and the trenchless profession. Growing our community results in greater visibility for you, your company, your brands, your customers, your clients and the entire industry.



NASTT Learning: Practical Knowledge for Every Project

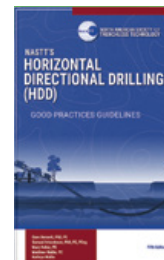


*"My employer really values education so we can be subject matter experts and not rely on consultants for everything. What I gain is **knowledge at great prices**. Plus, my extensive network helps me troubleshoot. I have these tools and resources in my toolbox and I'm **prepared for any kind of project**."*

- Andrea L. Long, PE, PME, Principal Engineer, Capital Projects, City of Aurora, CO

NASTT learning opportunities meet you where you are and help take you where you want to be. Live in-person instruction at regional chapter conferences and signature national events, the NASTT No-Dig Show and No-Dig North, deliver cutting-edge content across multiple technical areas, celebrate the industry and bring members together for innovation, education, business networking, and inspiration. NASTT's Good Practices Courses take place both in person and virtually. Updated regularly, you'll keep your skill set competitive and fresh with content taught by leading experts covering targeted trenchless topics: CIPP, HDD, pipe bursting, laterals and new installation methods. Plus, you'll earn CEUs to keep your license active.

nastt.org/training/upcoming-events



Overcome Your "Volunfears" and Make an Impact with NASTT



*"I believe strongly in NASTT membership, education and its support of trenchless technologies. **Of all the boards I have served on, the NASTT Board of Directors is by far my favorite.** I feel I am a valued part of the team – a team that communicates and collaborates effectively with an awesome staff and actually **gets things done.** It is **important work, valuable work and fun!**"*

- Stephanie Nix-Thomas, NASTT Board of Directors

Here are some common concerns that hold people back and why they shouldn't stop you from getting involved:

I Have Nothing to Offer: Everyone brings something valuable. You bring your perspective, experience, and skills. Even small contributions help NASTT achieve big results. Plus, volunteer activities are a great place to develop and improve skills like project management, leadership, decision making, teamwork and collaboration, conflict resolution, problem solving, critical thinking, public speaking and emotional intelligence.

I Won't Know Anybody / I Won't Fit In: NASTT values diversity of experience, background, and perspective. There's no "one type" of volunteer. You'll be joining a team of trenchless professionals who are welcoming and ready to collaborate. You'll quickly find mentors and peers who may become lifelong friends. Come prepared to share your expectations, what you're looking to gain and what you can offer.

It's Too Much Work: Volunteering is flexible. Yes, some projects, like supporting development of the technical tracks for the NASTT No-Dig Show and No-Dig North, take place over the course of a year and will require more time depending on the role you take. Joining a committee could mean a 60-minute meeting 4-6 times per year. With short-term projects, you can score applications, have one meeting and be done in 2-3 weeks. Volunteer to help with registration and set up at a chapter event you were going to anyway and it won't even seem like work.

NASTT Membership

I'll Be Disappointed: People volunteer to either get something (connections, knowledge, experience, personal/professional growth) or to give something (supporting a cause or helping others, giving back to a profession that brought you success, sharing expertise or knowledge). Either way, you'll need to dedicate time, energy, and resources to accomplish your goals. NASTT ensures volunteers are supported and set up for success



"I joined NASTT to stay current on technological developments, best practices and market trends, which I do by being involved, attending events and accessing industry experts. Membership is essential to the success of almost any project and every career."

- Marya Jetten, Conveyance Market Sector Lead, AECOM

NASTT volunteers are highly engaged in supporting the strategic direction set in place by the NASTT Board. NASTT members – no matter their experience level – can deepen their engagement through short-term projects, regional chapter service, committee initiatives, board service, writing and speaking opportunities and more. With every new volunteer, NASTT grows more energized and better equipped to reach our common goals. **Isn't it time for you to get involved?**

<https://nastt.org/membership/volunteer>

*(This article is adapted from a piece previously written by the author for another volunteer organization.
Edited with AI assistance.)*



Performance You Can Count On.

Peace of Mind You'll Appreciate.

You want piece of mind when spec'ing a rehab product. With OBIC, you can rest easy.

We offer a wide range of lining solutions engineered to restore structural integrity for wastewater and storm systems that ensure durability and reliability for the long term. Call us to learn how we can help on your next project.

Watch an OBIC Case Study



When it absolutely, positively must last



obicproducts.com | 866-636-4854

NASTT Group Corporate & Group Government, Utility Education Member List

About the NASTT Member List

NASTT offers special recognition to its Corporate and Government, Utility and Education members in appreciation of their ongoing support of NASTT and the industry. Primary contacts for these Group Members are included in the listing. For contact information or to connect with individual NASTT members, log in to your NASTT profile to access the NASTT Member Connect Directory. The member lists are as of September 2025.

Commercial solicitation is prohibited.

NASTT Group Membership Promotes Peak Performance

Corporations, government organizations, utilities, colleges, universities, and training centers can join as a group and be recognized as premier supporters of NASTT and for their commitment to advancing trenchless technology.

- **Develop your employees** with team technical training.
- **Increase your bottom line** with group membership rates and simplified membership management.
- **Find industry insights** with *In Touch* for organizational members.
- **Access trenchless ideas**, knowledge and solutions from founders, innovators and front-runners.
- **Let potential customers and clients find you** in the *Trenchless Industry Directory of NASTT Organizations*.
- **Promote your business** with member-only exhibitor rates at the NASTT No-Dig Show and NASTT No-Dig North.
- **Be recognized as a leader** of the trenchless industry.
- **Strengthen your employee benefits package** to attract and keep the best trenchless professionals.
- **Build your employee library** with bulk purchase rates on NASTT books and member-level access to the *NASTT Knowledge Hub*.



“As a NASTT member, I have a wide network of people to call when I have questions. And when someone asks me a question that I can’t answer, I know who to send them to. Whether I have the answer or not, I’m still a resource. Membership gives me the opportunity to build my personal brand and to increase exposure to my company’s work in the trenchless industry, both through networking and by presenting on our client’s trenchless projects.”

- Kim Hanson, PE, Senior Associate, Hazen and Sawyer

Corporate Members

Any North American corporation, partnership or individual doing business as a sole proprietorship. Subsidiaries with their own US Federal Employer Identification Number (EIN) or Canadian Business Number (BN) are required to maintain separate corporate memberships.

3B Rehabilitation Services LLC
dba No Dig Team
Edward Kerins, President
 3bestrehab.com



Aaron Enterprises, Inc.
Wally Reed,
Business Development
 aaronenterprises.com
See ad on pg 59

Ace Pipe Cleaning, Inc.
A Caryl Company
Steve Hontz, President
 acepipe.com

Acoustical Control, LLC
Clayton Cox,
Regional Account Manager
 acousticalcontrol-llc.com

AECOM
Paul Nicholas, Trenchless
Market Sector Manager
 aecom.com



Akkerman
Jason Holden, VP,
Chief Revenue Officer
 akkerman.com
See ad on outside back cover

Alliance for PE Pipe
Peter Dyke, Executive Director
 pepipe.org

American MFG HDD Products
Mary Catalano,
Marketing Manager
 americanmfghdd.com

American West Construction
Paul Snyder, Manager
 trustawc.com

AOC
Mike Diehl,
Director of Marketing, Americas
 aocresins.com

Aries Industries, Inc.
Jim Kraschinsky, Vice President -
Sales & Marketing
 ariesindustries.com

Associated Engineering
Jason Lueke, P.Eng.
National Discipline Leader -
Trenchless
 ae.ca



Astec Industries
Melissa Eudy,
Business Development
Manager HDD
 www.kemtronhdd.com
See ad on pg 37



Atlas Trenchless, LLC
Jim Lagios,
President/General Manager
 atlas-trenchless.com
See ad on pg 19

Avanti International
Britt Babcock, PE President
 avantigrount.com

Avertex Utility Solutions Inc.
Jason Kottelenberg, President
 avertex.ca

Azuria Water Solutions
Beth Kerley, Vice President,
Communications
 azuria.com

Barbco Inc.
David Barbera, Vice President
 barbco.com

Benjamin Media Inc.
Kelly VanNatten, Publisher
 benjaminmedia.com



Bennett Trenchless Engineers
Kathryn Wallin, Senior Scientist
 bennetttrenchless.com
See ad on pg 32

BGC Engineering Inc.
Jeremy Groves,
Senior Geotechnical Engineer
 bgcengineering.ca

Big River Trenchless
and GeoServices
Jim Lamb,
Director of Operations
 bigrivergeo.com



Binnie
Karen Duve,
Marketing Coordinator
 binnie.com
See ad on pg. 35

Bit Brokers International
Chester Thomas, In House
Counsel And Sales Rep
 bitbrokers.com

Bolton & Menk, Inc.
Brian Simmons, PE
Principal Engineer
 bolton-menk.com

Bond Civil & Utility
Construction, Inc.
Tara Canavan, Business
Development Associate
 bondbrothers.com

Bore Master Inc.
Ryan Haubenschild,
Vice President
 globecontractors.com

Boretec LLC
Dave Gasmovic, Business
Development Manager
 boretec.com

Bradshaw Construction
Corporation
Lester Bradshaw, Jr., President
 bradshawcc.com



Brandt Industries USA Ltd.
Subi Vaid
Sales & Marketing
 www.brandt.ca
See ad on pg 41

Brierley Associates
Corporation
Nick Strater, PG
Sr. Project Manager
 brierleyassociates.com

Brown and Caldwell
Christopher Garrett,
National Practice Leader
 brownandcaldwell.com

Browline Canada
Chris Frisch,
Operations Manager
 www.drillguide.com

Browline USA
Robert Cloud,
Operations Manager
 drillguide.com

Bryan Hauger Consulting, Inc.
Bryan Hauger, President
 pipeline-inspector.com

BT Construction
Chris Knott,
Director Of Business
Development/Estimator
 btconstruction.com

Burns & McDonnell
Branako Primm, PE
Technical Consultant
 burnsmcd.com

Campos EPC, LLC - HQ
Ryan Wamble, Director of
Engineering, Pipeline
 camposepc.com

Carollo Engineers, Inc.
Tim Taylor,
Infrastructure Practice Director
 carollo.com

Carylon Corporation
Lewis Klein,
Director of Marketing
 caryloncorp.com

CCI & Associates, Inc.
Justin Taylor, P.Eng., PE VP of
Engineering / General Manager
 cciandassociates.com



"The bottom line is that active membership benefits me professionally and, in turn, my company can provide unique and cost-effective solutions to challenging projects."

– George Ragula, CEO, Ragula Tech

CETCO | Minerals Technologies
Debra Bac,
Technical Sales Manager
 cetco.com



Claude H. Nix Construction
Stephanie Nix-Thomas,
President
 chnix.com
 See ad on pg. 62

Conсор Engineers
Brendan O'Sullivan, PE
Technical Practice Leader,
Trenchless Technologies |
Principal Engineer
 consoreng.com



Contech Engineered
Solutions LLC
Gaelyn S. Cunningham,
Senior Marketing Manager -
Pipe Solutions
 conteches.com
 See ad on pg. 7

Core & Main
Cheryl Rhude, Sr. Director –
Fusible Infrastructure Solutions
 coreandmain.com

Above. Beyond. Below.

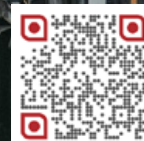
Civil Construction
 Energy
 Renewables
 Foundations
 Marine
 Water & Wastewater
 Transportation
 Mission Critical

WE DO THAT ... & MORE

MICHEL'S®

Michels.us

EOE/AA/M/F/D/V



BOOTH
500

Visit us at 2025 No-Dig North
& ISTT International No-Dig



“Several NASTT connections provided valuable information which led to numerous project successes! NASTT allowed me to share my experiences with others bringing rewards and learning to the trenchless community at large.”

– Kevin Bainbridge, Vice President, Robinson Consultants

Crest Insurance Group
Tony Palmer, Vice President
crestins.com



CUES, Inc.
Robert Detwiler,
Sales Equipment Coordinator
cuesinc.com
See ad on pg 51

D.V.M. Utilities, Inc
Daniel DiLegge, President
dvmutilities.com

D'Allessandro Corp. |
Pipe Bursting of New England
Jon D'Allessandro,
Owner/President
DAllessandro.com

Delve Underground
Glenn Boyce, Ph.D., PE, P.Eng,
Ir Principal
delveunderground.com

Derrick
Ben Clark,
Global Sales Manager - Civil
derrick.com

Digital Control Inc.
Siggi Finnsson, Product Manager
digital-control.com

Direct Horizontal Drilling
Dave Fisher,
Contracts & Project Manager
directhorizontal.com

Doetsch Environmental Services
Joe Schotthoefer,
Vice President
doetschenv.com

Dresser Utility Solutions
Leigh Ramirez,
Senior Marketing Manager
dresserutility.com

Dynamic Downhole Innovations
Travis McCartney,
Founder & CEO
dynamicdownhole.com

Earth View LLC
Allison Murrell, President
evllc.com

Ellingson Companies
Rob Hotz II, General Manager
ellingsoncompanies.com

Emagineered Solutions, Inc.
Steve Waring,
Chairman and CEO
emagineered.com

Engineering & Construction Innovations, Inc. (ECI)
Chris Kester, Chief Estimator
eciconstructors.com

Environmental Noise Control
Matt Cott,
Business Development Manager
environmental-noise-control.com

ENZ USA Inc
Lance Pusey,
North American Sales Director
enz.com/en/home/

Epoxytec, LLC
Sylvia Caputi,
Marketing Manager
epoxytec.com

FER-PAL Infrastructure
Geoff Britnell, Director of
Business Development
ferpalinfrastructure.com

Ferreira Construction Co., Inc.
Brandon Pensick,
Senior Vice President
ferreiraconstruction.com

Freese and Nichols, Inc.
Julie Daniel,
Technical Standards Manager
freese.com

Frontier Precision
Kelly Jones, Underground
Locating Sales Specialist
frontierprecision.com

Garver
Maureen Carlin, Ph.D.
Trenchless Pipeline and Utility
Tunneling Practice Leader
garverusa.com

GEI Consultants, Inc.
Benny Siljeborg, PE,
MBA Vice President
geiconsultants.com

GeoEngineers
Jon Robison, Principal
geoengineers.com

Geotree Solutions
John Hepfinger, President
geotreesolutions.com

Gersol
Julie Collette, EVP Finances
gersol.com

GHD
Aaron Bruce, Sr. Project
Manager/Trenchless &
Rehabilitation Team Lead
ghd.com

Global Materials Company
Jason Parent, Facility Manager
globalmaterialscompany.com

Global Underground Corporation
Robert Powilleit, Vice President
globalug.com

GroundWorks Safety Systems
Danielle Foley, Marketing
gwss.ca

Haley & Aldrich Inc.
Abhinav Huli,
Trenchless Practice Leader
haleyaldrich.com

HammerHead Trenchless Equipment
Jeff Gabrielse, GM/President
hammerheadtrenchless.com

HardRock Infrastructure Services
Christina Robinson,
Executive Assistant to the CEO
hardrockis.com

Haugland Group
John Seibert,
Vice President, Trenchless
hauglandgroup.us

Hazen and Sawyer
Kim Hanson, Senior Associate
hazenandsawyer.com

HB Trenchless, LLC
Timothy McQueary,
PE Vice President
hbtrenchless.com

Herrenknecht Tunnelling Systems
Gerhard Lang, Ing.
Business Development Manager
herrenknecht.com/en

HOBAS Pipe USA
Sam Juliano,
hobaspipe.com

Hoerr Construction Inc.
Andrew Hoerr, Vice President
hoerr.com

Holly Pipe Corp.
Jerry Nugent II, President
hollypipe.com

Horizontal Boring & Tunneling Co.

Brent Moore, President
hbtbtrenchless.com

HTS Pipe Consultants Inc.

Tom Schultz, President
htspipeconsultants.com



Huxted Trenchless

John Langford,
Operations Manager
ecidrilling.com

Imerys

Joseph Talley, Americas Area
Infrastructure Manager
imerys.com

IMPREG LLC

Andrew Siegel,
Marketing & Communications
impreg.com



"I stumbled into the trenchless industry through my role in the public sector where there is a constant pursuit of minimizing disruption to the public and improving customer service levels. Anyone entering the trenchless industry can keep abreast of advancements through NASTT resources such as publications and conferences."

*– Kristy Gibson, Project Coordinator, City of Toronto,
Toronto Water - Laboratory Services*

Infrastructure Intelligence Services Inc.

Paul Fleischer, B.Sc. President
i2sinc.ca

Infrastructure Rehabilitation USA, Inc.

Noah Baker,
CAO and General Counsel
irehabusa.com

Inliner Solutions

Mike Green,
Business Development Manager
inliner.com

Innovacion en Bombeo y Desazolve, S.A. de C.V. (INBODE)

Milton Gabriel Chavez Gasca,
Country Manager
inbode.com.mx

Innovations Amplified

Susan Kay Watkins, Marketing & Brand Development
innovationsam.com

Integrity Rail Products

Peter Scholtens, President
integrityrailproducts.com

Interplastic Corp.

Jason Schiro, Business Manager- Pipeline Remediation Polymers
interplastic.com

(641) 755-IOWA (4692)
www.iowatrenchless.com



NASTT member Iowa Trenchless is a full-service boring and tunneling contractor located in Panora Iowa.

Founded in 2002, the company offers services nationwide that include auger boring, rock boring, pilot tube boring, microtunneling, pipe ramming, pipe jacking, pipe bursting, railroad crossing, and bore pit design.

Iowa Trenchless takes pride in using the newest technology and equipment to get the job done right the first time.





"I joined because with municipalities' underground infrastructure coming to its end of design life during a time when municipalities are consolidating and have limited capital budgets, the only solution to keep things flowing is via trenchless methodologies. NASTT is the place to be – the place to obtain the knowledge necessary to support our municipalities into the future."

– Greg Tippet, Principal - Regional Delivery Lead, Stantec

Interstate Engineering, Inc.

Bryan Tuss,
Senior Project Manager
interstateeng.com



Iowa Trenchless

Jason Clark, President/Owner
iowatrenchless.com
See ad on pg 29

Iron Horse LLC

Carlie Moore,
Managing Member
ironhorsellc.com

IVIS Inc.

Dolores Eaton, President
ivisinc.com

J. D. Hair & Associates, Inc.

Jeff Puckett, President
jdhair.com

J. Fletcher Creamer & Son, Inc.

Jason Newman, Vice President of Construction Management
jfcson.com

J.W. Fowler

John Fowler,
Chief Operations Officer
jwfowler.com

Jacobs Engineering Group

Matthew Tooley, CPEng,
Principal Civil & Water Engineer
jacobs.com

JD Brule Inc.

John Brule, President
jdbrule.com

Kaiser Premier LLC

Mike Kohn,
VP of Sales & Marketing
kaiserpremier.com

Kennedy/Jenks

Consultants Inc.
Sarah King, PE, PMP, LEED AP
Principal Civil Engineer
kennedyjenks.com

Kiewit Engineering Group Inc.

Forest Rong, Vice President,
Power Delivery
kiewit.com

Kiewit Infrastructure Co.

Matt Roberts,
Trenchless Manager
kiewit.com

Kimley-Horn and

Associates, Inc.
Marty Paris,
Senior Vice President
kimley-horn.com

Kleinfelder

Gus O'Leary,
Principal Professional
kleinfelder.com

Kondex Corporation

Diane Riley, Marketing
kondex.com

Kramer Service Group

Brent LaBrie, President
kramerservicegroup.com

Laney Directional Drilling Co.

Andrew Sparks,
Director of Engineering
laneydrilling.com

LaValley Industries

Jorge Prince,
Chief Financial Officer
lavalleyindustries.com

Logan Clay Products

Steve Matheny, Business
Development Manager
loganclaypipe.com

Logiball Inc.

Patrick Plourde, President
logiball.com

M.E. Andrews and Associates Limited o/a Andrews.Engineer

Diane McLean,
CPM Office Manager
andrews.engineer

Madewell Products Corp.

Don Rigby,
Business Development
madewell.net

Master Builders Solutions

Ed Paradis, Sales and market
Development Manager Injection
Systems, North America
master-builders-solutions.com



HDD & Direct Pipe

Mears Group, Inc. -

Corporate HQ
Mark Mitchell, Director of
Business Development
mears.net

Memphis Road Boring

Thomas Sander, President
memphisroadboring.us



Michael Byrne Manufacturing

Jim Weist, President
byrnegroup.com
See ad on pg 63



MICHELS®

An Energy & Infrastructure Contractor

Michels Canada

Jason Squires,
Chief Operating Officer
michelscanada.com
See ad on pg 27



MICHELS®

An Energy & Infrastructure Contractor

Michels Corporation

Beth Roncke, Brand Manager
michels.us
See ad on pg 27

Midwest Mole, Inc.

David Howell, Director of
Rail & Consulting Services
midwestmole.com

Miller Pipeline Corporation

Chris Schuler, General Manager,
Mun. Serv.
millerpipeline.com

Mincon Group

Curt Dubbin,
Construction Division Manager
mincon.com



Minger Construction Co., Inc.

Minger Construction Co., Inc.

Luke Minger, President

mingerconstruction.com

Mladen Buntich

Construction Co., Inc.

Lee Roesner, PE Vice President

buntich.com

Mott MacDonald

Mark Ramsey, North America

Tunnels Practice Lead

mottmac.com



National Liner

Scott Roth, Director

nationalliner.com

Neptune Coring

Mitchell Campbell,

Operations Manager

neptunecoring.com

NO-DIGTEC, LLC

John Newell, President

pipeburster.com



Northeast RemSCO

Construction Inc.

Richard Palmer,

Vice President, Trenchless

northeastremSCO.com

NorthStar Fluid Solutions

Jon Todd, Supply Chain

Manager/Co-Owner

northstarfluids.com

Novinfra

Alexandre Bouchard, VP

operations / Co-Founder

novinfra.com

NuFlow/Trelleborg

Marissa Melanese,

Projects Coordinator

nufLOWtechnologies.com



"NASTT has given me a venue to learn through listening and to give back through speaking, writing peer reviewed papers and teaching. Meeting and collaborating with friends/colleagues and finding new friends and colleagues, it has been a very rewarding experience and continues to be so."

– Chris Macey, Americas and Global Technical Practice Leader, AECOM



OBIC

Mike Hoffmaster, Vice President

Business Development

obicproducts.com

See ad on pg 24

Ok Bit Service Inc.

Jay Foster, Sales Manager

okbit.com



Omega Liner Company, Inc.

Melody McConnell,

Sales & Marketing Specialist

omegavpipe.com

ParklandGEO Ltd.

Monique Tenszen,

Geo-Environmental Engineer

parklandgeo.com

Pate Garver, LP

David Ellett, Vice President

pategarver.com



PICA Corporation

Dave Russell, President

picacorp.com

Picote Solutions Inc.

Katja Lindy-Wilkinson, CEO

picotesolutions.com



Plastics Pipe Institute

Camille Rubeiz, PE, F. ASCE

Senior Director Of Engineering

plasticpipe.org/

See ads on pgs 13 & 31

PLG Technologies

Brian Sherrell,

Product Development

plgtech.us/

Praxedo Corp

Justine Arscott,

Marketing Director

praxedo.com

PREDL, Inc.

Jennifer Mabrey,

Operations Manager

PREDL.us

Prime Resins, Inc.

Michael Vargo,

Technical Support

primeresins.com

Progressive Pipeline Management

Albert Apicella, MBA Director

of Business Development

progressivepipe.com

Protective Liner Systems, Inc.

Jerry Trevino, President

protectivelinersystems.com

PSILAB, Inc.

Danny Villarreal,

Program Manager

psilab.net




Your Video Library Resource

HDPE Installation Reports from the Field

Find out more: 

© 2024 Plastics Pipe Institute, Inc.



"Membership represents a great opportunity to have access to extensive quality information, made up of years of knowledge and experience in the sector that will allow us to access the best resources for the development of highest quality projects and/or works with the least impact on our country of Mexico."

– Adrián Cordero, Coordinator, Tubepol

Pure Technologies

Hayley Stratford, Business Development Administrator, Assessment Services
puretechltd.com

PW Trenchless Construction Inc.

Marcelo Zen Nakashima, Project Manager
pwtrenchless.com

Raedlinger Primus Line, Inc.

John Moody, Director of Sales
primusline.com



Rain for Rent
Tasha Grahek, Marketing Manager
rainforrent.com
See ad on pg 47

Ranger Construction

Robert Porter, HDD Project Manager
ranger-contracting.com

Rausch USA, LLC

Gregory Hall, President
rauschusa.com

RedZone Robotics Inc. - HQ

Christopher White, Vice President of Data Services
redzone.com

Reline America LLC

Jeff van Huet, Technical Advisor
relineamerica.com

RJN Group

Zachary Matyja, PE Vice President of Client Services
rjn.com

Robar Industries Ltd

Korey Murray, General Manager, Eastern Operations
robarindustries.com

Robert B. Somerville Co. Limited - Western Head Office

Justin Pommerville, P. Eng Manager, Western Canada
rbsomerville.com

Rockpecker Canada Inc.

Rajnish Kumar, Managing Director
rockpecker.ca

SAERTEX

Nancy Freeman, Business Development
saertex-multicom.de/en

SAK Construction LLC

Charlie Kuhnmuench, Vice President
sakcon.com

SCS Consulting Group LTD

Blair Seeley, Principal
scsconsultinggroup.com

Sealing Systems, Inc.

Pam Sawatzke, Sales/Marketing
ssisealingsystems.com

SEKISUI SPR Americas, LLC

Chris Lind, General Manager, Sales & Engineering
sekisuispra.com

Sentinel Solutions LLC

Chuck Skillman, Operations Manager
sentinel-solutions.com

Sewer Equipment Company of America

Carlos Vargas, Marketing Specialist
sewerequipment.com

Sherwin-Williams

Paul Trautmann, Regional Director of Water & Wastewater
sherwin-williams.com

SIPP Americas LLC

Giacomo (Jack) Conte, CEO
sippamericas.com

SolidEarth Geotechnical Inc.

Jay Jaber, P.Eng. President
solidearth.ca

Source One Environmental Canada

Kate Stephenson, Technical Sales Manager
sleonline.com

Spiniello Companies

Tim Bako, Vice President of Corporate Strategy
spiniello.com

SprayRoq Inc.

Anthony Hughes, PE Director of Business Development & Technical Services
sprayroq.com

SSC Underground

Arvid Veidmark III, President
sscunderground.com



Staheli Trenchless Consultants
Kimberlie Staheli, PE, Ph.D. President
stahelitrenchless.com
See ad on pg 33

Stantec

Matthew Devitt, P.Eng. Alberta Civil/Conveyance Engineering Discipline Lead - Senior Trenchless Engineer
stantec.com

Stiver Engineering, Inc.

Sarah Vandiver, Marketing Coordinator
stiverengineering.com

Strack, Inc.

Trey Bradbury, Sr. Estimator
strackinc.com

BENNETT

trenchless engineers

Leaders in trenchless new installation design with extensive experience in microtunneling, HDD, auger boring, and pipe ramming

Feasibility Analysis Full Design Design Review Inspection
Submittal Calculations Expert Witness Services

BennettTrenchless.com 916.294.0095





Sunbelt Rentals, Inc.

Tiffanie Mendez,
National Sales Director
sunbeltrentals.com
See ad on pg 5

Tanner Pacific, Inc.

Amelia Wheeler,
Business Manager
tannerpacific.com



TCI Carbon Fibre Technologies

Stuart Tidd,
VP of Business Development
tcicarbonfibre.com
See ad on pg 45

Tele-Vac Environmental

Josh Beam, General Manager
tele-vac.com

Terracon

John Juenger, PE
Vice President | Senior Principal
terracon.com

Texel Technical Materials, Inc.

Louis Bouffard,
Business Unit Manager
texel.ca

The Crossing Company |

The Crossing Group

Ryan Maclean, President
crossinggroup.com/
the-crossing-company

The Driller, LLC

Scott Dullard, General Manager
thedrillerllc.com

The Haartz Corporation

Lance Cullen,
Business Development Manager
haartz.com

The Hallen Construction Company, Inc.

James Small, Jr.,
Vice President Purchasing
hallen.com

Thompson Pipe Group

Carl Pitzer, PE Director
thompsonpipegroup.com

TRUVAC by Vactor

Manufacturing, Inc.
Kristy Gussarson, Marketing
truvac.com

TRY TEK Machine Works Inc.

Dennis Burger, Vice President
trytek.com

TT Technologies, Inc.

Chris Brahler, President /
Chief Executive Officer
tttechnologies.com



Underground Magnetics Inc.

Michael Young, President
undergroundmagnetics.com
See ad on Inside Front Cover

Underground Tools Inc.

Al Chancellor, Marketing/Sales
undergroundtools.com

Uni-Jet Industrial Pipe Services

Ryan Slagerman,
Operations Manager
unijet.ca

Vac Truck Rental - Mississippi

Mike Suiter,
Vice-President Strategic Sales
vactruckrental.com

Vac2Go

McKenna Goodman,
Director of Marketing
vac2go.com

Vac-Con, Inc.

Christopher Smith,
Vice President, Marketing
vac-con.com



Vector Magnetics

Jed Sheckler, Director of
Marketing
vectormagnetics.com
See ad on pg 49

Vermeer Corporation

Amy Olsen, Product Marketing
Lead - Utility & Pipeline
VermeerMVS.com

Victoria Drains

Adam Holcombe
victoriadrains.com

Vortex Companies

Kit Jones, VP,
Marketing Communications
vortexcompanies.com

Wade Trim

Donna Jakubowicz, FSMPS,
CPSM, Vice President,
Director of Brand
wadetrim.com

Warren Environmental Inc.

Victoria Messina,
Marketing Manager
warrenenviro.com

Waterline Renewal

Technologies, Inc. -

Corporate HQ

Adam Tetz, VP of Marketing &
Product Management
waterlinerenewal
technologies.com

Westlake Pipe & Fittings

Keith Moggach,
National Manager -
Specification Engineering
westlakepipe.com

WSB

Justin Messner, Director of
Municipal Services / Principal
wsbeng.com

Xylem Dewatering

Solutions, Inc.

Jason Miller, Business
Development - Infrastructure
xylem.com

Yogi Kwong Engineers, LLC

Todd Kawamoto,
Project Manager
yogikwong.com



Offering Innovative
Solutions to
Trenchless
Challenges

**Congratulations to our very own
Dr. Kimberlie Staheli, Ph.D., P.E.
2025 NASTT Hall of Fame Inductee**

Rehabilitation or new installation,
contact us to find the right solution for
your next trenchless project.

**Microtunneling
HDD
Guided Boring
Pilot Tube
CIPP
Pipe Ramming
Pipe Bursting
Direct Steerable Pipe Thrusting**

www.stahelitrenchless.com

4100 194th St. SW, Suite 205, Lynnwood, WA 98036
425.205.4930



Government, Utility and Education **Members**

Any North American federal, provincial, state or municipal organization, public or private utility, college, university or technical training center.

Alderwood Water & Wastewater District
Paul Richart, Engineering & Development Director
awwd.com

ARROW Utilities
Jay Mason,
Director of Engineering
arrowutilities.ca

Aurora Water Department
Ray Serrano, Supervisor of Construction Inspections
auroragov.org

Central Contra Costa Sanitary District
Sasha Mestetsky,
Senior Engineer
centralsan.org

City and County of Denver | Department of Transportation and Infrastructure (DOTI)
Hector Lujan,
Operations Supervisor
denvergov.org

City of Abbotsford
Pranav Bakshi,
EIT Water Planning Engineer
abbotsford.ca

City of Bend
Jason Suhr, Principal Engineer
bendoregon.gov

City of Columbus, Department of Public Utilities
Michael McCloud,
Engineering Associate III
columbus.gov

City of East Providence
Daniel Borges,
Director of Public Works
eastprovidenceri.gov

City of Edmond
Kenneth Miner, Engineering Inspections Supervisor
edmondok.com

City of Fort Lauderdale
Sayd Hussain, Sr.,
Project Manager II
fortlauderdale.gov

City of Garland
Vishal Sood, Water/Wastewater Capital Projects Director
garlandwater.com

City of Gresham
Jeff Loftin, Engineer 2
greshamoregon.gov

City of Littleton
Heather Ferrari,
Executive Assistant
littletongov.org

City of Medicine Hat
James King, Construction Superintendent
medicinehat.ca

City of Moscow, ID
Brian Bontrager, Engineering Manager/City Engineer
ci.moscow.id.us

City of New Bedford
Jamie Ponte, Commissioner of Public Infrastructure
newbedford-ma.gov

City of Newport Department of Utilities
Robert Schultz, Jr.,
General Manager & Chief Engineer Utilities
cityofnewport.comutilities

City of Ottawa
Alexandra Grant, Program Lead
ottawa.caen

City of Palo Alto
Nelson Schlater,
Principal Engineer
cityofpaloalto.org

City of Portland Environmental Services Bureau
Amber Clayton, Collections System Division Manager
portlandoregon.gov/bes

City of Regina
Allison Hahn, Senior Water and Wastewater Engineer
regina.ca

City of Renton
Joe Stowell, Wastewater Utility Engineering Manager
RentonWA.gov

City of Richmond
Roger Keating,
AScT Project Manager
richmond.ca

City of Rochester Hills
William Fritz, Director
rochesterhills.org/

City of St. Albert
Brian Brost, Manager of Utilities | Public Operations
stalbert.ca

City of Victoria
Derk J Wevers, ASCT Supervisor - UG Utility Infrastructure Design
victoria.ca

Clean Water Services
Wade Denny, Conveyance Engineering Division Manager
cleanwaterservices.org

Delaware County Regional Sewer District
Nathan Givens,
PE Construction Manager
regionalsewer.co.delaware.oh.us

Denver International Airport
Catherine Rafferty,
Senior Engineer
flydenver.com

EPCOR
Chaoshi Hu, PhD, P.Eng.,
PMP Project Manager
epcor.com

Great Lakes Water Authority
Jason Edberg, PE, MBA Director of Infrastructure Special Projects
glwater.org

Greenville Utilities
Scott Farmer, PE Water Resources Systems Engineer
guc.com

Los Angeles County Sanitation Districts
Anthony Howard,
Division Engineer
lacsds.org

Louisiana Tech University
John Matthews, Ph.D.
TTC Director
latech.edu

Metropolitan Council
Carol Blommel Johnson,
Assistant Business Unit Manager
metrocouncil.org

Metropolitan Water Reclamation District of Greater Chicago (MWRDGC)
Lou Storino, P.E.,
BCEE Managing Civil Engineer
mwrds.org

Milwaukee Metropolitan Sewerage District

Bridget Henk,
Senior Project Manager
mmsd.com

Ministère des Transports (MTQ)

Eric David, ing. Engineer
transports.gouv.qc.ca/en/Pages/Home.aspx

Mohawk Valley Water Authority

Dan Faldzinski,
Principal Engineer
mvwa.us

Murfreesboro Water and Sewer Dept

Valerie Smith,
Assistant Director of Engineering & Compliance
murfreesborotn.gov

National Grid

Jesse Lubbers,
Principal Project Manager
nationalgrid.com

Niagara Region - Water & Wastewater, Public Works

Greg Epp, Supervisor
niagararegion.ca

Northeast Ohio Regional Sewer District

Robert Auber,
Construction Manager
neorsd.org

Norwich Public Utilities

Lawrence Sullivan,
PE Water & Wastewater Operations Manager
norwichpublicutilities.com

NYC Department of Design and Construction

Thomas Wynne, PE First Associate Commissioner
ddc.nyc.gov

Oakland County Water Resources

Drew Sandahl, Chief Engineer
oakgov.com

Ohio Department of Transportation

Kyle Brandon,
Assistant Administrator
dot.state.oh.us

Onondaga County Department Water Environment Protection

Eric Schuller, PE
Deputy Commissioner
ongov.net/wep

Orange County Sanitation District

Raul Cuellar, PE Engineering Manager - Construction Management
ocsan.gov

Region of Peel

Sue Herod, Coordinator
peelregion.ca

Roxborough Water & Sanitation District

Mike Marcum,
Director of Operations
roxwater.org

Salt Lake City Public Utilities

Moriah Gamache,
Project Manager
slc.gov

Seattle Public Utilities

Matthew Fewins,
Senior Civil Engineer
seattle.gov/utilities

The City of Calgary

Charles Pullan, P.Eng.
Senior Project Engineer
calgary.ca

Town of Cary

Lynn Brilz, Sewer Rehabilitation Program Manager
townofcary.org

Town of Normal Public Works

Ryan Otto, Director of Public Works & Engineering
normalil.gov/115/Engineering-Public-Works

UGI Utilities, Inc.

Janet Toporcer,
Public Safety Administrator
ugi.com

University of Massachusetts (UMASS) Lowell

Raj Kumar Gondle,
Associate Teaching Professor
uml.edu

Upper Trinity Regional Water District

Kurt Staller, Project Manager -Sr. Engineer
utrwd.com

Village of Pleasant Prairie

Thomas Hupp,
Director of Public Works
pleasantprairiewi.gov

West Valley Sanitation District

Alan Kam, Sr. Civil Engineer
westvalleysan.org



BINNIE

TRENCHLESS COMMUNITY SOLUTIONS

We work with methods like Sliplining, to Cured-in-Place-Pipe (CIPP), to Pipe Bursting, among many options. Our team provides more sustainable solutions that will benefit our growing communities.

LEARN MORE

binnie.com

in @BuildwithBinnie

Connect • Learn Achieve • Influence

**Join to be part of
an elite community of
trenchless professionals!**



Career Advancement Doors Opened!

“ Because of NASTT, I have a pretty stacked tool belt that helps me bring innovative approaches to infrastructure concerns. My experiences with trenchless technologies gives me a ‘leg-up’ over others. ”

~ Eric Schuler, PE, Onondaga County Department Water Environment Protection



Education Second to None

“ NASTT is far and away the leading educator and networking pool in the trenchless industry. If your company plays a part in the trenchless industry, you will benefit from NASTT membership much more than you realize. ”

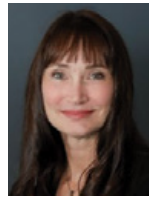
~ Joe Lane, Azuria Water Solutions



Tops at Staying on Top of the Industry

“ I first joined NASTT to stay current on technological developments, best practices and market trends. Participating in NASTT committees and events and accessing its expert mentors and professionals is essential to the success of almost any project. ”

~ Marya Jetten, AECOM



Amazing Network

“ NASTT has been the most significant vehicle relative to the industry-specific connections I've made and cultivated throughout my career. ”

~ Cindy Preuss, PE, CDM Smith



Membership Helps Me Strut My Stuff

“ I would not be doing what I love to do without the presence and impact of NASTT. I wanted the industry to know about a record HDD project and NASTT gave me the access and opportunity to tell to the industry. ”

~ Jim Murphy, UniversalPegasus International



nastt.org/membership

membership@nastt.org
888-388-2554

**NASTT membership
equips and empowers you
to thrive in your career.**

Join as an individual or get group savings as an organization with a corporate or government/education/utility membership.



KEMTRON Prowler: The Future of Fluid Recycling is Mobile



KEMTRON 400 Prowler™
Packaged Mud System

Why Choose The Prowler?

High-Shear Mixing Power

Jet Mixing Hopper cuts chemical use by use of 40% - more efficiency, less waste.

Tight-Terrain Control

Hydraulic-over-electric tracks with zero-turn radius and remote operation.

Superior Solids Separation

Achieves 99% removal with dual-deck Hyper-G™ shaker and six 4" Vortex™ hydrocyclones.

Built to Outlast

BlueWave 28™ & BlueCrest 28™ composite screens deliver longer life and zero delamination.

Learn more at KemtronHDD.com



New Document Provides Seismic Design Criteria for HDPE Pipe Water Mains

A new report that examines the required wall thickness for a fully fused high-density polyethylene (HDPE) water main to withstand the lateral spread from an earthquake has been published. Researched and authored by Michael O'Rourke, Ph.D., P.E., F.SEI, M.ASCE Professor Emeritus Civil Engineering at the Rensselaer Polytechnic Institute, the *Design of HDPE Water Mains for the Lateral Spread Seismic Hazard (MAB-9)* is available at the websites of the PPI Municipal Advisory Board and the 2024 NASTT No-Dig Conference .

"This critically important document provides the criteria for the proper design of an HDPE water main system," stated Camille George Rubeiz, P.E., F. ASCE, co-chair, HDPE Municipal Advisory Board, and senior director of engineering for the PPI Municipal & Industrial Division. "According to the latest United States Geological Survey, nearly 75 percent of the United States could experience an earthquake during the next 100 years that would cause significant damage to underground water mains. Professor O'Rourke's analysis of possible seismic events, lateral spreads and wave propagation hazards with formulas and charts provides the much needed data to help design a resilient water system."

The two primary seismic hazards to buried pipelines are wave propagation and permanent ground deformation. Because earthquakes are caused by movement at a fault, the resulting movement results in waves traveling away from the fault. These waves stretch and bend pipeline infrastructure at or near the ground surface and is referred to as the wave propagation (WP) hazard.

"The WP hazard occurs in all earthquakes and is most commonly quantified by the resulting ground strain," O'Rourke explained. "The WP hazard is also transitory in that after the shaking ends, the ground returns to its original pre-quake position. If the earthquake is large, it can also result in permanent offsets at the surface or movements of the ground (lateral spread hazard) both referred to as permanent ground deformation (PGD). The report addresses the lateral spread hazard and the strains due to PGD which are larger and hence more important than those due to WP."



The ductility of HDPE pipe provides high resistance to earthquakes and is also an important factor for ease of installation

O'Rourke's document contains formulas, calculations, empirical data, and illustrations plus nomenclature and definitions, all of which can be used in designing the HDPE water piping system.

"Being intrinsically able to withstand seismic shifts along with corrosion resistance, leak-proof fused joints creating a monolithic HDPE piping system, having a high degree of flexibility, and high ductility, are among the many reasons HDPE pipe is recognized to be the best product used for seismic installations and, of course, trenchless and open cut installations," Rubeiz stated.

The paper and additional information can be found at www.plasticpipe.org/mabpubs or by scanning the QR Code below.





Warren Environmental Unveils 301-CF

When Proven Epoxy Meets the Power of Carbon Fiber

Warren Environmental is proud to announce the launch of **301-CF**, the latest innovation in its trusted 301 Series. This is not a new product – it's next level. **301-CF pairs our field-proven 301 epoxy coating with integrated carbon fiber reinforcement**, pushing performance beyond traditional standards and setting a new benchmark for spray-in-place polymer (SIPP) pipe applications.

While current SIPP technologies typically offer semi-structural reinforcement, the demand for more robust, structurally independent solutions has never been clearer. 301-CF rises to meet that demand. With the structural integrity and mechanical properties to support engineered designs, it doesn't just meet industry specifications – it reshapes what's possible in pipe rehabilitation.

Formulated for Performance in Demanding Conditions

301-CF has been specifically engineered for SIPP installations and excels in high-temperature, high-wear environments. Its properties prevent degradation, softening, and structural loss when exposed to elevated temperatures – making it an ideal solution for industrial and commercial facilities that rely on hot water for processing, cleaning, or heating. The product also offers excellent coverage across varying pipe diameters, making it suitable for a wide range of rehabilitation challenges – from aging infrastructure to severely deteriorated structures.

Key Benefits of 301-CF:

- Extreme Durability – Built to withstand abrasion, impact, and long-term wear.

- Enhanced Flexibility – Designed to stay resilient and prevent cracking over time.
- Thinner Build, Strong Protection – Spin cast without sacrificing strength or performance.
- Potable Water Certified – Safe and compliant for use in drinking water applications.
- High-Temperature Resistance – Withstands water temperatures up to 180°F in non-potable service.

"301-CF represents a significant step forward in epoxy coating technology," said Brian Brandstetter, President of Warren Environmental. "By combining the reliability of our 301 epoxy coatings with the added strength of carbon fiber, we're giving engineers, contractors, and applicators a powerful new tool to protect and rehabilitate vital infrastructure with confidence."

Whether you're restoring structural integrity to aging water systems or addressing the challenges of heavily deteriorated pipe networks, **301-CF delivers unmatched toughness, versatility, and reliability.**

About Warren Environmental

Warren Environmental is a leading manufacturer of high-performance epoxy systems for infrastructure rehabilitation. Committed to quality, innovation, and environmental stewardship, Warren's 100 percent solids, zero-VOC products are trusted across industries to deliver long-lasting protection for critical assets.



Huge Robbins Slurry TBM breaks through in Hiroshima

Mega-sized Machine crosses the Finish Line in Japan

A hard rock heavyweight crossed the finish line this spring with the successful breakthrough of a Robbins 13.67 m (44.8 feet) Slurry TBM in Hiroshima, Japan. The completion of the 1.4 km (0.9 mi) section of the Hiroshima Expressway Line 5 on April 30 is a landmark achievement in challenging geology, and marks the first time a foreign-made large-diameter Slurry TBM has been used to excavate hard rock in the country.

The 2,400 metric ton (2,650 US ton) Robbins TBM was deployed to excavate beneath Hiroshima's dense urban landscape for the Obayashi-Taisei-Kosei joint venture. The tunnel connects the city's urban center with a major national highway network and improves access to Hiroshima Airport.

"While there is little track record of large-diameter hard rock drilling with TBMs in Japan, Robbins' know-how and on-site support for disc cutters, which have a long track record in hard rock drilling, were excellent. We have been able to obtain great results and technical knowledge for future large-diameter slurry hard rock drilling work," said Mr. Tetsuya Taniguchi, Deputy Director of Obayashi.

The TBM was specially designed to handle the region's challenging geology, including granite formations with unconfined compressive strengths (UCS) of up to 130 MPa (19,000 psi). The cutterhead and other components were built



The 13.67 m (44.87 feet) diameter Robbins Slurry machine broke through this spring in Hiroshima, Japan

to withstand these abrasive rock conditions as well as high water pressure.

The machine's journey began long before its initial cut. Due to the confined urban site and tight



The mega-sized machine for the Obayashi-Taisei-Kosei joint venture bored the Hiroshima Expressway Line 5 tunnel

transportation restrictions, the TBM was assembled in sections, with each section being split into manageable weights and sizes. Once at the jobsite, which was only 30 meters (100 feet) wide by 60 meters (200 feet) long, the TBM was reassembled using Onsite First

Time Assembly (OFTA) – a process that enabled the team to meet a strict timeline of eight months for machine assembly.

The geology encountered was generally very massive, hard granite – while some fracture zones were expected to appear, crews conducted horizontal boring in front of the face every 50 m (160 feet) and these fracture zones were not found. "In addition, there was a section of low cover directly beneath a residential area, but we were able to pass through it safely by taking the appropriate measures to mitigate environmental impacts such as vibration, noise and ground surface displacement," said Mr. Taniguchi.

As the team moves closer to bringing the tunnel online, the success of the project proves the effectiveness of Slurry TBMs in challenging hard rock conditions. The completion of the tunnel for the project owner, Hiroshima Expressway Public Corporation, is also a boon to the region, supporting its growing economy and tourist sector.

"From the complex machine launch to breakthrough, we are proud of this tunnel being completed for the city of Hiroshima and congratulate the Obayashi-Taisei-Kosei JV. It will make a huge positive impact for the city," said Mr. Shinichi Konda, Robbins Chief Engineer.



HIGH-PRESSURE PERFORMER

Brandt Hydrovacs deliver the maneuverability, capacity, and precision needed for utility work success with exceptional durability.

More Value

Simple to operate, easy to maintain, and built to keep rental fleets moving.

More Support

Backed by world-class service and 24/7/365 customer support to make your life easier.

More Uptime

Built to run longer with no transfer case, no unloader valve, and smarter electrical systems.



Learn more at
brandt.ca/hydrovac

Brandt



North American Society for Trenchless Technology (NASTT)
2025 No-Dig Show
Denver, Colorado
March 30-April 3, 2025

TM-T6-01

Don't Drain the Pond - Rehabilitating the City of New Bedford's Grape Street Collector Sewer

Jesse Herman, PE, PMP, CDM Smith, Providence, Rhode Island
Shawn T. Syde, PE, Department of Public Infrastructure, City of New Bedford, Massachusetts
Jamie Ponte, Department of Public Infrastructure, City of New Bedford, Massachusetts
Justin Chicca, Department of Public Infrastructure, City of New Bedford, Massachusetts
James Costa, Department of Public Infrastructure, City of New Bedford, Massachusetts

1.0 ABSTRACT

In the fall of 2018, the City of New Bedford (City) Department of Public Infrastructure (DPI) initiated a multi-sensor inspection (MSI) program of 40 miles of large diameter interceptors and collector sewers, and segmental block and brick sewers. This program included the inspection of the Grape Street Collector (GSC), comprised of approximately 12,900 linear feet (LF) of 36- to 72-inch diameter brick and vitrified clay (VC) pipe constructed in 1912. A portion of the 36-inch VC section of the GSC pipeline is located in an easement through the



DON'T DRAIN THE POND - REHABILITATING THE CITY OF NEW BEDFORD'S GRAPE STREET COLLECTOR SEWER

AUTHORS



Jesse Herman, PE, PMP
CDM Smith,
Providence, Rhode Island



Shawn T. Syde, PE
Department of Public
Infrastructure, City of New
Bedford, Massachusetts



Jamie Ponte
Department of Public
Infrastructure, City of New
Bedford, Massachusetts



Justin Chicca
Department of Public
Infrastructure, City of New
Bedford, Massachusetts



James Costa
Department of Public
Infrastructure, City of New
Bedford, Massachusetts

1. ABSTRACT

In the fall of 2018, the City of New Bedford (City) Department of Public Infrastructure (DPI) initiated a multi-sensor inspection (MSI) program of 40 miles of large diameter interceptors and collector sewers, and segmental block and brick sewers. This program included the inspection of the Grape Street Collector (GSC), comprised of approximately 12,900 linear feet (LF) of 36- to 72-inch diameter brick and vitrified clay (VC) pipe constructed in 1912. A portion of the 36-inch VC section of the GSC pipeline is located in an easement through the City's Fredrick Law Olmsted- designed Buttonwood Park and travels directly beneath Buttonwood Brook and Pond. Adjacent neighborhoods are serviced by lateral sewers that also flow under the Brook and Pond to the GSC. Inspections of these pipelines revealed broken pipe, cracks, intruding roots and excessive infiltration and inflow (I/I) through leaking joints and manholes. One manhole on the GSC, located within the extents of the Buttonwood Park Pond, was subject to substantial inflow.

To address these deficiencies, the City implemented a rehabilitation project to improve access and repair 2,000

This paper was selected as Outstanding Paper – Rehabilitation, from all the presentations at the 2025 NASTT No-Dig Show in Denver CO. NASTT No-Dig Papers are available for download, free to members, at www.nastt.org

LF of the GSC, including cured-in-place pipe (CIPP) lining, chemical root treatment, cementitious lining of manholes, adding new access manholes, and replacement of existing manhole frames and covers. This project was challenging to implement due to access constraints, complex by-pass pumping operations around the brook and pond, the need to maintain public access to park amenities throughout the project and coordinating work with existing Park projects. Work was successfully completed between March 2024 and October 2024. With the project complete, significant I/I has been removed from the City's collection system and the sewers are fully reinforced under the pond, with improved access for maintenance of the GSC.

2.0 INTRODUCTION AND BACKGROUND

In 2017, the City finalized a Long Term CSO Control and Integrated Capital Improvements Plan (Integrated Plan) that was developed in accordance with the Environmental Protection Agency's (EPA) 2012 Integrated Municipal Stormwater and Wastewater Planning Approach Framework. The goal of the Integrated Plan was to capture all of the City's Clean Water Act obligations into a single roadmap of projects and programs that prioritized the City's most pressing needs. The Integrated Plan included eight priority needs areas: wastewater treatment; combined sewer overflows (CSOs); wastewater collection system; stormwater system; wet weather flooding; pumping stations; flood control structures; and organizational improvements.

One of the priorities identified by the Integrated Plan was the need to inspect and rehabilitate the City's sewer collection system. This included recommendations to implement a formalized I/I program as well as inspection of the City's major interceptors and collector sewers:

1. A formal I/I program had not been completed on the system in over 30 years and no recent data existed on the sources and extent of I/I entering the system.
2. The City's interceptors and collector sewers are generally more than 75 years old and the structural condition and operation and maintenance (O&M) condition (i.e., sediment, infiltration, roots, pipe sags, etc.) for the majority of the pipelines was unknown. In total, approximately 40.7 miles of interceptors and collector sewers, large diameter concrete sewers, and brick/segmental block sideline sewers were recommended to be inspected as part of the program. Figure 1 shows an overview of the Interceptor and Collector Sewer network.

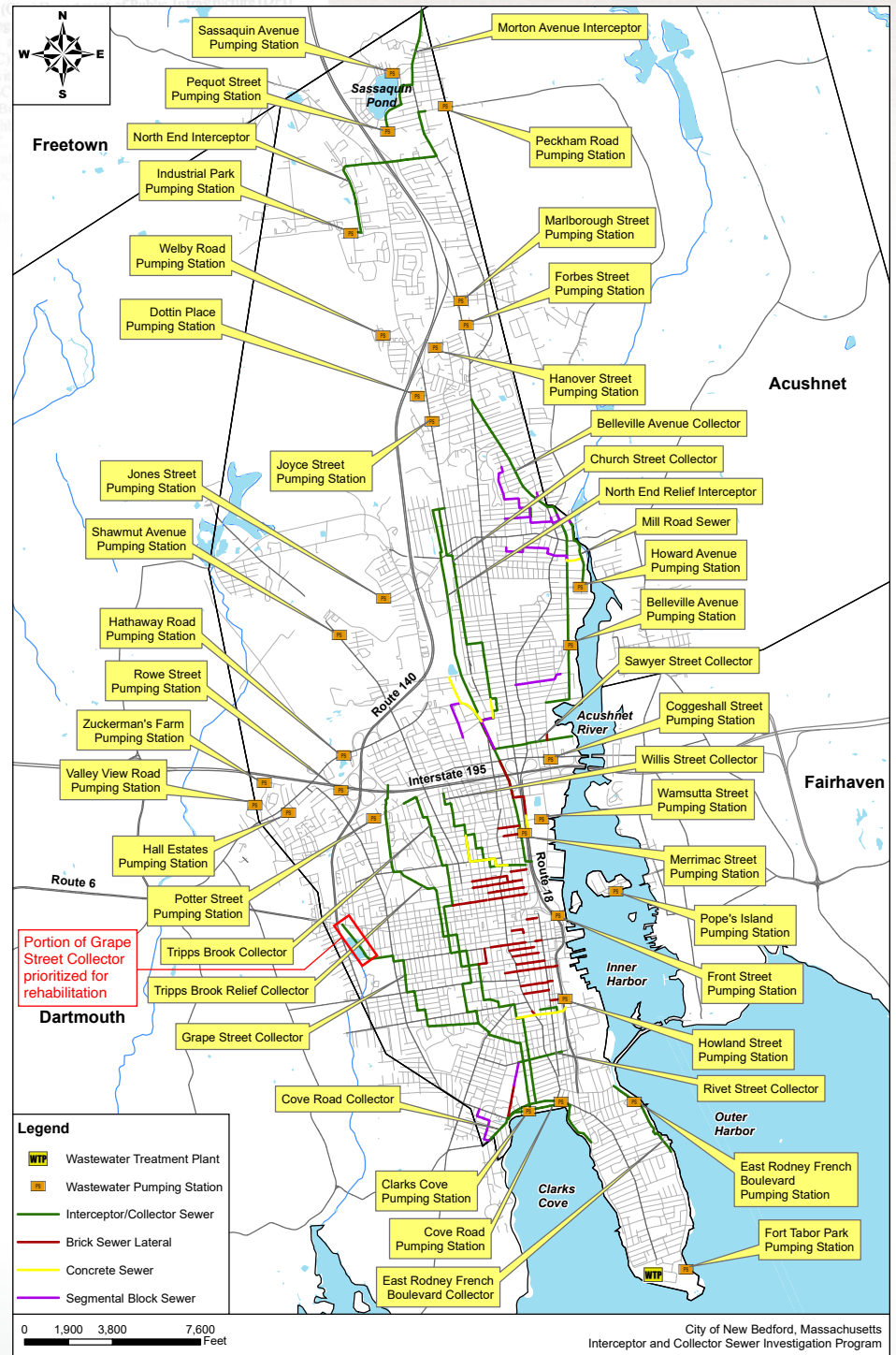


Figure 1: General Location Map of Interceptor and Collector Sewers and Brick Lateral Sewers

In 2017, the City began the process of implementing the first phase of the I/I program; a flow monitoring program. The flow monitoring program included assessment of 58 subareas covering approximately 103.5 miles of gravity sewer pipe to determine the general extent

of I/I entering the system. The study area focused on the sanitary portions of the City's sewer collection system (approximately 42 percent of the total system by length). The program identified excessive infiltration and/or inflow in 36 priority sub-areas, 21 of which exceeded

2025 No-Dig Outstanding Paper - Rehabilitation

North American Society for Trenchless Technology (NASTT)



Figure 2: Manhole MH-5035 within Buttonwood Park Pond allowed inflow from the pond to enter the City's collection system.

both the infiltration and inflow thresholds. These 36 sub-areas account for approximately 77.4 miles of gravity sewer pipe. The GSC extended through several sub-areas.

In October 2018, the City began their interceptor and collector sewer investigation program (Investigation Program) of approximately 40.7 miles of interceptor and collector sewers. The Investigation Program included pipeline MSI consisting of National Association of Sanitary Sewer Companies (NASSCO) Pipeline Assessment Certification Program (PACP) compliant pipeline inspections as well as the collection of sonar data below the flow line to quantify levels of debris throughout the pipelines and lidar profiling above the flow line to determine pipeline integrity and defects. The Investigation Program found over 3,300 defects ranging in severity from minor PACP Grade 1 defects to major Grade 5 defects. In total, 98,000 LF (18.6 miles) of pipeline was recommended for rehabilitation at an estimate cost of \$56.7 million (2022 dollars).

The GSC, which was included in the flow monitoring program and the Investigation Program, was highlighted as a pipeline of concern. Flow monitoring data identified Sub-area 52,

located along the GSC, as the 12th highest sub-area based on the I/I severity (i.e., gallons per day per inch-mile of pipe), contributing an estimated 556,000 gpd of infiltration and 400,000 gallons of inflow to the system. Sub-areas 53 and 54 were located along lateral sewers connecting to the GSC and were ranked 3rd and 14th highest, respectively, in terms of I/I severity. MSI data identified numerous pipeline defects along the entire pipeline route such as root intrusion, broken pipes and offset joints, and a manhole (MH-5035) that was acting as a pond overflow (Figure 2). Due to the severity of I/I found to be entering the pipeline beneath Buttonwood Park Pond, the pipe condition and the potential impacts resulting from reconstruction of the Buttonwood Park Pond Dam, which the pipeline crosses under, the City decided to prioritize the repair of the uppermost reaches first (Refer to Figure 1 for location of work in comparison to the GSC location). The inspection work also identified the need to rehabilitate several lateral sewers that convey flow from adjacent neighborhoods to the GSC and are located under the Pond.

This paper will provide a summary of the following:

1. Issues identified during GSC investigations including flow metering and the MSI program, and the need to

coordinate projects which drove the prioritization of repairs.

2. Design process and development of an approach to rehabilitate the pipelines while addressing City concerns related to impacts to the park and adjacent Pond and Brook.
3. Construction and implementation approach including the CIPP lining process, manhole rehabilitation, by-pass pumping approaches to mitigate interference with existing park activities and navigating the Brook and Pond.
4. Lessons learned during construction and by-pass pumping operations during rehabilitation of the pipeline and manholes.
5. Project results.

2.1 Department of Public Infrastructure

The City's Department of Public Infrastructure (DPI) is a multi-faceted City department consisting of seven separate divisions: Water, Wastewater, Highways, Engineering, Greenspace Maintenance, Cemeteries and Forestry. This structure breaks down the traditional silos of municipal government and allows the Department the flexibility of managing projects, programs and staff to gain efficiencies and cost savings, and promotes the integrated approach outlined in the Integrated Plan. The DPI is responsible for the implementation and management of the approximate \$1.78 billion Integrated Plan.

3.0 SYSTEM AND PROGRAM DESCRIPTION

The City's sewer collection system is comprised of approximately 259 miles of sanitary and combined gravity and pressure sewers ranging from 6- to 96-inch in diameter. In addition, there are approximately 164 miles of separate storm drains. The network of interceptors and collector sewers convey combined, sanitary, and stormwater flows to the City's Main

2025 No-Dig Outstanding Paper - Rehabilitation

Intercepting Sewer (Main Interceptor) which transports the flow to the City's Wastewater Treatment Plant (WWTP). Many of the City's older collectors and interceptors are constructed of brick, segmental block, reinforced concrete (RC), and vitrified clay (VC).

Figure 1 shows the general location of the brick, segmental block and concrete sewers, interceptors and collector sewers and highlights the portion of the GSC included for rehabilitation as part of this project.

4.0 GRAPE STREET COLLECTOR

The GSC is located in the southwest section of the City between Route 6 and Clarks Cove. The surrounding area is primarily residential and is bounded to the south by the Rural Cemetery. The northern portion of the collector crosses through Buttonwood Park. Refer to Figure 1 for the location of the entire GSC.

4.1 Description

The GSC is approximately 12,900 feet in length, originating at the intersection of Kempton Street and Oesting Street and ultimately discharging to the Rivet Street Collector at the intersection of Bonney Street and Rivet Street. The collector ranges in size from 36-inch to 72-inch diameter and is primarily comprised of brick, RC and VC pipe. At the upstream end, the GSC flows south from Kempton Street to Lieutenant Walter E. Fuller Memorial Parkway, which requires crossing beneath Buttonwood Park Pond (see Figure 3). This portion of the collector is 36-inch diameter VC pipe. An 18-inch diameter VC sewer main from Brownell Avenue discharges to the GSC just north of Buttonwood Park Pond. An 8-inch diameter cast iron (CI) sewer main from Brownell Avenue also crosses beneath the pond and discharges to the GSC near the dead end of Lake Street.

4.2 Nature Of The Problem

The GSC was originally constructed in 1912 to collect flow from expanding service areas in the west and central areas of New Bedford. Over time, the pipeline was extended north as the City continued to expand, eventually requiring service to Buttonwood Park and the areas west and north. To serve these areas, the GSC was extended northerly and was constructed in conjunction with the Fredrick Law Olmstead-designed Buttonwood Park. This included the construction of the Buttonwood Park Pond and Buttonwood Park Pond Dam. The Dam and Pond were constructed on Buttonwood Brook to provide recreational opportunities and a gateway entrance to the park. In addition, to accommodate alignment of the GSC with park aesthetics, the pipeline and tributary sewers were built in the flood waters of the Pond and under the dam.



**CARBON FIBRE
TECHNOLOGIES**

**Extend Asset Life.
Reduce Risk of Failure.**

Infrastructure Repair & Rehabilitation.

2025 No-Dig Outstanding Paper - Rehabilitation



Figure 3: Portion of the Grape Street Collector Sewer Prioritized for Rehabilitation

Since construction of the Pond and Dam, the areas to the north of the pond eventually became wooded and overgrown. Challenges associated with maintaining pipelines under a dam and

pond prohibited normal maintenance of the sewer pipes.

In 2017, the City began the process of implementing a flow monitoring



Figure 4: General Location of Sub-Areas 52, 53 and 54

program of its sanitary sewer system and MSI program of its major collector sewers and interceptors. The results of the programs showed that the area where the northern reaches of the GSC serviced, were some of the worst areas in terms of I/I. Based on the metering data, Sub-Areas 52, 53 and 54 contributed more than 7.3 percent of the total calculated I/I and represented 52 inch-miles of pipe out of a total 1,236 inch-miles included in the program (4.2 percent). All three subareas exceeded the excessive infiltration and inflow thresholds set by Massachusetts Department of Environmental Protection (MassDEP). The infiltration threshold is a severity of 4,000 gpd/in-mi and the excessive inflow threshold is the highest severity subareas accounting for 80 percent of the total calculated inflow. See Figure 4 for the general location of Sub-Areas 52, 53 and 54 in relation to the GSC.

MSI data collected under the Investigation Program found that the pipeline had a number of defects such as roots, broken pipe segments and joints, sediment build-up, and infiltration (Figure 5). Follow-up closed circuit television (CCTV) inspection of the lateral sewers that serve the neighborhoods to the west of the park exhibited similar issues as the GSC. These defects, combined with the fact that one of the lateral sewer manholes was located on the Pond bank and one of the manholes on the GSC was located in the Pond, which was acting as a pond

2025 No-Dig Outstanding Paper - Rehabilitation

overflow, confirmed the results of the flow monitoring program.

The need to address structural and O&M issues along the pipeline as well as the need to reinforce the pipeline to support future restoration of the Pond and Dam brought this project to the forefront of the City's capital plan.

5.0 PROJECT DEVELOPMENT, DESIGN AND PERMITTING

The following summarizes the development of the project and its design as well as the approach used to permit the work.

5.1 Project And Design Development

To meet the schedule outlined in the Integrated Plan, the City applied for a low interest loan through the MassDEP Clean Water State Revolving Fund (CWSRF) program in August 2018 which was subsequently awarded in March 2019 on the CWSRF Intended Use Plan (IUP).



Figure 5: Typical defects observed along the GSC and broken pipe along the 18-inch diameter lateral sewer

The City contracted with CDM Smith Inc. (CDM Smith) to begin designing and permitting the GSC rehabilitation with an expected design completion and project award of June 2021. However, due to funding constraints associated with the COVID 19 pandemic, the project design was halted until funding for construction was in place. As a result of the almost two-year delay in design work, the City was required to re-apply for CWSRF construction

funding in August 2021 which was approved in May 2022 for \$5,800,000.

The initial proposed schedule would have allowed follow-up work on several planned projects in the same location which included rehabilitation of the dam and construction of green infrastructure associated with the addressing water quality in Buttonwood Brook. Unfortunately, the delay in starting the project created a schedule conflict which

ENGINEERED SOLUTIONS FOR YOUR BYPASS PUMPING NEEDS

HIGH FLOWS
LONG RUNS
CHALLENGING
LOCATIONS
DEWATERING
ACCESS PITS



Liquid Ingenuity®



rainforrent.com/bypass
800 742 7246

2025 No-Dig Outstanding Paper - Rehabilitation

complicated the GSC rehabilitation project. To address the scheduling conflict with other planned projects, the City and CDM Smith needed to develop an approach to implement the green infrastructure construction and GSC work simultaneously.

5.1.1 Design Challenges

The location of the project created unique design challenges including:

1. Accessing manholes located in wooded wetland resource areas during construction
2. Accessing and rehabilitating manholes located in the pond
3. Bypassing sewage flow within the City's over/under system (i.e., storm drain constructed parallel with and directly above the sanitary sewer)
4. Mitigating construction related impacts to the Buttonwood Senior Center
5. Mitigating traffic impacts along Kempton Street
6. Developing a design that allowed continued service of the GSC and tributary sewers while minimizing impacts to Buttonwood Park Pond and Buttonwood Brook
7. Allowing continued use of the Buttonwood Park multi-use path during construction
8. Coordinating simultaneous green infrastructure projects in the same location

Through a series of design workshops with the City and public outreach meetings with the local neighborhood association, members of the City Council, and Friends of Buttonwood Park, an approach was developed that addressed both the City's and resident's concerns regarding the project and a coordinated approach to simultaneous project implementation.

5.1.2 Accessing Manholes in Wetland Areas and the Pond

Several manholes on the GSC are located in a forested wetland area adjacent to the Brook and Pond. Completed NASSCO

Manhole Assessment Certification Program (MACP) Level 1 manhole inspections indicated that these manholes had vented covers, were in low lying areas and subject to inundation and flooding. Defects identified within the manholes included root intrusion, leaking pipe connections, and signs of staining on manhole walls indicative of I/I. Figure 6 shows photos of manhole MH-5294 from the manhole inspection program.

One manhole was located directly in Buttonwood Park Pond at the end of Lake Street near the Buttonwood Senior Center. This manhole was identified as leaking considerably and acting as a pond overflow (Figure 2). A second manhole was found to be located directly adjacent to the Pond bank. This manhole was located on the 8-in lateral sewer that flows under Buttonwood Park Pond.

Based on the NASSCO MACP manhole inspections, it was determined that the manholes along the GSC and those along the lateral sewers needed to be rehabilitated. Cleaning followed by chemical root control and cementitious lining along with replacement of existing frames and covers was recommended with flexible chimney liners to ensure a tight seal between the manhole frame and cone section. For those manholes in the wooded wetland area, watertight frames and covers along with polyethylene manhole inflow covers were recommended. Epoxy lining was considered; however, because there was no indication of excessive hydrogen sulfide or other corrosion issues, it was not recommended.

Additional measures for the manholes located on the pond bank and within the Pond were proposed to mitigate water from the Pond entering the collection system. For the manhole adjacent to the Senior Center in the Pond, it was proposed in the contract documents to construct a small cofferdam around the manhole and completely replace



Figure 6: Existing Manhole MH-5294

the cone section with a new watertight structure. A flexible chimney liner was also recommended to create a watertight joint between the new cone section and manhole barrel followed by replacement of the frame and cover with a watertight casting and lining of the manhole.

The manhole adjacent to the pond bank was recommended to be abandoned in place as part of the lining of the 8-in lateral sewer. Following lining of the sewer thru the manhole, the structure would be filled, and the frame and cover removed. A new manhole was proposed away from the pond bank allowing easier access and mitigating flooding potential from the pond.

Access to all manholes was a challenge especially those located in the wooded areas. For those structures, it was recommended that a "cart" path be constructed using natural mulch or timbers to stabilize the ground surface to mitigate rutting and protect exposed or shallow root systems in the wetland areas. This approach was developed in cooperation with the local Conservation Commission to mitigate impacts to wetland resource areas.

5.1.3 Pipeline Rehabilitation Approach

Selection of the most appropriate and cost-effective approach to rehabilitating the GSC and lateral sewers under Buttonwood Park Pond required careful consideration of access requirements,

2025 No-Dig Outstanding Paper - Rehabilitation

maintenance of flows, provisions should be made for the possibility of equipment become lodged in one of the pipelines under the pond during construction and the ability to minimize disturbance to use of the Park and Senior Center.

5.1.3.1 Liner Selection and Design

The project contains approximately 1,130 LF of 8- to 18-inch diameter lateral sewers and 1,930-feet of the 36-inch diameter GSC pipeline that required rehabilitation. As previously mentioned, pipeline inspection data of the GSC and lateral sewers indicated that roots were prevalent along all pipeline reaches. In addition, leaking joints and broken/offset joints also existed along all pipeline reaches. Debris within the GSC also needed to be removed prior to any type of rehabilitation.

At the southerly end of the GSC which was proposed to be rehabilitated, the pipeline was constructed with

a radius of approximately 750-ft with reverse curvature to a radius of 1,175-ft followed by a radius of 50-ft (Figure 7). These radii made it a challenge to select a rehabilitation approach that could navigate the bends without the need for the construction of access pits or manholes.

The difference in pipe diameter, the pipe radii, the challenges associated with flow maintenance and access to manholes, identified pipeline defects and the need to mitigate impacts to the Brook, Pond and maintain access to park amenities like the multi-use path drove decision-making on the selection of liner alternatives and ultimately the recommended approach to pipeline rehabilitation. The following list summarizes the alternatives considered to rehabilitate the pipelines:

1. Cured in Place Pipe Liner
 - a. Steam or hot water curing
 - b. Ultraviolet light curing
2. Slip Lining
 - a. Fiberglass Reinforced Plastic (FRP) pipe lining
 - b. Swagelining with High Density Polyethylene (HDPE) pipe
3. Spin Cast or Spray-on Lining
4. Joint Testing and Sealing
5. Chemical Root Control

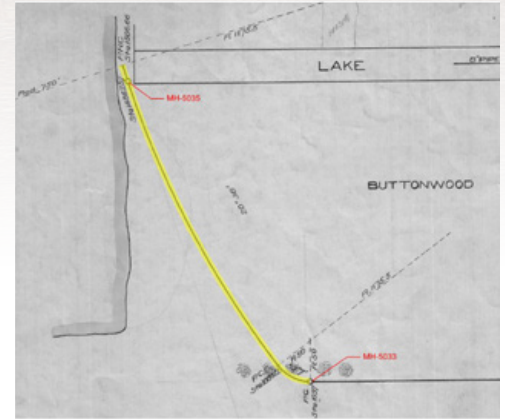


Figure 7: GSC record drawing showing design radius





Drill with Confidence

Precision gyro technology delivers guidance you can trust.

Part of the complete line of ParaTrack™ HDD Guidance tools.



THE GUIDANCE SPECIALISTS
vectormagnetics.com/gyro

2025 No-Dig Outstanding Paper - Rehabilitation

Figure 8 below shows the results of the alternatives analysis completed to support the selection of the most appropriate rehabilitation method. One of the key considerations was the range of use and the ability of the rehabilitation approach to be utilized on both small and larger diameter pipes.

As shown, three alternatives ranked highly in the comparative analysis, primarily driven by their ability to be flexible with the implementation on both smaller and larger diameter pipelines, navigating pipe bends, as well as the need to mitigate disturbance to the Buttonwood Park and Brook.

Ultimately, CIPP lining was selected in combination with joint testing and sealing and chemical root control. It was determined that the project would leave the selection of the curing method to the contractor based on means and methods of construction. The alternatives analysis did show, however, that with the selection of CIPP lining, management of flows would be the biggest implementation hurdle to overcome.

Slip lining with FRP pipe was given strong consideration for this project due to its ability to be constructed under live flow; however, its uses on smaller diameter pipelines and the need for construction of larger access pits brought down its ranking. Similarly for swage lining, access issues and maintenance of flow also were drivers for not selecting these methods. It was determined that spin

cast lining was not cost-competitive in smaller diameters over traditional CIPP lining.

5.1.3.2 Maintenance of Flow

The biggest challenge of the project design was to develop an approach for maintenance of flow during the lining process. The following obstacles created challenges for the development of an approach to maintain flows on the project:

1. Flows in the GSC ranged between 1.3 mgd and 5.8 mgd depending on the time of day and weather conditions.
2. Most of the flow from the north comes from an existing 27-in sewer that is constructed in an “over-under” manner with a 36-in storm drain. The 27-in sewer pipe connects to a manhole on the GSC located in a grassed area just prior to the wooded wetland area. Over-under sewers are prevalent in New Bedford and consist of a drain and sewer line in a common trench with the drain line typically stacked directly over the sewer line. Refer to Figure 9.
3. Routing of flows from the northerly end of the project to the southerly end of the project requires crossing of the Buttonwood Park multi-use path, the Brook and depending on the by-pass piping route, the Pond.
4. The most upstream manhole of the area to be rehabilitated is

located in Kempton Street, a major City roadway.

The wide range of flows, the Brook and Pond, traffic mitigation and ensuring that the multi-use path remained operational throughout construction created a challenge for selection of the best method for maintenance of flows.

Following assessment of locations to by-pass pump from and to, it was determined that pumping from the upstream manhole of GSC which is located in Kempton Street was not possible due to traffic issues, nor was it needed as minimal flow was conveyed from the pipe from the west. Most of the flow to the GSC was being conveyed from the 27-in sewer from the north. Unfortunately, due to lack of access along the 27-in sewer, it was determined that new access manholes would be needed on the over-under sewer and drain system.

Providing access would mean constructing an offset drain manhole and a new sewer manhole directly over the sewer pipe. Although not an “ideal” solution as it results in the drain being installed with horizontal pipe bends, it was determined with the City that it would be best for the drain to have the bends and the sewer to continue straight allowing easier lining in the future and for future inspection. The only available location for these new manholes was determined to be in the share-use path. Figure 10 shows the final recommended design.

Liner Alternatives	Risk	Access	Maintenance of Flow	Traffic Impacts	Disturbance to Park Amenities	Range of Use (small and large)	Disturbance to Pond/Brook	Cost	Ranking
Cured in Place Pipe									
Steam or hot water curing									1a
UV Curing									1b
Slip Lining									3
Swage Lining									4
Spin Cast or Spray-on Lining									5
Joint Testing and Sealing									1c
Chemical Root Control									2

Figure 8: Comparative Analysis of Rehabilitation Alternatives

2025 No-Dig Outstanding Paper - Rehabilitation

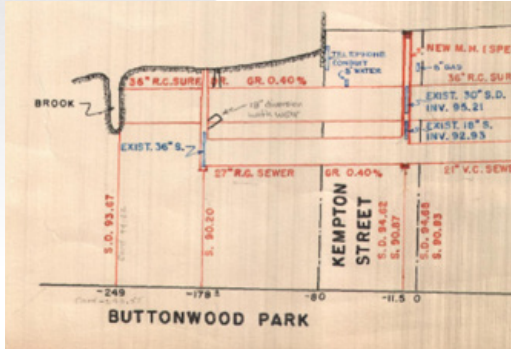


Figure 9: Record plan of over-under system flowing to Grape Street Collector

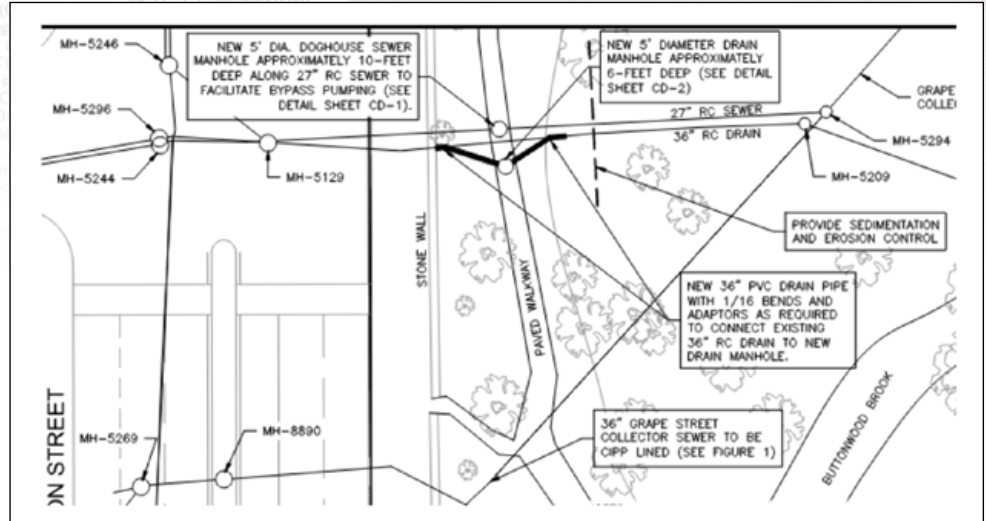


Figure 10: Over-under Sewer Access Design

Once it was determined where flows could be by-pass pumped from and to, determining a route of the by-pass main was then required. Following discussions with the City, three alternatives were developed for inclusion in the contract documents. Figure 11 shows each alternative that was considered during the design phase and discussed with the awarded contractor.

Alternative 1 – Ilion Street Route:

Alternative 1 involved the construction of a by-pass force main from the new sewer manhole in the shared-use path to the east along the Veteran's Center access roadway to Ilion Street

then southerly and easterly through a wooded area to Oneida Street. From there, the force main would be constructed southerly, crossing Lake Street and the Senior Center parking lot to an existing manhole on the GSC.

TESTED
to endure the harshest pipeline conditions.

TRUSTED
by industry experts for reliability.

PROVEN
to deliver unparalleled performance.

Experience the confidence of precision and durability with our cutting-edge CCTV pipeline inspection equipment & software solutions. With a track record of rigorous testing and a reputation built on trust, our equipment stands as the industry's proven solution for ensuring pipeline integrity and safety.

CUES
800.327.7791 salesinfo@cuesinc.com | www.cuesinc.com

CALL FOR A FREE DEMO!

CUES RSM: Gillian Wilson
Phone: 971.369.6201
Email: gillianw@cuesinc.com

2025 No-Dig Outstanding Paper - Rehabilitation

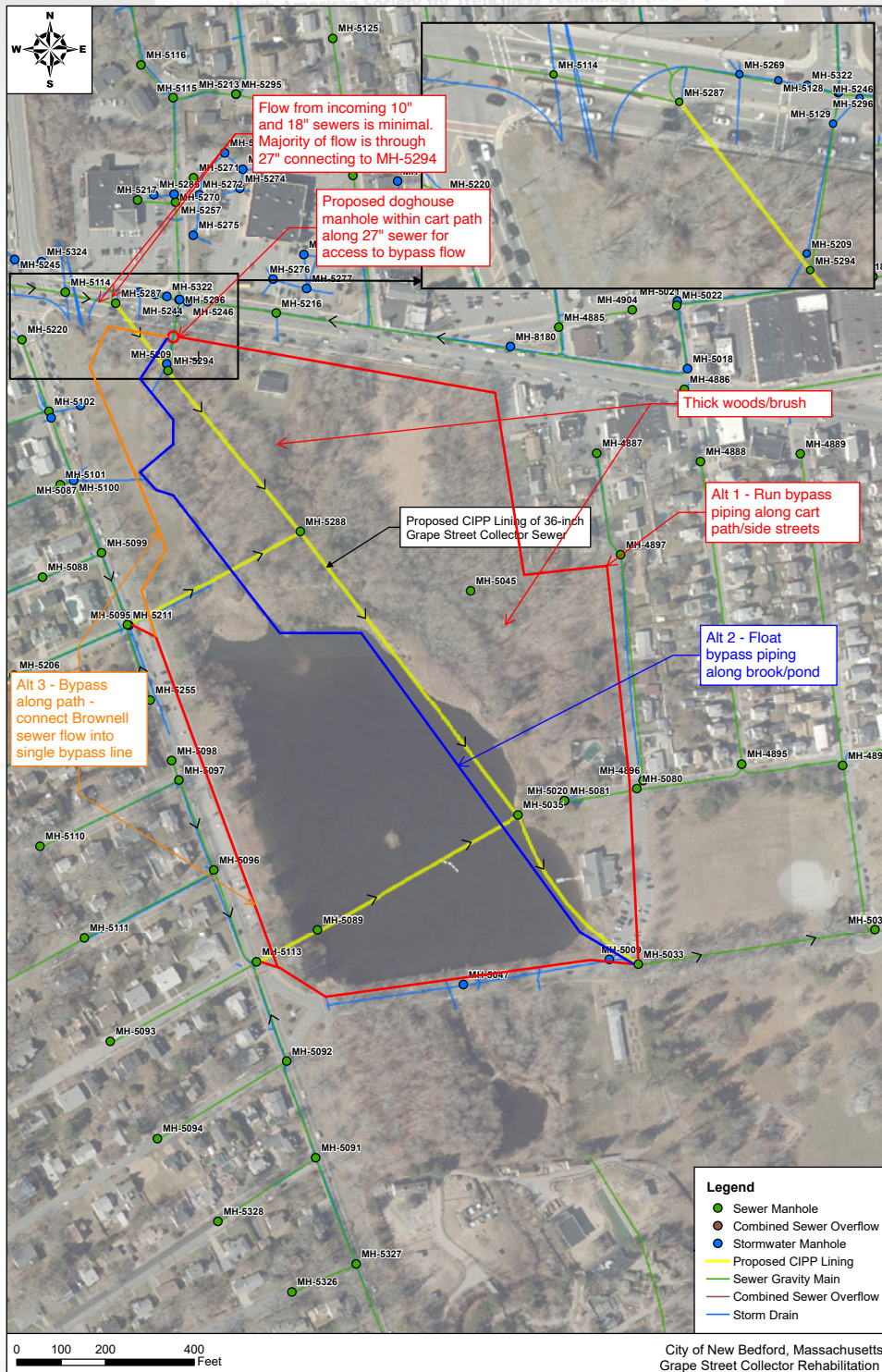


Figure 11: Alternatives Analysis of By-pass Piping Route

This alternative does not address flows from the lateral sewers that connect to the GSC which would have been handled separately.

Alternative 2 – Floated Pond Crossing:

This alternative involved a more direct route going south along the Brook and across the Pond to a manhole on GSC.

This would require floating the pipe on the Pond but would mitigate any disturbance to City streets and wooded areas that would be required under Alternative 1. Similar to Alternative 1, this alternative does not address flows from the lateral sewers that connect to the GSC.

Alternative 3 – Brownell Avenue Route:

Alternative 3 involves construction of a by-pass force main along Brownell Avenue. A force main would be installed from the new manhole in the shared-use path westerly, across Buttonwood Brook, then southerly in an open grass area, along the existing shared-use path, crossing the Pond at Fuller Memorial Park Way on the Dam to the manhole on the GSC. This approach could pick up flow from the lateral sewers that cross under the pond to the GSC but would cross the areas proposed for green infrastructure.

5.1.3.3 Traffic Mitigation

The upstream manhole of the GSC (MH-5287) is located at the intersection of a major highway (Route 140) and Kempton Street; one of the busiest streets in the City. Kempton Street is a major connector roadway from the adjacent Town of Dartmouth and Route 140 into downtown New Bedford and other historic points, including Buttonwood Park.

The recommended approach for rehabilitation of the pipeline and by-passing of flows needed to minimize traffic disturbance to the greatest extent possible.

Several options were developed to mitigate traffic disturbance coordinated with selection of the pipeline rehabilitation and flow management approaches. This included options to limit work areas to a single lane of traffic, fully closing the east bound travel lanes and diverting traffic around the work area using a portion of the west bound lanes, a full detour around the work site using

2025 No-Dig Outstanding Paper - Rehabilitation



Figure 12: Kempton Street looking west at upstream manhole on Grape Street Collector located in the median

adjacent City streets or determining an approach to line from the park northerly to capture the upstream reach and bypass pump from the Park.

It was determined that lining the GSC pipe reach that extended from the park northerly to Kempton Street from the Park would be the best alternative to mitigate traffic disturbance in Kempton Street.

5.1.3.4 Liner Implementation Approach

Following selection of a preferred liner alternative, developing feasible by-pass piping options and development of traffic mitigation strategies, determining a constructable liner implementation approach was needed. Constraints associated with maintenance of flow, minimizing traffic disturbance and lack of access to manholes in the wooded wetland area created challenges in development of an implementable approach. Although the final approach would ultimately be left up to the contractor, both CDM Smith and the City wanted to make sure that a constructable approach was developed and provided to the contractors in the bid documents as a “suggested” sequence of construction.

Although not ideal, a design solution was developed that included lining from a manhole in the park. This approach was determined to be the most appropriate solution to mitigate traffic disturbance in Kempton Street while still maintaining access to the shared-use path. This

approach did create a challenge for lining of the GSC. Once it was determined that lining from the park could be completed, this forced a longer liner length to a manhole with no access in the wooded wetland area. The next closes manhole was approximately 800-ft south.

To address the lack of access and longer liner lengths, a leap-frog scenario was developed such that the contractor could line from a single manhole north and south and then leap-frog downstream where access was available and complete the same type of lining approach until all reaches of the GSC were lined.

5.1.3.5 Liner Design

Following selection of the lining approach using CIPP, a liner design was developed. The design approach included a Fully Deteriorated Gravity Pipe Condition design under ASTM F1216 for maximum structural strength and durability. Although much of the pipeline was not subject to traffic loading because it is in the park area, a more robust liner design was selected due to the future possibility of pond dredging activities and reconstruction of the dam. Large construction equipment would have to be used over the pipeline and the City did not want any damage to occur.

End seals were required as well as pre-sealing of any infiltration along the pipeline route to mitigate water entering behind the liner. A two-year warrantee was required. A minimum liner thickness for pipes 12-in and larger was set to 6 mm and all liner design was established with a minimum service life of 50 years. The following summarizes key design parameters which were governed by ASTM F1216, ASTM F1743, ASTM F2019 and ASTM D5813 for minimum initial and long-term properties of the liner:

Property	Test Method	Initial (psi)	Long Term (psi)
Flexural Strength	ASTM D 790	4,500	2,250
Flexural Modulus of Elasticity	ASTM D 790	350,000	175,000

5.2 Project Permitting

As part of the CWSRF application, all applicable construction-related permits are required to be identified at the time of application submission and obtained prior to receiving MassDEP’s Permission to Advertise and Authorization to Award. For this project, a Notice of Intent (NOI) was filed with the MassDEP and application submitted to the New Bedford Conservation Commission. Following presentation of the project to the Conservation Commission, an Order of Conditions was issued by the Commission and appended to the construction contract specifications.

Close coordination upfront in the project design with the Conservation Commission helped to streamline the permitting process. As part of this process, the project team developed a route of the proposed “cart path” and the use of organic wood chips to access the manholes in the wooded areas. In addition, an approach to minimize disturbance to the manhole in the pond was developed that included use of oil-sorbent booms, sandbags, and the construction of a working platform around the manhole.

6.0 PROJECT IMPLEMENTATION

In August 2023, the GSC rehabilitation project was publicly bid. Three bids were received for the project, with prices ranging from \$994,994 to \$1,394,059. The project was awarded to low bidder Green Mountain Pipeline Services (Green Mountain) of Bethel Vermont in the amount of \$994,994 which resulted in a total project cost of approximately \$2,355,344 that included construction, contingency, police details and engineering services during construction.

2025 No-Dig Outstanding Paper - Rehabilitation

In June 2024, Green Mountain was acquired by Azuria Water Solutions (Azuria); formerly Aegion Corporation (Aegion) which was rebranded to Azuria in April 2024. For the purposes of this paper, Azuria will be called by its subsidiary Insituform which completed most of the project work.

6.1 Mobilization And By-Pass Pumping

In March 2024, Insituform's subcontractor mobilized to the site to begin installation of a doghouse manhole at the northern end of the project area for use as a bypass suction manhole. Insituform also began installation of the 18-inch SDR 17 HDPE bypass piping. Due to the GSC being located within the combined portion of the City's sewer collection system, the Contract Specifications included a provision for the Contractor to submit a wet weather bypass plan. Based on flow monitoring data collected between March 6 and May 31, 2017, the 36-inch GSC had an average dry weather flow of approximately 900 gallons per minute (gpm) and a peak wet weather flow of close to 4,000 gpm. Data was collected in 15-minute intervals utilizing area-velocity sensors.



Figure 13: Bypass Pumps at Upstream GSC Manhole



Figure 14: Bypass Discharge at MH-5034 and Brook Crossing

By-pass pumping Alternative 3 was selected by Insituform to by-pass flows around the project area. The only major difference in the approach implemented was the use of the next adjacent manhole downstream from that shown (MH-5034) on Figure 11. This allowed access for Insituform to line to this manhole and not have to work around discharge piping.

The bypass pumping setup for the GSC consisted of two Godwin CD225M 8-inch pumps operated in a primary/stand-by configuration. Both pumps utilized the same suction manhole (new sewer doghouse manhole) which was plugged at the outgoing pipe. Discharge lines were isolated with check valves and combined into a single 18-inch line. Figure 13 shows the GSC bypass pumping setup. The 18-inch and 10-inch sideline sewers were bypassed using CD100M 4-inch pumps operated in a primary/stand-by configuration. Flows were pumped to 4-inch saddle taps along the 18-inch HDPE bypass pipe.

The bypass piping extended approximately 3,100 LF from the new sewer doghouse manhole to existing manhole MH-5034, located within a rotary at the intersection of Lieutenant Walter E. Fuller Memorial Parkway and Buttonwood Street. Figure 14 shows the discharge configuration at MH 5034 and the brook crossing at the shared-use path.

The majority of the bypass piping was installed along the ground surface with only one location requiring the piping to be buried at the entrance to the Buttonwood Park Senior Center as shown in Figure 15.

HDPE saddled vents were installed every 800-1,000 LF and at all high points along the bypass piping for air release purposes. In coordination with the New Bedford Police Department, a portion of the round-a-bout was temporarily closed for the bypass piping and discharge (Figure 13). A New Bedford Police Officer was stationed at the rotary for the duration of the bypass operation.

Where required, air release valves were installed along the pipeline route. This occurred at approximately every 800 feet and at high points along the pipeline route. Figure 16 shows a typical air release valve setup and laydown of above ground piping.

6.2 Pipeline Rehabilitation

Prior to CIPP lining, pipelines within the wooded area of the park were treated with a chemical root control application to ensure complete removal of the intruding roots prior to installation of the liners. Following chemical root

2025 No-Dig Outstanding Paper - Rehabilitation

1.0 ABSTRACT



Figure 15: Buried by-pass piping at the Senior Center

treatment, the pipelines were cleaned, and CCTV inspected to verify the existing condition of the pipes. Based on the Contractor's pre-construction inspection, all pipelines were confirmed suitable for CIPP lining without any additional repairs including the portion with horizontal bends.

All CIPP liners were installed utilizing air inversion and steam curing, except the

reach between MH-5288 and MH-5035 which was installed using water inversion and hot water curing. Several factors contributed to the decision to install this liner using water inversion, including limited access to upstream manhole MH-5288, preference to install from the downstream manhole MH-5035, the diameter and length of the pipe being 36-inch and 800-feet, respectively, access to water and the ability to discharge back

into the sewer system, and the desire to minimize disturbance of the park. See Figure 17 for a photo of the CIPP liner installation at manhole MH-5035 which is located in the Pond.

All liners were installed successfully with no reported issues. Following installation of the liners, the Contractor completed a post-construction CCTV inspection of each pipe reach (manhole to manhole). CDM Smith review of the CCTV tapes concluded that the liners were installed properly and satisfactorily.

6.3 Manhole Rehabilitation

Manhole rehabilitation generally included the replacement of existing frames and covers, installation of a cementitious monolithic manhole lining system (CMMLS), application of a flexible chimney liner to the top vertical foot of the cementitious liner, and the installation of polyethylene inserts in GSC manholes north of the pond. See Figure 18 for a photo showing the installation of the CMMLS within manhole MH-5033.

In addition to this rehabilitation, two new sewer manholes and one new drain manhole were installed as part of the project. The first sewer manhole was a doghouse style manhole installed along the 27-inch RC sewer upstream of the GSC and located at the north end of the project site to facilitate bypass pumping operations, as previously mentioned. The new drain manhole was installed along the 36-inch drain pipe which diverted the drain around the new doghouse sewer manhole. Refer to Section 5.1.3.2 above for a detailed description of the design. The second sewer manhole replaced existing manhole MH-5089 located along the 10-inch VC sewer at the south-west edge of Buttonwood Park Pond (Figure 19). The final rehabilitation of Manhole MH-5035 included the installation of 10-foot by 10-foot concrete pad centered



Figure 16: Typical Air Release Valve and Above Ground Piping



Figure 17: CIPP Installation at MH-5035

2025 No-Dig Outstanding Paper - Rehabilitation



Figure 18: Manhole 5033 Pre-lining and cementitious lining application



Figure 19: Existing manhole MH-5089



Figure 20: Rehabilitated manhole MH-5035

around the manhole to improve access to the manhole for the CIPP lining effort. The top section of the manhole was replaced with a precast concrete flat-top section and an additional precast concrete riser section to elevate the manhole above the surface elevation of the pond (Figure 20). Construction at manhole MH-5035 required the installation of a turbidity curtain to prevent transport of sediment into the pond, and a cofferdam to create a dry work environment. Once complete, 6-inch riprap was installed around the concrete pad to facilitate access to the manhole. Permanent installation of the riprap was included in the NOI and approved by the New Bedford Conservation Commission.

7.0 PROJECT RESULTS

The Grape Street Collector Rehabilitation project was completed with only minor issues and considered a successful project by the Owner, Engineer, and Contractor. The liner was successfully installed in the pipes under the pond and along the GSC including those segments with horizontal bends. Figure 21 shows images of the installed liner. Lessons Learned

Key lessons learned during the project included the following:

- 1. Coordination with stakeholders results in minimal disruptions and concerns:** The multiple meetings that were held prior to the start

of construction engaged key stakeholders such as the Friends of Buttonwood Park, the local ward councilor, and residents. As a result of this outreach, minimal complaints were received from the public during construction. In addition, the design team and City were able to listen to concerns from the public and integrate solutions to address those concerns in the contract documents. This helped ensure that the recreational facilities were in use through the duration of the project with minimal disruption.

Even with the multiple meetings and outreach completed as part of this project, communication with internal City Departments could have been better. Although aware of the project, the City's Parks, Recreation and Beach's Department (who manages park activities but not the upkeep of the parks) could have been better informed of the details of the project. The Department did not have any concerns regarding the proposed work, especially with the issuance of an Order of Conditions from the Conservation Commission; however, they expressed frustration that they were not made aware of the project in greater detail. This was a good reminder to take time to think through all stakeholders at the onset of any project.



Figure 21: Installed liner along 36-inch GSC at the horizontal bend downstream of manhole MH-5035 (left photo) and installed liner along 18-inch lateral sewer (right photo)

2025 No-Dig Outstanding Paper - Rehabilitation

2. **Additional time to think about constructability of the project during design leads to streamlined construction and sequencing:**

The design of the project carefully considered constructability and sequencing especially by-pass pumping alternatives and installation of the CIPP lining. Although this led to a longer design schedule; it minimized downtime, minimized disturbance to park facilities and reduced the potential for change orders resulting from lack of coordinated efforts. In addition, the sequencing allowed coordination between projects within the park to ensure that work would not interfere with other on-going activities.

3. **Over-under sewers create challenges during construction:**

One of the biggest challenges of the project was working on the over-under systems. Constructability issues were apparent while attempting to replace manhole MH-5089 located immediately adjacent to the Buttonwood Park Pond. This manhole was also located along a sewer that was installed directly below a 12-inch drain pipe. The record drawing for the sewer showed this configuration and also showed the drain pipe being diverted around the south side of the manhole structure. To increase the distance between the pond and the new manhole, the new manhole was proposed to be located approximately 7-feet upstream of the existing manhole. This located the new manhole along the portion of the sewer that was directly below the drain pipe. Both the existing 10-inch sewer and 12-inch drain were shown on the plan, but a proposed relocation of the drain pipe around the new structure was not shown or called out. As a result, the subcontractor performing the

manhole replacement hit the top of the drain pipe causing the pond to begin to enter the excavation. The subcontractor had to use multiple pumps to lower the water enough to make an emergency repair along the drain pipe.

4. **Contract documents were clear; however, payment methods could have better aligned with certain subcontractor work:** The measurement and payment for the project was carefully thought out; however, consideration regarding subcontractor work for the general contractor could have been better defined. Since the project included the removal and replacement of existing frames and covers, the removal of manhole top sections to facilitate CIPP lining of the pipelines was included in the CIPP lining bid item. This was known by the Contractor at the time of bid and did not result in a dispute; however, the Contractor noted that work on manhole structures is typically performed by a subcontractor (not the lining contractor) and inclusion of this work in the CIPP lining item(s) makes it challenging to modify CIPP bid quantities during construction, especially if additional work is requested by the Owner. Since the type of work and entity performing the work are different, it is best to keep the unit prices separate.

5. **Identifying a staging area and location to dispose of grit prior to construction rather than during pre-construction meeting:** The contract documents identified that the Contractor was not responsible for the cost of the grit disposal. In addition, the contract documents also required the contractor to locate a staging area at their cost. During the pre-construction meeting for the project, the City noted that the Contractor was responsible for finding space to store their equipment but could dispose of grit at the septage receiving facility. Based on discussions with the Contractor, they had no issues

with that but felt that it would be more beneficial to identify a staging area and location to dispose of grit up front in the contract documents rather than during the pre-construction meeting.

8.0 CONCLUSIONS

The project was a success. It was completed on budget and schedule with no issues or disruption to the use of the park. Careful planning, coordination with various other park activities, and communication with project stakeholders were key to its success. Construction considerations such as bypass pumping, pipe lining staging and setups, access to manholes along the wooded easement, traffic management and pedestrian safety were evaluated early in the design to ensure project success. During the design phase of the GSC Rehabilitation project, the design team coordinated closely with the New Bedford Conservation Agent, The Friends of Buttonwood Park, designers working on other City projects in close proximity to this project, and various lining contractors.

9.0 REFERENCES

- Syde, S., and Beaton, N. (2017) – City of New Bedford Long Term CSO Control and Integrated Capital Improvements Plan, CDM Smith Inc.
- Syde, S., and Herman, J. (2019) - City of New Bedford, Massachusetts Infiltration/ Inflow Analysis – Flow Monitoring Summary Report, CDM Smith Inc.
- Carolan, J., and Herman, J. (2022) – Interceptor and Collector Sewer Investigation Program – DEP Project No. CWSRF 4170.
- Massachusetts Department of Environmental Protection, (2017), Guidelines for Performing Infiltration and Inflow Analysis and Sewer System Evaluation Surveys.
- Pelletier, M., and Herman, J. (2023) – Grape Street Collector Rehabilitation – Project No. CWSRF 7004, Contract No. 4, Bid No. 23439172.

NASTT Regional Chapters

The NASTT network of 12 regional chapters throughout the United States, Canada and Mexico offer valuable educational and networking opportunities in your local area. With a single NASTT membership, you're automatically enrolled in the national organization, the international organization (ISTT) and also in your regional chapter. Share your ideas, network with trenchless technology colleagues and find solutions to your construction challenges.



British Columbia

www.nastt-bc.org

The British Columbia Chapter (NASTT-BC) was established in 2005 by members in the province of British Columbia, Canada.

Chapter Contact
Charlotte Wong
nasttbc@gmail.com

Elected Officers
Chair - Rob Epp
Treasurer - David O'Sullivan
Past Chair - Sam Eichenberger



Midwest

www.mstt.org

The Midwest (MSTT) Chapter was established in 1998 to promote trenchless technology education and development for public benefit in Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Ohio and Wisconsin.

Chapter Contact
Steve Matheny
stevem@loganclypipe.com

Elected Officers
Chair - Steve Matheny
Vice Chair - Luke Erickson
Secretary - Robert Martin
Treasurer - Mark Onken
Past Chair - Chris Schuler



Great Lakes, St. Lawrence & Atlantic

www.glsa.ca

The Great Lakes, St. Lawrence & Atlantic (GLSLA) Chapter was established in 1995 and represents the Eastern Canadian perspective of the trenchless technology marketplace. Members are from Ontario, Quebec and the four Atlantic provinces.

Chapter Contact
Marya Jetten
marya.jetten@aecom.com

Elected Officers
Chair - Marya Jetten
Vice Chair - Patrick Moskwa
Secretary - Mike Near
Treasurer - Patrick Moskwa
Past Chair - Dave Crowder



Northeast

www.nastt-ne.org

The Northeast Chapter was established in 2015 by members in the states of Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island and Vermont.

Chapter Contact
Jonathan Kunay
(617) 452-6583
kunayje@cdmsmith.com

Elected Officers
Chair - Jonathan Kunay
Vice Chair - Charles Tripp
Treasurer - John Altinyurek
Secretary - Tom Loyer
Past Chair - Eric Schuler



Mexico

Website coming soon!

The Mexico Chapter was established in 2021 and represents the country of Mexico's perspective of the trenchless technology marketplace. MXTT members are currently from the entire country of Mexico.

Chapter Contact
Milton Gasca
miltoncg77@hotmail.com

Elected Officers
Chair - Milton Gasca
Vice Chair - Itzel Mora González
Board Member - Cesar Alvarado Brito



Northwest

www.nastt-nw.com

The Northwest Chapter was established in 1995 by members in the provinces of Alberta and British Columbia, Canada, and in Washington state. In 2005, the members in BC established the NASTT-BC Chapter. In 2009, members in Washington state established the Pacific Northwest Chapter and the Northwest Chapter adjusted the geographic area to include members in the provinces of Manitoba and Saskatchewan.

Chapter Contact
George Bontus
(780) 982-0257
gbontus@azuria.com

Elected Officers
Chair - George Bontus
Vice Chair - Raven Sharma
Secretary - Chaoshi Hu
Treasurer - Craig Pass
Past Chair - Shane Cooper



Mid Atlantic

www.mastt.org

The Mid Atlantic (MASTT) Chapter was established in 2004 by members from the states of Delaware, Maryland, New Jersey, Pennsylvania, Virginia, West Virginia and the District of Columbia.

Chapter Contact
Dennis Walsh PE
(908) 839-9307
denbowal2003@gmail.com

Elected Officers
Chair - Dennis Walsh
Vice Chair - John Seibert
Secretary - Jennifer Leister
Treasurer - Michael Hoffmaster
Past Chair - Richard Thomasson



Pacific Northwest

www.pnwnastt.org

The Pacific Northwest Chapter was established in 2009 by members in the states of Alaska, Idaho, Oregon and Washington.

Chapter Contact
Rylee Archuleta
rylee.archuleta@leewayengineeringsolutions.com

Elected Officers
Chair - Rylee Archuleta
Vice-Chair - Diana Worthen
Treasurer - Heidi Howard
Past Chair - Glen Wheeler

NASTT Regional Chapters



Rocky Mountain
www.rmnaastt.org

The Rocky Mountain Chapter was established in 2009 by members in the states of Colorado, Utah, Montana and Wyoming.

Chapter Contact
Christine Barnes
Phone: (970) 376-1190
info@rmnaastt.org
Elected Officers
Chair - Chris Knott
Vice Chair - Rebecca Brock
Treasurer - Kyle Friedman
Secretary - Matthew Olson
Past Chair - Stephanie Nix



Southeast
www.sestt.org

The Southeast (SESTT) Chapter was established in 2001 to serve the members of NASTT from Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Puerto Rico.

Chapter Contact
Dave Sackett
Phone: (813) 397-7349
dsackett@brierleyassociates.com
Elected Officers
Chair - Dave Sackett
Vice Chair - Alan Ambler
Treasurer - Troy Stokes
Secretary - Blake Wyatt
Past Chair - Dr. John Matthews



South Central
www.scnaastt.org

The South Central Chapter was established in 2015 to serve the members of NASTT from Texas and the south central area of the United States.

Chapter Contact
Shawn Garcia
Phone: (817) 320-6582
sgarcia@azuria.com
Elected Officers
Chair - Shawn Garcia
Vice Chair - Aswathy Sivaram
Secretary - Paul Bearden
Treasurer - Alan Swartz
Past Chair - Justin Taylor



Western
www.westt.org

The Western (WESTT) Chapter was established in 2003 by members from the states of Arizona, California, New Mexico, Nevada and Hawaii.

Chapter Contact
Michelle Beason
Phone: (925) 262-7366
mbeason@nationalplant.com
Elected Officers
Chair - Michelle Beason
Vice Chair - Mike Jaeger
Secretary - Justin Lianides
Treasurer - Rachel Martin
Past Chair - Kate Wallin



For quick links to all NASTT Regional Chapters, visit
www.nastt.org/about/regional-chapters



SERVICES OFFERED:

- AUGER BORING
- HORIZONTAL DIRECTIONAL DRILLING
- PIPE JACKING
- PIPE RAMMING
- TUNNELING
- TUNNEL BORING
- MICROTUNNELING
- GUIDED PILOT BORING
- PIPE REHABILITATION
- SOIL STABILIZATION
- GROUTING
- VERTICAL SHAFTS
- ENGINEERING SERVICES



MARKETS SERVED:

- TRANSPORTATION
- ELECTRIC
- HEAVY CIVIL CONSTRUCTION
- OIL & GAS
- RAILWAY
- STORM WATER
- SEWER & WATER
- COMMUNICATION, COMMERCIAL & BUILDING



@AaronEnterprisesInc

www.AaronEnterprises.com



@AaronEnterprisesInc



FEATURED ON:



NASTT Student Chapters

There are many benefits for students who belong to a NASTT Student Chapter – scholarships, networking opportunities, education and career opportunities, to name a few. Members of NASTT Student Chapters attend and participate in regional events and the NASTT No-Dig Show where they present trenchless research posters, participate in competitions, and provide event support, monitoring the technical paper sessions.



Arizona State University

Tempe, Arizona
 Advisor:
 Dr. Samuel T. Ariaratnam
 Email:
 samuel.ariaratnam@asu.edu



Bowling Green State University

Bowling Green, Ohio
 Advisor:
 Dr. Alan Atalah
 Email:
 aatalah@bgsu.edu



California State Polytechnic University, Pomona

Pomona, California
 Advisor:
 Dr. Jinsung Cho
 Email:
 jinsungcho@cpp.edu



Clemson University

Clemson, South Carolina
 Advisor:
 Dr. Kalyan Piratla
 Email:
 kpiratl@clemson.edu



Concordia University

Montreal, Quebec
 Advisor:
 Advisor: Rebecca Dziedzic
 Email:
 rebecca.dziedzic@concordia.ca



Georgia Tech

Atlanta, Georgia new
 Advisor:
 Fernando Patino-Ramirez
 Email:
 fernando.patinoramirez@ce.gatech.edu



Kent State University

Kent, Ohio
 Advisor:
 Dr. Lameck Onsario
 Email:
 lonsarig@kent.edu



National Autonomous University of Mexico

Mexico City, Mexico
 Advisor:
 Rodrigo Munoz
 Email:
 rodrigo.munoz@ingenieria.unam.edu



Oregon State University

Corvallis, Oregon
 Advisor:
 Dr. Joe Louis
 Email:
 joseph.louis@oregonstate.edu



Purdue University

West Lafayette, Indiana
 Advisor:
 Dr. Dulcy Abraham
 Email:
 dulcy@purdue.edu



Queen's University

Kingston, Ontario
 Advisor:
 Dr. Ian D. Moore
 E-mail:
 moore@civil.queensu.ca



RRC Polytech

Winnipeg Manitoba
 Advisor:
 Raven Sharma
 Email:
 rshariot@rrc.ca



Rutgers University

Piscataway, New Jersey
 Advisor:
 Dr. Nenad Gucunski
 Email:
 gucunski@rci.rutgers.edu



Trenchless Technology Center/ Louisiana Tech University

Ruston, Louisiana
 Advisor:
 Dr. Shaurav Alam
 Email:
 shaurav@latech.edu



UMass Lowell

Lowell, Massachusetts
 Advisor:
 Raj K. Gondle, Ph.D.
 Email:
 RajKumar_Gondle@uml.edu



University of Alberta

Edmonton, Alberta
 Advisor:
 Dr. Alireza Bayat
 Email:
 abayat@ualberta.ca



University of Colorado Boulder

Boulder, Colorado
 Advisor:
 Brad Wham
 Email:
 brad.wham@colorado.edu



University of North Florida

Jacksonville, Florida
 Advisor:
 Dr. Jonghoon Kim
 Email:
 jongkim@unf.edu



University of Texas at Arlington/ CUIRE

Arlington, Texas
 Advisor:
 Dr. Mo Najafi
 Email:
 najafi@uta.edu

To learn more about the 19 NASTT Student Chapters, please visit:

www.nastt.org/student-chapters

Since its inception in 1991, the NASTT No-Dig Show has been the premier North American conference and trade show for the trenchless technology industry. Thousands of professionals from around the globe attend to learn new methods and systems that will save money and improve infrastructure. This conference provides attendees an opportunity to learn trenchless methods, network with peers and gain knowledge from vendors during exhibit hall hours.

The NASTT No-Dig Show is the ideal event for municipalities, contractors and engineers.

Upcoming Conferences, Courses & Events

October 14-16

19th Annual Western No-Dig Conference
Scottsdale, Arizona, USA

October 15

Southeast 2025 Trenchless Conference
Jacksonville, Florida, USA

October 27 - 29

NASTT 2025 No-Dig North &
ISTT International No-Dig
Vancouver, British Columbia, Canada

October 27

Introduction to New Installations
Vancouver, British Columbia, Canada

October 27

Introduction to Rehabilitation
Vancouver, British Columbia, Canada

October 27

CIPP Good Practices Course
Vancouver, British Columbia, Canada

October 27

HDD Good Practices Course
Vancouver, British Columbia, Canada

October 27

Direct Steerable Pipe Thrusting
Good Practices Course
Vancouver, British Columbia, Canada

November 4

9th Annual South Central Trenchless
Technology Conference
Arlington, Texas, USA

November 6

Advanced HDD Good Practices
Virtual

November 10-11

9th Annual Northeast Regional
Chapter Conference
Nashua, New Hampshire, USA

November 12 - 13

Direct Steerable Pipe Thrusting
Good Practices
Virtual

December 10 - 11

Pipe Bursting Good Practices
Virtual

February 5, 2026

RMNASTT Trenchless Elevated 2026
Sandy, Utah, USA

March 29 - April 2, 2026

NASTT 2026 No-Dig Show
Palm Springs, California, USA

November 2 - 4, 2026

NASTT 2026 No-Dig North
Calgary, Alberta, Canada

March 21 - March 25, 2027

NASTT 2027 No-Dig Show
Raleigh, North Carolina, USA

**For more information and the latest course offerings,
visit nastt.org/training/events.**



March 29 - April 2, 2026

Palm Springs Convention Center
Palm Springs, California



March 21 - March 25, 2027

Raleigh Convention Center
Raleigh, North Carolina

SPONSORSHIPS:

There are a variety of
sponsorship opportunities
for every price range:

- Opening Breakfast Table Sponsorships
- Mobile App Sponsorships
- Premium Conference Sponsorships
- And more!

For more information and the latest course offerings, visit nastt.org/training/events.

To sponsor or exhibit at
any of these events,
please contact NASTT:

888-388-2554

No excuses. Just results.

When we look back, we see
a path forged with honor and
unwavering strength. We don't cut
corners. We don't make excuses.
We do what is right.



Claude H.

NIX CONSTRUCTION

After 50 years of innovative solutions, we've learned that
even the toughest projects can be conquered.

Your Solution Starts Here. Let's Dig In.

VISIT CHNIX.COM CALL 801-479-9000

Index to Advertisers

Aaron Enterprises	www.aaronenterprises.com	59
Akkerman, Inc.	www.akkerman.com	Outside Back Cover
Astec Industries.....	www.kemtronhdd.com	37
Atlas Trenchless LLC.....	www.atlas-trenchless.com	19
Bennett Trenchless Engineers LLP	www.bennetttrenchless.com	32
Binnie	www.binnie.com	35
Brandt Industries USA Ltd.....	www.brandt.ca	41
Claude H Nix Construction	www.chnix.com	62
Contech Engineered Solutions, LLC	www.conteches.com	7
CUES Inc.	www.cuesinc.com	51
Iowa Trenchless.....	www.iowatrenchless.com	29
Michael Byrne Mfg.....	www.byrnegroup.com	63
Michels	www.michels.us	27
OBIC LLC	www.obicproducts.com	24
Plastics Pipe Institute, Inc.	www.plasticpipe.com/MABpubs	13, 31
Rain For Rent	www.rainforrent.com	47
Staheli Trenchless Consultants	www.stahelitrenchless.com	33
Sunbelt Rentals	www.sunbeltrentals.com	5
TCI Carbon Fibre Technologies.....	www.tccarbonfibre.com	45
Underground Magnetics	www.umaghdd.com	Inside Front Cover
Vector Magnetics.....	www.vectormagnetics.com	49

MAKING BORING EVEN GREATER

Michael Byrne Manufacturing
acquires the American Augers Boring
product line from The Toro Company.



Michael Byrne Manufacturing will ensure
a seamless transition for existing
American Augers auger boring customers,
offering ongoing service, parts support,
and new equipment production under the
trusted Michael Byrne name.



Parts & Service
Support for All Auger
Boring Customers



Factory Direct
Sales & Service

150+

Years of American
Augers' Auger
Boring Experience

www.byrnegroup.com

419-525-1214





DEPTHS OF INNOVATION

We believe that our greatest strength is our employees. Our knowledgeable sales team has a clear understanding of industry demands. Our in house engineering department applies the most current standards and continually reviews, innovates our equipment packages. Akkerman factory certified field technicians represent an extensive portfolio of hands on equipment experience to train your crew on the project site.

EXPLORE YOUR OPTIONS TODAY!

AKKERMAN.COM | AMERICAN MADE SINCE 1973

