



SOUTHEAST JOURNAL OF

TRENCHLESS TECHNOLOGY 2019

OFFICIAL PUBLICATION OF THE SOUTHEAST SOCIETY FOR TRENCHLESS TECHNOLOGY



54-Inch HDPE HDD Installation in Miami Beach
City of Raleigh 14-inch Steel Water Main Inspection
BNSF Memphis Rail Yard Rehabilitation



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**Chris Allen, General Manager
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12 HDD Saves Miami Beach Sanitary Sewer Line

Breakthrough HDD installation of a 54-inch HDPE pipeline replaced an existing 54-inch PCCP sewage force main, the only wastewater conveyance for nearly 92,000 residents of Miami Beach. The project saved one of the most popular tourist destinations in the world from raw sewage discharges which threatened contamination of ecologically-sensitive waterways, beaches and parks. It was the largest 54-inch diameter HDPE DR17 HDD installation ever done, and, at 4,200 LF, one of the longest HDD pulls in North America.



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16 Raleigh 14-inch Steel Water Main Inspection

In 2017, as part of its proactive asset management programs, the City of Raleigh elected to inspect and perform condition assessment on a critical 14-inch steel water transmission main suspended from the side of the Highway 64 Bridge over the Neuse River. This was the City's first inline inspection of a steel watermain and first use of the SeeSnake, an advanced condition assessment tool designed to find localized wall loss in ferrous pipelines. Fourteen localized wall loss defects were found.

20 BNSF Memphis Rail Yard Rehabilitation

Seven 114-inch 1,436 LF culverts running directly underneath the central portion of the busy BNSF Memphis Rail Yard were experiencing significant deterioration at the inverts, causing sink holes to begin forming between the tracks. Replacement was critical however a shutdown of the yard would have devastating economic impacts and disrupt freight transportation. After review available options, it was determined that relining the culverts was the most cost effective and structural solution.



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24 Cutting Corners & Making the Grade

An ever-present feature in roadways, manholes are a critical component of waste water collection systems, yet the most noticeable impacts on motorists are deteriorating manhole pads on the roads. These square or rectangular concrete pads encasing the manhole castings become damaged from the wear and tear of traffic. Use of a manhole core cutter provides a higher quality level of manhole rehabilitation facilitating better trenchless repair and rehabilitation approaches.

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SESTT CHAIRMAN MESSAGE 2019

Moving Trenchless Technology Forwards

Jerry Trevino, SESTT Chairman

Welcome to our sixth annual edition of the *Southeast Journal of Trenchless Technology*. This new magazine is a fresh opportunity to reflect on the progress that has been made in the Trenchless Technology industry over the last 19 years, since the Southeast Society for Trenchless Technology (SESTT) was founded as a NASTT Chapter in 2000.

SESTT was formed shortly after a very motivating and convincing meeting headed by Dr. Tom Iseley and Leonard Ingram in Atlanta, Georgia, in 1999. A handful of people from the corporate and municipal sectors were also present. I remember very keenly Dr. Iseley presenting the case that there was a need to create a Southeast Chapter of NASTT to share information and promote trenchless technology at the local level.

Per the Charter & Bylaws, the primary objective of SESTT is to “promote Trenchless Technologies” by conducting training and education through seminars, short courses and field demonstrations. Since 2000, we have held numerous seminars in locations throughout the Southeast. Leonard Ingram, the Executive Director of SESTT, has been the muscle pushing through many obstacles to schedule, organize, and conduct these seminars.

The seminars continue to be an important forum to educate decision makers on the Trenchless Technologies available to rehabilitate and to increase the capacity of our infrastructure. The broad spectrum of challenges presented

The seminars continue to be an important forum to educate decision makers on the Trenchless Technologies available to rehabilitate and to increase the capacity of our infrastructure.

by the aging infrastructure and by urban population growth has spurred innovations in technologies, materials engineering, installation equipment development and better asset condition data from which municipality managers can make more informed decisions. Organizations such as SESTT, NASTT and the other NASTT regional chapters are important education and training providers helping select the best methods and processes to meet these challenges.

Moving forwards, the trenchless technology industry must continue highlighting the need to not only to maintain our infrastructure but also to upgrade it to the next level for future generations in order to maintain a healthy nation. One of government’s foremost obligations is to provide its citizenry with clean and safe drinking water and an efficiently functioning infrastructure. It will challenge us all to the core to create

the necessary new materials, processes, and technologies to achieve this.

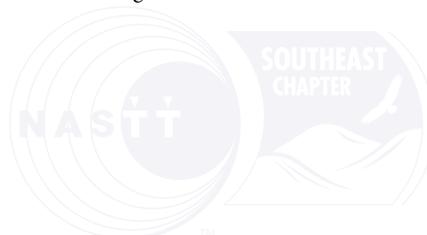
We all look forward to a productive 2020 and encourage everyone to attend the upcoming NASTT No-Dig Show April 5 - 9 at the Colorado Convention Center in Denver. In addition, 2020 will again have a full slate of planned single day Trenchless Technology seminars by SESTT, MSTT, and MASTT. A full schedule of the upcoming 2020 seminars is on pg 10 in this magazine and also posted on www.sestt.org. Best wishes to all for a productive year for trenchless technology!

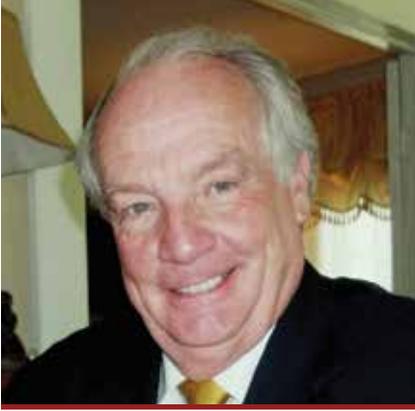
Sincerely,

Jerry Trevino
SESTT Chairman



SESTT SITE





GREETINGS FROM THE EXECUTIVE DIRECTOR

Leonard E. Ingram, Sr., PWAM, Executive Director, SESTT

Two score and a decade ago I begin my venture into trenchless technology in Orrville, Alabama in South Dallas County, the County where I was reared. I had finished Auburn, married my sweet heart, bought a two-truck home town plumbing company from my Uncle and returned home from a nuclear engineering job in Oak Ridge, Tennessee to settle down in my home town. Mayor Warren needed to run a ¾-inch galvanized water line to the west side of Alabama State Highway 22 in downtown Orrville (300 population), to serve two customers. He had his self-made water system, pump and 5,000 gallon tank serving the east side of Orrville. With \$2.50 water bills, Orrville had very little money, so I got creative. Open cut quotes were too expensive. I mentioned to him that I had a new backhoe and a worn out rubber tire air compressor, and that I could get a pipe under the road inexpensively. He said he got a verbal permit from the State Highway District Engineer and there were no other underground utilities in Orrville! So, I dug a 6-footLx1-footWx4-footD entry pit on both sides of the road and pushed 3 feet sections of 1½-inch IPT black steel pipe 3 feet under the road with a 30-foot casing. Then I inserted the ¾-inch IPT galvanized iron pipe all in about four hours. Yes, I did it personally using TRENCHLESS TECHNOLOGY.

“Two score and a decade ago!”

Now, here with 118 Trenchless Technology seminars conducted and 18 annual Trenchless Technology journals published, I guess I should know quite a bit about Trenchless Technology. But, I don't! It never fails to surprise me at almost every seminar how I am told about new technology, new theory, new equipment and different ways to do trenchless work. We are never too old to learn something new. Please keep supporting the “Trenchless Technology, SSES and Buried Asset Management” seminars and the Annual Trenchless Technology Journals. Please review the Proposed 2020 Seminar dates and the 2020 Journal publication dates and plan to support these as much as possible.

Thanks for your support!

SESTT had a successful Trenchless Technology, SSES and Buried Asset Management seminar in Charleston SC on May 22, 2019. The Guest Presenter was Mr. Chris Troutman, P.E., Assistant Director of Engineering & Construction, Charleston Water System, Charleston SC, with the presentation “Trenchless Technology in Charleston”. There was a lot of learning and networking.

SESTT had a successful “Trenchless Technology, SSES and Buried Asset Management” seminar in Charlotte NC on October 8, 2019. The Guest Presenter was Ms. Michelle Montgomery, Construction Supervisor, Storm Water Service, City of Charlotte NC, with the presentation “Trenchless Solutions to Storm Water Problems in Charlotte NC”.

Thanks for support of the *Southeast Journal of Trenchless Technology 2019*. This magazine highlights some of the many trenchless projects performed around the Southeast region. Please help me thank the journal advertisers, the SESTT Board of Directors and their companies for their support throughout the year and for their effort in making this Journal a reality. The SESTT Board of Directors is listed on page 8. The list of journal advertisers is on page 31.

Thanks again for your support!

Leonard E. Ingram, Sr., PWAM
Executive Director, SESTT





MESSAGE FROM NASTT CHAIR

Craig Vandaele, NASTT Chair

Hello Southeast Members! As 2020 begins we're looking forward to the continued growth of the trenchless industry and our Society. We've been busy since the No-Dig Show was held in Chicago last year in March. The summer and fall months were full of planning and events all over North America.

NASTT exists because of the dedication and support of our volunteers and our 11 regional chapters. Plans are now underway for the 2020 conference being held in Denver, Colorado, April 5-9. Our No-Dig Show Program Committee members volunteered their time and industry knowledge to peer-review the 2020 abstracts. These committee members ensure that the technical presentations are up to the standards we are known for. A personal "Thank You!" to the SESTT Chapter Members who have volunteered for this important task this year: Shaurav

Thank you again for your support and dedication to NASTT and the trenchless technology industry.

Alam, Sam Brancheau, E Allen Brown, Andrew Costa, Jacob Crowe, Don Del Nero, Jeremy Huckaby, George Kurz, Everett Litton, Bill Moore, Kalyan Piratla, Ray Post, Cory Street, Richard Thomasson and Armin Vakili.

The last time we held the annual conference in Denver was in 2015 and that remains our highest attended conference on record. We expect to beat the record in 2020 and we hope you will join us at this ground-breaking conference. 2020 also brings us to NASTT's 30th anniversary!

We are excited to celebrate this milestone as we continue with our mission to be the premier resource for trenchless education and training.

Our continued growth relies on the grassroots involvement of our regional chapter advocates. Thank you again for your support and dedication to NASTT and the trenchless technology industry.

Craig Vandaele

NASTT Chair





MEMBERSHIP IN NASTT

Carolyn Hook, NASTT Membership
Outreach & Database Manager

MEMBERS TALK NASTT MEMBERSHIP

As the Membership Outreach and Database Manager at the North American Society for Trenchless Technology (NASTT), it's my job to be able to speak about the value of NASTT membership and all it offers beyond professional credibility and information. NASTT is a community of peers where members are connected to go-to people in the trenchless industry – innovators, experts and a network of students and future trenchless professionals.

At every stage of their career, NASTT members have access to a comprehensive set of tools ensuring success.

- **Engage in learning.** NASTT member-only pricing for top-notch training courses, conferences and webinars.
 - **Expand your knowledge set.** Largest online trenchless library of technical papers.
 - **Increase your visibility.** Opportunities to speak at conferences, write for publications, volunteer to serve and give back.
 - **Propel your career.** Career resources, including NASTT's Job Board.
 - **Empower your position.** NASTT's *No-Dig Show* - North America's premier Trenchless Technology Conference and Trade Show.
 - **Connect locally.** Regional educational and networking events.
 - **Find answers at your fingertips.** Subscriptions to NASTT's *Trenchless Today*, NASTT's *Regional Chapter magazines*, *ISTT's Trenchless International* and *Trenchless Technology*.
- NASTT is the largest community of trenchless professionals in USA and Canada committed to promoting better and more responsible ways to manage

underground infrastructure and advance trenchless technology for the benefit of the public and the natural environment.

That's what I would say. But what about NASTT members, do they agree? It's also my job to know what NASTT members think about membership. So, I asked a few to share their insights. Here's what I found out.

NASTT Transforms Careers

"Having come from an entirely different industry focusing on natural gas, the common link of construction bonds the two industries closely together. Membership has made me a well-known nationally recognized expert in the use of trenchless and its applications in two industries. When I do not know the answer, I can call on an established network of key contacts and access a library of technical papers. Membership allows me to maintain a current and state-of-the-art awareness of trenchless methods and potential improvement areas that I address through my R&D activities." – *George Ragula, Distribution Technology Manager, PSE&G*

NASTT Provides Leverage for Corporations, Municipalities, Educational Institutions and More

"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, Vice President, International Operations, Infrastructure, Aegion Corporation*

"We advertise that our staff are members of NASTT for RFPs and on

You Belong in NASTT!

Trenchless resumes." – *David Crowder, C.E.T., C.D., Senior Associate, Trenchless Practice Leader, R.V. Anderson Associates Limited*

"I get to network and share ideas with other like-minded professionals. I've learned about new technologies that make us work more efficiently." – *Tayo Olatunji, PE, PMP, CCM, Supervisor Construction Projects, DC Water*

"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*

Regional Chapters Bring NASTT to Your Backyard

"The quality and dedication of local volunteers makes working in the industry much easier, more fun and extremely fulfilling." – *Joe Lane*

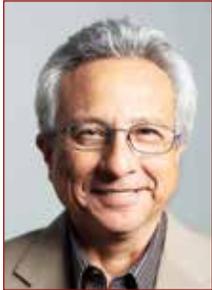
"Regional chapters make it easy to meet locally with engineering consultants and municipal staff who share the same passion for trenchless technology, learn new ideas and discuss other trenchless topics."

– *David Crowder*

"Seeing the impact that trenchless technology has on our communities and the country makes chapter participation worthwhile." – *Alan Goodman, Strategic Accounts Sales Manager, HammerHead Trenchless Equipment*

What about you? How has NASTT membership made a difference in your career? Email me at chook@nastt.org and let me know. You Belong in NASTT!

SOUTHEAST SOCIETY FOR TRENCHLESS TECHNOLOGY BOARD OF DIRECTORS 2019-2020



Jerry Trevino - Chairman

Jerry Trevino is President of Protective Liner Systems, Inc., and principal owner of other construction and consulting companies. Jerry is an engineering graduate from the University of Texas in Austin. Before specializing in infrastructure rehabilitation, he worked as a project engineer and in research and product

development for Procter and Gamble and Mobil Oil. He now specializes in the development, manufacturing and installation of all types of polymeric and cementitious coatings, liners and FRP composites used to rehabilitate infrastructure for municipalities and the industrial sector. He strongly believes that trenchless technologies offer numerous methods to maintain and upgrade aging infrastructure.



Chris Ford - Secretary

Chris Ford is Principal and Vice President of Operations at Highfill Infrastructure Engineering, PC, a Carolinas engineering consulting firm specializing in community and municipal water and wastewater infrastructure engineering. With over 30 years of experience, Chris

serves as a leading trenchless technologies resource for public utilities in the Carolinas. Over the last 14 years he has focused on the use of trenchless technologies for condition assessment, evaluation, renewal, and replacement of both pressure and gravity pipelines. His experience includes large diameter ductile iron pipe splitting, pipeline renewal with high pressure liners, various methods of gravity sewer rehab, and new installations via horizontal directional drilling. A graduate of NCSU with a BS in Civil Engineering-Construction, Chris regularly presents at conferences including NC AWWA-WEA, NASTT No-Dig, and UCT.



Ed Paradis - Vice Chairman

Ed Paradis is Sales and Market Development Manager, Injection Systems - North America, Underground Construction for BASF. Ed has served the industry in various positions over 20 years and is highly regarded as a leading resource on chemical grouts. His dedication to the specialty field of

chemical grouts has been proven by his involvement in some of the country's highest profile projects, such as the Port of Miami Tunnel.

Ed attended Boston University while serving in the U.S. Army. He has been involved in the construction and rehabilitation industry since 1989, and further contributes to and advances industry growth through active membership in various associations such as Nevada Mining Assc, NASTT, SESTT, UCT, ICRI, and DFI (Deep Foundation Institute). His 20 plus years in the chemical grout market both as a contractor, salesman and manager has provided countless useful knowledge for the industry.



Brent Johnson - Treasurer

Brent Johnson has over 29 years of experience in the planning, design and construction of water and wastewater facilities. Since 2000, he has focused on the use of trenchless technologies for pipeline construction and rehabilitation. He is a member of NASSCO's CIPP, Lateral, Manhole,

and Pipe Rehabilitation committees. For the last ten years he has focused on the inspection and condition assessment of water and wastewater pressure mains and is a past chair of the NASSCO Pressure Pipe Committee and a member of the AWWA Water Main Condition Assessment Committee. He is in the CDM Smith Raleigh, North Carolina, office and is the firm's national technical leader for pipeline condition assessment and rehabilitation.

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For more information, and to join the Southeast Society of Trenchless Technology, please visit

www.sestt.org



2020 SEMINAR & JOURNAL SCHEDULE

MASTT - MID ATLANTIC SOCIETY FOR TRENCHLESS TECHNOLOGY
 MSTT - MIDWEST SOCIETY FOR TRENCHLESS TECHNOLOGY
 SESTT - SOUTHEAST SOCIETY FOR TRENCHLESS TECHNOLOGY

SOCIETY	PROPOSED DATE	LOCATION / PUBLISH	STATUS
MSTT SEMINAR	MARCH 11, 2020	KANSAS CITY MO	PROPOSED
MASTT SEMINAR	MAY 6, 2020	BALTIMORE MD	PROPOSED
MASTT JOURNAL	MAY 29, 2020	PUBLISH DATE	PROPOSED
SESTT SEMINAR	JULY 22, 2020	SAVANNAH GA	PROPOSED
MASTT SEMINAR	SEPTEMBER 16, 2020	ATLANTIC CITY NJ	PROPOSED
MSTT JOURNAL	SEPTEMBER 25, 2020	PUBLISH DATE	PROPOSED
MSTT SEMINAR	OCTOBER 21, 2020	CINCINNATI OH	PROPOSED
SESTT JOURNAL	NOVEMBER 20, 2020	PUBLISH DATE	PROPOSED
SESTT SEMINAR	DECEMBER 9, 2020	MIAMI FL	PROPOSED

To Present, Exhibit and/or Food Sponsorships please contact Leonard Ingram, PWAM, Executive Director at 334-872-1012 or leonard@engconco.com

For Journal articles & advertisements contact Andrew Pattison, A2B Publishing, at 204-275-6946 or marcomap@shaw.ca



For registration and updated information on the 2020 "Trenchless Technology, SSES and Buried Asset Management" Seminars and Trenchless Journals, please visit:

Mid Atlantic: www.mastt.org | Midwest: www.mstt.org | Southeast: www.sestt.org

2020 UPCOMING NASTT TRENCHLESS EVENTS

March 2 - 6, 2020
UESI/TTC Utility Investigation School
8:00 AM - 5:00 PM Daily
Louisiana Tech University
Ruston, Louisiana
Information: sbe013@latech.edu

March 5, 2020
NASTT New Installation Methods Good Practices Course
7:45 AM - 5:00 PM
Radisson Hotel Vancouver Airport
Richmond, British Columbia
Information: charlottenapwong@gmail.com

March 11, 2020
MSTT Trenchless Technology, SSES & Buried Asset Management Seminar
Kansas City, MO
(Date may change)
Information: Leonard Ingram,
mstt@engconco.com

April 5 - 9, 2020
NASTT 2020 No-Dig Show
Colorado Convention Center
Denver, Colorado
Information: www.nodigshow.com

April 5, 2020
NASTT Municipal Sewer Grouting Good Practices Course
8:00 AM - 12:00 PM
Colorado Convention Center
Denver, Colorado
Information: www.nastt.org/training/events

April 5, 2020
NASTT Introduction to Trenchless Technology – New Installations
8:00 AM - 12:00 PM
Colorado Convention Center
Denver, Colorado
Information: www.nastt.org/training/events

April 5, 2020
NASTT Introduction to Trenchless Technology - Rehabilitation
8:00 AM - 12:00 PM
Colorado Convention Center
Denver, Colorado
Information: www.nastt.org/training/events

April 8, 2020
NASTT Gas Good Practices Course
2:00 PM - 5:00 PM
Colorado Convention Center
Denver, Colorado
Information: www.nastt.org/training/events

April 8 - 9, 2020
NASTT CIPP Good Practices Course
April 8 2:00 PM - 5:00 PM
April 9 8:00 AM - 1:00 PM
Colorado Convention Center
Denver, Colorado
Information: www.nastt.org/training/events

April 8 - 9, 2020
NASTT HDD Good Practices Course
April 8 2:00 PM - 5:00 PM
April 9 8:00 AM - 1:00 PM
Colorado Convention Center
Denver, Colorado
Information: www.nastt.org/training/events

April 8 - 9, 2020
NASTT Laterals Good Practices Course
April 8 2:00 PM - 5:00 PM
April 9 8:00 AM - 1:00 PM
Colorado Convention Center
Denver, Colorado
Information: www.nastt.org/training/events

April 8 - 9, 2020
NASTT New Installation Methods Good Practices Course
April 8 2:00 PM - 5:00 PM
April 9 8:00 AM - 1:00 PM
Colorado Convention Center
Denver, Colorado
Information: www.nastt.org/training/events

April 8 - 9, 2020
NASTT Pipe Bursting Good Practices Course
April 8 2:00 PM - 5:00 PM
April 9 8:00 AM - 1:00 PM
Colorado Convention Center
Denver, Colorado
Information: www.nastt.org/training/events

May 6, 2020
MASTT Trenchless Technology, SSES & Buried Asset Management Seminar
Baltimore, MD
(Date may change)
Information: Leonard Ingram,
mastt@engconco.com

June 4, 2020
Trenchless Technology for the Gas Industry at NGA 2020 Gas Operations School & Exhibit
Bryant University, 1150 Douglas Pike
Smithfield, Rhode Island
Information: www.northeastgas.org

July 22, 2020
SESTT Trenchless Technology, SSES & Buried Asset Management Seminar
Savannah, GA
(Date may change)
Information: Leonard Ingram,
sestt@engconco.com

September 16, 2020
MASTT Trenchless Technology, SSES & Buried Asset Management Seminar
Atlantic City, NJ
(Date may change)
Information: Leonard Ingram,
mastt@engconco.com

October 5 - 6, 2020
5th Annual NASTT-SC Texas/Oklahoma Trenchless Technology Conference
Houston Marriott Sugar Land
Sugarland, Texas
Information:
www.nastt-sc.ticketleap.com/nastt-sc

October 19 - 21, 2020
NO-DIG NORTH
Vancouver Convention Centre
Vancouver, British Columbia
Information: www.nodignorth.ca

October 21, 2020
MSTT Trenchless Technology, SSES & Buried Asset Management Seminar
Cincinnati, OH
(Date may change)
Information: Leonard Ingram,
mstt@engconco.com

November 9 - 10, 2020
2020 NASTT Northeast Trenchless Conference
Portland Sheraton at Sable Oaks
Portland, Maine
Information: www.nastt-ne.org

December 9, 2020
SESTT Trenchless Technology, SSES & Buried Asset Management Seminar
Miami, Florida
(Date may change)
Information: Leonard Ingram,
sestt@engconco.com

March 27 - 31, 2021
NASTT 2021 No-Dig Show
Orange County Convention Center
Orlando, Florida
Information: www.nodigshow.com

54-INCH HDPE HDD INSTALLATION SAVES SANITARY SEWER LINE IN MIAMI BEACH

Monumental Feat Protects Residents, Tourists and Budget

By: Plastics Pipe Institute (PPI)



The pull was set in the evening and ready to begin before the sun came up the next morning

The installation of a high-density polyethylene (HDPE) pipeline saved the community of Miami Beach not only from raw sewage but also from destruction of the area. Using HDPE pipe allowed for horizontal directional drilling (HDD) to be used, which saved the landscape and roads. It was the largest 54-inch diameter HDPE DR17 HDD installation ever done, and one of the longest HDD pulls in the United States and Canada.

"Not only was this a very long pull," stated Camille George Rubeiz, P.E., F.

ASCE, senior director of engineering for the Municipal and Industrial Division of the Plastics Pipe Institute, Inc. (PPI), "but the 54-inch diameter of the pipe was also a breakthrough in replacing the existing sanitary sewer line in Miami Beach. More than 4,200 feet of 54-inch diameter HDPE (PE 4710) pipe was used."

Failure of this force main, which is the only means of wastewater conveyance for the city's nearly 92,000 residents, would have been disastrous. It could potentially discharge millions of gallons of raw sewage along the urbanized corridor of one of

the most popular tourist destinations in the world. This would impact residents and commercial operations, threatening contamination of pristine, ecologically-sensitive waterways, beaches and parks in this scenic area. The economic impact of forced closures of hotels, restaurants, and tourist attractions and businesses would devastate the city.

The existing 54-inch pre-stressed concrete cylinder pipe (PCCP) sanitary sewage force main (FM) was constructed in 1977 and served as the sole means of wastewater conveyance through Miami Beach. By 2012 it was deteriorating like much of the infrastructure in coastal communities. Faced with the potential threat of failure, the city embarked on a Capital Improvements Program, totaling \$750 million during five years. Using Pure Technologies' PipeDiver®, the PCCP FM pipe was analyzed and it was determined that the line was on the verge of catastrophic failure.

A 54-inch IPS DR-17 HDPE pipe was chosen with technical assistance, pipe fittings and fusion services provided by ISCO. ISCO's technical expertise and support helped maximize the construction efficiency and minimize the social impact. HDPE pipe material was chosen for this project not only because of its low life cycle cost and monolithic features, but also because of its lightweight and highly ductile and flexible properties which

HDPE pipe is the tested and proven solution for force main rehabilitation and trenchless construction.

– CAMILLE RUBEIZ, P.E., F. ASCE, PLASTICS PIPE INSTITUTE, INC. (PPI)

make it the ideal material for the HDD construction method. The pipe fusion on the project was done with one of ISCO's 2065 MegaMc fusion machines operated by one of its certified technicians. The highlight of the fusion operation was joining the two long strings (3,000-foot and 1,200-foot) of pipe during the pullback process. Use of HDPE pipe made HDD feasible, saving time and money on the project for the city, and allowing areas of a busy residential/tourist area to remain open during the construction of the line.

The new pipe was pulled in two segments. This dual-string approach had two runs of pipe being fused and positioned in the center of the roadway, which permitted local access for residents who could continue to drive along the perimeter lanes of the work area.

Additionally, construction of a pedestrian bridge over the pipe installation area enhanced pedestrian mobility.

"HDPE pipe is the tested and proven solution for force main rehabilitation

and trenchless construction," Rubeiz continued. "The strength and flexibility of PE 4710 made it ideal for this longest and largest HDPE pull, which is literally groundbreaking and proves the material's



Fused HDPE pipe entering the pit. More than 4,200 feet of 54-inch diameter HDPE PE 4710 pipe was used

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An ISCO field tech used a McElroy 2065 fusion machine to make the final tie in

capabilities. The time and money it would have taken to dig up and replace the existing line would have made this project unrealistic. The disruption to the city, its residents and visitors, would've been enormous especially since it was done during the busiest season for tourism. Instead, a dedicated team of HDPE pipe supplier and manufacturer (ISCO

industries and DuraLine), engineers (Brierley, Associates, AECOM and others) and contractors (David Mancini & Sons, Spartan) pulled together to pool their experience and come up with a creative, innovative, and cost-effective solution to provide the City of Miami Beach with a reliable force main that will last for decades. It showcased the ability of

HDPE to save money, time and provide innovative solutions for the City of Miami Beach." 

ABOUT PPI:



The Plastics Pipe Institute, Inc. (PPI) is the major North American trade association representing all segments of the plastic pipe industry and is dedicated to promoting plastic as the materials of choice for pipe and conduit applications. PPI is the premier technical, engineering and industry knowledge resource publishing data for use in the development and design of plastic pipe and conduit systems. Additionally, PPI collaborates with industry organizations that set standards for manufacturing practices and installation methods. For additional information, go to the Plastics Pipe Institute's website at: www.plasticpipe.org.



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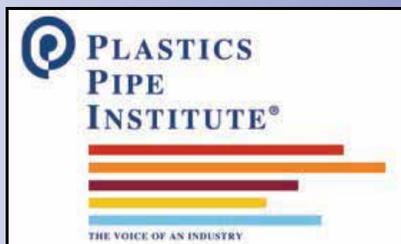
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CITY OF RALEIGH 14-INCH STEEL WATER MAIN INSPECTION

By: M. Brent Johnson P.E., CDM Smith



Highway 64 Bridge over Neuse River

ABSTRACT

The City of Raleigh, NC has implemented a proactive approach to evaluating the condition of their critical water transmission mains and raw water mains. In 2017, the City elected to inspect and perform condition assessment on a critical 14-inch steel water transmission main suspended from the Highway 64 Bridge over the Neuse River. This is the City's first inline inspection of a steel watermain and first use of the SeeSnake inspection tool. The City and their on-call contractor performed all pipeline modifications, flow isolation, and inspection support to provide safe access to the water main.

This paper will be of interest to water and sewer utilities that desire to plan, design, and implement an asset

management program that includes evaluation of metallic water mains; understand the logistical considerations and limitations of available inspection technologies; pre-planning required to implement the work; and interpretation of inspection data.

INTRODUCTION

The City of Raleigh Public Utilities Department provides water and sanitary sewer service to approximately 195,000 metered water and sewer customers and a service population of approximately 570,000 people in the Raleigh, Garner, Wake Forest, Rolesville, Knightdale, Wendell, and Zebulon areas. The main water feed to the community of Knightdale is a 16-inch ductile iron pipe (DIP) transmission main that runs along

Highway 64 and crosses the Neuse River. At the point of the river crossing the water main reduces to a 14-inch steel pipe that hangs on the side of the Highway 64 Neuse River Bridge. The City of Raleigh wanted to know the condition of this critical piece of infrastructure as a part of their ongoing asset management program. The City brought in CDM Smith to lead the project team effort.

The first step for the CDM Smith project team was to determine the condition assessment inspection technology. The water transmission main had isolation valves on each side of the river crossing which would allow the section of the pipeline attached to the bridge to be taken out of service for the inspection. The City of Raleigh estimated they could have this transmission feeder main out of service for about 3 days before adversely affecting tank levels and system demands and pressures. Following a review of inspection methodologies, the project team decided upon the PICA SeeSnake inspection tool. This high-resolution tool would provide the City



14-inch Steel Water Main Attached to Bridge

The SeeSnake tool is deployed as a free-swimming inspection device or is utilized in a tethered application where the tool is winched through the pipeline.



Abandoned Meter Vault used for Insertion

with information on localized pitting and corrosion on the 14-inch steel main.

CDM Smith hired two subcontractors, the specialty contractor PICA Corp and a local general contractor Carolina Civilworks, to complete this project.



SeeSnake Inspection Tool

Carolina Civilworks Inc. is a Raleigh based site development and utility contractor combining decades of experience between management and field personnel in central and eastern North Carolina. Carolina Civilworks was contracted to do the civil work needed for the project including traffic control, removal of vault lid, removal of pipe and valve inside the vault, and tool insertion. PICA was brought on to inspect the pipe using their SeeSnake tool with remote field-testing technology (RFT).

PICA's RFT is an advanced condition assessment tool for inspection of ferrous pipelines. The SeeSnake tool is designed to find localized areas of wall loss and measure the depth and length of local wall loss defects. These parameters are critical in predicting the burst pressures of pipes, thus preventing leaks and catastrophic burst failures. Unlike screening technologies such as leak detection or average wall assessments that require follow up inspection efforts, the SeeSnake inspection tool provides engineers with higher resolution actionable information that can be used to drive repair, rehabilitation and replacement schedules.

PROJECT PLANNING

The SeeSnake tool is deployed as a free-swimming inspection device or is utilized in a tethered application where the tool is winched through the pipeline. The west side of the river crossing had an abandoned water meter vault that could be used for access. The meter had long since been removed but the bypass line and isolation valves were still intact. The plan was to remove the section of straight pipe that replaced the meter and the adjacent butterfly valve to allow insertion of the



Localized Wall Loss at Pipe Hanger

inspection tool. The transmission main was isolated by shutting the two existing 16-inch valves along Hwy 64, one inside the meter vault on the west side of the river and the second valve located along the shoulder of Highway 64 on the east side of

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Close up of Pipe Support (59% wall loss)

the river. The tool was attached to a foam pig and then physically pushed into the line until it was positioned downstream of where the meter bypass line tees into the main, which is just outside of the meter vault itself. The open pipe in the meter vault would then be capped with a blind flange that contained openings for the tether cable and two blow-off valves. The tool would be propelled to the other side of the bridge using system pressure by throttling the 12-inch valve on the meter vault bypass line. Once the tool was pushed to the opposite side of the river the bypass valve was shut and the SeeSnake was winched back towards the meter vault at a controlled speed to collect the inspection data.

Prior to insertion of the SeeSnake tool, a gauge pig was inserted into the transmission main to check for pipe irregularities that would prohibit a successful pass through of the inspection tool. During this exercise an unknown in-line butterfly valve was discovered approximately 162 linear feet from the insertion point. The SeeSnake inspection tool is a full-bore tool that requires full pipe diameter for passage. A butterfly valve has a stem and valve seat that sits in the center of the pipeline even when the valve is open and prevents passage of pigs and full-bore tools. The project team general contractor worked through the night to remove the now obsolete in-line valve and replaced it with straight piping.

The next morning, following a successful gauge pig run, the SeeSnake

inspection tool was inserted into the 16-inch DIP at the meter vault and pushed beyond the 12-inch vault bypass tee. The tool was propelled by throttling the 12-inch bypass valve inside of the meter vault and a hydrant was opened on the other side of the river to allow for air to escape the main as the tool advances. Once the inspection tool had crossed the bridge and the inspection was set to begin utilizing the cable winch, a hydrant on the east side of the river near the meter vault was opened to allow the water that was used to propel the tool across the bridge to now escape the water main as the tool was winched back towards the vault at the required inspection speed of 15 feet per minute. When the SeeSnake tool passed by the open hydrant near the vault, the two smaller blow-off valves attached to the blind flange cap in the meter vault allowed the water inside of the steel pipeline to escape as the SeeSnake and foam pig were pulled the last few feet into the meter vault.

The PICA SeeSnake tool travelled through approximately 590 linear feet of 16-inch DIP between the insertion meter vault and the start of the 14-inch steel pipe at the beginning of the bridge. Therefore, a total of approximately 971 linear feet was inspected, approximately 590 linear feet of 16-inch DIP and 381 linear feet of 14-inch steel pipe. Since the purpose of the inspection was to evaluate the 14-inch steel pipe, the tool was sized for a 14-inch pipe. Although the tool collected data on the 16-inch DIP pipe, that data is of a significantly lower resolution than for the 14-inch pipe. Corrosion in the 16-inch DIP, particularly at or near the crown, may not be accurately detected by the 14-inch tool since the tool would not have been flush with that portion of the larger pipe. Following the inspection, the raw data was checked for accuracy and the meter vault piping and valves were restored to their original condition, and the transmission main was flushed and placed back into service.

INSPECTION RESULTS

Results from the inspection of the 14-inch steel transmission main sections

revealed a total of 14 localized wall loss defects, an average of one defect every 27 feet of pipe. A breakdown of the severity revealed that 4 of the defects had a wall loss of less than 35 percent of the original pipe, with wall loss of the remaining 10 defects between 36 percent and 60 percent. The majority of the localized wall loss defects were located at pipe hangers and supports. The original East Wake County Water Transmission Main design drawings call for standard weight steel pipe which is 0.375 inches thick. The CDM Smith project team performed ultrasonic testing on the steel pipeline to confirm the pipe thickness. Three defects were identified with a localized wall loss of approximately 60 percent of the original pipe wall thickness. Based on the original thickness of 0.375 inches, the remaining wall thickness in those locations is approximately 0.15 inches.

The actual grade of steel and surge pressures for the 14-inch steel water main are not known; however using the assumed parameters below the required wall thickness (per AWWA M11-Steel Pipe Design) for resisting internal pressure is less than 0.10 inches. Assumptions for 14-inch steel pipe design (internal pressure design)

- Working pressure = 120 psi (per City)
- Surge Pressure = 50 psi (assumed)
- Yield Stress = 36,000 psi (assumed)

REHABILITATION RECOMMENDATIONS

Following receipt of the inspection results, CDM Smith visited the site and confirmed both the stationing and clock position of the reported steel pipe defects. CDM Smith also confirmed that the localized corrosion is originating from the exterior of the pipe. The steel pipe is positioned such that it is in the dripline of the deck of the bridge that it is attached to. Runoff from the bridge will saturate the pipe which is shaded from direct sunlight allowing moisture to remain in areas where the pipe is in contact with hangers and bridge supports. All the localized wall loss defects on the steel pipe sections occurred on the bottom half of the pipe which is indicative of liquids running

down the pipe exterior and collecting on the pipe invert. Exterior corrosion was also visible on at least one mechanical coupling however there was no localized pipe wall loss identified at that location.

Another factor affecting the exterior corrosion of the aerial steel main could be the salt placed on the bridge during inclement winter weather. The road salt would either dissolve with the melting snow and ice or be washed off the road by subsequent rain. Once dripping onto the top of the aerial steel pipe the salt water would quickly move to the bottom half of the pipe and the salt would concentrate as the water evaporates.

Although the remaining wall thickness of the 14-inch steel water main appears to be sufficient (based upon assumed pressures) the rate of corrosion is unknown since this was the first inspection performed on this pipeline and therefore a previous base line condition of the pipeline had not been established. CDM Smith made recommendations that the steel pipe section be added to the City's CIP for rehabilitation or replacement. In the short-term, the corrosion rate of the steel pipe section can be slowed by application of an external coating. Since most of the corrosion is occurring at the pipe hangers, the hangers would need to be systematically replaced or rehabilitated during the pipe painting process. This work could possibly be done from the underside of the bridge utilizing scaffolding but could require some environmental permitting. Any repair work performed from the top side of the bridge would require a lane closure on a heavily travelled two lane road.

Replacement of the 14-inch steel pipe in its current location is most likely not an option since the NCDOT has adopted a practice of requiring existing aerial mains attached to bridges to be reinstalled under the river when either the utility piping or the bridge itself is being replaced. A non-replacement option for structural rehabilitation of the steel pipe would be a reinforced CIPP lining. The concern with this method would be maintaining the working condition of the expansion joints. To accommodate this a pre-liner would be required which would prevent



Corrosion at Mechanical Coupling

the CIPP liner from adhering to the inside of the existing steel pipe allowing the steel to move independently of the new liner. There is also a capacity concern with this approach as the 14-inch steel water main is already smaller than the buried 16-inch DIP it is sandwiched between and the CIPP liner would only serve to reduce the interior diameter even further.

Since the date of this condition assessment inspection the City has undertaken a 54-inch gravity sewer replacement effort along the Neuse River and has made the decision to replace the existing 14-inch steel water main attached to the bridge by installing a new 16-inch

water main underneath the Neuse River via open cut installation or by use of Horizontal Directional Drill. †

ABOUT THE AUTHOR:



JM. Brent Johnson P.E. is focused on the condition assessment and rehabilitation of water and wastewater pressure mains and is current Chair of the NASSCO Pressure Pipe Committee. He is the CDM Smith National technical leader for pipeline condition assessment and rehabilitation in the Southeast Region. Brent serves as the SESTT Treasurer. His full bio is on pg.8.

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BNSF MEMPHIS RAIL YARD REHABILITATION



Liner's increased hydraulic flow capacity allowed a slightly smaller 96-inch diameter to be sliplined

- **Owner:** BNSF Railway Company
- **Engineer:** BNSF Railway Company

- **Contractor:** LRL Construction Co.
- **Technical Description:** DuroMaxx SRPE Liner Pipe, 96-inch, 7,200 LF

By: Don Herbert, Contech Engineered Solutions

Located in Tennessee, the BNSF Memphis Rail Yard is a bustle of activity. With over 30 tracks, 25 of which are actively running, this is a critical yard that connects the east and the west coast Class One railroads. There is constant activity. Scheduling is a critical aspect to the performance of the yard.

Directly beneath this hub, are seven large culverts, each one 114-inch diameter and 1,436 LF. While these culverts have far exceeded their service life design, it had been determined that they were in need of replacement or repair. Most were experiencing some form of deflection and significant deterioration at the invert. Sink holes were starting to appear in between the tracks, which created great concern for the railroad. Given the prohibitive costs to replace these culverts, the rail looked at repair options and determined that a reline solution would be most effective, both structurally and cost-efficiently. A replacement would require a complete shutdown of the yard for an indeterminate period of time to allow for an open-cut and replacement of the existing culverts running directly beneath the central location of the yard. It was critical this scenario be avoided as the cost

deficits would be astronomical and the impact to the yard and freight transportation would be devastating. However, a solution that would provide a long-term structural repair and meet the hydraulic requirements was also critically needed.

Because of the age, deformed condition, and close spacing of the host structures, an experienced tunneling contractor, LRL Construction Co., was selected to perform this reline job. They had experience working in confined spaces around the rail. Based on a detailed review of available options and long term requirements of the project, a steel reinforced polyethylene solution was selected to reline five of the existing culverts. Manufactured by Contech Engineered Solutions, the DuroMaxx® SRPE liners conform to the specifications in the AREMA Manual for Railway, Section 4.17, for design and load rating requirements. Due to the low Manning's n, the DuroMaxx SRPE reline solution also provided an increased hydraulic flow capacity allowing for a slightly smaller diameter of 96-inch to be sliplined into the 1,436 LF length of each of the five host pipes for a total of 7,200 LF, nearly a mile and a half of pipe end to end!

Due to the critical nature of this project for BNSF, and the

A reline solution was the most effective, both structurally and cost-efficiently.



The DuroMaxx SRPE Liner Pipe offered a fully structural reline solution

installation methods required to make it a success, it was determined that weekly calls be set up to track manufacturing, delivery and installation. This high level of communication also included pre-construction meetings with the contractor and the railroad. There could be no impact to the train schedule, and safety was extremely important. The host pipes, originally installed in the early 1960s, had experienced heavy bed loads and high flow velocities over the span of their service lives. In a few barrels, the host pipe was starting to roll up on itself in some areas due to loss of backfill between the culverts. There was concern of void spaces between and over the culverts as well as the host pipes continuing to move over time from the massive loads over the top of these structures. The culverts needed to be accurately

measured to ensure that the 96-inch steel reinforced polyethylene reline pipe would fit. This needed to be done fairly quickly before further storm events and the train loading compounded this situation. Concern had to be taken to ensure that the liners were



Liner pipe was shipped directly to the site in 41-foot and 45-foot sections



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installed correctly even as parts of the host had to be removed.

The liner pipe was shipped directly to the site in 41-foot and 45-foot sections from the manufacturing facility located in Montgomery, Alabama. Grout ports and skid tubes were attached to each section of pipe. The skid tubes would aid in installation to avoid surface abrasion or damage during installation. There were four rail yard drain tie-ins that also had to be reconnected on the site. The contractor was able to use top-hat risers specifically made to meet site conditions and install them once the main barrel was relined. The contractor devised a very ingenious method whereby they were able to push each length of pipe through the inlet end. Many days the contractor was able to get more than 10 pieces (more than 450 feet of pipe) in a single day while also installing internal bands on each section.

Randy Zeiger, P.E., senior operations manager at LRL Construction Co., commented, "The pipes installed much quicker than we originally thought. We had anticipated installing up to four pipes a day but were able to average about 10 pipes instead. The installation went very smoothly."

As each section was completed, a multi-stage grouting process was performed to set the pipe liner into the host pipe. A cellular grout was used to backfill the void space between the liner pipe and the host. During one weekend between sliding the

DuroMaxx into the host pipe and grouting it into place, there was a significant rain event dropping approximately eight inches of rain over the weekend. The experienced relining contractor was able to avert disaster with some additional suggestions made by Contech.

Three of the seven culvert pipes were eventually fully grouted for a completely structural solution that allowed for an extended service life with a possibility of 100-years or more. The rehabilitation of these three culverts running under the rail yard was complete with no interruption to the ongoing rail services of the Memphis yard. The remainder of the project will be complete after the rainy season in 2020. The success of this project led to two other relines with BNSF. †

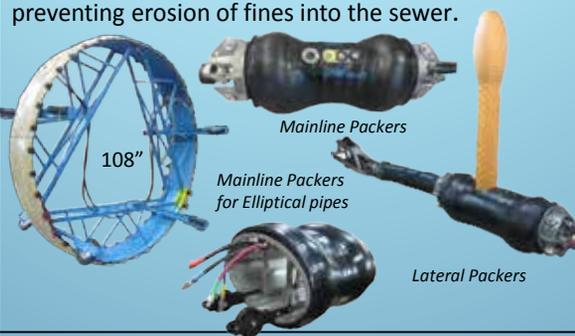
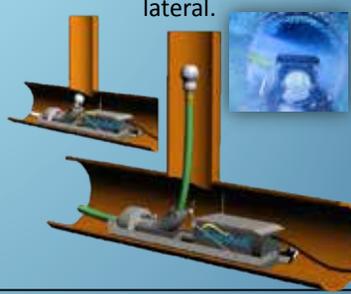
ABOUT THE AUTHOR:



Don Herbert is the Account Manager and Director for Rail Markets at Contech Engineered Solutions. He joined Contech in June of 1991 and has held many positions within Contech including sales engineer, regional sales engineer, area technical manager and most recently - area manager drainage. Don has a B.S. degree in Civil Engineering from Manhattan College and M.S. degree in Civil Engineering from Texas A&M University.



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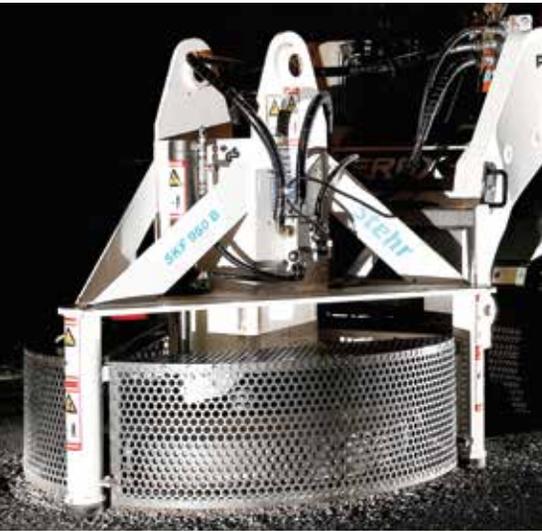
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CUTTING CORNERS AND MAKING THE GRADE

By: Jerry Trevino, Protective Liner Systems, Inc.



The Stehr manhole cutter, develops 8000 to 9000 ft-lbs of torque

Manholes are located in roads, outfalls by creeks and rivers, in private yards, swamps and just about anywhere the sewer collection systems runs through to end up at its final journey, the waste water treating facility. The location of manholes does not affect people as negatively as much as the deteriorating or failed manhole pads on roads. Everyone has experienced driving their cars over steel plates and on very bumpy manhole covers and pads. In many cases drivers avoid driving over uneven manhole adjustment pads to avoid damaging their vehicles' suspension or to avoid the risk of a vehicular mishap.

For many years, we encountered damaged manhole chimneys located in roads. The leveling materials inclusive of bricks and mortar eventually fatigues and fails. Some manholes were previously internally rehabilitated only to find that over time, the chimney portion of the manholes located in roads had been impacted by vehicular traffic, from wear and tear of the road surface. This was primarily due to the

poor quality of construction and materials that were used during the adjustment to grade after road repaving. In all cases, the manhole castings and lids had been adjusted vertically to grade in order to approximate the level of the adjoining street surface. In almost all cases, the manhole castings were encased in a square or rectangular concrete pad. In most cases, the concrete pad was damaged, cracked, and uneven.

While manhole adjustment pads look good for a few months, many fail prematurely and they disrupt traffic both while being adjusted, and after they break and fail.

Cutting the Corners

Approximately 15 years ago we worked with a company from Colorado to introduce to the manhole industry a new method for adjusting manholes located in roads. By using a circular core cutter and coring the streets to a minimum of 11 inches deep, we drastically changed the quality, aesthetics and longevity of the manhole pads by via this process.

A circular cut core removes the potential concentrated stresses that are developed in the corners of square cut pads thus "cutting corners". It also has other advantages.

Paved roads are resurfaced every 7 to 15 years. The frequency of repaving varies and is dependent on many factors and conditions inclusive of funding, weather and traffic conditions. In the process, the top layer asphalt is removed via an asphalt milling machine. The milling machines mill or grind off the asphalt to a certain depth and convey the tailings onto a conveyor and then into dump trucks. The top of the manhole frame castings and covers, along with other utilities, may be in the path of the milling machines. Should the milling machine's grinding drums

encounter a manhole frame casting and cover, it tears up a lot of carbide teeth, teeth holders, and it may also damage the drum. In the past, the milling machines would mill around the manhole castings and pad, then later grind the area around the manholes with smaller grinders. When the asphalt is applied, many manhole covers were asphalted over which making impossible to access the sewer at those points of entry. In addition, the manholes would be difficult to locate.

About 12 years ago we introduced the idea of lowering the manholes pads before milling. Using a skid steer attachment, we cored the manhole pads, remove the castings, shims and other leveling materials including wood, rocks, and at times squashed beer cans. We placed a steel plate over the opening, then placed low strength concrete on top of the plate to grade. After the milling and asphalt paving was complete, we would locate the buried manhole, re-core the street again, install a new manhole ring and cover to grade.

Making the Grade

Placing the manhole castings to grade with minimal impact on the road surface requires a lot of attention to detail. It involves placing a concrete pad with high strength fast setting concrete and designing the manhole pad so that the weight and impact of traffic is not solely received by the manhole chimney and walls but more supported by the ground surrounding the manhole. The new pad will also serve as a new chimney seal and prevent infiltration and inflow into the manhole. These are some of the extra benefits achieved by this manhole adjustment method.

This process provides a higher quality level of manhole rehabilitation, which facilitates better trenchless repair and rehabilitation approaches.



Often the concrete pad is damaged, cracked, and uneven



A circular cut core removes potential concentrated stresses and has many other advantages



Many concrete pads can fail prematurely and disrupt traffic

Available Equipment

After introducing this manhole core cutter, other companies have offered similar and different equipment to core or cut the manhole pads. These type of cutter can cut through asphalt readily, however take a much longer time to cut through concrete. There are some sensitivities to consider in selecting a manhole cutter such as:

- **Safety.** The cutter should have a built in safety guard so that workers do not come in contact with the rotating cutting blade or core saw.

- **Core cutter attachment.** The cutting

of the asphalt or concrete requires a skid steer tractor. In the case of the Stehr cutter, it develops 8000 to 9000 ft-lbs of torque. Therefore, a 10,000 pound dual hydraulic flow skid steer works more effectively.

- **Stability.** The cutter must stable enough to cut through asphalt independently without requiring the cutter blade to support and center itself to the existing manhole chimney or frame casting. Centering the cutter to the manhole damages the manhole.

- **Wear Parts.** Determine the cost of the sacrificial wear parts. In some cutters only the cutting carbide teeth wear out. In some

machines the entire cutting blades wear out.

- **Long term investment.** †

ABOUT THE AUTHOR:



Jerry Trevino is President of Protective Liner Systems, Inc., specializing in infrastructure rehabilitation since 1984. As longtime

SESTT Chairman, Jerry strongly believes that Trenchless Technologies offer numerous methods to maintain and upgrade aging infrastructure. His full bio is on pg 8.

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CHARLESTON SC SEMINAR MAY 22, 2019:

GUEST PRESENTATION

“Trenchless Technology in Charleston”
Mr. Chris Troutman, P.E.,
Assistant Director of Engineering & Construction
Charleston Water System

PRESENTATIONS

Welcome to Trenchless Technology Seminar,
Leonard Ingram, PWAM, SESTT Executive Director

**BAMI-I & Certification of Training in Asset
Management (CTAM) Program,**
Dr. Tom Iseley, P.E., PWAM, BAMI-I

Trenchless Technology Center,
Dr Tom Iseley, P.E., Louisiana Tech University

Internal Joint Seals,
Jeremy Keininger, Miller Pipeline Corporation

Pilot Tube Guided Boring,
Troy Stokes, Akkerman

**PVC Fold & Form Liners for Culvert &
Sanitary Sewer Rehabilitation,**
Robin Hershman, IPEX USA LLC

Cured In Place Pipe (CIPP),
Bill Sharpe, IPR Southeast

Multi Sensor Inspection,
Ed Diggs, Pipeline Inspection Partners Corp

Rehabilitation of Underground Structures,
Jerry Trevino, Protective Liner Systems/
Protecting Infrastructure

Dewatering and Filtration,
Vince Dawkins, Rain For Rent

**An Introduction to The Direct Pipe Method &
Applications in Southeastern United States,**
Maureen Carlin, PhD, Laney Directional Drilling Co.

Eco-Cast Geopolymer,
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SESTT Trenchless Technology seminars are great networking and educational opportunities

Trenchless Technology, SSES and Buried Asset Management Seminars hosted by SESTT in locations across the Southeast have a solid reputation as premier educational events, with knowledgeable industry presenters on a wide range of trenchless technology topics.

As part of the SESTT mandate to “promote Trenchless Technology through education for the public benefit”, the seminar programs are designed to inform public officials, engineers, utility

company personnel, designers, and contractors involved with the construction, rehabilitation, and management of underground infrastructure assets, in the Southeastern U.S.

SESTT **Trenchless Technology, SSES and Buried Asset Management Seminars** are excellent opportunities to learn about the latest trends and technologies in trenchless underground construction. With educational and informative trenchless presentations, product demonstrations, networking and ideas, the seminars

Everyone is focussed on networking and learning in a small classroom setting. Being together in the same room for a full day promotes informal networking.

LEONARD INGRAM, PWAM, SESTT EXECUTIVE DIRECTOR

provide relevant technical knowledge with immediate value and application.

Jointly sponsored with the local ASCE section and/or branch, registration fees for the SESTT seminars include program materials, all day refreshments, breakfast pastries, lunches, networking, and a PDH Certificate. Special thanks go out to 2019 food sponsors *Akkerman, Freese & Nichols Inc., Highfill Infrastructure Engineering, Laney Directional Drilling Company, LMK Technologies LLC, Miller Pipeline, and Pipeline Inspection Partners Corp (PIPC)*. SESTT Executive Director Leonard Ingram believes the seminar programs are

essential in fulfilling the SESTT mission to promote the growth of trenchless technology in the Southeast:

“Everyone is focussed on networking and learning in a small classroom setting. Being together in the same room for a full day promotes informal networking. We’ve seen SESTT seminars have really helped grow the business of trenchless technology across the Southeast over the years. They promote greater understanding and acceptance of different trenchless applications, and underline the critical importance of systematic buried asset management.”



Great opportunity to resource knowledgeable trenchless vendors

For information dates and locations of the proposed 2020 SESTT Trenchless Technology, SSES and Buried Asset Management seminars planned for the Southeast, visit:

www.sestt.org

CHARLOTTE NC SEMINAR OCTOBER 8, 2019:

GUEST PRESENTATION

“Trenchless Solutions to Storm Water Problems in Charlotte NC”

Ms. Michelle Montgomery,
Construction Supervisor, Storm Water Service
City of Charlotte

PRESENTATIONS

Welcome to Trenchless Technology Seminar,
Leonard Ingram, PWAM, SESTT Executive Director

Trenchless Technology Center,
Leonard Ingram, PWAM, SESTT Executive Director

BAMI-I & Certification of Training in Asset Management (CTAM) Program,
Kurt Wright, P.E., BCEE, PWAM, BAMI-I

Is Pipe Bursting The Right Fit For Your Project?
Chris Ford, P.E., Highfill Infrastructure Engineering

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Sealing the Collection System with a Focus on Main-To-Lateral Rehabilitation,
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PVC Fold & Form Liners for Culvert & Sanitary Sewer Rehabilitation,
Robin Hershman, IPEX USA LLC

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Ann Rushing, North Carolina 811

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Spindale Flow Monitoring Program,
Maurice Walsh, P.E., SDG Engineering, Inc.



BAMI-I RETURNS HOME TO ATLANTA!

4-day CTAM workshop held in Atlanta September 2019

By: The Trenchless Technology Center (TTC)

As a result of the leadership and inspiration of Mayor Shirley Franklin and DWM Commissioner Jack Ravan, the Buried Asset Management Institute (BAMI) was established in the Department of Watershed Management (DWM) for the City of Atlanta in 2003. Mayor Franklin was passionate about developing the water program in Atlanta from one which had received the country's largest and most complex federal consent decree to date, into a proactive, forward-looking "first-in-class" organization.

To help accomplish the Mayor's vision, in 2003 Commissioner Ravan invited Dr. Tom Iseley, present day BAMI-I Chairman, to lead a team focused on the development and implementation of best business practices for managing Atlanta's buried assets – often referred to by Mayor Franklin as "buried treasures". This team became known as the Buried Asset Management Group. After a 2-day working forum involving academic leaders from multiple universities the name was changed to the Buried Asset Management Institute. The realization was that the biggest challenge was not the treatment plants rather the conveyance systems, which represent about 75-80 per cent of the value of water program assets. There are greater challenges in managing these assets since they are buried.

With rapidly growing interest in the US and other countries, BAMI transitioned to BAMI-International (BAMI-I) in 2004, and was established as a non-profit corporation whose main purpose is to educate and assist those who have an interest in applying best



practices to manage and extend the life and efficiency of their buried assets.

In 2006, BAMI-I was selected for U.S. EPA Cooperative Agreement (CP 83 282901-1), which was completed in 2008. As a result, BAMI-I launched the Certificate of Training in Asset Management courses (CTAM 100-400). This program consists of 4 online courses plus a 2-level certification program (Associate Water Asset Manager (AWAM)

& Professional Water Asset Manager (PWAM)). So far, individuals from 16 countries have enrolled in the CTAM program. BAMI-I has conducted 4-day CTAM classroom courses in Raleigh, NC, Columbus, OH, and Lewisville TX.

Most recently, BAMI-I was honored with an invitation from Atlanta DWM Commissioner Kishia Powell to return to its city of origin in September 2019 and conduct the fourth four-day classroom



All 34 attendees successfully completed all requirements to become BAMI-I AWAM certified



Dr. Tom Iseley, BAMI-I Chairman, gives overview of BAMI-I Asset Management Certification program

Having 24 key employees spend 4 days in a classroom shows real commitment.

- DR. TOM ISELEY, PHD, P.E.,
PWAM, CHAIRMAN BAMI-I

session of its exclusive four part CTAM course. With one course level covered per day, the workshop was an overwhelming success, with all 34 attendees, including 24 Atlanta DWM employees, completing the rigorous series of 23 exams, and achieving the BAMI-I AWAM certification.

According to BAMI-I Chairman Dr. Tom Iseley, these results were “extremely significant because asset management programs cannot be successful without

buy-in from all division of the organization with a champion. Having 24 key employees spend 4 days in a classroom shows real commitment. We appreciate Atlanta’s forward looking leadership.”

As the success of the BAMI-I Atlanta workshop shows, in the years since BAMI-I’s formation, Atlanta DWM has continued Mayor Franklin’s original vision, demonstrating national and

international leadership in learning and applying asset management principles. The passion and commitment to Atlanta’s water program inspired by Mayor Franklin continues to this day under the leadership and guidance of Mayor Keisha Lance Bottoms and DWM Commissioner Kishia Powell.

For more information please visit www.bami-i.com and contact Dr. Tom Iseley, dtiseley@latech.edu. †

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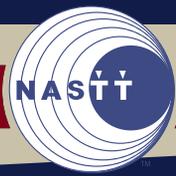
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3 PHASE III Application to Industry.



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