

In the Trenches

BY ANDREW FARR



Marc Lehmann

CDM SMITH

As far back as he can remember, Marc Lehmann had a desire to go into construction, rooted in his love of building.

“Ever since I was a kid I liked to build things – from Legos, to Pine-wood Derby cars, to being in the

Soapbox Derby, to my dad building a shed in the backyard,” he says. “Whatever needed built, I was in the middle of it.”

Lehmann selected engineering because he knew he wanted to shape the physical world. Involvement in the trenchless industry came later.

“I chose what I perceived at the time as one of the most stable, creative and interesting fields by studying civil engineering at Ohio University. Go Bobcats! I have never regretted that decision,” he says.

Early in his career, Lehmann worked on hydraulic models for sanitary sewer evaluation surveys (SSES) and inflow and infiltration (I/I) studies. In those days, he says, model inputs were mostly DOS-based and not the user-friendly graphical interfaces that are used today.

For the first six years of his career, Lehmann was tagged as a “data guy,” compiling VCR CCTV sewer inspection footage from SSES projects. From there, he experienced the transition from SSES projects that largely sat on a shelf to today’s living, breathing asset management projects that use GIS to link digital data to make intelligent decisions.

“I found that my strengths didn’t lie in the actual modeling, but rather with figuring out why a model and a flow meter could be so different,” he says. “This led me to analyzing hydrograph shapes, visiting project areas, reviewing and categorizing sewer inspections, managing all this data in a logical way to be accessed quickly and easily, and finally recommending appropriate repair and rehabilitation technologies in an informed way. Analyzing and extending the useful life of buried infrastructure has been my focus ever since.”

Today, Lehmann works as a project manager for CDM Smith in its Columbus, Ohio, office. He credits the underground construction industry as being receptive to new techniques and approaches in pipeline rehabilitation, noting that the complexity of projects is resulting in efficiency and innovation.

“Our nation’s infrastructure is rapidly showing its age and we have the opportunity to improve it before it fails,” he says. “The trenchless industry is all about finding the better, faster, cheaper and safer ways to improve and build new un-

derground infrastructure. Each project has extremely unique challenges where we can use our creativity and innovation to develop better solutions for our clients.

“I am encouraged by the number of emerging technologies in our industry, but it can be difficult to vet these technologies or find a common baseline for comparison,” he continues. “These challenges certainly keep the industry on its toes.”

During his time working in the trenchless industry, Lehmann has also embraced a role as a volunteer and advocate. He first joined NASTT when his mentor, John Schroeder, suggested he submit an abstract for NASTT’s No-Dig Show. Soon after, Lehmann was presenting papers and serving as a session leader at the No-Dig Show and now serves on the No-Dig Show Program Committee.

“Through NASTT and the No-Dig Show, I have had the opportunity to network with industry leaders many of whom I now call fiends and can call with technical questions,” he says. “I tell our younger engineers they will learn more walking the floor and talking to the vast number of exhibitors from across the country in one day than they will learn in years sitting in their office.”

While his love of shaping the physical world has never waned, Lehmann cites some other reasons for his continued interest in working in the trenchless industry.

BENNETT trenchless engineers



Sam Ko Joins Bennett Trenchless Engineers

We are pleased to announce that Sam Ko has joined the firm as an Associate Engineer. Sam is a recent engineering graduate of Sacramento State University. Welcome to the Trenchless Industry, Sam!

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"To me, it is equal parts the people in the industry and the pace of work," he says. "While I first started out basing my career on a few classes in college, it has been the people in the industry who have kept me in it. Our local team enjoys the work that we do and it creates a fun and enjoyable working environment. The typical pace of a rehabilitation or condition assessment project is pretty fast. So, with a great team, it keeps my days varied and interesting."



Mary Neher

BENNETT TRENCHLESS
ENGINEERS

Mary Neher is one of the rising stars in trenchless engineering and her accomplishments thus far in her young career have brought her industry-wide recognition.

"I've enjoyed making and building things for as long as I can remember and, since I always loved math and science in school, pursuing a career in engineering was a natural fit," she says.

In 2016, Neher was the recipient of NASTT's Ralston Award for Young Trenchless Achievement.

"Receiving the Young Trenchless Achievement Award was a huge honor and a really amazing experience. Being asked to stand on the same stage where NASTT was recognizing some of the greatest contributors to the industry for their lifetime of achievements was incredibly humbling," she says, referring to her receiving the award the same night NASTT inducted its 2016 Hall of Fame class. "I hope that one day when I look back on the entirety of my career I will have lived up to the potential that NASTT and my wonderful mentors at Bennett Trenchless see in me and will have achieved even a part of what those luminaries have."

Neher's first exposure to the construction industry, she says beyond looking curiously through the window at all of the awesome machinery while driving past job sites, was through an internship with an HVAC company in college.

"They introduced me to a wide range of the work that goes into making a construction project successful, from estimating and bidding all the way through construction management," she says. "It really opened my eyes to the challenges and complexity of building things on a large scale, and after that I was hooked."

Neher's specific introduction to trenchless technology came at NASTT's 2007 No-Dig Show in San Diego. Neher was graduating from UC Berkeley in May that year and the Bennett Trenchless team flew her down to Southern California to introduce her to the industry and interview her for a position with the company. "I sat in on technical paper sessions, explored the exhibit hall and met a bunch of people who were really excited about what

was going on in the industry," she says. "It was a fantastic experience that I look back on fondly."

Now working as a design consultant exclusively on trenchless work, Neher says she has had the amazing opportunity of being involved on a very wide range of new installation projects – from less than 100-ft auger bores to several-thousand-ft HDDs and just about everything in between.

She explains one project that wrapped up construction in 2017 that stands out in her mind as significant – a 3,000-ft HDD to install a new 12-in. recycled water pipeline. "What made it particularly noteworthy was that the new pipeline connected a tank at the top of a mountain to a pump station at the base so there was an over 500-ft elevation difference between the entry and exit points," she explains. "This introduced a number of interesting and rather novel design challenges that had to be overcome."

Neher says she is excited by the current state of the trenchless industry, noting that while the small, niche market faces several challenges, the realm of capabilities that exist to complete difficult projects is very much expanding. And that brings a new set of challenges.

"Every year we are pushing the boundaries of what is achievable," she says. "There are projects being completed today that would have been deemed impossible when I started in the industry 10 years ago. With that being said, as specialty consultants, one of the challenges we're running into these days is that there don't seem to be many straight forward, 'easy' jobs anymore."

One of the challenges that has long plagued growth in the trenchless industry is owner acceptance. From Neher's perspective, the industry has certainly made progress in this area, and she says a challenge that exists now is making sure projects that require complex trenchless methods are actually feasible.

"We as an industry are growing so quickly that many more people are being exposed to trenchless technology and how it can help them achieve the results they're looking for," she says. "However, on the design side of things at least, this has resulted in some issues with engineers being asked to put trenchless design work out on the street without adequate knowledge to design a constructible project. NASTT is doing a great job of providing educational resources but I think there continues to be an opportunity to address the lag between engineers/owners being exposed to the benefits of trenchless and having adequate knowledge to design trenchless projects."



Mark Wade

BLUEWATER SOLUTIONS GROUP

Mark Wade was putting himself through college, working during the summer months as a welder and structural steel fabricator for a general building contractor outside of

Detroit. Although he was still working on his civil engineering degree, it was during this time when he knew he truly wanted to devote his career to infrastructure, fixing it or building it.

While working in the late 1970s for his first employer, a global consulting firm, Wade was assigned to many projects associated with the EPA-funded construction grants to reduce sanitary sewer overflows (SSOs). It was during those years that several new technologies were being developed to assess the internal condition of collection systems. As more emphasis was placed on reducing I/I as part of larger wastewater infrastructure upgrades, the consulting community began to explore technologies to address I/I issues and improve hydraulic performance. This, of course, all started with a new company at the time from England called Insituform.

"My first exposure to CIPP was a demonstration by Insituform of their proprietary inversion system for the St. Louis MSD," Wade recalls. "I was immediately captivated by it and the possibilities that such a system offered to other cities and agencies."

Having always worked on the consulting engineering side of the industry, Wade launched Wade & Associates in 1988 and began a 19-year period of helping clients achieve their goals to improve buried pipeline assets using a constantly evolving and growing tool box of inspection and trenchless renewal tools and technologies. In 2007, the group was acquired by CH2M Hill and expanded its base to include global projects. In 2014, Wade left CH2M Hill and formed BlueWater Solutions Group along with a group of colleagues. Today, he is president of BlueWater Solutions and the firm has expanded its services to include inspection, assessment and trenchless renewal of water distribution systems. "[After] 40 years, I'm still engaged daily on projects that are rooted in the trenchless industry. Crazy," he says.

Wade notes that over the course of his career, he's witnessed amazing advancements in non-invasive technologies that have helped revolutionize the trenchless industry but also made it more competitive.

"The trenchless industry has finally reached a level of maturity where almost any pipeline or other buried structure can be inspected and rehabilitated without much actual excavation," he says. "Most trenchless technologies are highly cost-competitive, particularly as more companies and competitors have entered the industry during the past 10 to 20 years."

Wade also credits industry education and promotion as having a profound impact on owner acceptance of the technology and methods.

"The growth of specialty conferences including national, regional, and even statewide venues have also been an incredible resource for exposure of these systems to utility contractors, suppliers, municipalities, consultants, software and I/T developers, and government regulators," he says. "We simply are getting better and better at this no-dig business."

Wade joined NASTT in 1990 and immediately got involved with its regional chapters, MSETT, SSETT and RMSETT. "I'm quite certain that I've attended every conference since then,

presented as a speaker at most, and exhibited at some," he says. "Back in the early days I collaborated with academic visionaries such as Tom Iseley, Mo Najafi, Ray Sterling and Rob McKim. I'm grateful to those who helped pioneer and raise the science and understanding of trenchless pipeline renewal."

"I think the many levels of training and education regarding trenchless are indeed meeting the needs of the industry," he explains. "This is particularly true as we see more interest in other professional associations and societies to fold in and highlight no-dig topics at their own conferences, workshops and webinars."

His respect and admiration for his colleagues at BlueWater Solutions and in other facets of the industry can be summed up in Wade's description for the trenchless professional.

"They're serious minded, problem solvers who still enjoy their work and the challenges that they face daily," he says. "No egomaniacs needed here...we fix stuff that no one knows about unless it's coming up through the basement floor drain."

ANDREW FARR is the associate editor of *NASTT's Trenchless Today*.

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