TRENCHLESSWORKS

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NO-DIG LIVE SHOW PREVIEW

ALLIANCE GEARED UP TO SAFEGUARD RESOURCES

CURB WILDFIRE RISK BY BURYING POWER LINES

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CONTENTS

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ARTICLE	PAGE
SPOTLIGHT	5
NEWS	
ALLIANCE GEARED UP TO SAFEGUARD RESOURCES	6
IS REGULATION A BARRIER TO INNOVATION?	11
THE GUILD GOES GREEN	16
TRACTO 18ACS GRUNDODRILL FOR MCFADDEN	19
HDD	
CURB WILDFIRE RISK BY BURYING POWER LINES	22
NEW VERMEER QUICKFIRE® HD CONNECTION SYSTEM	29
NUMA CASING RING BIT SYSTEM	31
PIPELINE REHABILITATION	
TRENCHLESS TECHNOLOGY CENTER (TTC) PERFORMS ENVIRONMENTAL IMPACT STUDY OF STEAM-CURED CIPP	32
PIPE PULLING GAINS SEAL OF APPROVAL	37
PROFESSIONALS ON THE LANDING RUNWAY	42
EXTENDING THE LIFE OF AN AGED RAIL CULVERT	46
BIM IN SEWER REHABILITATION	49
AUGER BORING	
NEW SEWER OUTFALL FOR MAPPLEWELL	55
TUNNELLING	
PAIR OF CROSSOVER TBMS COMPLETES TRIPLE TUNNEL DRIVES IN MUMBAI	58
SUCTION EXCAVATION	
SUCTION EXCAVATION INSTALLS TREE ROOT BARRIER TO PROTECT SEWERS	63
ACCESSORIES AND SERVICES	
ITALIAN MINI ROBOT EXCAVATORS	65
ISTT SOCIETY NEWS	
ISTT A MESSAGE FROM THE CHAIR	67
NASTT WELCOMES MEXICO REGIONAL CHAPTER	68
NASTT ANNOUNCES INNOVATIVE PRODUCT AWARD WINNERS	70
MAJOR INVESTMENT IN BUCHAREST'S THERMAL SYSTEM	75
TRENCHLESS EXPERIENCES IN LATIN AMERICA	76
EMPRESA DE ACUEDUCTO Y ALCANTARILLADO DE BOGOTA COMPARTE EXPERIENCIAS TRENCHLESS A SUS PARES EN LATINOAMERICA	78
UKSTT SOCIETY NEWS	
HELLO FROM THE CHAIR	82
UKSTT AT NO-DIG LIVE 2021	83
EVENTS AND MEETINGS	**90**
SHOW PREVIEW	**91**

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CHANNELINE
Beyond the Ordinary

Beyond the Ordinary

SPOTLIGHT

Paul Harwood, Managing Director, Westrade Group and Publisher, Trenchless Works

"It is finally here, the world's largest Trenchless event, No-Dig Live is on. There is nothing like the thrill and buzz of a live event, it is great to be back and we are bursting with excitement to bring you the biggest No-Dig Live ever."

It is finally here, the world's largest Trenchless event, No-Dig Live is on. There is nothing like the thrill and buzz of a live event, it is great to be back and we are bursting with excitement to bring you the biggest No-Dig Live ever.

I was delighted to learn of the newly formed NASTT Regional Chapter covering Mexico. I know how much work has gone into this exciting launch. Well done to everyone who was involved, I am sure it will be hugely successful and generate new NASTT members based in Mexico, a country I believe is a trenchless development and investment opportunity.

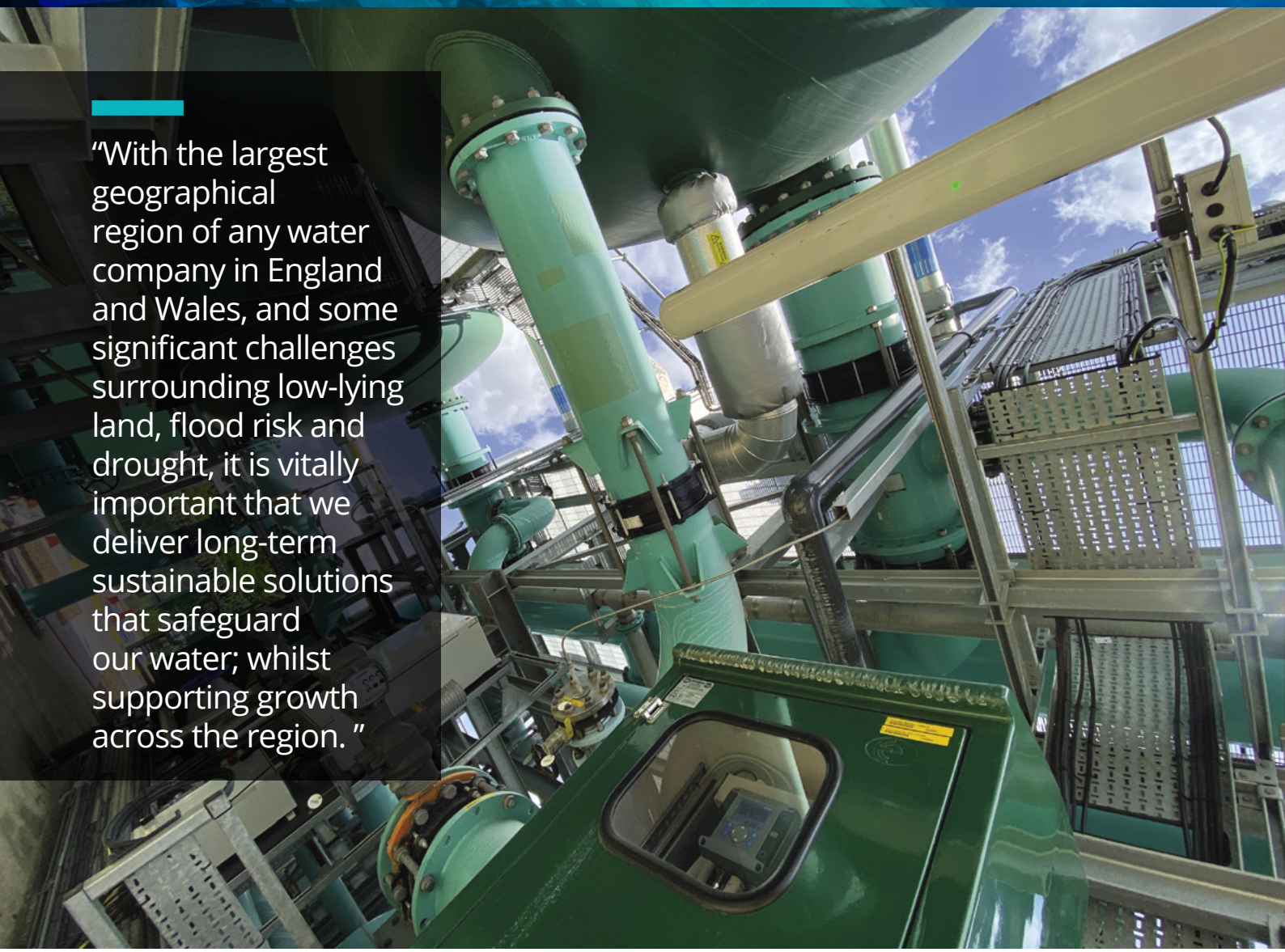
Good news for contractors and residents of California. After saying for several years that underground installation of high-voltage, long distance electrical transmission lines would be too expensive, Pacific Gas & Electric (PG & E) announced plans to bury as much as 10,000 miles (16,100 km) of its electrical transmission lines. The cost is estimated to be US$20 billion over the course of a decade. The timing of the announcement came just a week before the U.S. Senate agreed to authorise a massive US$1-trillion-dollar infrastructure bill. Check out the full article later in this issue.

Finally, whether you work in utilities, water, sewerage, telecoms, electricity, oil and gas, government, city planning, civil engineering, R&D or one of our amazing trade associations, No-Dig Live 2021 is an event you cannot afford to miss!

See you on the showground!

ALLIANCE GEARED UP TO SAFEGUARD RESOURCES

At Anglian Water, our purpose is to bring environmental and social prosperity to the region we serve through our commitment to love every drop. Together we build trust, do the right thing and are always exploring. Serving nearly seven million customers in the East of England and Hartlepool, we are always searching for ways to generate better, more efficient cost-saving solutions and outcomes for both customers and the environment. We couldn't do this without our network of trusted suppliers both inside and outside our network where @one Alliance and the Strategic Pipeline (SPA) Alliance play an important role, delivering capital delivery projects and connectivity of supply across the region. >



"With the largest geographical region of any water company in England and Wales, and some significant challenges surrounding low-lying land, flood risk and drought, it is vitally important that we deliver long-term sustainable solutions that safeguard our water; whilst supporting growth across the region. "

Our leading alliances work collaboratively with partners and the wider supply chain to deliver robust and industry-leading, innovative solutions that firmly put customers, resilience to drought and flooding, sustainable growth, carbon neutrality and the environment at the core of our operations. We are Alliances geared up to safeguard resources and build a better world for the communities we serve.

With the largest geographical region of any water company in England and Wales, and some significant challenges surrounding low-lying land, flood risk and drought, it is vitally important that we deliver long-term sustainable solutions that safeguard our water; whilst supporting growth across the region. Our business priorities shift to meet customer expectations and the demands on our environment. Our five-year business plan to 2025 (known as AMP7, for Asset Management Period 7) lays out what we >

"Our purpose is to bring environmental and social prosperity to the region we serve through our commitment to love every drop. Together we build trust, do the right thing and are always exploring."

expect to deliver and our innovation strategy reflects this, with our focus on the following priority areas:

- Resilient and intelligent water supply
- Exceed customer expectations
- Create a flourishing environment
- Tackle climate change
- Unlock efficiency
- Enable the workforce of the future

We have set industry-leading targets in AMP7, helping to push us ever closer to net zero carbon by 2030. But the drivers behind some of the key carbon saving, innovative initiatives that have directly contributed to our success to date are also underpinned by driving down cost, time on site and waste, whilst driving up behavioural safety and customer engagement.

Our commitment to deliver on these key areas has led us to develop banks of standard products enabling significant portions of our work to be built off-site with plug and play modular design. This keeps our site teams safer by reducing the need to work from height or have large numbers of people working at the same time. This has proven to push down programme time by reducing >

design time, allowing for standardised and transparent costs from suppliers, bolstered further through the use of BIM360 to house the standard product catalogue, including all asset data to cost solutions and provide asset data back to operations teams. We're also focused on reducing manual interaction with processes and eliminating margin for error by getting our digital platforms talking to each other.

Driving efficiencies, innovation and carbon reduction has been run through the veins of the organisation, built over AMPs of striving for better solutions. A complete review of workload and priorities at the end of AMP6 helped us better shape our organisation to cope with the challenges in AMP7 and beyond.

Often at the leading edge of delivering innovation, we have hosted events and shared knowledge with Utility and infrastructure companies throughout the world; from the UK to Australia.

We empower our people, helping them see the bigger picture and the real positive difference we can all make to the world we live and work in; with the firm understanding that sharing best practice will help to build a more sustainable world and safeguard our environment and natural resources across the globe.

Our purpose is to bring environmental and social prosperity to the region we serve through our commitment to love every drop.

Together we build trust, do the right thing and are always exploring.

love every drop anglianwater

strategic pipeline alliance

@one

OnSite is recruiting

Are YOU an experienced wastewater professional looking for a career move to an industry-leading business operating a large, modern fleet of the latest technology, plant and equipment?

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A member of SSI, the dedicated services arm of South Staffordshire Water, OnSite supports the waterways, drainage and wastewater needs of many of the UK's leading names; from rail, through industry and commerce to government agencies and the major utilities companies.

As part of its sustained, ongoing expansion, and in response to securing a number of major new long-term contracts, OnSite is now recruiting experienced CCTV, Jetting and Lining operatives to support its wide-ranging activities at their Worcester, Swindon, Challow, Dinnington and Maidstone sites.

If you're a hard working, experienced operative with valuable expertise in sewer, culvert and pipeline survey, clearance, remediation and rehabilitation; or have skills in the office-based co-ordination of these activities; then we'd love to hear from you.

OnSite is a committed equal opportunities employer, and all applications will be treated in accordance with the Equality Act 2010.

OnSite™

Email your CV and a covering letter to solutions@onsite.co.uk quoting 'OSDNL Sept Recruitment' in the subject line

All applications will be treated in the strictest confidence, no references will be taken up until the final stages of the recruitment process. **NO recruitment agencies please.**

OnSite is part of SSI, a member of South Staffordshire Plc

IS REGULATION A BARRIER TO INNOVATION?

The utilities sector is highly regulated to protect both operators, the workforce and the public.

"It is clear that Business-as usual (BAU) practices will need to evolve if outcomes are going to be met in advance of the PR24 Review."

As the UK moves forward in the AMP7 cycle and towards the loaded mid-term programmes exacerbated in this cycle by the Covid pandemic, it is clear that there has never been a greater need for innovation in the water sector. Regulatory determinations have set clear agendas around leakage, supply interruptions and sustainability, and it is clear that business-as-usual (BAU) practices will need to evolve if outcomes are going to be met in advance of the PR24 Review.

OFWAT has recognised the need for innovation and the creation of the Innovation Fund provides a mechanism for the development of initiatives that might go some way to addressing the change that is required. However, the fund itself will not deliver in isolation and it might even provide a distraction from the adoption of market ready technologies as Innovation Teams focus on macro projects rather than low hanging fruit capable of making an immediate impact on operations. Inevitably, data driven technologies are providing opportunities to inform network knowledge and make smarter interventions but is it enough to use the same techniques in the field to meet the new challenges? >

Sanivar Sanitube.

"Sanivar commented that this situation is wholly unacceptable and for the regulatory regime to have any credibility it must be capable of providing a definitive result within a reasonable (6 month) timeframe."

In the 1990's logistics was the buzz word in the sector and outsourcing of stores, just in time delivery and centralised stockholding were widely adopted and the term was widely used not least on the side of every lorry on the motorway network. But in reality, as the pandemic has shown, reliance on outsourced supply and removing stock further from the point of use creates further challenges, particularly in reactive operations. The same is true of innovation and for the sector to realise the full benefits, a holistic approach is required and a key component is to recognise the existing blockers that exist to adoption and in the potable sector, specifically Regulation 31 approval is proving a high barrier to entry. For those not directly affected by or influenced by the regulation, Regulation 31 of The Water Supply (Water Quality) Regulations 2016 (as amended)1 implements Article 10 of the Council of the European Union Drinking Water Directive (DWD) in England and Wales for all chemicals and construction products used by water undertakers, from the source of the water, up to the point of delivery to the consumer's building. It sets out how approvals can be given to such construction products and materials that do not prejudice water quality and consumer safety.

Whilst nobody questions the need to test materials that have significant contact with water in potable systems, it appears that the approval process is at best cumbersome and at worst, broken and no longer fit for purpose. This has led to frustration across the supply chain, with companies turning their back on the UK and focusing development in territories and sectors that are more agile in enabling innovation. This is particularly true for innovative pipe lining technologies where a number of international >

Sanivar pipe lining in action.

suppliers have attempted to enter the UK market with products that have established providence and approvals across Europe only to be blocked and ultimately frustrated by the regulatory process. The industry has consequently lost opportunities to address the relining of lead service pipes and the chance to use new spray lining technologies, to cite just two examples.

Sanivar UK provides specialist pressure pipe liners capable of enabling a No-Dig refurbishment of water mains addressing the key regulatory outcomes, specifically customer interruptions and leakage. Like service liners, these linings have been adopted worldwide with 30-year providence on installations and potable water approvals across Europe, Asia, Australia and the US. In fact, the company's products are approved and used in potable water applications in every developed nation, except the UK. Sanivar first engaged with DWI to gain Reg 31 approval more than 3 years ago, conscious of a demand in the water sector which is growing on the back of a successful track record in delivering wastewater projects. After lengthy delays at every stage, with a bureaucratic process and reliance on only a single test institute, the company still appears to be no nearer gaining Reg31 approval on its products. It is clear that this is not sustainable for commercial organisations, that would rather focus on foreign markets than spend in excess of 4 years trying to gain approval from UK authorities. Sanivar it seems is only persevering because it is so far down the track, but even now, has no confidence in ever reaching the end of a torturous process.

Sanivar commented that this situation is wholly unacceptable and for the regulatory regime to have any credibility it must be capable of providing a definitive result within a reasonable (6 month) timeframe. Suppliers who submit material for testing should expect early approval or at least an early 'fail' so that they can determine whether or not to adapt products or move into other sectors.

The issue is recognised by DWI and has been highlighted in the last two Annual Reports by the Inspector which said in the DWI Annual Report 2020: "Historically, the Drinking Water Inspectorate has approved three accredited test laboratories to evaluate products and materials for approval under regulation 31. However, over the last five years this has reduced to just one accredited laboratory, resulting in increased demand and consequently significant delays in the provision of testing services for the approval of products. Fundamentally, the reduction in competition within the market has resulted in, on average, a threefold increase in testing costs. The significant financial burden on producers coupled with delays has impacted the approval of new and existing products in the UK, as well as potentially reducing the introduction of future innovative products." >

"International suppliers have attempted to enter the UK market with products that have established providence and approvals across Europe only to be blocked and ultimately frustrated by the regulatory process."

"Due to the general inaction by the industry to this developing problem, the Inspectorate is currently engaging with independent test laboratories both in the UK and abroad to establish alternative providers."

But a resolution seems no further forward with ownership seemingly handed off to laboratories, the supply chain and Water Companies. The DWI Annual Report 2020 went on to say: "Due to the general inaction by the industry to this developing problem, the Inspectorate is currently engaging with independent test laboratories both in the UK and abroad to establish alternative providers. Nevertheless, the water industry itself has the ability to undertake product approval testing in house, providing a way of reducing the impact of the current situation and is encouraged to produce a collaborative industry wide solution for itself."

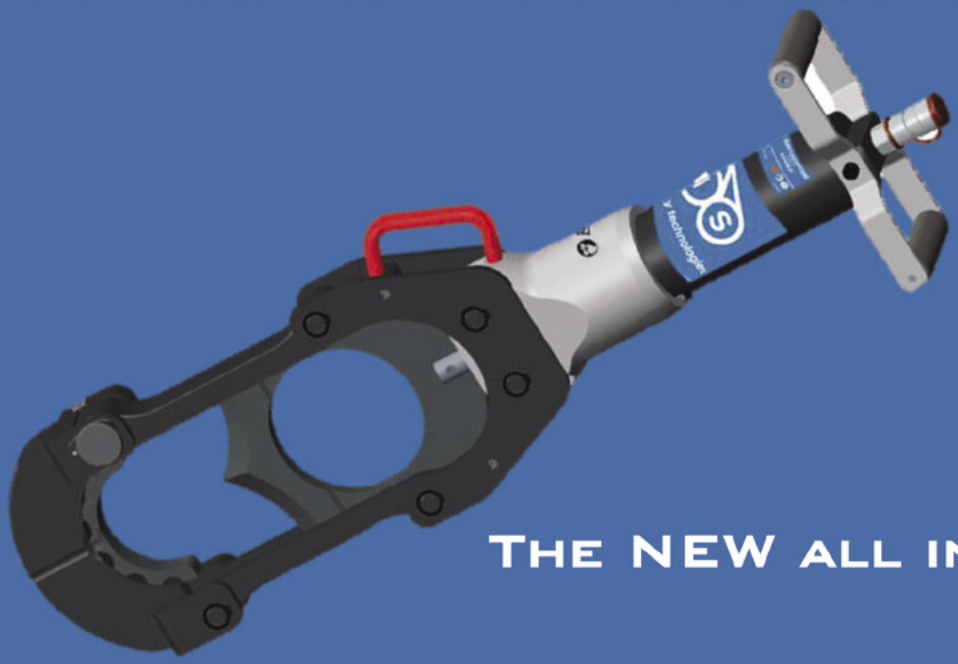
The cost to the UK Water sector in failing to address the issue of product approvals is unquantifiable but it is clear that any barrier to innovation has far reaching financial impact. Sanivar alone has 'lost' potential turnover exceeding £1 million on 'quoted projects' including a Resilience Scheme transferring raw water, ironically promoted by DWI. On one scheme alone the cost savings of using the Sanivar linings to a Water Company equated to £4 million or 55% of the forecast project cost.

In conclusion, it is clear that there is a barrier to innovation within the water sector caused by an inefficient testing regime that lacks resource, ownership and transparency. At the very least the process needs to be remapped to provide:

- A clear overview of the testing process with defined Stage Gates
- Accountability for each stage of the process with fewer hand-offs
- Consideration given to accelerated progress for products that have approvals in other states and or providence of installations.
- A KPI measure of delivering a definitive result within 6 months.

Without this reform the opportunities to innovate will be lost, outcomes compromised and the adoption of transformational technologies will remain a 'pipe dream' in the potable sector.

GAME CHANGER



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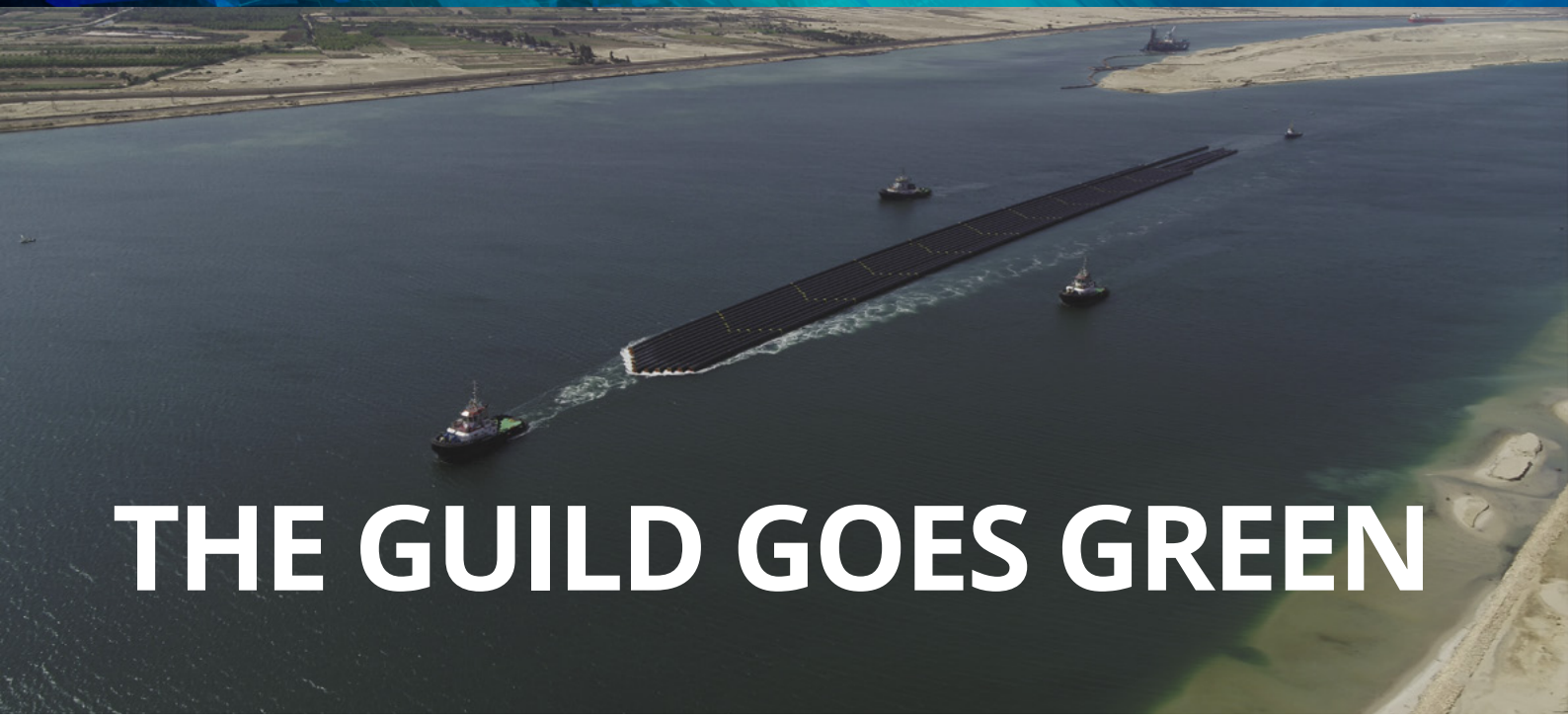

THE GUILD GOES GREEN

2021 Annual Guild Photography Competition Winner: Pipelife Norge SA - Pipe delivery from Norway on route to Matabari in Bangladesh via the Suez Canal.

For over 60 years the Pipeline Industries Guild (PIG) has been promoting pipelines, connecting people and advancing pipeline technology. It provides opportunities for all who are involved in the pipeline industry to share best practice, technological development, showcase their work and build relationships with like-minded professionals.

The past two years have provided unprecedented circumstances as the Covid 19 pandemic has certainly had a major impact on the way we all work and has created some difficult trading conditions. Despite these challenges the Guild has continued to thrive and maintain an active role in promoting pipelines and related industries. The pandemic certainly drove a rapid transition to the use of digital platforms to give the Guild the means to continue to provide a full range of services to its members. Establishing this infrastructure allowed the Guild to successfully deliver an industry leading webinar and virtual conference programme that has embraced not only technical content but included industry challenges, business skills, wellbeing and social activities. Many of these presentations are available to view on the Guild's YouTube channel.

The Guild has also been taking a leading role in addressing the key problems that are faced by our industry and in particular sustainability issues such as climate change, environmental impact, the road to net zero and the introduction of hydrogen to our gas networks. The Guild goes Green initiative was launched in August 2020 and since then a series of webinars and conferences have been held with wide-ranging technical content which have been made freely available to Guild members and the wider pipeline community. >

Earlier this year the Guild extended this initiative by establishing the Green Alliance in partnership with UKSTT, as both organisations seek to explore, share and promote industry's drive towards net zero emissions and reductions in environmental impact. The webinar programme has continued with presentations from the Gas, Water and Power sectors and this is leading to an in-person seminar which will be held on 14 September at No-Dig Live.

"To complement our Green Alliance initiative the Guild has established a Hydrogen and CCUS Focus Group with the aim of creating a focal point for developing and sharing best practice in the safe use and deployment of hydrogen, carbon capture usage and storage and associated technologies for the benefit of the Guild's members."

Additionally, members of the Guild have recognised the importance of the hydrogen economy and the part it can play in the decarbonisation of our gas networks together with the associated need for carbon capture to mitigate the impacts of climate change and global warming. So, to complement our Green Alliance initiative the Guild has established a Hydrogen and CCUS Focus Group with the aim of creating a focal point for developing and sharing best practice in the safe use and deployment of hydrogen, carbon capture usage and storage and associated technologies for the benefit of the Guild's members. It is envisaged that this will support skills development, education, and outreach activities within the sector. The Group will look to coordinating news and technical articles, communications, and events where appropriate to promote its objectives and provide forums to engage, consult and influence government and major stakeholders. It will also explore how to provide Guild members with prospects to engage with stakeholders to investigate opportunities within the sector and provide means to introduce their services and innovations.

The Guild continues to celebrate the achievements of its members through its Annual Technical Awards which took place in July. This year despite the considerable challenges faced by Guild members, there was a bumper crop of high-quality entrants in all categories. They certainly demonstrate that our industry is strong with Guild members involved in a diversity of projects and the rise of exciting new technologies.

Congratulations to all the winners including:

Land-based/Onshore Pipeline Project:
Irish Water and O'Connor Utilities Limited

Land-based/Onshore Pipeline Technology: Ant Hire Solutions

Utilities Pipeline Project:
United Utilities and Mott MacDonald Bentley (MMB)

Utilities Pipeline Technology:
Mott MacDonald Ltd (MML) and Continuum Industries Ltd

Subsea Pipeline Project:
Yorkshire Water, Royal HaskoningDHV, Van Oord UK, Mott MacDonald, Ward & Burke

Annual Photo Competition: Pipelife Norge AS

For more information on the Pipeline Industries Guild and its activities visit Stand 65 at No-Dig Live or go to the Guild website www.pipeguild.com or email enquiries@pipeguild.com.

love every drop

anglianwater

Our purpose is to bring environmental and social prosperity to the region we serve through our commitment to **love every drop**.

Together we **build trust**, **do the right thing** and are **always exploring**.

strategic pipeline alliance

anglianwater.co.uk
onealliance.co.uk

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The relatively small footprint of the Grundodrill 18ACS minimises road closures.

TRACTO 18ACS GRUNDODRILL FOR McFADDEN

Family run Civil Engineering company, McFadden (Civils) Ltd, has over 35 years of delivering successful engineering contracts nationally and internationally, including prestigious projects for main contractors working on HS2, New Wear Bridge in Sunderland, the A6 in Ireland and a new campus for the University of Stirling.

The latter involved delivering a complicated 6.5 km of watermain using open cut methods, directional drilling and other trenchless technology. The pipeline was successfully installed on campus roadways, grassed areas and landscaped areas, while ensuring the University of Stirling campus water supply remained live throughout the project. >

A launch site of one of the HDD installations.

To facilitate the delivery of trenchless and HDD projects going forwards the company has invested in a sophisticated drilling rig in the shape of the TRACTO GRUNDODRILL 18ACS. The compact, 18 t drilling rig is nicknamed the 'King of Rocks' for a very good reason, its ability to tackle the most challenging terrain. It is also the ideal tool for any and all soil conditions.

It uses high strength TD73 and TD82 rods for fluid-assisted drilling and Elicon 95 twin-tube rods for rock drilling with exceptionally quick conversion between the two. The operator is well looked after with an ergonomic cab and seat, plus 2 multi-function joysticks for all functions in bore and driving mode.

The unit was bought from TRACTO's newest dealer, T.A.Drilling (Sales) Limited as Used Equipment. TRACTO sent trainer, Pete Atkins, to Ireland to train McFadden's machine operatives on the functionality of the machine. The training took place on a live project, which demonstrated the productivity and efficiency of the 18ACS.

An example of the production capability of the unit was shown when on the project a distance of 110 m of 250 MDPE pipe was installed with the new rig on day one, out of the total job of 600 m, although, under normal operating conditions, this figure would be significantly more. The full job was completed over the next couple of days thanks to rapid adoption of the new technology.

Desmond McFadden, Director and Owner of the business, said: "We are delighted with the TRACTO 18ACS GRUNDODRILL. This machine can handle all ground conditions, including the hardest rock and the loosest sand. It drills quickly, accurately and efficiently. Because of its compact size, if we are installing services under roads, we can position it to one side of the road, enabling the other to remain safely open to traffic. This avoids disruption to the locality, whilst trenchless drilling in itself avoids the disruption of open cut works. TRACTO machines have a very long working life and exceptional resale value, so it was also a sensible, long term business decision to buy the machine."

www.tracto.com

"To facilitate the delivery of trenchless and HDD projects going forwards the company has invested in a sophisticated drilling rig in the shape of the TRACTO GRUNDODRILL 18ACS."

CURB WILDFIRE RISK BY BURYING POWER LINES

Downed power lines in Paradise, California, USA where PG&E equipment caused a fire that destroyed the town and killed 85 people in 2018.

"On July 22, 2021, PG & E announced plans to bury as much as 10,000 miles (16,100 km) of its electrical transmission lines underground in fire-prone areas of California."

After saying for several years that underground installation of high-voltage, long distance electrical transmission lines would be too expensive, Pacific Gas & Electric (PG & E) appears to have changed course.

Anyone watching the international news lately will have seen the horrendous wildfires that have raged across the western USA. Given the potential for overhead power-cables to get damaged by or even cause such fires, there has always been the argument that such cables should be buried.

On July 22, 2021, PG & E announced plans to bury as much as 10,000 miles (16,100 km) of its electrical transmission lines underground in fire-prone areas of California. The cost is estimated to be US$20 billion over the course of a decade or more. The move was prompted by the catastrophic damages, lawsuits and bankruptcy PG&E suffered after wildfires caused by sparking electrical lines swept through Northern California in 2017 and 2018. >

Crews are working across Pacific Gas & Electric's vast California service area to reduce the fire risk from its power equipment.

"Our goal is 10,000 additional miles of overhead lines converted to underground." said PG&E spokesperson Paul Doherty. "We are starting now, and we will not stop until we have finished." The state currently maintains approximately 25,000 miles (40,200 km) of overhead transmission lines."

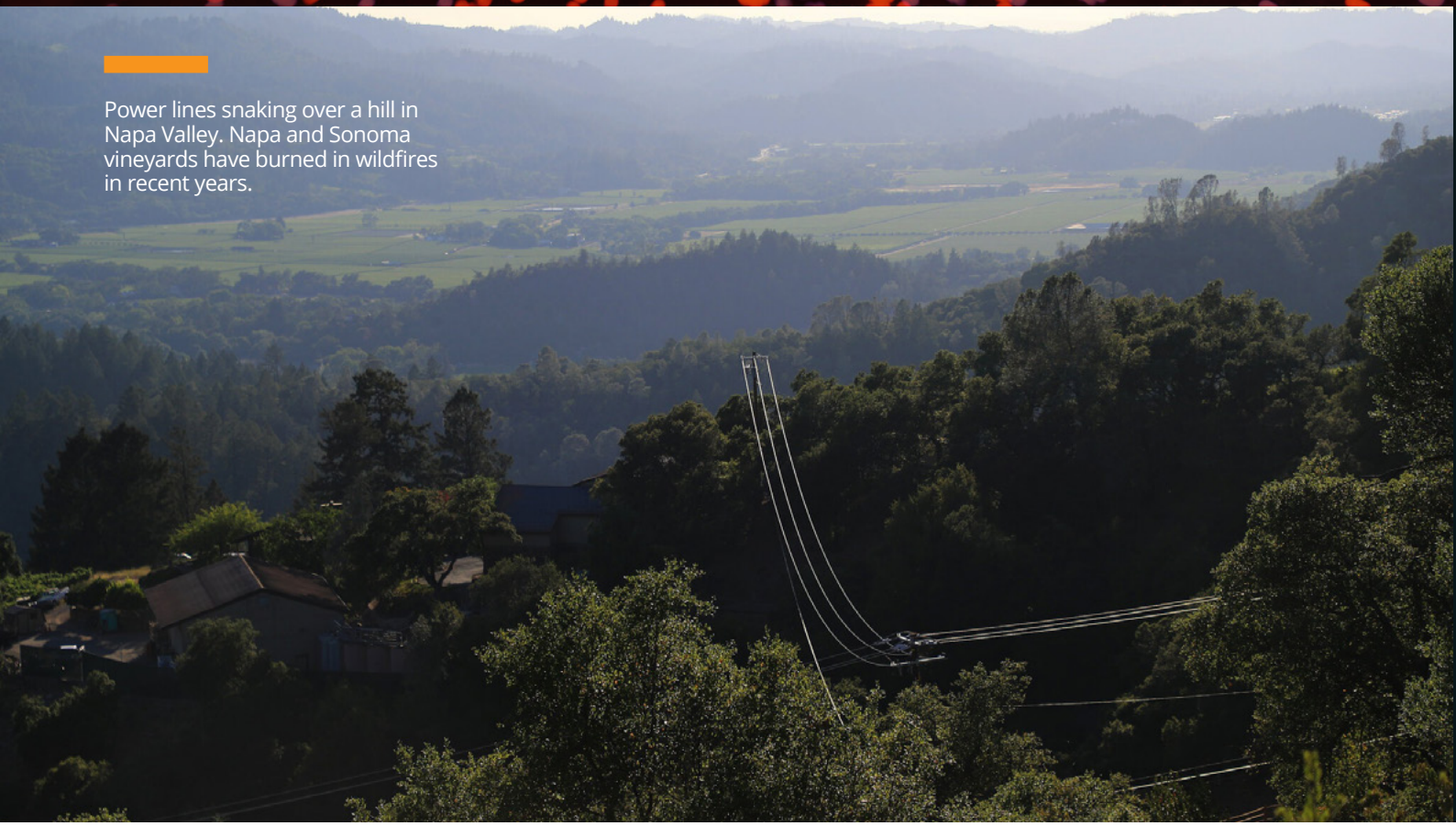
The move is not only good news for contractors and residents of California but highlights an apparent change in thinking about the need to reinforce critical infrastructure. The timing of the announcement came just a week before the U.S. Senate agreed to authorise a massive US$1-trillion-dollar infrastructure bill, of which US$73 billion is earmarked to modernise the nation's electrical grid and US$50 billion is allocated to protecting infrastructure against climate change and cyber-attacks.

"Our goal is 10,000 additional miles of overhead lines converted to underground." said PG&E spokesperson Paul Doherty. "We are starting now, and we will not stop until we have finished." The state currently maintains approximately 25,000 miles (40,200 km) of overhead transmission lines.

"The exact number of projects or miles of transmission line put underground each year will evolve as the utility develops project scopes, estimating and engineering review." said Doherty. The utility also said it will partner with natural gas providers and telephone and internet companies to develop joint trenching projects and share costs.

"Major underground utility infrastructure upgrades are happening all around the country, but the PG&E project may be one of the largest of its kind." said Jerry Beyer, director of sales – Infrastructure Group at Vermeer.

"It is not uncommon for us to see massive rollouts of projects when it comes to fibre installations." said Cory Maker, horizontal directional drilling product manager at Ditch Witch. "For an individual project, this is a pretty large given what they want to do and period of time they want to get it all done." >



Power lines snaking over a hill in Napa Valley. Napa and Sonoma vineyards have burned in wildfires in recent years.

Installing equipment upgrades in Calistoga, part of the wine country in California.

Pilot projects

PG&E initiated a handful of pilot projects to test the feasibility of putting high-voltage power lines and gas infrastructure underground in 2018. Proof-of-concept projects were completed in the high fire threat areas of Alameda, Contra Costa, Nevada and Sonoma counties.

Near Oakland the utility put approximately 3,500 ft (1,070 m) of 12 kV distribution line and reinforced the secondary conductor in trenches cut between 36 and 42 in (915 and 1,070 mm) deep and vaults dug to 7 ft 6 in (190 mm) deep. PG&E also converted an overhead transformer to a pad mount. "The goal of these projects was to help evaluate placing overhead conductor underground as a wildfire safety measure, and to better understand the costs and construction requirements associated with undergrounding for system hardening purposes." said Doherty.

"There will be an initial ramp-up period due to limitations in our supply chain and labour force," Doherty continued. "But within a couple of years, we will be doing ten times the mileage we are doing today. Eventually we will be completing well over 1,000 miles per year. By comparison, this year we are undergrounding about 70 miles." >

Tower 27/222. Utility experts have been incredulous that Pacific Gas & Electric let it stand for so long.

"The areas where much of this work will take place have some of the most rugged, mountainous and challenging terrain in the country, and that is the kind of environment where HDD can really shine. Rock saws, trenchers and open cut methods will also be used where they make sense. But HDD work is less invasive than open cut trenching. In HDD operations contractors do not have to manoeuvre and stage large fleets of equipment in the mountains and around obstacles in the terrain."

Ramping up

PG&E's 10,000-mile (16,100 km) project aside, HDD and underground infrastructure contractors are in high demand all over the country. "The fibre market is growing tremendously, and there are a number of large electrical projects currently happening with many more projects kicking off in the near future." said Beyer.

This is especially true of electrical utilities on the East Coast from Florida to Washington DC. Multiple regional utilities are taking overhead power lines and burying them underground to better survive hurricanes, ice storms and other destructive weather events.

Maintenance costs driving change

"The historical argument against underground electrical utilities has been that they are more expensive to install, but the thinking on that is starting to change." said Beyer. "Installation costs are only one part of the equation."

According to a study published by the utility consulting company PDI-Squared, the maintenance of underground electrical utilities can be three to seven times less expensive than maintenance of overhead utilities. No doubt the increase in catastrophic fires and weather events on both coasts as well and the 2021 winter storm damage to electrical utilities in Texas, Arkansas and Louisiana, have forced utilities nationwide to reconsider their long-term interests when it comes to installation versus maintenance costs.

Busy industry about to get busier

"PG&E's announcement comes at a time when underground contractors are very busy with just the normal sewer and gas pipeline work." said Maker. "But the industry is ready to meet the challenge."

"You may see subsidiaries from all over the United States and even some global contractors travelling to California to work on the PG&E project." said Maker. "It is not uncommon for HDD contractors to travel substantial distances for work especially when they specialise in certain types of jobs." >

For long or difficult bores, big HDD machines like this Vermeer D220 x 300 can drill long bores in difficult conditions such as those often encountered in Northern California,USA.

Andy Bremner, external sales manager-pipeline for Vermeer, said "the hard rock formations common in Northern California may require larger rigs in the 100,000 to 200,000 lb (45 to 90 t) class machines depending on the bundle diameter and in some circumstances even up to the 500,000 lb (225 t) size class depending on the length of bore and how it is designed."

Maker continued: "The areas where much of this work will take place have some of the most rugged, mountainous and challenging terrain in the country, and that is the kind of environment where HDD can really shine. Rock saws, trenchers and open cut methods will also be used where they make sense. But HDD work is less invasive than open cut trenching. In HDD operations contractors do not have to manoeuvre and stage large fleets of equipment in the mountains and around obstacles in the terrain."

The size of HDD drills used in the PG&E project will vary on the length of the bore and the terrain and soil conditions. Maker commented: "A lot of underground electrical work done with rigs in the 40,000 lb (18 t) and under class, where in good soil conditions it is possible to complete 3,000 to 5,000 ft (915 to 1,500 m) per day. But in densely forested areas longer bores and bigger rigs are used to avoid multiple set ups and disturbing the forest."

"Soil conditions also have an impact on equipment decisions." Said Beyer. "When working in rock, many contractors will use larger drill rigs and/or trenchers paired with tooling designed for those specific conditions to achieve optimal efficiency. In ground where there may be a mixture of clays, fragmented rock or boulders, a different machine and tooling combination may deliver better productivity."

Andy Bremner, external sales manager-pipeline for Vermeer, said the hard rock formations common in Northern California may require larger rigs in the 100,000 to 200,000 lb (45 to 90 t) class machines depending on the bundle diameter and in some circumstances even up to the 500,000 lb (225 t) size class depending on the length of bore and how it is designed.

In water-parched California, water reclamation will also play a major role in undergrounding PG&E's electrical lines. HDD contractors often pair midsize and larger rigs with drilling fluid reclaiming equipment to help manage the total volume of water needed. Reclaimers conserve water can also reduce the amount of bentonite >

HDD rigs in the 40,000 lb (18 t) class and under, such as this Ditch Witch AT40, will play a role when the soil conditions and bore design do not present bigger challenges.

and additives needed. Water conversation and project efficiency gains are also driving the use of reclaimers on smaller scale projects.

OEMs ready but labour shortages loom

Both Ditch Witch and Vermeer agree that the industry will not have any problems ramping up the production of machines, HDD units as well as trenching machines and support equipment, for the increased amount of work coming into the underground industry.

"We are in constant communications with our dealer and customers, so we can stay in tune with the level and type of support they need today, and in the future." said Beyer. "We are ready to support this project with equipment, tooling, parts, service and training."

"The biggest problem the industry faces, is the lack of skilled operators who can go out there and drill and locate." said Maker. "HDD work is significantly more complex than regular earthmoving and heavy/civil construction. Mistakes are expensive and can lay waste to a schedule."

"HDD work is significantly more complex than regular earthmoving and heavy/civil construction. Mistakes are expensive and can lay waste to a schedule."

Both manufacturers run their own education classes at various dealerships and both support trade school programmes. Ditch Witch and Vermeer are support partners with State Technical College of Missouri, and Vermeer has worked several years with the Des Moines Area Community College. Interesting also is that both companies use machine simulators to train prospective operators in trenchless techniques and technology.

"With the simulator, operators can learn a lot without having to sit on a rig costing several hundred thousand dollars." said Maker. "That has been very appealing to the younger generation as they come into the labour force."

NEW VERMEER QUICKFIRE® HD CONNECTION SYSTEM

Cutaway of an assembled QuickFire HD unit.

The new Vermeer QuickFire® HD connection system for utility horizontal directional drills (HDD) helps reduce the labour involved with changing over from pilot bore and pullback tooling. This new connection system builds upon the original Vermeer QuickFire system introduced to the market more than 10 years ago.

"The QuickFire HD system expands the types of ground conditions contractors can use this type of quick connection system for." explained Jason Zylstra, product manager for Vermeer Lifecycle products. "Crews familiar with the original QuickFire system will recognise the same 4-turn makeup on the QuickFire HD system, only they will now have some new ease of use of and reliability-minded enhancements."

"The QuickFire HD system expands the types of ground conditions contractors can use this type of quick connection system for."

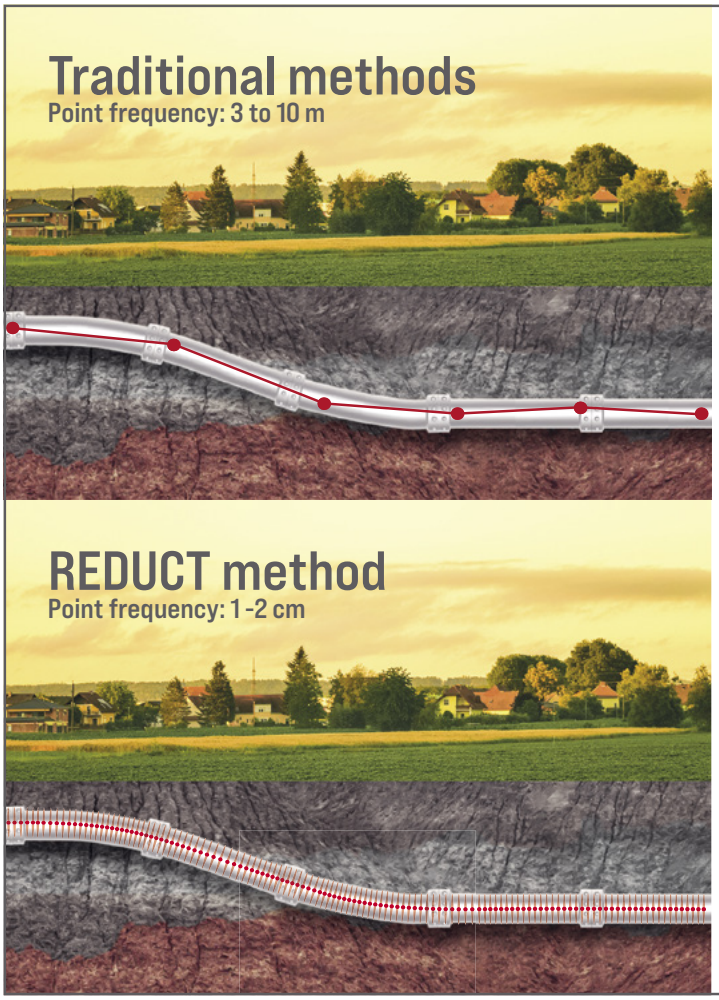
The new Vermeer QuickFire HD system uses two heavy duty roll pins to secure the locking collar over the non-torqued threaded connection. Resembling other proven Vermeer designs, this retention feature has performed well in extensive field tests. Also, the QuickFire HD allows the collar to be assembled at any orientation to avoid having to rotate the collar to align it with the retention bolt hole, unlike some other systems.

The new Vermeer QuickFire HD system is available in three sizes:

- QuickFire HD 300 for HDDs in the 10,000 lb (44.5 kN) drill range – such as the Vermeer D10x15 S3 or Ditch Witch JT10 HDD
- QuickFire HD 400 for HDDs in the 24,000 lb (106.8 kN) drill range – such as the Vermeer D23x30 S3 or Ditch Witch JT30 HDD
- QuickFire HD 460 for HDDs in the 40,000 lb (177.9 kN) drill range – such as the Vermeer D40x55 S3 or Ditch Witch JT40 HDD

Also, Vermeer offers weld on connection options to cost effectively convert existing tooling to the QuickFire HD connection system.

www.borestore.com



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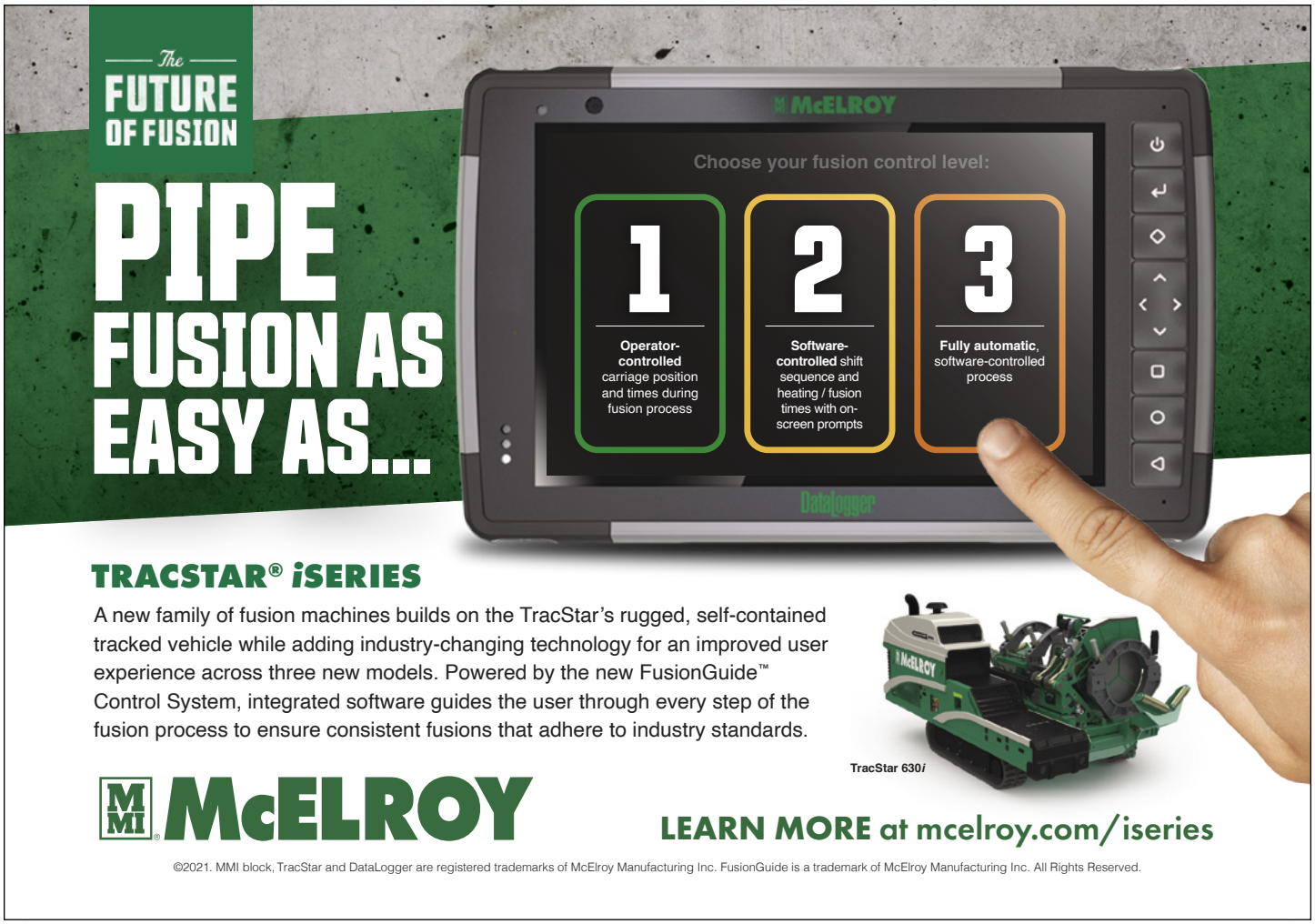

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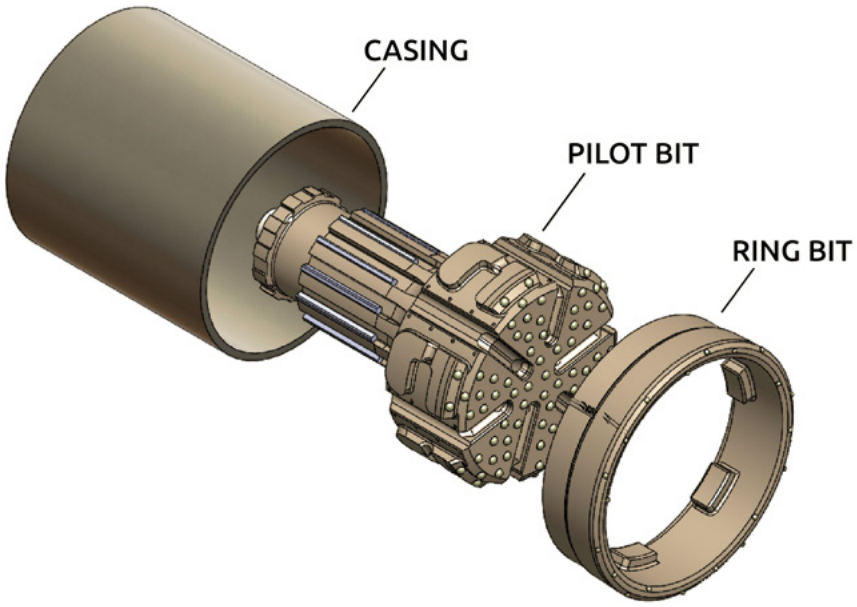
NUMA CASING RING BIT SYSTEM



Casing Ring Bit with Call Outs.

Numa, one of the world's leading drilling technology providers, recently announced a new range of Casing Ring Bit Systems for simultaneously drilling and casing vertical or horizontal holes in piling, foundation, anchoring, geothermal, and other casing applications.

It is a complementary product to Numa's highly successful Super Jaws® Overburden Bits and Impact Ring Bit Systems®.

Numa's Casing Ring Bit System consists of a pilot bit, casing shoe, and heavy-duty ring bit and is available in a wide range of sizes for drilling holes from 16 in to 48 in (406 to 1,219 mm) diameter. The design is highly configurable with options for both drill through and non-drill through applications requiring the installation of casing into bedrock. The system also boasts the ability to handle overburden and/or hard rock conditions using either conventional or reverse circulation DTH hammers. Some of the many benefits of Numa's Casing Ring Bit System include:

- Reduces cost with same pilot bit used with multiple ring sizes
- Provides simple lock design to better engage and disengage from ring
- Eliminates carbide issues locking into pilot
- Cleans holes efficiently through large flushing slots
- Capable for use in vertical and horizontal applications

"We are pleased to announce the addition of Numa's Casing Ring Bit Systems to our product line.'" said Numa President, Ralph Leonard. "This advancement is yet another example of Numa's rock-solid reputation for designing dependable drilling products that deliver in mission-critical, harsh applications."

"This advancement is yet another example of Numa's rock-solid reputation."

www.numahammers.com

TRENCHLESS TECHNOLOGY CENTER (TTC) PERFORMS ENVIRONMENTAL IMPACT STUDY OF STEAM-CURED CIPP

By Dr. John Matthews, Director, Trenchless Technology Center (TTC) at Louisiana Tech University

BACKGROUND

"This comprehensive project, which was funded by NASSCO and peer-reviewed by a large group of industry stakeholders in North America."

In response to questions posed by researchers on a 2017 National Science Foundation study on the environmental impact of emissions from steam-cured cured-in-place pipe (CIPP) projects, the Trenchless Technology Center (TTC) at Louisiana Tech University has recently studied and published it results from a study on the same topic. This comprehensive project, which was funded by NASSCO and peer-reviewed by a large group of industry stakeholders in North America, was undertaken to collect data from multiple projects under various climatic conditions and using varied sampling tools to determine the extent of potential impacts this method may have. Study objectives were to evaluate air emissions from steam-cured CIPP installations and then determine potential impacts to workers and the surrounding community. The objectives were accomplished by measuring worker exposure to emissions

onsite and immediately offsite. The construction sites selected represented a range of scenarios typical of CIPP installations from small to large diameter, various lengths, and mixed usage environments. The locations were selected to capture jobsites in varies climates; however other limiting factors were considered (for example: availability, project and site characteristics). The site locations were in the warm, humid southern U.S. state of Louisiana; the dryer, higher elevated stated of Colorado and also the centrally located U.S. state of Missouri. This article aims to summarise the study, but the full results of the study are posted on the NASSCO website.

"The construction sites selected represented a range of scenarios typical of CIPP installations from small to large diameter, various lengths, and mixed usage environments."

KEY RESULTS

A full description of the methodologies and results can be found in the report. Key results worth highlighting are mentioned below. Based on the broad sampling and testing in this project, the only two locations where styrene levels could potentially pose any health risks were inside the transport/storage truck and near the emission stack (Image 1). Styrene emissions from inside the transport/storage trucks consistently measured between 100 ppm to 200 ppm, which could potentially pose health risks to workers if exposure durations exceeded 5 minutes. It is worth noting that none of the previously studies focused any of their testing at the transport truck location. It is also worth mentioning that the samples were being analysed for more than a dozen VOCs, but that styrene was the only VOC found at any measurable level. This finding was in contrast to other studies that suggested multiple VOCs were being detected at significant levels.

Results for emissions near the stacks were mostly lower than the transport trucks (Image 2), but potentially a risk if exposure durations approached 5 minutes. No measurement taken at a distance of 10 ft (3 m) or more from the termination manhole and/or exhaust stack exceeded exposure limits. In fact, those levels were far below guideline levels. Several variables like wind, temperature, and distance from the exhaust affect the dispersion of styrene, which most likely explains the range in concentration values. Of note here is that although numerous measurements were taken at multiple sites using multiple methods, there was no corroboration of the extremely high values that had previously published by some researchers that reported measurements regularly exceeding 500 ppm. This calls into question the previously published higher levels which are what led to this study as there had been several other published studies in the past decade that had results more closely aligned with this TTC study.

Finally, measurements taken in homes near exhaust points yielded styrene concentrations less than 0.01 ppm. This suggests there is little potential danger of styrene emissions collecting in homes and rising to levels above exposure limits. Further research on this topic is being conducted by others researchers and industry currently. Data collected by sorbent tubes mounted on workers or at points to approximate worker exposure revealed no episode where the exposures averaged over the duration of the installation exceeded any threshold limits. This would suggest that CIPP installers experience safe long-term exposures to styrene.

KEY RECOMMENDATIONS

The opening of the liner transport truck door represents a point in the CIPP installation process where there is potential exposure to dangerous levels of styrene. It is assumed, however, that styrene levels begin to dissipate the moment the liner transport truck is opened and could drop to acceptable short-term exposure levels soon after the door is opened. For these reasons, the TTC recommended:

- For those immediately entering the liner transport truck or storage unit, active air monitoring should be utilised at the initial opening of the truck or storage unit door to ensure a safe work environment.
- At the initial opening of the liner transport truck or storage unit door, suitable PPE should be worn by those immediately entering the truck or storage unit.
- This recommendation will ensure safe handling of the liner for nearly all potential levels of styrene.

The area very near the exhaust stack and/or termination manhole at a steam-cured CIPP installation site and any area

“The opening of the liner transport truck door represents a point in the CIPP installation process where there is potential exposure to dangerous levels of styrene.”

contained within the visible plume of the exhaust points appear to be the locations on the jobsite where there is the greatest potential for exposure to airborne styrene above the limits set by OSHA, NIOSH and the EPA/CDC in the U.S. The styrene measurements taken at the exhaust points could represent styrene levels that endure for portions of the curing process that exceed 5, 15, or 30 minutes. For these reasons, the TTC team recommended:

- A conservative perimeter of 15 ft (4.5 m) be implemented around exhaust manholes/emission stacks during curing. This perimeter could be entered for less than 5 minutes. If this area is entered for longer than 5 minutes, suitable PPE should be used. This is similar to current practices in parts of Europe.
- Emissions stacks should be a minimum of 6 ft (1.8 m) tall to enhance the dispersion of emissions and lessen the likelihood of workers entering the perimeter from having to cross into the plume.
- This recommendation will ensure safe operations around the stack areas for the duration of the lining project.

"A conservative perimeter of 15 ft (4.5 m) be implemented around exhaust manholes/emission stacks during curing."

In areas surrounding the exhaust stack, the data suggests that styrene dissipates rapidly and that exposure to styrene above regulatory guideline limits is unlikely outside of a 15 ft (4.5 m) radius around emissions points. Based on the data it is also unlikely that styrene levels would rise to a level that presented any danger to residents inside buildings. Future studies of CIPP emissions should focus on determining the time it takes liner truck emissions to dissipate and further evaluating specific task-oriented emission impacts. This is currently being studied by the researchers at the TTC.

ACKNOWLEDGMENTS

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PIPE PULLING GAINS SEAL OF APPROVAL

The UK gas distribution network is steadily and methodically working hard to replace the steel pipes across the country with polyethylene pipes (PE) to minimise the risks of leakage and ensure the network performance is maintained. This includes the miles and miles of small diameter service pipes which connect each property to the mains gas pipeline. It's a painstaking task with supplies to around 22 million customers. >

Kobus Pipe Puller is approved by Cadent for use on it's network.

The Kobus Pipe Puller offers a useful trenchless technology.

More recently, there is increasing attention on the transition from natural gas to alternative, zero or low carbon energy sources such as green hydrogen and heat pumps. Some of these alternatives can utilise existing infrastructure, but in the case of hydrogen for example, this will require polyethylene pipes for transport putting additional pressure on the need to replace the existing steel pipes. The lower density and lower energy content of the fuel also means large swathes of the network will need further upgrade to potentially larger diameter pipes to carry the larger volumes. For service pipes to properties, this may mean not only upgrading from steel to polyethylene pipes but also from smaller diameter (20.25 mm) to larger 32 mm diameter service pipes.

The Gas Distribution Network companies – Cadent, Northern Gas Networks (NGN), SGN, and Wales & West Utilities (WWU) – already utilise trenchless technology wherever feasible and practical. Moling has been successfully used to install smaller diameter polyethylene pipes for decades and inserting a polyethylene pipe through the existing steel service pipe is similarly widely used to minimise the amount of expensive and disruptive open cut excavation. >

The Kobus Pipe Puller mounted on and excavator.

Cadent has recently approved an alternative trenchless technology which will be introduced to replace existing small diameter (up to 32 mm) service pipes with new PE pipes. Pipe Pulling has been used extensively in the UK water industry and in the North American gas and water sectors to replace steel, copper, lead and PE service pipes. The development of the technology, from its original concept used by the water industry, was funded by the Network Innovation Allowance scheme and jointly involved Cadent and Kobus Services, the originator of the technique. The development required extensive testing of the technique on over 100 trial sites across Cadent's network. The process is simple and user friendly.

The technique involves feeding a steel pulling cable through the existing pipe and attaching the cable to a powerful hydraulic winch (Pipe Puller). Two small excavations are required at each end of the existing pipe so keeping disruption to homeowners, pedestrians and road users to a minimum. The new PE pipe is towed into place behind the old pipe as it is removed in a single operation. For the gas networks in the UK, pipe pulling offers a safe, reliable and cost-effective technology that compliments the other trenchless techniques. 'Insertion' is limited by the internal >

Trenchless technology for replacement of steel gas service pipes up to 1¼ in (32 mm) diameter.

Replacement of steel gas lines with PE.

diameter of the existing steel pipe, so cannot be used if the diameter is less than 1" (25 mm) to insert a new 20 mm PE pipe. Moling increases the risk of damaging surrounding utilities which is a common occurrence in a congested UK network of telecoms, electric power cables, fibre optics, gas and water pipes. Pipe pulling is installing a new pipe through the bore hole created by the old pipe and therefore virtually eliminates the issue of utility strikes, making the system inherently safer for operatives and members of the public.

The Kobus Pipe Puller is available in two formats. One, KPP300, is modular and the hydraulic winch is powered by its own separate power pack. The other, the KPP400, developed under the NIA scheme, is mounted on a compact excavator and is driven from the auxiliary hydraulics of the excavator. This minimises the amount of manual handling and operators can be at a safe distance from the machine during operation, improving overall safety.

The replacement of steel gas service pipes will benefit from this technology in a variety of ways:

(a) less disruption to homeowners, local residents and traffic

(b) reduced risk of utility strikes

(c) ability to replace pipes < 1 in (25 mm) diameter in a trenchless manner

(d) replace steel pipes with larger diameter PE up to 32 mm

(e) offering up to 80% cost reduction and less time consuming than open cut method.

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PROFESSIONALS ON THE LANDING RUNWAY

Example of a slot channel on the airfield.

Slot channel rehabilitation on airfields requires exclusive know-how in channel rehabilitation in compliance with the most stringent safety regulations.

Slot channel rehabilitation is gaining in importance and is still a science in itself. With the Bodenbender GmbH system solution, Swietelsky-Faber GmbH Kanalsanierung has effectively and durably rehabilitated an airport in Germany!

Slot channels are sewage or rainwater drains that are open at the top. They can be found everywhere where large areas have to be cleared of water, especially precipitation.

At airports especially, there are such large areas and correspondingly kilometre-long slotted gutter networks that must reliably perform their rainwater-draining properties. These reliable slot gutter networks are also necessary in terms of environmental protection bacause paraffin and de-icing agents must be drained via the slot gutters so that pollutants do not contaminate the environment. Accordingly, the airport has the responsibility and obligation to check the slot gutter networks for leaks at regular intervals and to completely remove them. >

Left: Installation of the liner. Diameters from 300 mm to 400 mm.
Right: The unique slot channel milling machine.

Basically, there are two options for removing leaks in slot channels:

- the structural replacement of the leaking slot gutters with new slot gutters using the open construction method
- the rehabilitation of the slot gutters using trenchless rehabilitation methods.

The open construction method of slot gutters is impossible on an airfield purely from an organisational point of view. Accordingly, some German airports are now resorting to trenchless rehabilitation methods, thereby considerably reducing the organisational effort. The repairs can be carried out by Swietelsky-Faber's Sewer Rehabilitation Department with a minimum of disruption during regular airport operations or during down time.

> "The open construction method of slot gutters is impossible on an airfield purely from an organisational point of view."

Due to the constant air traffic, the take-offs and landings, as well as the resulting forces on the pavement and the sewer infrastructure, cracks form in the existing sewer structures, which have to be renovated gradually and continuously. The sewer networks at one of the airports, for example, will be renovated and repaired in nine construction phases until 2022, so that the tightness of the slotted channels on the airfield will continue to be ensured.

Trustworthy and responsible

In addition to these comprehensive technical requirements for slot gutter renovation, the safety aspect on airfields is also a major responsibility for the organisers.

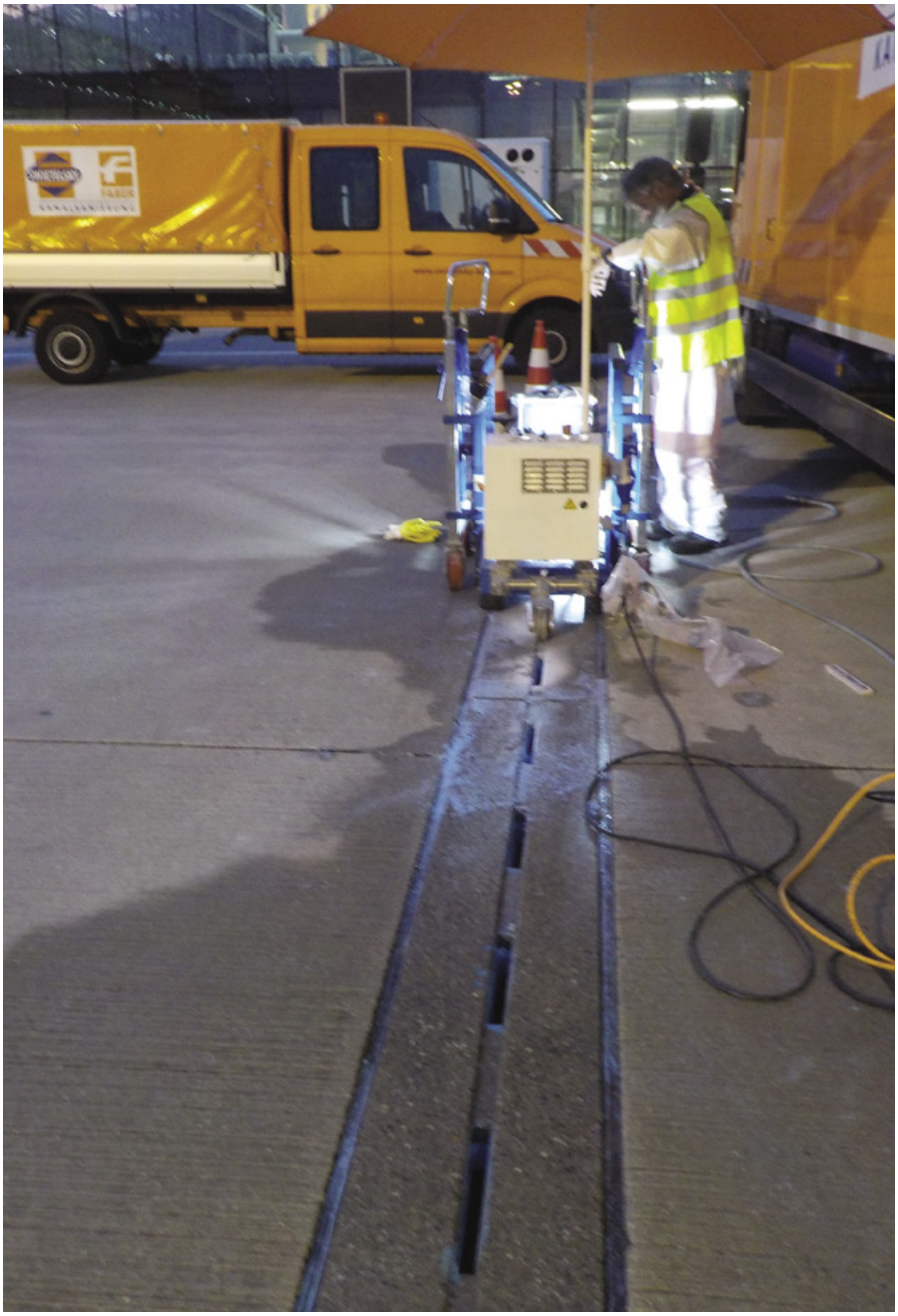
Taking the largest airport in Germany as an example, non-transferable ID cards are required for every employee and every vehicle, and there are different security regulations for the different areas of the airport. In addition, employees must obtain an 'airport driver's licence' and be familiar with the traffic rules on the tarmac. For example, an A380 and its smaller colleagues always have right of way. Suppliers must be registered in advance and are not allowed to move on the aprons without a supervisor. >

The liner in preparation.

The rehabilitation of slot gutters has special requirements for the material installed and the know-how of the contractor. A combination of an epoxy resin and a needle felt hose was installed on the slotted gutters renovated so far. The durability of the final product under the constantly changing load of take-offs and landings is particularly important. In order to confirm the durability, the liners that had already been installed some three years earlier were checked in summer 2017 and the tightness and durability verified. The installed consumables that passed this test came from the supplier Bodenbender GmbH. The epoxy resin Bodenbender EP (former CombiTec EP), in combination with the Bodenbender needle felt hose, are convincing due to excellent static properties and the bonding with the old pipe. The bonding is of decisive importance in slot gutter renovation as it ensures that the pipe, which is open at the top, does not back up. This means that precipitation and the associated moisture cannot freeze between the newly laid liner and the old pipe and thus the entire system is not destroyed. This feature was tested by an independent testing laboratory in advance of the renovations and meets the issued quality requirements of the airport operators.

Unlike normal underground sewerage pipes, the actual area of application for the materials, the materials are also exposed to UV radiation from the sun. Accordingly, the resistance to UV radiation had first to be proven. >

Opening of the slot with a spacial machine.



"For the slot opening after the liner has fully cured, a partner company in cooperation with Swietelsky-Faber constructed a machine specially developed for this purpose, which is unique on the market and in the entire industry."

For the slot opening after the liner has fully cured, a partner company in cooperation with Swietelsky-Faber constructed a machine specially developed for this purpose, which is unique on the market and in the entire industry. The development also shows that Swietelsky-Faber is in the process of securing the market for slot gutter renovation as a know-how leader. The machine can even cope with different opening shapes of the slots and has meanwhile proven itself in practice even under the toughest conditions.

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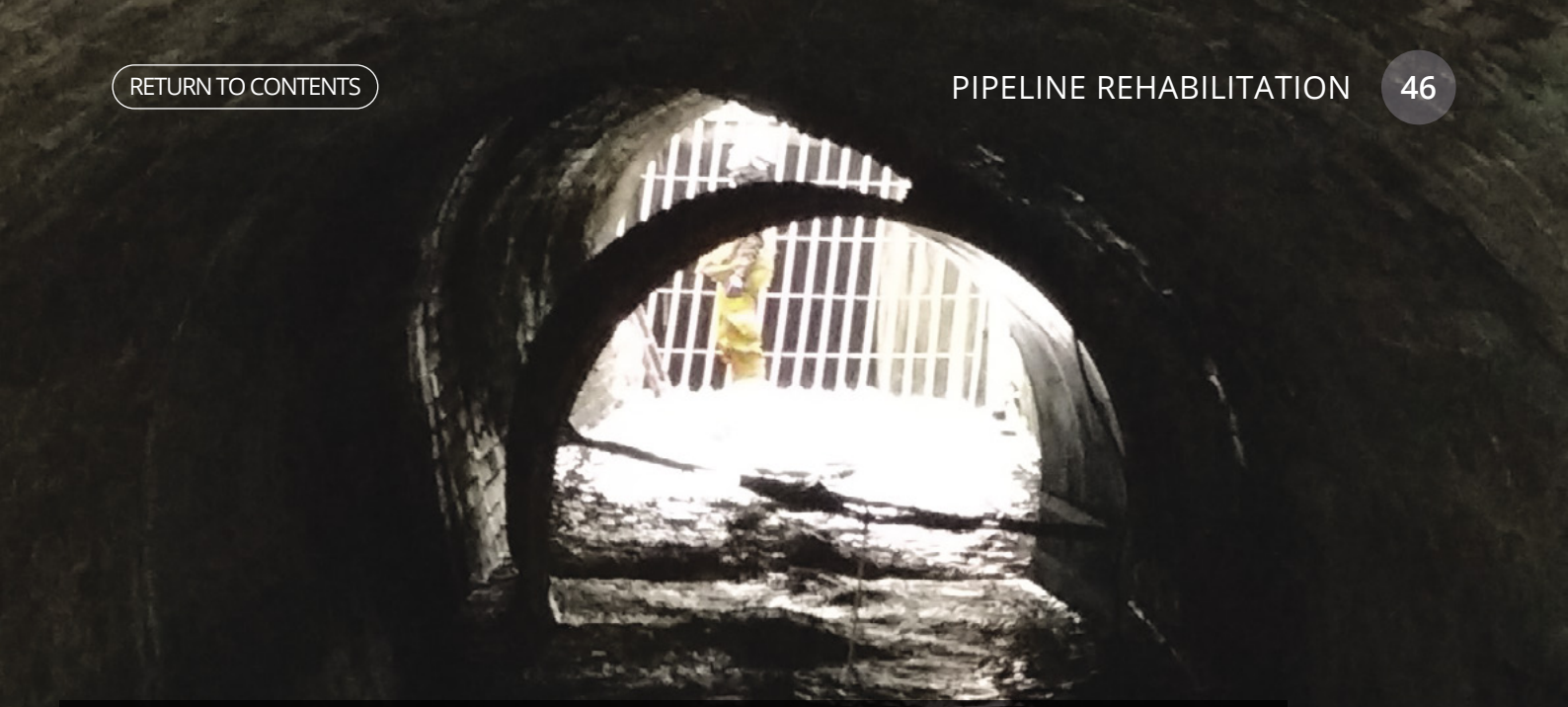

EXTENDING THE LIFE OF AN AGED RAIL CULVERT

NC Line installation commenced (note deformation to culvert).

The culvert known to Network Rail as RBS2/57A Tipton, over which run two non-electrified tracks, is a 68 m long brick built arch construction with a constantly flowing water course running through it. Over time, the culvert had suffered wear and tear and required maintenance before it was too late and would need to be replaced. Using trenchless technology to avoid any excavations and closing the track, Amiblu's NC Line – GRP structural liners were selected to renovate and restore the culvert, lengthening its lifetime without disruption to the nearby residents, or rail operations.

Amiblu NC Line is an off-site manufactured structural pipe relining system created specifically for trenchless installation and designed to withstand acidic and abrasive environments. As no two culverts are the same, Amiblu produced the NC pipes 2116 /1636 mm bespoke for this project in the company's state-of-the-art manufacturing facility in Gdansk, Poland.

Before installation works started, the team from contractor Eric Wright Group created a wooden template to replicate the NC Line units. The template was passed through the culvert to highlight areas that needed attention to ensure the installation of the 1.5 m long units could take place without obstruction. The condition of the culvert was classed as 'poor', so preparation works included lowering the floor in places where high points and obstacles had been caused by heave to the invert and remediation of loose or displaced brickwork to the side walls and soffit. >

NC Line Installation negotiating a slight radius.

Wooden templates to ensure NC Line profile was manufactured to specification.

Culvert open and operational.

NC Line Profiles ready for installation.

"Amiblu worked with us to ensure the units were manufactured to the specification and delivered to suit our site needs. All parties are very pleased with the result." said Jonathan Leek, for Eric Wright Group."

Access and working space on site were very tight. Each NC unit was lowered into place with a compact excavator, then slid through the full extent of the tunnel along a steel bar track with the assistance of an electric winch and manual guidance by the installation team. The jointing system for this NC Line system is a spigot and socket joint with an elastomeric gasket seal, requiring no use of glue or sealants. Once all units were in place, the annulus was grouted and a specialist bricklayer from the local area was employed to complete the project, creating the external brickwork according to the original construction.

Now complete, the life of this Network Rail asset has been extended without disruption or track closures. Amiblu NC Line pipes are manufactured, tested, and approved according to ISO 16611, the relevant international pipe standard for non-circular pipes and in addition, the system has full traceability with each unit being individually identifiable.

"This was our first project of this nature for Network Rail, we have learnt a lot about the installation process of these liners and the capabilities of our own team. Amiblu worked with us to ensure the units were manufactured to the specification and delivered to suit our site needs. All parties are very pleased with the result." said Jonathan Leek, for Eric Wright Group.

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BIM IN SEWER REHABILITATION

A Swietelsky-Faber GmbH team on site.

Artificial intelligence, smart city modules, 3D laser scans and building information modelling (BIM) – these visions of digital transformation make the reality of the construction sector in Germany in 2021 even more sobering. How can that be – and how do we solve it?

According to a McKinsey study, the construction sector is growing five times more slowly than the German economy as whole. The comprehensive digital expansion that is supposed to increase efficiency significantly through the targeting of resources is therefore even more important. In the infrastructure construction sector, the desire for optimising solutions is ubiquitous. Digital transformation promises >

Rehabilitation operations may be required in some awkward locations.

"Six years after the announcement of this digitalisation drive, however, the results are sobering. The construction sector is still a long way off even from this year's target of BIM Level 1 for all newly planned projects."

to set new benchmarks in the field of standardisation and modularisation. So far, however, the implementation is looking bleak – there is a lack of sector-wide standards.

Right now, Building Information Modelling, or BIM for short, seems like a ray of hope on the horizon. BIM depicts every phase of a construction project in a digital model and provides a shared dataset to everyone involved. The goal – to reduce friction between the various parties/stakeholders involved and improve overall productivity as a result.

Digital construction: still way off schedule

Back in 2015, Germany's Federal Ministry of Transport and Digital Infrastructure (BMVI) published a Phased Plan for the Introduction of Building Information Modelling (BIM). Among other things, it envisaged a benchmark for projects within the BMVI's area of responsibility for 2020. Six years after the announcement of this digitalisation drive, however, the results are sobering. The construction sector is still a long way off – even from this year's target of BIM Level 1 for all newly planned projects. >

Rehab operations are not always sited in highly trafficked urban locations.

So why hasn't this practice established itself yet despite its many benefits? Apart from the installation of a technical committee in CEN/TC 442, which currently only sees itself as an advisory body, not much has happened so far. It appears that the establishment of national and international standards is not making headway and is becoming increasingly vague.

Insufficient willingness to innovate and cooperate

Despite all the increases in efficiency and optimisations that have already taken place, it is apparent that there is stagnation in the sewer rehabilitation industry too. Across all parties involved with the construction project, from the operator to planning, production and execution, the interactions between the stakeholders indicate a mutual reluctance to innovate and cooperate. Almost every operator or their planner creates their own proprietary technical specifications, be it additional technical contract conditions, performance requirements or billing procedures. Standard specifications in accordance with Germany's STLB-Bau (a library of tender texts for standard construction works) that correspond to the VOB (German Construction Contract Procedures) and accepted codes of practice are virtually never used in the sewer rehabilitation industry.

"Despite all the increases in efficiency and optimisations that have already taken place, it is apparent that there is stagnation in the sewer rehabilitation industry too."

It is interesting to note that, in Austria, standardisation is already working very well and the supply chain has adapted well to the Austrian specification system. It is therefore all the more puzzling that this practice is not more common in Europe. >

Fragmentation instead of standardisation

While co-operations between trade associations promise better collaboration, they can translate into bitter rivalry. Instead of making an independent commitment to national and international standardisation, planners focus on their association work, sometimes even contrary to the ambitions of the relevant standardisation bodies. That is often even justified because nowadays, in the absence of planners and clients on such panels, it is the manufacturing industry that occupies the majority of seats on standardisation committees. At the risk of sounding provocative, it seems reasonable to assume that this camp is more interested in the standardisation of their own USPs.

"Instead of making an independent commitment to national and international standardisation, planners focus on their association work, sometimes even contrary to the ambitions of the relevant standardisation bodies."

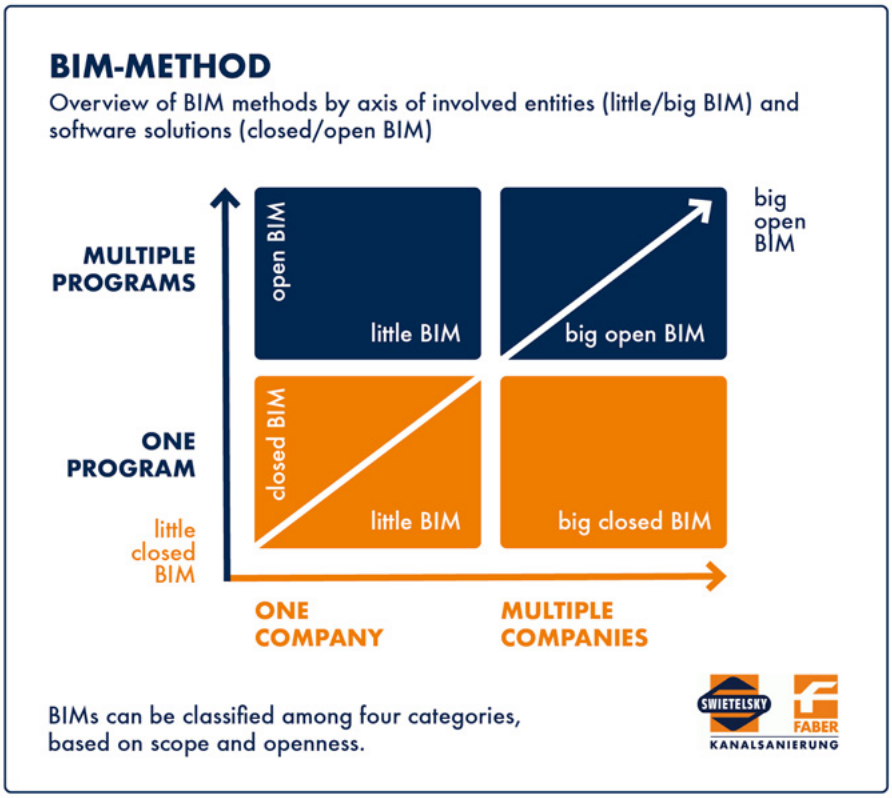
These obstacles are relatively specific to the construction sector in Germany, and they are not limited to the sewer rehabilitation market. In the long term, we will have to put these traditional market principles aside in the interests of increasing efficiency. Even then, the digital transformation of the construction sector will probably not progress as quickly as planned, but it will be unstoppable. Because at the end of the day, if we fail to act, we can only be acted upon. It is vital that we take an active role in shaping this transformation, creating future-proof rules for economic processes, and ensuring fragmentation remains within reasonable limits. The digitalisation of the construction sector can only advance if the same conditions and standards are applied everywhere.

Introducing BIM Is Not Rocket Science

Does digital transformation mean having to completely reinvent the wheel, or are there already systems that work well? One thing is certain, BIM cannot be expected to find its way into all areas of the construction sector at once. However, various small components of it are already there. Partly because of the diverse nature of the construction sector, we need to start taking a step-by-step approach and, without losing sight of the overall concept, develop appropriate systems that can then be integrated successively.

The introduction of a transparent and modular digital data exchange system in a sewer rehabilitation company is a far-reaching step to take. In the long term, however, this course of action is unavoidable if productivity is to be increased.

For instance, or several years now, in cooperation with several operators and the software company IBE, Swietelsky-Faber GmbH Kanalsanierung has been using what is known as a little closed BIM system. This is an umbrella term for approaches that aim to implement the BIM method in projects by utilising proprietary formats in a uniform software environment, a 'lonely' solution whereby a BIM system is deployed at a small level. >



"We need to start taking a step-by-step approach and, without losing sight of the overall concept, develop appropriate systems that can then be integrated successively."

The municipal waste management operators of Wiesbaden (ELW), Neu-Ulm and Augsburg, as well as the wastewater utilities of Troisdorf and Bad Kreuznach, to name but a few, operate their entire sewer network (total length 1,562 km) in this IBE or little BIM system, which is linked with GIS systems. All the condition assessment data and other system information is entered throughout the operating life of the structure, thereby enabling the network's development over time to be tracked in the operators' database.

The client's planning and the contractor's execution are digitally processed and depicted in a program. Datasets are constantly exchanged between all those involved with the project, ensuring that the state of progress is always up to date in their IT systems. Even quality assurance is managed in the database, lot numbers and comprehensive before-and-after documentation are just a click away. The benefit is obvious, clear communication, transparency and precise allocation of every detail of the rehabilitation measures.

This type of little closed BIM can only be an initial step towards a global BIM system. Further steps are feasible such as a big open (connected) BIM including a stored construction schedule ('4D BIM') with a real-time link to the crews; complete site logistics with automated cost variance analysis ('5D BIM') and Modular planning that takes cost comparisons, alternative rehabilitation >

concepts and their effects into account ('6D BIM'). The possibilities seem almost endless.

However, since complexity increases significantly with each additional BIM level, the kind of little BIMs described above is a good starting point for gaining experience with the exchange of data between the parties involved with the project and expanding digital transformation expertise.

In the field of sewer engineering and construction, the elemental steps required for big open BIM systems are a uniform sewer data system and the finalisation and application of uniform standards. That means consistent performance specifications wherever possible, use of the same data formats and coding, and a meticulously thought-out visualisation concept, and those are just the basic requirements. All stakeholders across the industry have to pull together including manufacturers, clients, planners, contractors and of course the associations and standardisation bodies. The goal must be to implement what can meanwhile be considered the 'old' plans and to expedite networking by means of suitable interfaces.

"All stakeholders across the industry have to pull together including manufacturers, clients, planners, contractors and of course the associations and standardisation bodies. The goal must be to implement what can meanwhile be considered the 'old' plans and to expedite networking by means of suitable interfaces."

Let Us Tackle It Together!

Admittedly, such an appeal for the entire industry to unite in a common effort is optimistic. But, if the construction sector and in particular the sewer rehabilitation industry do not improve their productivity, we should not be surprised if willingness to invest declines.

That is why something has to happen as soon as possible. There is an urgent need not just for ingenuity but for willingness to change, to interlink knowledge and to transform the sector into Construction 4.0.

Let us not fool ourselves, our industry is still a long way from a big open BIM that depicts and monitors the progress of construction works digitally. But in the age of digital transformation, the introduction of a little BIM system and its gradual transition to a big open BIM is a first step in the right direction. Let us join forces and tackle it together! There is a lot to do, because in today's world of work the expansion of digital technologies is key to the competitiveness and future viability of both individual companies and our entire industry.

www.swietelsky-faber.de

NEW SEWER OUTFALL FOR MAPPLEWELL

Driving one of the pilot bores.

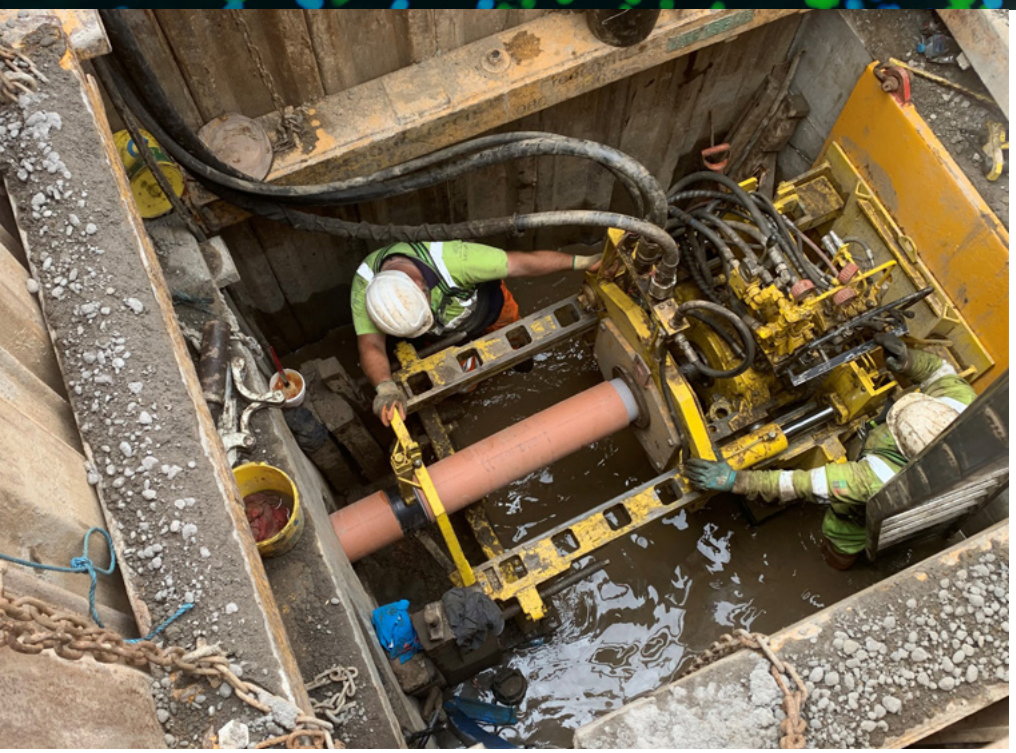
PBS Construction Ltd recently undertook a project on Wakefield Road in Mapplewell, Barnsley, Yorkshire, UK where a new sewer outfall was required to service a newly built Lidl supermarket.

The works involved the installation of approximately 180 m of Naylor Denlok DN150 jacking pipe to form a storm water outfall, whilst the foul sewer pipeline, being at a much shallower depth, was installed using traditional open cut techniques.

Traffic management was put in place on what is an extremely busy route into Barnsley. The works were due to take approximately 7 to 8 weeks to complete.

Design

PBS Construction Ltd, as the main contractor, offered the ability to design and deliver efficient and cost-effective solutions and planned and delivered this project alongside its client, Lidl Stiftung & Co. KG. The pipejacking operation was subcontracted to Trenchless Solutions Ltd (TSL). >



Installing the Denlok jacking pipes.

Ground conditions at the site of the pipejacking operation comprised stiff clay with pockets of Sandstone, so Trenchless Solutions Ltd opted to utilise the tried and tested Guided Auger Boring technique as it offered the ability to install the Naylor Denlok DN150 jacking pipe to the required line, level and gradient, whilst having the capacity to handle the ground conditions very effectively. The ground investigation works were completed with investigation bore logs being compiled by a third party prior to work commencing both for planning stage and practical contracting.

To complete the pipejacking works TSL utilised its Perforator PBA85V auger boring machine alongside a Perforator HS90 hydraulic Powerpack, Bentonite Pump and tank, and an OEN navigation unit (which utilises a camera for accuracy of the pilot bore installation that makes up the first stage of the installation). TSL claims to have the largest fleet of Perforator auger boring machines in the UK. In all the trenchless installations using the guided auger borer totalled some 180 m in length which were installed over four individual drives.

Challenges

The project had been planned over the course of approximately 12 months due to the impact the project would have on local traffic with the need for road lane closures and traffic management. Ultimately the installation works for the pipejacking were carried out using 12-hour shifts, 7 days a week as requested by PBS Construction, because the local council wished to minimise the impact on the local community as much as possible. >

Guidance was achived using an OEN navigation system

"One of the factors that led to Trenchless Solutions Ltd being chosen as the preferred supplier was the locality to the project which enabled them to deliver a first-class service and due to the expert advice received from them from the tender stage through to planning."

Further to this, during the second drive, the TSL crew encountered an obstruction which turned out to be a huge lump of dense sandstone. During the pilot bore stage the crew repeatedly attempted to get passed the obstruction but it was not to be. The decision was made to excavate an isolated dig-down to remove the obstruction.

The construction of the works was also planned so that Lidl would still be able to operate, whilst PBS used the Lidl carpark for a site compound and residents would have access to the nearby public footpaths at all times. Traffic management was in place due to a single lane closure which was unavoidable.

The project overall had an estimated construction cost of about £800,000 with the trenchless installations being approximately £100,000.

Commenting on the project for PBS Construction a company director said: "One of the factors that led to Trenchless Solutions Ltd being chosen as the preferred supplier was the locality to the project which enabled them to deliver a first-class service and due to the expert advice received from them from the tender stage through to planning. I would like to take this opportunity to thank the whole team at Trenchless Solutions for their expert assistance throughout the planning of the works and implementation of the installation. The works went very well and were completed on time and within budget!"

www.trenchlesssolutions.co.uk

PAIR OF CROSSOVER TBMS COMPLETES TRIPLE TUNNEL DRIVES IN MUMBAI

In Spring 2021, the second of two 6.65 m (21.8 ft) diameter Robbins Crossover XRE TBMs made its third and final breakthrough for India's Mumbai Metro Line 3.

In Spring 2021, the second of two 6.65 m (21.8 ft) diameter Robbins Crossover XRE TBMs made its third and final breakthrough for India's Mumbai Metro Line 3.

The two custom-built machines were selected to bore parallel 2.9 km (1.8 mile) long tunnels between the Cuffe Parade station and CST stations, breaking through into several station sites along the way. "It is the first time in India that Dual Mode, Crossover type TBMs equipped with a horizontal screw conveyor and high torque/ high speed (two-speed) cutterhead drives were used. Overall, the performance of the Crossover TBMs was found to be satisfactory and we are in the process of shifting these TBMs for the L&T Chennai Metro project." said Mr. Palwinder Singh, Head – Tunnel Construction for the L&T – STEC JV. >

Left: The first of the two Robbins Crossover XRE machines completed its bore in April 2021 in Mumbai.

Right: In a first for India, the Robbins Crossover TBMs were used in the benching of the NATM Platform tunnel through basalt rock in a 554 m (1,820 ft) long section from Hutatma Chowk to CST stations.

In another first for India, the Crossover TBMs employed a unique technique in a 554 m (1,820 ft) long section from Hutatma Chowk to CST stations. They were used in the benching of the NATM Platform tunnel through basalt rock (removal of the bottom section of rock remaining in the station after conventionally removing the top section). “This requires fine control on the operational parameters of the TBM because only 25% of the cutterhead is excavating the rock mass, while the remaining 75% of the cutterhead has no contact with rock or soil. In addition, the TBM was relaunched without using a reaction frame, instead taking reaction from half segments erected during the benching of the NATM Platform Tunnel. These innovative concepts were accomplished for the first time in India at Mumbai Metro Line-3, Package 1, and I therefore have many reasons to feel proud on the completion of tunnelling.” said Singh.

L&T – STEC made impressive progress throughout tunnelling despite the many exacting circumstances surrounding the scope of work. Above ground, the joint venture not only had to navigate the restrictions of working within an urban environment, such as limited work hours and the slow removal of muck due to minimal space and traffic, but also faced concern for major structures such as the Mittal Towers and the historic Bhikha Behram Well located along the tunnelling route. The Crossover TBMs excavated with only 15 to 20 m (49 to 65 ft) of cover separating them from these important structures, which had to be instrumented to monitor vibrations, movements, and potential settlement. >

The Robbins Crossover TBMs were the first machines of their kind employed in India, using both a horizontal screw conveyor and high torque/high speed (two-speed) cutterhead drives.

Underground, L&T – STEC faced a complex geological mix of fresh greyish basalt, soft volcanic tuffs, shale, and breccias – consolidated rocks of angular fragments of disintegrated volcanic rock. One of the biggest concerns, however, came from the tunnels' proximity to the coastline of the Arabian Sea. At one stage, TBM 1 was only 25 m (82 ft) from the coastline, with the invert level of the tunnel running approximately 22 m (72 ft) below mean sea level. As anticipated with circumstances such as these, the Crossovers faced a significant amount of groundwater with up to 300 l/min during their excavation.

Despite these obstacles, the TBMs were still able to maintain impressive rates. TBM 2 even completed one push in a swift 14 minutes. "In fact, the boring rate of the Crossover TBMs was never an issue for us. It was only limited by the rate of muck removal and we could have finished the tunnels much faster." said Singh.

L&T engineers were highly involved in the specifications and designs of the machines and worked closely with Robbins to prepare for the challenges the project presented. While L&T had extensive tunnelling experience, tunnelling with a Crossover machine was entirely new to them. To remedy this, Robbins provided a team of key personnel to train L&T in all aspects of the machines' design and operation. "Working with Robbins field service was more than satisfactory. Even during the Covid-19 >

The two custom-built Robbins machines were selected to bore parallel 2.9 km (1.8 mile) tunnels between the Cuffe Parade station and CST stations, breaking through into several station sites along the way.

pandemic times, Robbins field service was available 24 hours a day, 7 days a week. What else can one expect?" said Singh.

Each milestone reached on this project is another step closer toward significantly improving the lives of Mumbai residents. As the financial capital of India and one of the most populated cities in the world, Mumbai is faced with an excessive amount of road traffic. It currently takes up to two hours to drive the 25 km (15 mile) distance from Cuffe Parade to the airport – the same trip on the finished metro will take a mere 50 minutes. The completion of Mumbai Metro Line 3, which is expected in 2025, will not only save residents transit time, but is expected to initially decrease road traffic in the area by 35%, reducing daily fuel consumption by 460,000 l.

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SUCTION EXCAVATION INSTALLS TREE ROOT BARRIER TO PROTECT SEWERS

Using suction excavation to open a small pit.

"We devised a trial to dig an environmentally friendly barrier around the base of a tree using hydro vac (suction) excavation and a root sawing method, which causes minimal disturbance to the tree itself, while preventing the growth of thirsty roots towards nearby sewer connections."

A new trial looking to prevent thirsty tree roots impacting South Australian sewers is now underway across metropolitan Adelaide, as part of efforts by SA Water to reduce customer sewer overflows and protect the natural environment.

As part of the innovative pilot, a thin layer of high-density plastic liner made from 100% re-used material has been installed below ground between problematic trees and a sewer connection at four customer properties.

The first stage of the trial is targeting properties which have experienced higher than usual sewer blockages caused by tree root intrusion.

SA Water Innovation Specialist Alex Czura said the liners aim to restrict roots moving towards the pipes, without impacting the tree's health.

"Tree root intrusion is the leading cause of blockages at customer's sewer connection points, and when caught up with cooking fats, oils and other foreign objects flushed down the toilet or sink, can lead to everything that goes down coming back up." Alex said. "Most sewer blockages can be cleared by cleaning the inside of the pipe, without the need for any excavation. However, in some cases, tree roots continue to grow, making it difficult to prevent further blockages occurring at the same location. We devised a trial to dig an environmentally friendly barrier around the base of a tree using hydro vac (suction) excavation and a root sawing method, which causes minimal disturbance to the tree itself, while preventing the growth of thirsty roots towards nearby sewer connections. >

A small typical suction excavation unit.

A typical larger suction excavation system.

Alex continued: "With the dig needed to install the barrier just 150 mm wide, the end result also reduces the need to excavate large areas of kerbing, footpath and residential driveways, often required for replacing damaged customer connections. This project represents our proactive approach to protecting pipes and customer connections, rather than reactively managing an incident after it's occurred."

Throughout the three-year trial period, SA Water will use CCTV to monitor wastewater pipes at regular intervals, helping to assess the viability of expanding root barrier technology to other suitable locations around South Australia.

"While it is early days, initial works show the installation of root barrier technology comes in at just one-third the cost of a traditional wastewater connection replacement, and takes less than a quarter of the time. This may allow us to improve sewer services for three times as many properties, for the same cost." Alex said. "We will also use this project to work with local councils and landscape architects to provide our expertise on the most suitable trees and plants to grow near our water and wastewater networks which support tree canopy coverage for greening and cooling, while also protecting our underground infrastructure. This is an exciting initiative that can help us save time and money while continuing to deliver the safe and reliable wastewater services that our customers expect."

www.sawater.com.au/news/innovative-tree-root-trial-helping-protect-sa-sewers

"This project represents our proactive approach to protecting pipes and customer connections, rather than reactively managing an incident after it's occurred."

ITALIAN MINI ROBOT EXCAVATORS

A Gerrotto cleaning robot in action.

Since the early 2000s, Gerotto has been designing and manufacturing cutting-edge solutions for operating in confined spaces, Atex and Non-Man-Entry environments, offering an innovative range of compact, technological and versatile mini robots for every operational need.

Gerotto Mini Robots are designed to safely perform remote cleaning jobs such as tanks using a remote-control system connected to cameras and lights. They offer tools for operations in confined spaces, including explosion risk and toxic fume environments in which access is forbidden to people. In this way, the operator can complete the operations in total safety, without having to intervene directly in potentially dangerous spaces. Mini Robots are accessories combined with dry-suction technologies and are part of the Trenchless Technology family precisely because of their ability to preserve the underground services from any damage.

Versatile, Functional And Effective

Constant research activity from Gerotto's internal R&D team has over the years allowed development of specific solutions for different application areas. The ability to listen to the market, customers and attention to the most innovative technologies at the engineering level has led to a wide range of products that are capable of working in many industrial, civil and infrastructure areas including:

- ATEX – Some robot models are able to work in ATEX zone 0 through the use of equipment specifically designed for areas at risk of explosion and gas exhalation. In this way, the sewage and foul cleaning in tanks is carried out without the direct intervention of an operator. They are therefore particularly useful in the case of the oil, chemical, energy and nuclear industries. >

- UNDERWATER AND HIGH TEMPERATURE ENVIRONMENTS – Gerotto solutions are ideal for working in underwater environments such as cooling tower basins, water collection tanks and pipelines. Furthermore, a range of Mini Robots is equipped with material capable of withstanding temperatures ranging from -20°C to +200°C, making it a fundamental accessory in the cleaning of furnaces or reactors and with the possibility of working in geographic areas with extreme temperatures.
- MINES AND TUNNELS – The safest way to remove the accumulation of material in confined spaces and under conveyor belts is the remote use of Mini Robots which, thanks to their compact size and suction power, allow reach into narrow spaces. In addition, they are also used for cleaning and remediation of pipelines, sewers and tunnels. Due to the difficulty of entering small pipes, the only safe practice to clean obstructions caused by the deposit of debris and encrustations on the pipe walls is to use robotic technologies to ensure the safety of operators.

"The ability to work closely with customers and operators has allowed the company to develop innovative solutions, created to respond to new operational needs, to face new challenges and to give development opportunities to the market."

The Benefits Of On-Site Robotics

The first benefit of using Mini Robots is the safety of the operator who can manoeuvre the machine and manage cleaning from a safe distance. Furthermore, the technology developed by Gerotto allows the Mini Robots to be used inside the plants in operation, even without shutdown or dewatering. This translates into an economic benefit thanks to the shorter downtime of the production plants during cleaning operations. Furthermore, the use of these machines brings an environmental advantage by shortening machine downtime, thereby avoiding stopping and reactivating the systems and therefore using less energy. As well as this, the ability to remove materials as they are, minimising the use of water to break them up or fluidify them, results in the production of less volume of waste to be disposed of, therefore with an economic advantage for the customer and an environmental benefit for the company, the community and the ecosystem.

Tailor-Made Innovation

Developed since the early 2000s, the Gerotto Mini Robot range has grown over time thanks to a proactive approach to the market. The ability to work closely with customers and operators has allowed the company to develop innovative solutions, created to respond to new operational needs, to face new challenges and to give development opportunities to the market. The compact and powerful Lombrico series is ideal for cleaning cisterns, pipelines, tanks and confined spaces, even at risk of explosion (Atex). The Bull series is designed to work in underwater environments for the removal of sediments and sludge inside tanks. The Dozer is a specific model for cleaning under conveyor belts. Easy Dozer is the mini wheel loader suitable for removing debris and rubble on construction sites and tanks. Gatto, on the other hand, is a mini crawler excavator for removing materials. Finally, FTC has been studied and designed specifically for cleaning underground fuel tanks using a high-pressure washing system.

www.gerotto.it

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SOCIETY NEWS

ISTT News brought to members by Trenchless Works

A MESSAGE FROM THE CHAIR

Jari Kaukonen, Chair, International Society for Trenchless Technology

Hi ISTT members!

Following the recent travel announcements, it seems the world is slowly opening up again.

It is great to see so many companies and people preparing to be at No-Dig Live in September. The preference for seeing people and networking is a major part of the development of trenchless techniques. The event is organised by industry specialist Westrade Group and supported by our affiliated society, UKSTT. I am very sure as always this will be a successful show. The FSTT, our French affiliated Society also has its annual meeting in Montpellier in the South of France in September.

Speaking of events, in August ISTT held another of its series of Webinars entitled 'Cured in Place materials and system quality assurance based around a performance specification and site evaluation'. The webinar was delivered by Ian Ramsay, Vice chair of UKSTT, and board member of ISTT. Again the webinar was well attended and the presentation received positive feedback. Further webinars will follow.

Additionally plans for ISTT's 38th International No-Dig are going well, please visit the show website www.nodighelsinki.com for further information. We also welcome Geonex as a Platinum Sponsor along with our Diamond sponsor Picote. These companies, originally based in Finland, are today active globally. Anyone that knows Finns will know that they are usually well prepared for things well and before deadline. That is also how the Helsinki conference and the whole trenchless week is being prepared.

I am also very pleased to hear that NASTT, an affiliated society of ISTT, has formed a new Regional Chapter covering Mexico, known as MEXTT. As always it is imperative to get the right people involved who will be central to creating the Chapter. They are tasked to scope out activities to promote the Society, trenchless technology and generate new NASTT members based in Mexico, to ensure the Chapter has a positive impact for the Mexican market. Best wishes to you all on this exciting journey.

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NASTT WELCOMES MEXICO REGIONAL CHAPTER

NASTT welcomes MEXTT to the North American Trenchless family.

3 August, 2021, was a significant day for North American Society for Trenchless Technology (NASTT) as the 12th and latest Regional Chapter was formed, covering the 32 states of Mexico.

Matthew Izzard, NASTT Executive Director and Alan Goodman, Chair of the Board of Directors, met with founding members Sergio Alvarado (Underground Construction Equipment Mexico), Chapter President; Adrian Cordero (Tubepol), Chapter Vice-President; Itzel Mora (Tubemas), Secretary; and Caesar Alvarado (Hammerhead), Executive Officer for the inaugural meeting of the NASTT Mexico Regional Chapter or MEXTT.

The addition of this Chapter offers complete coverage of the North American continent for NASTT with Mexico joining the three Canadian and eight United States Chapters in the Society.

The NASTT Board, under Craig Vandaelle, formed an initiative group to create the Chapter, with Board Members Tiffanie Mendez and Alan Ambler central to its development and working with Itzel Mora to >

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Signing the inauguration agreement.

"NASTT has been blessed to work with five incredible people that are passionate about bringing trenchless technology to every corner of Mexico."

engage volunteers in the creation of the new chapter. This culminated in the inaugural meeting and formation of the Regional Chapter Board to provide local engagement to the members in developing trenchless technology knowledge and education.

MEXTT President, Sergio Alvarado commented: "I am very grateful for the opportunity to be one of the founding members and to be elected president of MEXTT, as well as recognising my colleagues Itzel Mora, Adrian Cordero, Eduardo Ortegon and Cesar Alvarado who are part of this executive board.

We are very excited about the future growth of our association, and we will be preparing our work plan in the short, medium and long term to publicise the benefits that we can bring to our members through the different existing trenchless technologies for the benefit of the projects of infrastructure generated in Mexico."

NASTT Chair, Alan Goodman added: "NASTT has been blessed to work with five incredible people that are passionate about bringing trenchless technology to every corner of Mexico. On the historic day of 3 August, 2021, the Mexico Chapter was formed and inaugurated into NASTT. Whether it be new installation or rehabilitation the Mexico Chapter wants to educate all sectors (municipalities, state agencies, utilities, contractors, and engineering firms) in all industries including water, sewer, gas, power, fibre and telecommunications. Watch this Mexico Chapter grow, and we cannot wait to learn more about the future conferences and Good Practices Courses offered in Spanish."

An opening webinar to outline the Chapters activities, introduce members and how to be involved is planned for early 2022 followed by in-person events. This includes the delivery of NASTT's Introduction to Trenchless Technology Good Practices Courses, translated to Spanish with the assistance of grant funding from International Society for Trenchless Technology (ISTT). Work is also starting on a website and membership magazine and many other initiatives. If you are interested in being involved, please contact us at info@nastt.org.

In expanding their activities and delivery of trenchless technology education in Spanish to a wider audience, NASTT and MEXTT look forward to another exciting Chapter in NASTT history.

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NASTT ANNOUNCES INNOVATIVE PRODUCT AWARD WINNERS

The North American Society for Trenchless Technology (NASTT) announced the 2021 Abbott Innovative Product & Services Award winners at the NASTT No-Dig Show at the Orange County Convention Center in Orlando, Florida.

"The Innovative Product & Services Award is a testament to the skill, ingenuity and vision of the creative teams that research, develop, design, market and operate these products."

The Abbott Innovative Product & Services Award celebrates companies with a state-of-the-art product or service making a significant impact in advancing the trenchless industry in the areas of rehabilitation or new installation. The award is named for the late Joseph L. Abbott, Jr., an active NASTT member since its founding in 1990 and a champion of innovation.

The selected winners met the highest-level of standards for each category. Products were judged on Innovation (concept, method, development); Value (need, advantages, cost); and, Impact (sustainability, social/environmental responsibility and potential). "Honouring these leaders of trenchless technology innovation recognises how important their contributions are to our organisation, the industry and their customers." said Matthew Izzard, NASTT Executive Director. "The Innovative Product & Services Award is a testament to the skill, ingenuity and vision of the creative teams that research, develop, design, market and operate these products."

In the category for New Installation, the award was given to Digital Control Incorporated for its TeraTrak R1, a terrain mapping tool with an accompanying mobile app to quickly solve one of the biggest challenges remaining in HDD. Submitted by product manager Anders Mantere, Digital Control's R1 is a tool to enable a crew to quickly gather >

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ND21 Innovative Product Winner DCI – New Installation.

continuous terrain data with a bore plan to get around terrain changes and cross utilities with confidence. “There are a lot of smart people with clever solutions working in the HHD product space, all focused to innovating and pushing the industry forward.” said Mantere. “We hope that the R1 embodies the spirit of the Abbott award making contractors more productive and safer than before.” For more information, visit digital-control.com/teratrak/r1.

In the category for Rehabilitation, the award was given to Logiball, Inc. for its Long Span Grouting Packer, a structural stabilisation technique, which prevents pipe joint defects from progressing by eliminating the erosive effects of water infiltration and solidifying the pipe bedding. Submitted by Logiball president, Marc A. Anctil, these custom-made packers are being >

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ND21 Innovative Product Winner Logiball – Rehabilitation.

"We are feeling proud, humble, and grateful for NASTT's recognition of Logiball's ability to make an impact, expand the industry, and complement all trenchless technologies."

used by specialty contractors to seal longitudinal cracks and fractures in municipal sewers. "We are feeling proud, humble, and grateful for NASTT's recognition of Logiball's ability to make an impact, expand the industry, and complement all trenchless technologies." said Anctil. For more information, visit logiball.com/products/test-and-seal-packers/long-span-flexible-grouting-packers.

NASTT also honours the finalists in each category:

New Installation

Ditch Witch for JT24 Directional Drill – ditchwitch.com

Submitted by Sean Hubbard, Marketing Communications Manager

Ditch Witch's JT24 directional drill is equipped with boosted power, stability and productivity in a compact, innovative design for increased efficiency and uptime on a variety of jobsites. Engineered from direct customer feedback, the JT24 is manufactured to effectively manoeuvre and traverse urban areas where much of the utility and rehabilitation work is happening today. The JT24 provides a 101 gross horsepower (75 kW), 3,000 ftlb (4,000 Nm) of torque and 24,000 lb (10.1 t) of thrust and pullback at a size that easily fits in tight jobsites. >

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Kondex Corp. for Drill Defender HDD Boring Bits – kondex.com

Submitted by Diane Riley, Marketing

Kondex Drill Defender HDD boring bits are revolutionising the life and steerability of underground horizontal directional drilling operations. This patent-pending line of HDD bits currently includes a variety of dirt bits and cobble bits that are compatible with both Ditch Witch and Vermeer machines. Their patent-pending laser cladding wear protection delivers superior life expectancy and better retains near net shape for greater overall steering and manoeuvrability.

Rehabilitation

Infrastructure Product Group for Spiral Wound Liner – ipgco.com

Submitted by Steve Dunlap, National Sales Director

Spiral Wound Liner is a product/system of rehabilitating culverts and pipes, trenchless. The profile is made of proprietary PVC. It is a massive cost saving rehabilitation process, due to it can be installed from the right a way, trenchless/No-Dig with little to no traffic control, the time it takes to complete a job and the cost of the product profile. Installed correctly with grouting, the life of the product is 60-70 years. It can be installed in wet conditions, 25% to 30% water flow, unlike most systems on the market today.

Omega Liner Company, Inc. for FR Series Powered Feed Rollers – omegauvpipe.com

Submitted by Jason Homrighaus, Technical Director

The Omega Liner Company FR series powered feed rollers are a new, patented approach to handling of larger or heavier liners. Available in 1,400 mm and 2,800 mm widths, these feed rollers provide effective and efficient handling of liners up to 72 in (1,830 mm) diameter. The highly compact, rugged and easily transported units use commonly available worksite generators >

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"I applaud NASTT for evaluating risk/reward and choosing to honour safety with masks and social distancing to minimise risk while recognising education is essential and face-to-face instructing is most effective."

for power. With onboard storage for power and control cables and a rugged aerospace aluminium chassis these units are built to handle the most extreme environments and demands.

Resinating LLP for Expand-In-Place Integration Technology – resinatingllc.com

Submitted by Calvin Cordulack, Director of Business Development

Expand-in-Place Integration Technology (EIPI), a breakthrough process for rehabilitating manholes and pipes using Resinating Fibreglass Expansion Liners, was awarded a patent in June 2020. By cutting a liner axially we are able to compress it so that it fits easily into a manhole or pipe where it is positioned and expanded against a bonding agent that has been applied to the substrate. The result is an integrated structure with a 100+ year useful life that is 100% leakproof, warrantied for 20 years, and is 50% to 100% stronger than the structure was when it was new.

Presentations about each product were made at the Innovative Products Forum at the 2021 NASTT No-Dig Show and are available online at talk-trenchless.nastt.org. Anctil commented: "I applaud NASTT for evaluating risk/reward and choosing to honour safety with masks and social distancing to minimise risk while recognising education is essential and face-to-face instructing is most effective."

To learn more about NASTT awards, visit nastt.org/awards.

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MAJOR INVESTMENT IN BUCHAREST'S THERMAL SYSTEM

Maria Nae, Project Manager, Trenchless Romania

The European Commission recently approved an investment of €216 million for the modernisation of the thermal energy transmission system in Bucharest, Romania. The investment comes from the Cohesion Fund, which aims to promote sustainable development in the Member States.

Bucharest's thermal energy transmission system is one of the largest in the world. It provides heat and hot water to more than 1.2 million people in the country's capital. Thanks to the investment, 212 km of pipeline, which is the equivalent of 106 km of transmission system, will be replaced to address the current problem of loss of resources. This is about 28% of generated heat lost between the source and the consumers.

Although coming after a difficult year, the Trenchless Romania team continues its mission to promote these technologies through all its communication channels. In this way, it supports the economic mission – INFRASTRUCTURE & SMART CITY – organised by the Austrian Embassy in Bucharest, Sibiu, Brașov and Alba Iulia, which provides four full days of round table discussions with local authorities empowering the vital role of using innovative technologies for infrastructure works.

"Moreover, an entire industry is looking forward to return to traditional conferences and events, with personal meetings without using digital screens and online platforms. I am extremely eager to see visitors again and I am glad to see that in this sector of events the restrictions are relaxing. I look forward to the NO-DIG LIVE event in the UK that will take place between 14 and16 September and will host the first European NO-DIG Conference and wish Paul, his Westrade team and UKSTT all the best for a successful event! Hoping that restrictions will relax even more, I assure you that we will make all the necessary steps so that between 19 and 20 October we will welcome you to the fifth event of the Trenchless Romania Conference & Exhibition in its classic formula, with a technical conference and outdoor exhibition, and of course, a joyful evening cocktail." said Maria Nae, Project Manager for Trenchless Romania.

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TRENCHLESS EXPERIENCES IN LATIN AMERICA

The use of trenchless technologies seeks to reduce social impact.

acueducto
AGUA, ALCANTARILLADO Y ASEO DE BOGOTÁ

Bogota Aqueduct and Sewerage Company, a 132-year-old organisation, and a pioneer in the use of trenchless technologies, seeks to reduce the environmental and mobility impacts produced by non-trenchless methods, by promoting trenchless technologies in a symposium organised by the Latin American Society for Trenchless Technology.

This extraordinary philanthropic work will help to ensure more than 2 million households, 11 million inhabitants have 99% drinking water and wastewater, and rainwater at 98.5%, through 17,000 km of networks.

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"This extraordinary philanthropic work will help to ensure more than 2 million households, 11 million inhabitants have 99% drinking water and wastewater, and rainwater at 98.5%, through 17,000 km of networks."

The process of implementation of Trenchless works began in 1984, but it was from 2000 that trenchless technologies of rehabilitation, replacement, and renovation were implemented. It has been consolidated with the incorporation of design and construction standards. Today there is under construction a pioneering project, with some 8.6 km of concrete pipe for drinking water within inner diameter of 1. 5 m being installed.

The specialist engineering department of the company carries out an internal training programme through master conferences in which the company's officials participate and to which the Society has been kindly invited. At The Society's request, the company has extended its programme to outside of the organisation presenting the standards and the works executed with trenchless technologies. No one better than the customer to tell their peers how they have successfully achieved the use of Trenchless technologies.

The 2-hour virtual symposium is scheduled for September 27, 2021, at 9 am Bogota time, to which all professionals and technicians from companies from all municipalities and capital cities of Central and South America are invited.

This event is integrated into the strategy of promotion and dissemination of Trenchless technologies of the Society. Simplicity and common sense, the Society's way of doing things.

By Arlex Toro Rodriguez

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EMPRESA DE ACUEDUCTO Y ALCANTARILLADO DE BOGOTA COMPARTE EXPERIENCIAS TRENCHLESS A SUS PARES EN LATINOAMERICA

El uso de tecnologías sin zanjas busca reducir el impacto social.

acueducto
AGUA, ALCANTARILLADO Y ASEO DE BOGOTÁ

Con más de 2 millones entre hogares y empresas como suscriptores, alrededor de 11 millones de habitantes (atiende más población que muchos países completos), cobertura de agua potable al 99%, aguas servidas y pluviales al 98.5% mediante 17.000 kilómetros de redes, esta empresa de 132 años, pioneros en el país en el empleo de tecnologías de punta que disminuyen los impactos ambientales y de movilidad producidos por las obras, ahora emprende una extraordinaria labor filantrópica de compartir sus experiencias trenchless con las empresas de Acueducto y Alcantarillado de América Latina mediante la promoción y divulgación de las tecnologías trenchless en un simposio organizado por nuestra sociedad. >

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"Este proceso de implementación de las obras Trenchless empezó en 1984, pero fue a partir del año 2000 que empezó a implementar las tecnologías Trenchless de rehabilitación, reemplazo y renovación. "

Este proceso de implementación de las obras Trenchless empezó en 1984, pero fue a partir del año 2000 que empezó a implementar las tecnologías Trenchless de rehabilitación, reemplazo y renovación. Se ha consolidado con la incorporación de las normas de diseño y construcción. Hoy se encuentra en construcción una de las obras pioneras en el país, con la hinca de 8.6 kilómetros de tubería de concreto para agua potable en diámetro interior de 1.5 metros.

La dirección de ingeniería especializada de empresa de acueducto y alcantarillado de Bogotá realiza un programa de capacitación interno mediante conferencias magistrales en la que participan los funcionarios de la empresa y a la que amablemente nos han invitado.

A solicitud nuestra, han extendido su programa al exterior de la organización presentando las normas y las obras ejecutadas con tecnologías trenchless. Nadie mejor que el cliente final sea el que les cuente a sus pares de otras empresas como han logrado exitosamente el uso de las tecnologías Trenchless, con sus dificultades y lecciones aprendidas que nos retroalimentan para ofrecerles siempre la mejor solución.

El simposio virtual de 2 horas está programado para el 27 de septiembre de 2021 a las 9am hora de Bogotá, al cual están invitados todos los profesionales y técnicos de las empresas de todos los municipios y ciudades capitales de centro y sur américa.

Este evento se integra a la estrategia de promoción y divulgación de las tecnologías Trenchless de nuestra organización.

Simplicidad y sentido común, nuestra forma de hacer las cosas.

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UKSTT

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HELLO FROM THE CHAIR

Dawn Greig, Chair, UKSTT

"In just a few short weeks the industry will finally be reunited at No-Dig Live."

The countdown is on! In just a few short weeks the industry will finally be reunited at No-Dig Live, I don't know about you but I am very excited. Imagine, on a personal level, how lovely it will be to reconnect face-to-face. It is interesting that people always say what a small industry it is and how everyone knows everyone, but for me there is so much comfort in that. No-Dig Live will be the meeting place for the entire trenchless family and there is a LOT of catching up to do!

So, aside from long-awaited hugs and fist bumps, what else will be going on? Well, the UKSTT has been working hard in the background to bring a big daily conference programme to the show. It is imperative to keep up with, and openly discuss, key topics, innovation, issues, successes and standards. Whilst we have been able to achieve this to a certain extent with online meetings and webinars, nothing really gets the grey matter stimulated as much as an in-person debate.

I am also very much looking forward to celebrating your successes at our Annual Awards & Gala Dinner. Whether you were shortlisted or not, or even if you did not get around to putting together a submission, this night is also for you! This has been a very challenging time for everyone, let us appreciate what we have all achieved, and enjoy one another's company.

There is so much to celebrate. We have not one, not two, but three UKSTT Lifetime Achievement Award recipients. It is such an honour to recognise the longevity and impact on the industry that these three very worthy winners have had. It is going to be emotional!

As you may have heard, it will be a Scottish themed evening (a totally democratic decision I promise), so expect lots of tartan and rousing live music from the Red Hot Chilli Pipers. The wonderful and extremely talented Rev. Richard Coles will be our after-dinner speaker and my co-host for the evening – what an incredible line up...

Get yer kilts oot folks, it'll be a braw nicht!

UKSTT AT NO-DIG LIVE 2021

An image from No-Dig Live 2018.

After 1½ years of limited contact what better way to celebrate coming together than at NO-DIG Live 2021! We are so excited to see everyone again and would like to invite you all to come and see us on Stand 22. We have a much larger networking area for anyone who wishes to catch up with clients, colleagues or friends or to just take the weight off your feet and enjoy a cream tea or 2! Lynn and Linda, as well as some familiar UKSTT Council members, will be on the stand ready to help in any way they can and would love to see you.

Westrade Group has been ramping up its preparations and No-Dig Live 2021 will see the largest indoor and outdoor exhibition area it has ever had. There will be the hugely popular live demonstrations for visitors to watch and take part in, all set in the 250-acre outside space that this unique venue offers. Registering your attendance could not be simpler, just follow this link https://wrs-ltd.com/wgl_ndl21_tvr101/

UKSTT has been working hard in the background to bring a big daily conference programme to the show and special thanks goes to Iain Naismith, Julian Britton, The Pipeline Industries Guild, organisers of the Euro Conference, Tom Sangster, Leon Woods and Scott Stone for their dedication in bringing this programme together. >

CONFERENCE PROGRAMME

Day 1 - Tuesday 14 September

10.00 Exhibition Open

10:00-12:00: Sewerage Solution Forum – Sponsored by Onsite

Location: Exhibition Hall Conference Suite

Moderator: Iain Naismith, PhD, Senior Research Fellow, IKT – Institute for Underground Infrastructure

Panel:
Mark Howells, Network Rail
Andrew Warren, Severn Trent Water
James Devereux, United Utilities
Julian Britton, Wessex Water
Tom Ogden, Yorkshire Water

The Sewerage Solutions Panel' session involves members of the Sewer Rehab Contact Group & UKSTT Patrons. The panel have identified four issues they are facing and have asked for existing or new solutions from UKSTT members and No-Dig Live exhibitors that can address them. Each topic will be introduced by a network owner and the solutions provided by UKSTT members & NO-DIG Live exhibitors will be presented during the session with one of the solutions selected by the panel to present in more detail in person on the day.

11:00-13:00 Green Alliance - The road to Net Zero

Location: Peterborough Suite

Moderators: Norman Howell & Ian Ramsey

The UKSTT and the Pipeline Industries Guild have joined forces to form The Green Alliance to explore, share and promote the industry's drive towards net zero and reduction in environmental impact.

Throughout the year The Green Alliance will be hosting a series of webinars leading up to a face-to-face seminar at No-Dig Live.

11:00-11.10: Introduction

11:10-11.45: Anglian Water – Meeting the Carbon Challenge – Case Studies

11:45-12:15: Hydrogen East – Hydrogen Economy within the East of England

12:15-12:45: ULC – Robotic Roadworks and Excavation System

Presenter: Dr Ali Asmari, RRES Project Engineering Lead, ULC Technologies

12.45 to 13.00: Closing Discussion >

13:30-16:30: UKSTT Pipejacking and Microtunneling Mini Masterclass

Location: Peterborough Suite

Introduction to Micro tunnelling & Pipe Jacking
Presenter: Steve MacKellar, Jacobs

Concrete Case Study
Presenter: Brien Curran, Ward & Burke

Clay Pipe Jack Case Study
Presenter: Simon Marsh, Allen Watson

GRP Jacking Pipes – Rome of curved Jacking Case Study
Presenter: Leon Woods, Amiblu

Werrington Network Rail Box
Presenter: Andy Robinson, Jacked Structures

14:00-16:00: Trenchless Training – Live onsite training hosted by JBP Trenchless Training

Location: Exhibition Hall Conference Suite

The course titled CIPP Design – Current practice focuses on the current Calculation and Design considerations for effective implementation of pipeline rehabilitation using CIPP methods. Those that will benefit by attending include Utilities, contractors, engineers, and technicians commissioning and managing rehabilitation projects.

The course will be delivered by Dr Dec Downey who has over 45 years' experience in water and wastewater pipeline construction and rehabilitation and is widely regarded as one of the pre-eminent experts in the application of trenchless methods and technologies. Dr Downey is a past Chairman of the International Society of Trenchless Technology and holds the ISTT Gold Medal for his contribution to our industry. He has also been recognised with a UKSTT Lifetime Achievement Award and the Japan Micro-Tunnelling Association's Kurose Prize.

Day 2 – Wednesday 15 September

1st European NO-DIG Conference sponsored by ISTT

Location: Peterborough Suite

Conference Chairman: Dr Dec Downey

UKSTT are delighted to announce the International Society for Trenchless Technology (ISTT) as the headline sponsor for the 1st European NO-DIG Conference.

This inaugural one-day conference will be a high-level technical conference focused on Rehabilitation Design for Pressure and Gravity Pipes. Each session will be opened with a Keynote paper from a leading industry expert. >

The morning session will cover presentations specific to Gravity Sewer Rehabilitation with presentations on gravity sewer liner design methods while the afternoon session will focus on Pressure Pipe Rehabilitation.

10:15-10:30 Welcome by Conference Chairman

10:30-13:00 SESSION 1 – GRAVITY SEWER REHABILITATION

10:30-11:20 Keynote Lecture – Gravity Sewer Liner Design
Presenter: Oliver Thépot, Eau De Paris

11:20-11:45 WRc Sewer Rehabilitation Manual – Key changes in Design Methodology
Presenter: Nick Orman, WRc, UK

11:45-12:10 External pressure tests on large diameter jacking pipe systems
Presenter: Högni Jónsson, Amiblu Technology

12:00-12:35 Real-time monitoring of UV lamps as requirement for controlled and protocolled curing of large diameter liner with big wall thickness
Presenter: Firmino Barbosa - RelineEurope, Germany

12:35-13:00 Questions & Discussion
Chairman

13:00-13:45 Lunch

13:45-15:50 SESSION 2 – PRESSURE PIPE REHABILITATION

13.45-14:35 Keynote Lecture – Pressure Pipe Rehabilitation
Presenter: John Gumbel, JG Pipeline, UK

14:35-15:00 Status Quo of the CIPP product standards for water & gas networks
Presenter: Ricky Selle, Selle Consult, Germany

15:00-15:25 Key design considerations for PE80 and PE100 pressure pipe liners
Presenter: Steve Brogden, Die Draw Ltd, UK

15:25-15:45 Questions & Discussion
Chairman

15:45-15:50 Closing Remarks
Chairman >

19.00-23.30 The UKSTT Gala Dinner & Awards Ceremony in Association with Westrade

Day 3 – Thursday 16 September

10:30-12:30 The Drilling Contractors Association (DCA)

The DCA is a technical association of the horizontal directional drilling (HDD) industry in Europe. The HDD method has established itself worldwide as a technical and economic alternative for the underlaying of obstacles in the field of pipeline laying. During No-Dig live Scott Stone will deliver a presentation focussing on the DCA as an organisation & will include some high-level case studies which will give a greater understanding as to what is possible with the application of HDD.

The session will include presentations from:

An Introduction to the Drilling Contractors Association (DCA) & the advantages of being affiliated to such an organisation – Scott Stone, Volker Trenchless Solutions

Optical Gyro Operation – Brownline

Mudd-Dry soil additive – SlimDril

UKSTT Gala Dinner & Awards Ceremony

Date: Wednesday 15 September

Time: 7pm

Venue: The Atrium Arena, East of England Arena, Peterborough, PE2 6XE

Dress Code: Black Tie Preferable

Following the success of the 2018 event, UKSTT is pleased to announce that its annual Gala Dinner and Awards Ceremony is once again taking place alongside No-Dig Live 2021 at the East of England Arena & Events Centre in Peterborough on the 15 September 2021.

This year's theme will have a Scottish influence and UKSTT is delighted to announce that the most famous bagpipe band on the planet the 'Red Hot Chilli Pipers' will be there to entertain throughout the evening.

Hosting the evening, alongside UKSTT's Chair Dawn Greig, will be the Reverend Richard Coles. There cannot be that many Church of England priests that can claim to have had a British Number 1 hit single which Richard Coles did as part of the successful pop duo the 'Communards'. It will be very interesting to hear how he went from pop star to priest! >

Get your team together, rally support and join everyone by booking a table to this prestigious event! Rejoice in your hard work and efforts throughout the year and applaud your fellow colleagues, as we take up the challenge to acclaim this event to be our best yet! To reserve a table, please contact Hollie Liddle at hliddle@westrade.co.uk.

UKSTT would like to say a massive thank to all of this year's Award sponsors including:

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UNITED KINGDOM SOCIETY FOR TRENCHLESS TECHNOLOGY






TRENCHLESS TECHNOLOGY

FOR THE INSTALLATION & REPAIR OF UNDERGROUND UTILITIES

Come and join us on stand 22 for a cream tea and relax in our new networking & lounge area.

UKSTT

UKSTT, Camden House, Warwick Road, Kenilworth, Warwickshire CV8 1TH United Kingdom
Tel: +44 (0)1926 513 773 Email: admin@ukstt.org.uk Web: www.ukstt.org.uk

EVENTS AND MEETINGS

2021

30-31 August 2021: Virtual Expo & Summit
2nd Edition of MENA Energy Meet
Details from: www.menaenergymeet.com

September 8 to 11: bauma CTT RUSSIA
Crocus Expo in Moscow
Details from: https://www.bauma.de/

September 13-15, 2021: Breakthroughs in Tunneling
University of Denver in Denver, Colorado
Details from: https://tunnelingshortcourse.com/registration/

September 14-16: No-Dig Live 2021
Peterborough, UK.
Details from: www.nodiglive.co.uk
Includes the UKSTT Gala Dinner and Awards Ceremony

September 15: UKSTT Gala Dinner & Awards Ceremony
Peterborough, UK. In conjunction with No-Dig Live 2021 Details from: www.nodiglive.co.uk

September 15: European No-Dig Conference
Peterborough, UK. In conjunction with No-Dig Live 2021 Details from: www.nodiglive.co.uk

September 15-18: Geofluid
Piacenza, Italy. Details from: www.geofluid.it

October 5-8: No-Dig Down Under
Sydney, Australia
Details from: www.nodigdownunder.com

October 7: No-Dig Roadshow 2021
Glasgow, Scotland.
Details from: www.nodigroadshows.co.uk

October 13-14: 8th NSTT No-Dig Event
Nijkerk, The Netherlands.
Details from: www.no-dig-event.com

November 2: Masterclass –Large Diameter Circular & Non-circular Rehabilitation

December 13-14: Trenchless Middle East 2021
Dubai, UAE.
Details from: www.trenchlessmiddleeast.com

2022

April: SAO Paulo No-Dig Show
Sao Paulo, Brazil. Details from: www.saopaulonodig.com.br

May 30-June 3: IFAT 2022
Munich, Germany.
Details from: https://www.ifat.de/en

June 17-24: North American Tunnelling Conference (NAT) 2022
Philadelphia, USA.
Details from: http://natconference.com/

July 27-28: Trenchless Asia 2022
Kuala Lumpur, Malaysia.
Details from: www.trenchlessasia.com

13-15 of September: No-Dig Live 2022
Peterborough, UK.
Details from: www.nodiglive.co.uk
Includes the UKSTT Gala Dinner and Awards Ceremony

October 3-5: No-Dig Helsinki 2022
Helsinki, Finland
Details from: www.nodighelsinki.com

October 24–30, 2022: bauma
Munich, Germany
Details from: www.bauma.de/

If you have an event, course or meeting scheduled and would like to add it to this listing please forward details to: editorial@trenchless-works.com

14-16 September 2021 East of England Arena & Events Centre, Peterborough

WELCOME TO NO-DIG LIVE

The last couple of years have been immensely challenging for so many people on so many levels. For that reason, we are more delighted than ever to be back at The East of England Showground for the biggest No-Dig Live ever to be staged. Those of you who have participated in the show before will know that No-Dig Live is a 'must attend' for anyone involved in the installation or refurbishment of underground utilities. For those of you that have not - you are in for a real treat!

Our expansive exhibition space is bigger than ever before and is jam packed with innovative companies displaying the very best in trenchless equipment and solutions. The diverse audience also provides an unrivalled opportunity to network with many of the sector's key stakeholders drawn from industry, government, and international trade associations.

Let us take a look at what is new for 2021! No-Dig Live prides itself on showcasing the innovation and creativity demonstrated by the trenchless community across the world. You will see from the conference programme 2021 will include several features designed to add value and increase the opportunity for meaningful engagement between exhibitors and visitors.

In particular I am pleased to see live onsite training feature strongly in the programme, with an introductory session for those with little or no experience on Pipe Jacking & Microtunnelling and a CIPP Design – Current practice. The course focuses on the current Calculation and Design considerations for effective implementation of pipeline rehabilitation using CIPP methods. Those that will benefit by attending include utilities, contractors, engineers and technicians commissioning and managing rehabilitation projects.

One of the constraints to the greater adoption of trenchless methods is the lack of awareness and detailed information and support of these systems for the engineering community. I have been privileged to be involved in training courses all over the word and have seen first hand the benefits and advantages to all parties it creates

Both of these courses are free of charge to attend and you can register by contacting Leigh Abbott – labbott@westrade.co.uk Tel: 01923 723990. A full house is expected, so if you have not already secured your place, register now.

The team at Westrade are always committed to adding value and finding ways to enhance the visitor experience sits proudly at the top of our agenda. Key to delivering this is the quality of our exhibition zones and we never cease to be amazed by the tremendous displays mounted by our exhibitors. This event is no exception and we are particularly excited by the live working demonstrations which will treat visitors to a wide-ranging programme of trenchless technologies in action.

Whether you work in utilities, water, sewerage, telecoms, electricity, oil and gas, government, city planning, civil engineering, R&D or one of our amazing trade associations No-Dig Live 2021 is an event you cannot afford to miss!

See you on the showground!

Paul Harwood, Managing Director, Westrade Group and Publisher, Trenchless Works

2021
NO-DIG LIVE

NO-DIG LIVE 2021

14th-16th September

East of England Arena & Events Centre, Peterborough, PE2 6XE

Featuring the UKSTT Gala Dinner & Awards Ceremony in association with Westrade

The UK industry's only live in-person event dedicated to trenchless technology

- The 15th biennial Trenchless Technology exhibition
- Live Outdoor Demonstrations
- Over 120 exhibiting companies in 2021
- Supported by UKSTT and their Patrons
- Featuring the UKSTT Gala Dinner & Awards Ceremony

Expert Lead Technical Sessions:

- 1st European NO-DIG Conference
- Sewerage Solutions Forum
- UKSTT Pipejacking and Micro Tunnelling Mini Masterclass
- Drilling Contractors Association Presentation
- Live onsite training hosted by JBP Trenchless Training

REGISTER TO ATTEND

For more details regarding exhibiting and sponsorship opportunities please contact: Gary King at gking@westrade.co.uk or Trevor Dorrell at tdorrell@westrade.co.uk or call +44 (0)1923 723990

The UKSTT Awards 2021

in Association with Westrade

UKSTT Gala Dinner & Awards Ceremony in Association with Westrade

Event date: Wednesday 15 September 2021

Limited number of tickets available.

Organised by WESTRADE GROUP LTD

Supported by UKSTT

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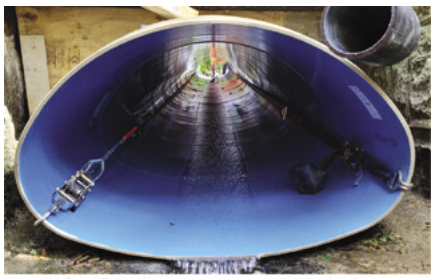

Courtesy of Steadline Ltd. A20 Kent NC-Line Structural Rehabilitation 2021


Courtesy of Matt Durbin Associates. Gypsy Patch Lane, Bristol Structural Rehabilitation 2021


Barhale Ltd. Waverley PS upgrade 1km pipe jack, Sheffield 2019

AMIBLU

Amiblu's history dates back to 1957 when the company's first GRP pipes were manufactured in Switzerland these became known as Hobas centrifugal cast pipes, 11 years later Flowtite filament wound pipes were created by Vera Fabrikker in Norway. Both names, Hobas and Flowtite became synonymous in the production of GRP pipes worldwide as separate brands and in 2017 Amiblu was formed to bring together the two market leaders.

Amiblu now leads the way in GRP pipe development and production for trenchless, open-cut and above ground pipe and storage systems. At No-Dig Live 2021 the team will be ready to show exhibition and conference visitors examples of its NC Line pipes for non-circular slip lining and structural rehabilitation and also its GRP jacking pipes, widely used for microtunnelling, pipe jacking and of course sliplining and structural rehab works too.

Amiblu's jacking pipes and circular and non-circular structural sliplining systems are installed the world over, with many benefits including high strength performance from light weight pipes, abrasion and corrosion resistance, optimal hydraulics, minimal maintenance and a remarkably long, design life exceeding 150 years offering both sustainable and resilient solutions to asset owners.

Come and say Hi to the team on Stand 30, who will be delighted to see you.

www.amiblu.com

ANGLIAN WATER

Come along to meet some of the top innovators working for Anglian Water @one Alliance and the Strategic Pipeline (SPA) Alliance.

Visitors can find out about the challenges we face in the region, namely maximising efficiency and safety whilst reducing carbon and our impact on the environment and communities we work in, and how we are changing the way we work to meet these challenges in AMP7 and beyond.

Come and see our evolving digital transformation programme where we are adopting the latest technology, both on site and during design, to keep our people safe, and our customers' needs and the growing demand for water met.

Our purpose is to bring environmental and social prosperity to the region we serve through our commitment to love every drop. So come over and find out how you can get involved in shaping the future of capital delivery in the water sector.

Together we build trust, do the right thing and are always exploring.

ANT HIRE SOLUTIONS

Ant Hire Solutions are the UK hire, sales and service partner for robotics manufacturer IMS Robotics GmbH. Since 2008, from our IMS Service and Repair facility based in Leeds, Ant Hire Solutions have built a solid reputation for outstanding service and support and prides itself on its range of IMS Robotic Cutting equipment available for hire or purchase.

Ant Hire Solutions will therefore be showcasing some of the latest in robotic cutting innovations from IMS Robotics Gmbh at No-Dig Live.

The Micro S series of robotic cutters are a new edition to the established Micro family. With an application range of DN75-250 coupled with an outer diameter of 60mm, the Micro S series offers increased flexibility in DN100 pipes.

The Drive Plus is the latest addition to the Drive family of cutters. Utilising the latest in CANBUS technology, the Drive Plus is a high performing cutter suitable for main sewers from DN150 to DN600 and offers:

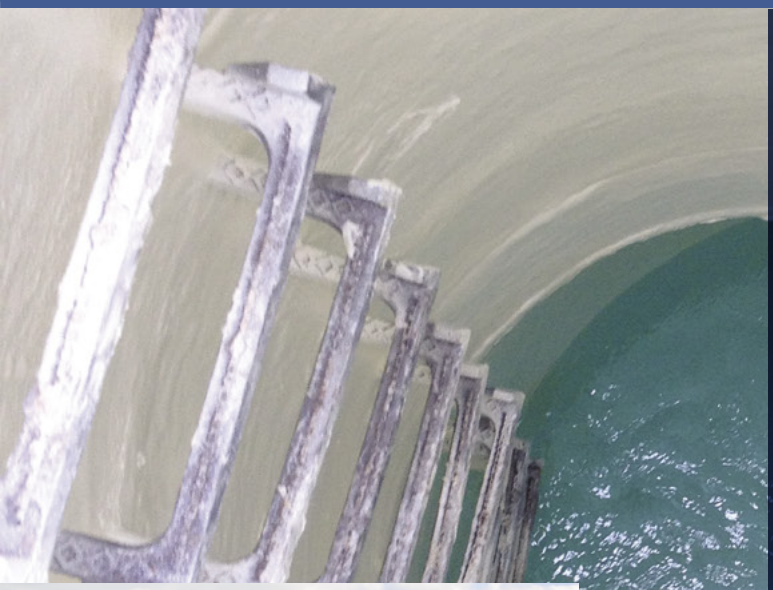
We will also be showcasing the well established DN80-250 Automatic Plus and DN150-400 Drive 2 robotic cutting systems with many already supplied into the UK market.

ATLAS WINCH & HOIST SERVICES LTD

Atlas Winch & Hoist Services Ltd is a winch expert and specialist supplier of an extensive range of winches, lifting equipment and cabling equipment for the Utility, Marine, Construction and Civil Engineering sectors. Offering hire, sales, maintenance, inspection, testing and training services, Atlas serves the whole of the UK and beyond through its offices in Scotland and the South of England. The company's extensive stocks and market knowledge means it can find the best solution to meet customer's budget and timescale.

Atlas will be on outdoor Stand No. 34 where it will be exhibiting some of its cable and pipe pulling equipment. Visitors will see a variety of cable and pipe pulling winches, portable and trailer mounted capstans, cable pushing and blowing machines, cable drum trailers, cable drum jacks and a selection of the cable accessories and duct proving equipment that are available for hire and sale.

Atlas will also be showcasing its new A10 Data-logger unit, a cost-effective aftermarket solution for the now obsolete and unsupported PC110 and PC210 Data-logger units fitted to many Grundowinches. Come and talk to the company's experienced staff for advice and to see how Atlas can help your next project.



BUCKHURST PLANT HIRE

Buckhurst Plant Hire are looking forward to exhibiting once again at the 2021 No-Dig Live event down in the Peterborough showgrounds.

Buckhurst will be there demonstrating their Pipeline Rehabilitation services as well as showcasing a range of utility installation equipment including the new Autoclamp Utility Trailer, Winches and Cable Drum Trailers.

Peter Cheers who heads up the Specialist Utility Division at Buckhurst says "We're really excited to be able to show people our latest kit, particularly our spray lining equipment, which applies our uniquely developed blends of resin to rehabilitate, protect and prolong vital asset life." Peter, continues by saying "We've also invested a lot of money into upgrading our fleet in the last 18 months, so we have plenty of new machinery and equipment available to offer our customers."

Buckhurst will be giving away three fire pits as part of a show competition, so make sure you drop by their stand to enter the draw, grab a cuppa and have a chat. You'll find Buckhurst outside on stand 47.

www.buckhurstplanthire.co.uk

CHANNELINE INTERNATIONAL

Large diameter pipelines and culverts represent the backbone of any city's utility network for the collection and disposal of sewerage and effective drainage of stormwater. In many cases the fabric of these pipelines, which may consist of brick, stone, concrete or clayware will have been constructed decades ago and although proven resilient, has eventually succumbed to the ravages of time, suffering the effects of H_2S attack or erosion and may even be exhibiting signs of imminent failure due to structural loading beyond that of its remaining capability. At this point the need arises to consider the means by which the structural rehabilitation of these pipelines and ducts can be achieved whereby a new, 100-years plus life expectancy can be provided with a high degree of confidence. Channeline international has been providing bespoke Structural Glass Reinforced Plastic (GRP / FRP) lining systems since the early 1980's, during which time it has accumulated unrivaled engineering and manufacturing experience for both Circular and Non-circular buried infrastructure worldwide. At Channeline, there is pride in its heritage and it is committed to offering economic custom solutions to existing and future customers in the Storm and Wastewater Sectors.

C J KELLY INTERNATIONAL LIMITED

On stand 113 at NO-DIG 2021, C J Kelly International Limited are launching several new and innovative products. We will have the latest innovations from Picote, including the Picote Midi Cleaner and Picote's recently WRC-approved pipe coating system for small diameter pipes. For the first time, we will be showing the battery-powered Picote range of Millers specifically designed for those projects where a power supply is not accessible. Our range of lining inversion drums and cannons will be available for your inspection. Also, for the first time, we will be exhibiting the latest House Liner system from Sac Pro, Brawoliner DN200-300, our new Multi-Kit Pipe Repair System as well as products from MC Building Chemicals and Harke.

C.SCOPE INTERNATIONAL LTD

Established over 40 years ago, C.Scope International Ltd is a UK company specialising in the design, development, manufacture and supply of Underground Pipe and Cable Location equipment to the national utility providers of Gas, Power, Water and Telecommunications, as well as for companies providing engineering services for building and highways construction, railways and groundworks.

C.Scope's aim is to provide proven quality products combined with the very highest standard of support service to ensure that customers can excavate around and to underground pipes and cables more safely, more quickly and more cost effectively. At No-Dig Live, C.Scope will be particularly promoting its SGV4 and MXT4 Signal Generators that are unique in having full data-logging capability. These C.Scope Signal Generators complement their XL4 range of data-logging Cable Avoidance Tools meaning that, for the first time ever, customers will now have available to them complete monitoring and an audit trail of all of their staff's cable avoidance activities, rather than a record of the Cable Locators usage alone.

C.Scope staff at No-Dig Live can explain how this data-logging monitoring of both products can be fully utilised to prove that the correct pipe and cable detection and avoidance processes have been used on-site every time, to fully assess operator behaviour and to identify potential training requirements. The same data-logging features on C.Scope Signal Generators and Cable Avoidance Tools also captures their Automatic Daily Self-Testing safety feature that confirms that these units are fully functional before use each and every day that they are needed.

Please visit C.Scope on Stand 129 at No-Dig Live 2021 and talk to C.Scopes vastly experienced staff.

DART SYSTEMS LTD

Inspection Camera specialist, Dart Systems Ltd, will be exhibiting its main line push rod Camera System DartEye2 at No-Dig Live 2021 which complements its extensive range of Inspection Cameras, Suitable for use in pipes from 4" upwards the new system incorporates significant upgrades and improvements in performance.

The DartEye2 incorporates a 10" full sunlight readable display housed in a rugged, fully water-sealed case, ensuring that whatever the English weather throws at it, the image on the screen will be viewable and protected.

The system is also available with 54mm and 36mm fully sealed Self Levelling Camera Heads.

The system incorporates a built in 33KHz fully locatable Sonde at the camera head with European Camera modules sealed behind a sapphire glass lens, which is designed to withstand the harsh environments that it is expected to live in.

A new self-levelling camera head will also be launched at the show complimenting the 25mm fixed view head currently available for the Mini DartEye, the new 26mm self-levelling camera head will add to this unit's functionality.

Dart Systems will also be demonstrating a full range of RIDGID® Drain Cleaning tools and Drain Inspection Cameras including the new range of FlexShafts.

DCR

DCR is home to the UK's largest fleet of drain cameras for hire, as well as the revolutionary access cover seal breaker, the ManUp Key. Providing organisations with access to the latest underground and no-dig repair technology, we help our clients to diversify their offerings, become more efficient, and to grow.

The ManUp Key range is comprised of tools and accessories leveraging a patented slide-hammer in order to break the seal of stuck manhole and access covers. Research undertaken in partnership with a third party user of the key revealed that it was able to beak the seal of 95% of stuck access covers re-sulting in significant savings and quicker turnarounds.

Recently added to the ManUp Key range, the ManUp Lifter is built to last a lifetime. This modular lifting key has been designed to lift heavy covers, with its interchangeable tips and clips the only com-ponents that will ever need to be replaced.

Over the years, DCR have provided customers with a consistently exceptional service. Our hire fleet grows by the day and new, innovative tools are being added to the ManUp Key range.

Visit www.draincamerarepairs.co.uk and www.manupkey.uk to find out more.

DITCH WITCH U.K. & IRELAND

Ditch Witch U.K. & Ireland (Outside Stand 13), has been supporting the trenchless industry's for over 35 years and is proud to be a 4th Generation family-owned company that supplies market leading Trenchless Equipment.

At this year's No-Dig Live the company will have on display the revolutionary 'All Terrain' drills that are big on rock performance and the next generation of HDD units. These units have the availability to bore through a wide variety of ground conditions, from dirt all the way to solid rock.

Also, on display the American Augers DD-110 Directional Drill is big on power getting the most productivity and reliability from your mid-size and maxi rigs, with minimum downtime.

In addition to the exciting range of equipment listed above, visitors will get the opportunity to view the industries, first HDD VR Training Simulator by Ditch Witch. It takes training to the next level by allowing operators to familiarise themselves with HDD equipment and experience a realistic jobsite without the potential risks of putting a novice operator in a complex environment.

The company will also be showing a variety of HDD Tooling, HDD Guidance Systems, Drilling Fluids, Vibratory Ploughs, Mini-Skid Steers & Walk-Behind Trenchers.

GF PIPING SYSTEMS

GF Piping Systems is the leading flow solutions provider worldwide, enabling the safe and sustainable transport of fluids. We specialise in plastic piping systems and system solutions and services in all project phases. Our experts will be showcasing our latest developments and innovations at Stand 43.

Find out how to protect your water distribution network from excess pressure and reduce leakage rates and pipe bursts with the new NeoFlow state-of-the-art technology for pressure management. NeoFlow prevents your pipes over-pressurising whilst delivering accurate, stable flow, and increased flow capacity to utilities.

Our WAGA Fittings are renowned as being the best jointing technology for gas and water applications for both above and below ground. Since 1957, the extensive product range is used globally for transport lines, distribution lines, house connections and service lines. With our non-destructive testing (NDT) ultrasonic technology, we offer the highest quality control to ensure highest safety and quality of the weld area.

GF Piping Systems is a division of Georg Fischer AG, which was founded in 1802, and is headquartered in Schaffhausen, Switzerland.

With sales companies in 31 countries, and 36 production sites we are always by our customers' side to ensure sufficient availability and quick, reliable delivery.

Amiblu®

Pipes designed for generations

Amiblu NC Line

Non-circular pipe profiles in all shapes and sizes

- Sustainable rehabilitation of urban pipe networks
- Open cut and trenchless installation
- Excellent structural stability
- Increased acid resistance
- Asset lifetime 150 years+

www.amiblu.com
united.kingdom@amiblu.com
Tel: +44 7786 013574

INNOVEX

Innovex are revolutionising the utilities industry as they pioneer Trenchless Technology Pipe Pushers and PE Pipe handling equipment in the UK and the USA.

Only recently one of their key clients pushed a total of 14,500kg through an existing main via the single excavation point. Utilising the innovative Innovex 800 - the onsite team completed a complex installation of 252 metres of 630mm PE Gas pipe.

Their state of the art pipe pushers remove the need to excavate metres of trenches. This is particularly important when excavating in pedestrianised and built-up areas, where open trenches can present extra health & safety hazards.

Using their trailblazing technology, it is now possible to push pipes via a single excavated access point on the pipeline.

Innovex Pipe Pushers have caused a lot of excitement in the industry. Not only does their equipment allow for a safer installation, but it also dramatically cuts down on time, whilst saving money.

Innovex are excited to invite you to their exhibition stand 15 at the No-Dig Live 2021 show, where they will be happy to discuss how their technology can help you with your latest projects.

IPEK

iPEK has a full array of Products on its Outside Stand 30, ROVION Mobile and Mainline Crawler Systems, AGILIOS Push Rod (ROVION & AGILIOS also available in ATEX Zone 1), Xpection Lite Camera for jetter's, QuickView Air HD Pole camera, fully equipped demonstration vehicles (Crafter and Transporter) showing the versatility of the iPEK systems and the launch of the NEW ROVION SAT II lateral launch system.

The new lateral launch crawler allows customers to traverse steep pipe inclines with ease, which previously posed challenges for the team.

"We are constantly trying to climb hills with our equipment, which we used to find really difficult." said Jason Auge, CCTV specialist and 13-year-veteran. "Since purchasing the SAT II systems, we are doing it effortlessly. The biggest differences we've noticed with this system are the improved climbing capability and push power. With 8-wheel drive instead of six and the new belt drive, it has made a big difference. With a SAT II system in each of its three inspection vehicles, we have already seen an improvement in productivity."

JETCHEM & SUPERJET

Jetchem and Superjet (outdoor stand stand 17) are market leaders in the water jetting industry operating the UK's largest fleet of high and ultra-high pressure water jetting machines and equipment, for both sale and hire. At this years No-Dig show the companies are excited to be showcasing several new products which have been in development. Firstly, is the brand new all electric pack along with the new stage 5 jetting pack, which have both been designed to conform with the recent emissions regulations. The new PTO driven jetting pack and inline pack will be available for viewing and the very popular petrol jetter will be demonstrating a range of jetting accessories throughout the show. Jetchem/Superjet will be conducting live demonstrations of our concrete cutting machine and flood monitor system, both of which have been widely used across the UK. A brand new tracked remote reel will also be on the stand for visitors to control via the remote system.

LANES GROUP PLC

Drainage and wastewater utility specialist Lanes Group plc (indoor stand 114 and outdoor stand 28) is showcasing the full breadth of its service offering at No-Dig Live 2021.

This includes the ability to complete the most challenging pipe lining projects and new centralised CCTV data processing that delivers fast and consistent drainage survey reporting.

Lanes Sewer Renovation and Lining Division Business Development Manager Paul Matthews said: "We are looking forward to meeting industry colleagues face-to-face at No-Dig Live once again. The complexity and scope of many major sewer and pipe projects means partnership working and sharing of expertise is vital and we will be using the exhibition to build on our close supply chain relationships and develop new ones."

Lanes has more than 25 years of experiencing using cured in place pipe (CIPP) lining to renovate pipe systems and has one of the most modern ultra violet CIPP systems in the UK.

The company will also be showcasing its full range of services and expertise. That includes the latest and most powerful jet vac tanker technology and use of the Cloud to accelerate CCTV survey processing.

MAMMOTH EQUIPMENT LTD

Mammoth Equipment Ltd the supplier of leading No-Dig equipment for the installation of pipes, ducts and cables below ground is pleased to be showing its latest equipment at this years No-Dig Live exhibition. On its indoor stand 20B Mammoth will highlight the latest equipment from Hammerhead® including Moles, Mini-Pilers, Rammers and bursting equipment. To compliment the range of service moles up to and including 75mm, the latest Rotair® compact high-performance compressor will be displayed which offers the performance of a wheeled compressor with the need to tow it behind a van.

New to the UK market, Mammoth will be introducing the Hammerhead® SLX1300 Pipe Extraction System which uses Same Path™ Technology to remove existing ½ in to 1½ in (10 mm to 38 mm) steel gas services from the ground and replacing these with MDPE pipe.

The Mammoth team and representatives of Hammerhead will be on stand and would welcome the opportunity to see visitors there to share their thoughts on the equipment and discuss any requirements they may have over a drink and a snack.

MBW EUROPE

MBW Europe (indoor stand 125) will be showcasing the Soil Pick complete with all the available accessories. Over the years this tool has become the excavation tool of choice for many utility contractors. It has been designed to loosen the soil safely when excavating around pipes and cables. It utilises a high-speed stream of compressed air so it can be used safely to expose buried pipes, cables and tree root structures without damage. The Soil Pick can also help to reduce Hand/Arm vibration and the risk of injury from cable strikes.

In addition to the standard unit there are a number of accessories to support the use of the Soil Pick. There are a range of different extension barrels for use in deeper excavations along with angled barrels to enable the operator to loosen material from under and around services. The latest addition to the accessories is a water attachment, this allows the Soil Pick to be used as a pressure washer to clean the work area once the job is complete.

TRENCHLESS MIDDLE EAST 2021

12th International Exhibition and Conference
Festival Arena by InterContinental, Festival City, Dubai, UAE
13-14 December

Trenchless Middle East 2021 returns to Dubai for its twelfth popular event, focusing entirely on trenchless technology (NDRC) in the Middle East, and North Africa (MENA) regions.

With megaprojects continuously being planned from Municipalities, authorities and developers, Dubai continues to host some of the most ambitious projects in the world.

Although the latest global crises are adding challenges to their implementation across the construction sector, the use of Trenchless Technology in infrastructure projects continues at a pace across the Middle East. These projects, across the GCC, are vital to progress economic diversification plans.

2021 will also see Dubai host the first World Expo to take place in MENA & SA region.

To be seen amongst the world's leading providers who have already signed up to participate in this prominent event and showcase your innovations, book a stand at the Trenchless Middle East 2021.

Exhibition

- Exhibiting at Trenchless Middle East 2021 is a smart investment
- The only dedicated conference & exhibition focusing entirely on Trenchless Technology
- The longest running Trenchless Technology event in the UAE, the GCC and MENA regions
- Join over 100 exhibiting companies
- Showcase your innovation to key industry figures
- 20 countries represented
- Officially supported by ISTT

Contact: Paul Harwood or Stuart Hillyard

Email: pharwood@westrade.co.uk or shillyard@westrade.co.uk Telephone: +44 (0)1923 723990

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www.trenchlessmiddleeast.com

MCALLISTER

McAllister are one of the leading providers of trenchless or No-Dig services in the UK and Ireland from offering services such as CCTV surveys, CIPP, guided augerboring, pipejacking through to civils and shaft sinking.

Our extended portfolio of services is offered to Utility, Construction, industrial, commercial and residential customers across Great Britain and Ireland. Our core business remains as:

- CCTV, Line and Level, Manhole Surveys
- Pipe cleaning
- Tankering / Flow Management
- GPS mapping
- Pipe (gravity and pressure) and manhole rehabilitation
- Civils (excavations, guided augerboring, pipe jacking, directional drill etc)
- GRP segmental lining

Always offering customers the most comprehensive, cost effective and innovative repair solutions.

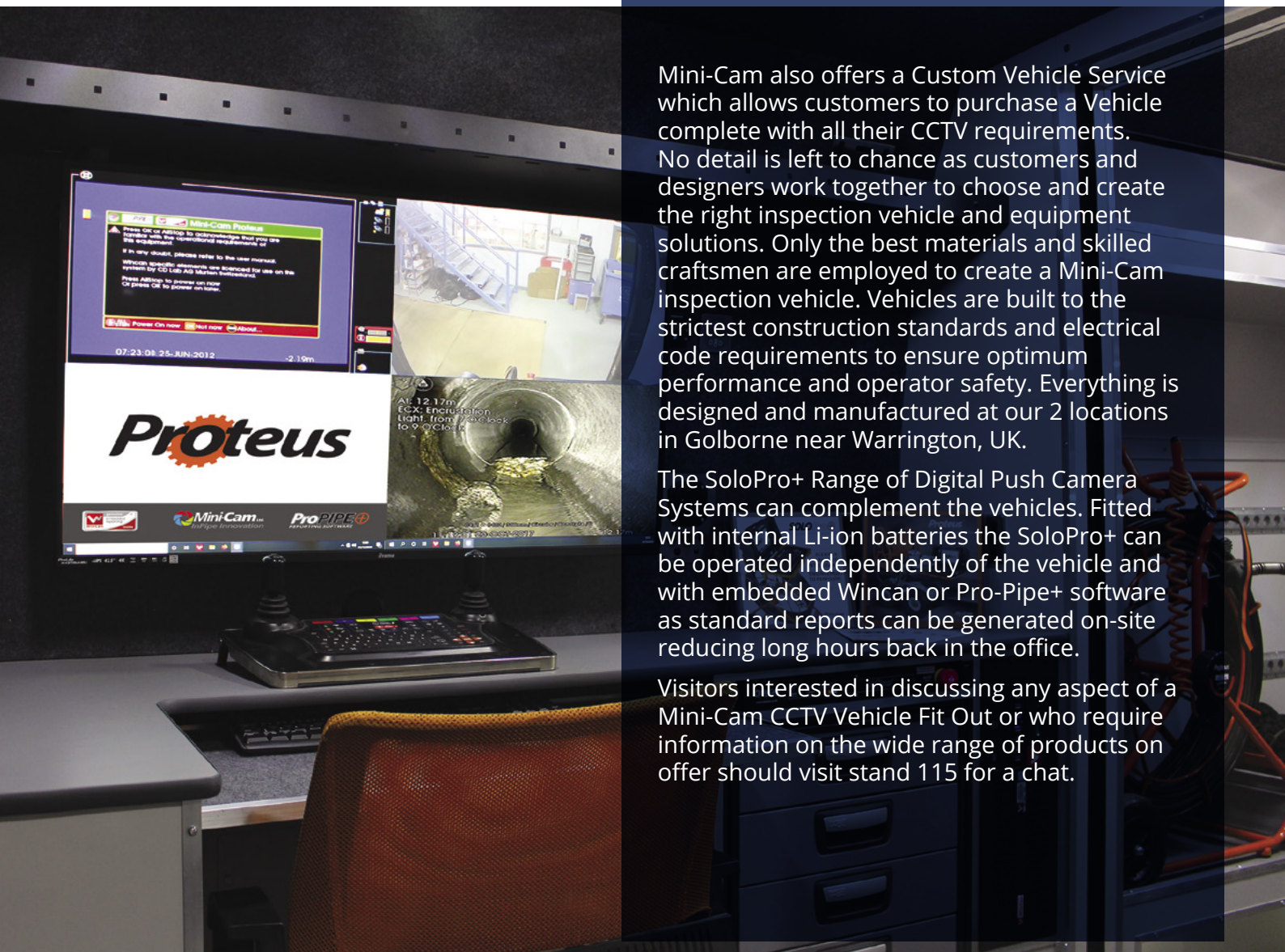
As the company is celebrates its 50th year in 2021, we continue to strive forward responding to the demands of our clients and their customers and reacting to the dynamics of the marketplace. We plan to continue to ensure that we remain at the forefront of the industry as a specialist supplier of environmental services through continued investment, risk-taking, innovativeness and our ability to deliver consistently for customers.

We are delighted to be at No-Dig Live for the 6th consecutive show. We are looking forward to catching up with our existing clients and just as important, meeting up with new ones. If we have not met, please come and see us on stand 103 (inside) and see what we have to offer.

MINI-CAM LTD

MINI-CAM Ltd is one of the largest and most respected Push Rod & Crawler system manufacturers in the UK. Its mission statement is 'to produce durable, quality equipment, at an affordable price with the emphasis on being 'User-Friendly".

With nearly 30 years of manufacturing camera inspection systems the company has become a very strong player in the UK market. Greg Guest commented: "Here at Mini-Cam we listen to the needs of our customers, our design skills, techniques and attention to detail are what have made us the market leaders in the UK. The quality of build and engineering combined with customer satisfaction is what we base our reputation on. "



Mini-Cam also offers a Custom Vehicle Service which allows customers to purchase a Vehicle complete with all their CCTV requirements. No detail is left to chance as customers and designers work together to choose and create the right inspection vehicle and equipment solutions. Only the best materials and skilled craftsmen are employed to create a Mini-Cam inspection vehicle. Vehicles are built to the strictest construction standards and electrical code requirements to ensure optimum performance and operator safety. Everything is designed and manufactured at our 2 locations in Golborne near Warrington, UK.

The SoloPro+ Range of Digital Push Camera Systems can complement the vehicles. Fitted with internal Li-ion batteries the SoloPro+ can be operated independently of the vehicle and with embedded Wincan or Pro-Pipe+ software as standard reports can be generated on-site reducing long hours back in the office.

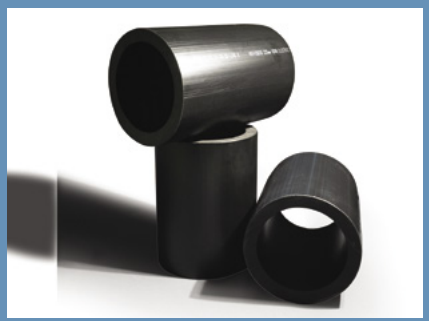
Visitors interested in discussing any aspect of a Mini-Cam CCTV Vehicle Fit Out or who require information on the wide range of products on offer should visit stand 115 for a chat.

MTS SUCTION SYSTEMS UK LTD

MTS Suction Systems UK Ltd the supplier of the UK markets No1 DINO Suction Excavation Equipment is pleased to be exhibiting the latest DINO equipment at this years No-Dig Live show. On show on its indoor stand 20A will be a twin 900 mm fan DINO12 unit mounted to a VOLVO 8x4 Tridem. This is the workhorse of the suction excavation market featuring MTS twin 900 mm Turbines, Hydraulic Power Arm and the latest developments in MTS electronic system control systems via operator-friendly, large Seimens touch screen in the control cabinet.

Clients can also see the patented MTS cyclonic air flow system featuring automatic air blast inline filter cleaning system that maintains air flow and removes the need for time consuming filter cleaning cycles prior to spoil tipping. This system also enables MTS to offer industry leading load/balance characteristics as well as increased spoil tank capacity, the latter enabling clients to suck for longer between tipping operations.

The MTS team from both the UK and Germany will be on stand and would welcome the opportunity to see visitors to share their thoughts on the equipment and discuss any requirements they may have over a drink and a snack.



NAYLOR DRAINAGE

The trenchless market has been a key area of development for Naylor over the years, and is eager to showcase its range of trenchless products at this years No-Dig Live event.

Naylor Drainage will be jointly exhibiting with its bespoke extrusion's sister company, Naylor Specialist Plastics 'NSP'. NSP holds an impressive 10 extrusion lines at its manufacturing plant in Tipton, with the current capability to manufacture diameters up to 315 mm with further expansion plans to increase the size range by way of continued group investment. The vast product range allows flexibility to manufacture in different materials from Polyethylene, Polypropylene and ABS, in both reprocessed and Virgin grade material in a multitude of colours. NSP's 10 extrusion lines are fitted with state of the art in-line printers that allow them to tailor print each pipe to their client's requirements. Having this manufacturing flexibility has allowed NSP to develop a range of High Grade PE100 Virgin pipes suitable for the Horizontal Direction Drilling (HDD) industry, suitable for the most rigorous of installations.

NORDITUBE TECHNOLOGIES SE

NordiTube Technologies SE and his Hungarian installation partner Agriapipe Kft won the biggest single water pipe rehabilitation project for our company in 2021. The projects will be finished within the next half year and 5,5km of DN 400 AC water pipe running from a treatment plant to a lake will be rehabilitated with 6km of NordiTube's Class A Pressure Liner System NORDIFLOW. 50% of the lining has installation lengths >250m and will be done with the NORDIFLOW pull-in while the other 50% will done with the inversion system. The digging of the needed installation pits is starting mid of August and the CCTV inspection will follow.

This was an international tender and NordiTube's expertise together with the fully independent Class A NORDIFLOW which gives 100% vacuum resistance and keeps the maximum flow capacity- together with a very competitive price made the final decision for the end customer easy.

As NordiTube Technologies SE is already actively working with the NORDIFLOW liner system in the UK Market to rehabilitate pressure sewer rising mains together with OnSite from East Challow as installation partner the next step will be to get the DWI Approval to work on the water mains in the UK too.

Please visit us on the No-Dig Live UK in Peterborough on indoor booth 41 from September 14.-16th.

ONSITE

Established in 1977, OnSite is part of SSI Services (UK) Ltd, a division of South Staffordshire Plc and, as a result of a sustained growth via; strategic acquisition, organic expansion and internal integration have become one of the UK's leading providers of specialist contracting services.

As part of this capability, OnSite retains a dedicated sewer rehabilitation division and have over forty years' experience in the Cured in Place Pipe (CIPP) and Cured in Place Repair (CIPR) of sewers, drains and culverts, nationally and internationally utilising a variety of techniques.

Drawing on unrivalled experience, coupled with specialist equipment and highly skilled personnel, OnSite has a proven track record in the successful delivery of projects and contracts across a broad spectrum of market sectors; including some of the most demanding industrial environments.

Come and see our friendly and knowledgeable team at stand 19 in the indoor arena at No-Dig Live 2021 where we will be showcasing; some of our recent large diameter sewer lining installations, specialist pressure (rising) main liners and the Aqualiner - fully structural pipe renewal lining process.

PIPEHAWK PLC

With Innovation as its heart and technology running through its veins, Pipehawk plc is a dynamic and growing multi-faceted group of UK companies. Each a specialist in its own field yet bound together by a common purpose. Our group commercial strategy is one focused on Research & Development and with many years providing technology solutions to the Highways, Construction, Automotive, Rail and Aerospace sectors behind us. The results of our endeavours may be found in use around the world.

Representing PipeHawk plc on stand 91 at No-Dig Live, our Technology division, alongside the Group's newest addition Utsi Electronics Ltd will be displaying a selection from its extensive range of Ground Penetrating Radar products including under our Groundvue brand, the new UP41000: An integrated 4 channel system for layered surface assessment such as asphalt, concrete etc. Also making its debut at the show under our PipeHawk brand will be the new UP400 antenna for use with our globally popular e-Safe range of Service avoidance tools. We shall also be featuring hands-on demonstrations of our new UP6000 High Frequency handheld GPR for close quarter material assessment, while outdoors will be demonstrations and hands-on opportunities to try the Groundvue Trivue system.

PLOWMAN CRAVEN

As one of the largest surveying companies in the UK, Plowman Craven has spent more than 50 years providing the certainty needed to build, manage and maintain the commercial properties, infrastructure and assets that form the back bone of Britain. We're not just a survey company. We measure and scan. We survey and record. We model and monitor. We interpret and advise.

Our specialist in-house utility survey division uses the latest innovative technology and tracing methods to offer a wide range of utility mapping solutions – tracing, identifying and mapping all utilities and services routes including gas, water, telecommunications, electricity and drainage.

Working nationwide our Utilities team is involved in a variety of survey projects, from pinpointing the exact location of underground services to undertaking line and level surveys in sewers, river culverts, cable tunnels and on rail infrastructure. Our Utilities Mapping Services include PAS128 Utility Mapping, CCTV Condition Surveys, Plant Avoidance Surveys, Line & Level Surveys, Geophysical Surveys, Gyroscopic Mapping Surveys and Statutory Record Searches.

We look forward to meeting you at No-Dig Live 2021. Visit us on Stand 29 to discuss your next Utility Mapping requirement.

PUBLIC SEWER SERVICES

Public Sewer Services (Indoor stands 77 and 121 and Outdoor Stand 59) has specialised in trenchless solutions for over 30 years. Its speciality services include collapsed sewers and pipelines, leaking sewers, displaced and offset joints, failed pitch fibre pipes as well as the upsizing of pipes as well as works to pipelines that are difficult to access and excavate. These non-invasive services avoid the digging up of roads, driveways and gardens which has minimal disruption for our customers, is better for the environment, faster and at a reduced cost.

At No-Dig Live 2021, PSS will be at the exhibition, showcasing its trenchless services such as Pipe Bursting, CIPP Lining, Slip Lining, UV Lining, Pitch Fibre Re-rounding, Impact Moling, Auger Boring and Directional Drilling. The company will also be introducing the latest additions to its catalogue of trenchless operations equipment for the installation and renovation of the multitude of pipe materials available.

Public Sewer Services is proud to be the first UK licenced installer for C-shaped Compact Pipe, as well as one of the few companies within the UK to be authorised specialist installers for Primus line.

We invite you to visit us at No-Dig live 2021.

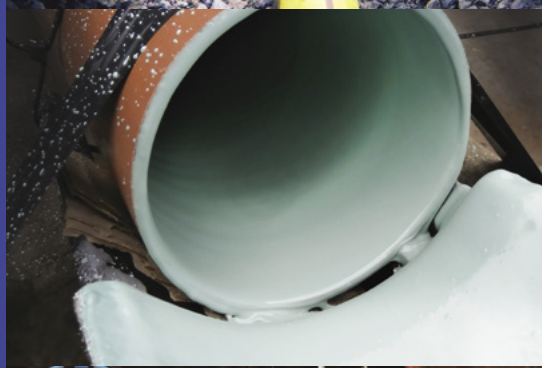
RADIUS SUBTERRA

Radius Subterra will be displaying a full range of pipeline products and services! Subterra will be showcasing a full range of pipeline engineering solutions, including PE liners for pipe relining using no-dig installation, spray lining from Radius Systems for pipe rehabilitation, Tier One service products, and much more. Representatives from both Radius Subterra and Radius Systems will be ready to answer any visitor questions, perhaps whilst having a coffee, so come and say hello!

Subterra, has a proven track record in high-quality pipeline engineering solutions, pipe rehabilitation and protection. It offers unique, innovative and cost-effective technologies for water, wastewater, oil and gas networks, from start to finish of a project's lifecycle.

The company's engineers and technicians are experts in their field, with the right competencies and know-how to carry out live pipeline engineering and face non-standard challenges. It works closely with customers and carefully considers all aspects of pipeline works to ensure a quick and efficient return to service, reducing disruption to the public as well as the surrounding environment.

Subterra's range of innovative lining and coating technologies are designed to treat both corrosion and structural damage, which allows it to assess and engineer enduring, effective solutions to protect your pipeline infrastructure.



RÄDLINGER PRIMUS LINE

All over the world, Primus Line® (stand Indoor 2) is used to rehabilitate critical pipeline infrastructure safely, in the long term and, above all, in a trenchless manner. This year, the company from Germany with five international locations celebrates its anniversary.

Some 25 years ago, in 1996, the idea was born for a kind of 'super hose' that is pulled into aging pipelines for the rehabilitation of pressure pipelines. However, five years of intensive development work passed from idea to finished product and foundation of the company.

Today, the staying power of the family-owned company is paying off. In the meantime, Primus Line® has been installed in more than 50 countries. Around the globe, network operators, water utilities and administrations are facing the challenge of an aging pipeline infrastructure. At the same time, the environmentally friendly and CO_2 saving technology Primus Line® meets the spirit of the times in terms of sustainability and environmental protection.

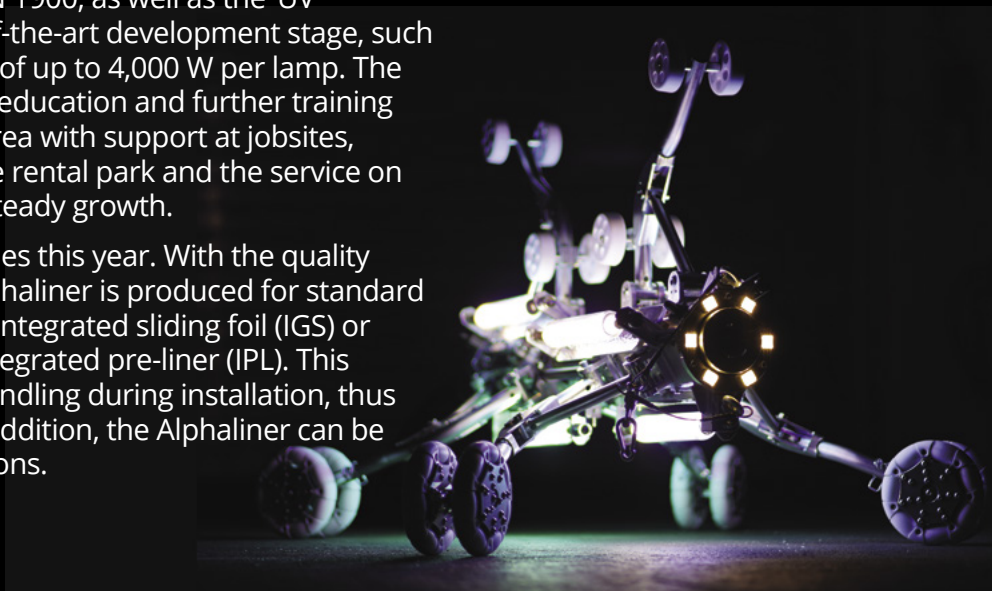
Initially developed for the technically challenging gas market, Primus Line next entered the water market, which involves many certifications. In 2015, the oil market followed.

The technology scores as a tailor-made solution with low intervention and impact on the environment associated with the installation. Lines up to 2,500 m through nature reserves or inner cities and under traffic routes or rivers can be renewed and maintained for at least another 50 years. Primus Line® can also be laid above ground.

RELINE UV GROUP

The focus of the RELINE UV Group (Stand No 89) is to offer individual system solutions to international users from a single source offering 'UV light-curing glass-fiber-reinforced liners for trenchless rehabilitation of wastewater and potable water lines' with a wide application range from DN 150 to DN 1900, as well as the 'UV technologies' which have the state-of-the-art development stage, such as the REE4000 with a power output of up to 4,000 W per lamp. The 'RELINEACADEMY' provide hands on education and further training to the users. The customer service area with support at jobsites, engineering, consulting as well as the rental park and the service on machinery is unique and show our steady growth.

RELINEEUROPE has also set milestones this year. With the quality offensive 'outer film concept', the Alphaliner is produced for standard applications with the new improved integrated sliding foil (IGS) or optionally with new improved the integrated pre-liner (IPL). This new concept increases safety and handling during installation, thus optimising installation efficiency. In addition, the Alphaliner can be produced with a weight of up to 70 tons.



RIDGID

Regardless of the setting, whether it is a home, a restaurant or a business premise, one thing is known for sure, every drainage system needs occasional maintenance.

Some homeowners tackle slow-flowing drains by using chemicals to kill blockages. Short term, chemicals are a health, environmental and safety hazard; long term, this practice could damage the drains considerably. At some point in time, thorough cleaning of these drains becomes a must.

Ridgid's FlexShaft Machines bring real added value to all professional drain cleaners. The primary advantage of the small FlexShaft machines is portability. K9-102 weighs 11 kg, while K9-204 weighs 17 kg, so they are easy to carry around anywhere. They are powered by a widely used 18 V battery-powered drills, so there is no need to deal with power cords.

The latest addition to the FlexShaft range is the K9-306 machine. It is less playing in the portability field, but more playing in the power field, it weighs around 72 kg. K9-306 is a heavy-duty machine equipped with an internal universal motor powered with I-Clutch™ technology.

RIDGID has a wide chain knocker and brush offering for different types of blockages and pipe material. Smooth chains can be used for soft blockages; carbide tipped chains are much more aggressive and the penetrating head and carbide tipped chains are perfect to break apart the heaviest built-ups.

FlexShaft can also be combined with brush add-ons. They can be used as a cleaning action after a chain knocker cycle or simply as a cleaning tool in the more fragile pipe types.

It is clear that FlexShaft machines are a light, powerful, clean, and effective new method to clean drains in a multitude of situations and it can serve as an excellent additional tool in multiple drain cleaning applications.

ROTREX GROUP

The Rotrex Group, which boasts the largest range of trailer winches in the UK and is one of the leading lifting firms in the whole of Europe, has invested almost a quarter of million pounds in a brand-new state of the art 60 t capacity trailer winch that it believes will secure a new era in its continued growth.

The new winch is called 'MAGNI' which is the Norse God of Strength. It has been manufactured in Italy to Rotrex's exact specifications, including state-of-the-art remote control and Wi-Fi technologies. It is now the largest capacity trailer winch currently available in Europe. It also has large rope storage facilities allowing pulls of up to 2,400 m which is more than double that of their current 40 t winch.

Although the winch will be first used in Norway on a water utilities contract for re-lining pipes, its design makes it versatile so it can be used on many different applications such as long cable pulls and supporting major tunnelling projects.

RSM LINING SUPPLIES GLOBAL LTD

RSM Lining Supplies Global Ltd is delighted to announce it will be once again exhibiting at No-Dig Live this September! RSM is a leading UK supplier of cured in place pipe materials, equipment, and services, committed to offering the utmost in both technical and service support whilst focusing on maintaining their position at the forefront of the Sewer Rehabilitation Industry.

RSM's full range of equipment and materials will be available to view on its stand (Outside Stand 9) and its dedicated technical team will be carrying out a variety of different demonstrations throughout the exhibition.

Live demonstrations will include:

- Echo Liner – The exclusive 90° bend liner.
- Diameter Change UV cured Speedyliner.
- Sewertronics Speedylight+ System, with new extra-large head.
- Sewertronics new LED Patching System.
- Fero Force - Pressure Pipe Liner.
- Dancutter – Superflex and Maxiflex lateral cutters.

The full RSM sales team will be present throughout the week so why not stop by for a chat?

RSP UK

RSP UK is very excited to be back at No-Dig Live 2021! The team will be hosting customers and visitors on outdoor stand 21 which is set to be full to the brim with demonstrations, competitions, delicious food and drink and of course, merchandise!

The team will be showcasing two vehicles, one of which is the World First Suction Excavator with Breaker Boom, a truck, uniquely designed to break ground alongside the internationally patented RSP Suction Excavator, allowing for a reduction in on-site footprint, saving time and money. The current model is mounted on a Mercedes Arocs 5 3351 6x4 with double fan but is also available in other configurations. Lloyd Gardener, Director of RSP UK commented: 'The Breaker Boom has been well received within the industry and we are very pleased to be able to showcase this innovative solution at No-Dig Live 2021!"

The other truck to feature on RSP's stand will be Carney Construction's newest suction excavator, mounted on a Mercedes Arocs 5 2545 6x2 rear steer chassis cab with double fan, 6 m container and 6 m power arm. Sean Carney commented: "We are thrilled to be exhibiting our truck on RSP's stand. For us, they are the only choice when it comes to investing in a suction excavator. The team are so friendly, experienced and knowledgeable. We look forward to greeting you at No-Dig 2021!"

S1E LIMITED
(FORMERLY SOURCE ONE ENVIRONMENTAL)

S1E Limited (formerly Source One Environmental) has added significant new product ranges to its portfolio since its last appearance at No-Dig Live, in the form of cameras, cutters and lining equipment. At this event, the company will show some innovative new developments to the UK market for the first time.

IBAK's MicroGator Air pneumatic cutter uses some of the same modular components as their MainLite crawler camera system and both are featured at S1E's stand. The powerful air-driven motor of the MicroGator Air powers a cutter that can be used in pipes from DN200 to DN800 and the machine can travel up to 100 m. Experience the basic operations of these durable, feature-packed cameras and cutters and book your full, personal demo to follow the show with the S1E Team.

Customers can also talk through the RIDGID camera range at this stand, since S1E became RIDGID distributors earlier this year.

The Starlight UV CIPP liner curing machine has been refined and redeveloped since it was first shown at this show three years' ago. The Starlight is a compact piece of equipment designed for DN100 to DN300 pipelines and liners of up to 90 m in length. It can handle bends of up to 90° at all pipe sizes within its range, including DN100 knuckle bends. A choice of 4 different light heads gives customers the opportunity to tailor their machine to their job requirements and built-in tamper-proof monitoring and video recording are also featured. Customers are invited to take a look during the show and arrange their own demo with the Team to explore the machine's features in full at their convenience.

Brand new, exclusive Thunder Drums and the Thunder Shooter inversion equipment are all on stand with S1E. Never displayed together before, these ranges have only become available within the last couple of months. The Thunder Shooter is unique in featuring an integrated lubrication system.

The company's stand will also feature the Quick-Lock mechanical repair system, which is a quick, easy, no-cure alternative to patch repair. Quick-Lock has successfully been used for sewer repair for many years but is not as widely used within the UK as it is in Europe. As exclusive UK distributor, S1E is keen to demonstrate the benefits of this system to contractors here. The system is WRc, DIBt and ASTM certified, as well as certified specifically for potable water applications by NSF.

The company states that customers are of course welcome to come and discuss their more-established trenchless ranges with it too, such as the leading Pipe Doctor patch repair system and the high-performance SealGuard range of water-stopping sealants.

SANIVAR

Sanivar continues to add to its growing portfolio of projects in the UK and will use No-Dig Live 2021 to demonstrate two lining technologies, SANITUBE and SANILINE.

SANITUBE is an innovative pull through liner (uti 500 mm) that requires no adhesion or curing making it ideal for the rapid refurbishment of assets with minimal civils work and no specialist equipment. The liner is winched through the host pipe and then inflated with compressed air and held in place with bespoke SANIGRIP couplers.

SANILINE is a more conventional inversion liner that uses an epoxy free resin to adhere to the host pipe and is particularly suited to larger diameter pipes (uti 1200 mm) and major projects.

Both liners are tested to 34 bar and suitable for the refurbishment of pressure pipelines with worldwide providence on potable and wastewater networks.

At No-Dig Live the company will be hosting a series of live presentations and showcasing its Sanitube Repair Kits which are available ex-stock and enable a proactive response to network failures with minimal customer disruptions. The kits are also an ideal solution for the refurbishment of assets that lie beneath above ground infrastructure including rail, river and road crossings.

Sanivar looks forward to welcoming visitors to Stand 26 in the exhibition hall and hopes that they will take the opportunity to attend one of its scheduled presentations.

SCANPROBE

With our last exhibition taking place in November 2019 despite a 2020 calendar planned full of domestic and international tradeshows, Scanprobe is thrilled to finally be able to exhibit at the largest trenchless technology event in the UK.

Brand new product to be launched at No-Dig Live 2021

Whilst the world was coming to a standstill in the midst of this pandemic, Scanprobe was fortunate enough to be able to adapt, and crucially remain open. This in turn allowed it to seize an opportunity to allocate more time and money into its in-house research & development department, speeding up the development of plenty of projects, including the 'X-Range' which will debut at No-Dig Live. Whilst Scanprobe is forbidden from releasing any more details right now, it can confirm that the X-Range is something never before seen in the industry, and it has been kept under wraps so much that the prototypes are kept under lock and key in an undisclosed location.

Some might call it excessive, but Scanprobe is very excited to reveal it to visitors on stand 17, so be sure to head over and experience the latest drain camera solution from Scanprobe.

EUROPEAN NO-DIG 2021

UNITED KINGDOM

Wednesday 15th September 2021
Peterborough, UK

Headline Sponsor

ISTT
International Society For Trenchless Technology

1st European NO-DIG Conference

Rehabilitation Design for Pressure and Gravity Pipes

UKSTT are delighted to announce the International Society for Trenchless Technology (ISTT) as the headline sponsor for the European Conference taking place at No-Dig Live on 15th September. As part of the sponsorship there will now be a limited number of free places on offer.

A high-level technical conference with internationally respected and acknowledged expert speakers from 5 European countries covering the design methods and codes of practice for rehabilitation design across the Continent along with examples of their application.

The Conference Chair will be Dr. Dec Downey, former Chairman of ISTT and UKSTT.

To secure one of the limited number of free to attend delegate places, please contact labbott@westrade.co.uk

CONFERENCE PROGRAMME – WEDNESDAY 15 SEPTEMBER

CHAIR – DR. DEC DOWNEY, FORMER CHAIRMAN OF ISTT AND UKSTT

Conference Opening
Chair – Dr Dec Downey

Keynote Lecture - Gravity Sewer Liner Design
Presenter: Olivier Thépot, Eau de Paris, France

WRc Sewer Rehabilitation Manual - Key changes in Design Methodology
Presenter: Nick Orman, WRc, UK

External pressure tests on large diameter jacking pipe systems
Presenter: Högni Jónsson, Amiblu Technology

Real-time monitoring of UV lamps as requirement for controlled and protocolled curing of large diameter liner with big wall thickness
Presenter: Firmino Barbosa, RelineEurope, Germany

Questions & Discussion
Chairman

Keynote Lecture - Pressure Pipe Rehabilitation
Presenter: John Gumbel, JG Pipeline, UK

Status Quo of the CIPP product standards for water & gas networks
Presenter: Ricky Selle, Selle Consult, Germany

Key design considerations for PE80 and PE100 pressure pipe liners
Presenter: Steve Brogden, Die Draw Ltd, UK

Questions & Discussion
Chairman

Register for FREE!
labbott@westrade.co.uk

Technical Programme by: UKSTT, GSTT Trenchless Made in Germany, Italian Association for Trenchless Technology

In conjunction with: 2021 NO-DIG LIVE

Organised by: Westrade Group Ltd

Official Media Partner: TrenchlessWorks

Westrade Group Ltd, Carotino House, Bury Lane, Rickmansworth, Hertfordshire WD3 1ED, UK +44 (0) 1923 723990 trenchless@westrade.co.uk www.nodiglive.co.uk

SCHUR

Schur is a global leader supplying Trenchless Pipe Coating/Pipe Cleaning and Pipeline Disinfection equipment. The company has sold 137 Pipe Coating Rigs into 24 countries since its establishment in 1992. Schur's equipment has been used to coat well over 2,500 km of pipelines around the world.

The company offers pipe coating systems suitable for pipes from 32 mm to 2,500 mm in diameter, for coating Potable water, Sewer, Gas and Oil pipelines with exclusive access to the best pipe coating materials suitable for contact with Potable water, sewers etc.

Schur also offers unique, time saving and water saving pipe disinfections systems (STERI-KLENZE) alongside on-site global training, backup, consultancy and partnerships. This enables coating of up to 1 km of pipeline per week on pipes such as Steel, Cast Iron, PVC, Asbestos Cement and cement lined pipes.

The process is ideally suited to working in built-up urban areas due to the minimal excavations required. Typically, only 2 small excavations are required to rehabilitate 160 m of pipe (430 m if using the SR3000 model). Pipe service connections (if any) are not blocked during the coating process. The pipe is cleaned, coated and returned to service usually the same day. Pipe Cleaning in pipes from 75 mm to 800 mm diameter is carried out by using a mechanical scraper. For very heavy corrosion the company's Pipe Boring Machine which effectively 'drills' the pipe clean.

SEWER ROBOTICS

SEWER ROBOTICS was the very first company to introduce Ultra High Pressure directional water jet cutting from a specialised crawler to remove solid obstructions and deposits settled. Over the course of 15 years, our customers worldwide have removed many different solid pipe obstructions, such as tree roots, fatbergs, cement, grout and concrete to spare the pipelines and their asset owners from costly replacements.

Come visit OUTDOOR booth 38A and have a look at this highly effective multi-purpose robot system with truck installed UHP (43,500psi) directional cutting to remove the hardest obstructions from inside pipelines and lateral reinstatement cutting for opening connections after CIPP lining.

Besides innovative robot technologies, SEWER ROBOTICS offers a completely stand-alone, High Definition camera nozzle. The C70 video nozzle is plug-and-play compatible with any cleaning truck in the market, can take a beating and does cleaning like a regular nozzle while at the same time recording an auto-upright, HD, video inside of the pipe. The video can be downloaded on the included tablet by a single touch of a button, immediately after the cleaning and is automatically uploaded to the SEWER ANALYTICS web app, together with the date, time and location of the cleaning.

SLIMDRIL

For over 30 years SlimDril has been a leading Guidance service and tooling company providing products, training and advice to the UK, European and Worldwide markets. It has recently achieved ISO-9001 accreditation and its aim is the continuous improvement of its services.

SlimDril's goal is to enhance its clients as partners by offering support to ensure customers deliver better on contracts. The company works with client's right from the design and project manage the whole process through to the execution of the project and is even able to offer post project support for client close outs.

SlimDril can supply a range of Gyro's, Steering Tooling, Drill-bits, x-over subs, heavy duty wire,MuDD-Dry and mixing tooling. it also now offers a full thread inspection, restoration and certification service (API,DS1/NS2) along with a make/break-out unit covering a range of sizes up to 30 in (760 mm) with all services operated from the new facility in Lowestoft.

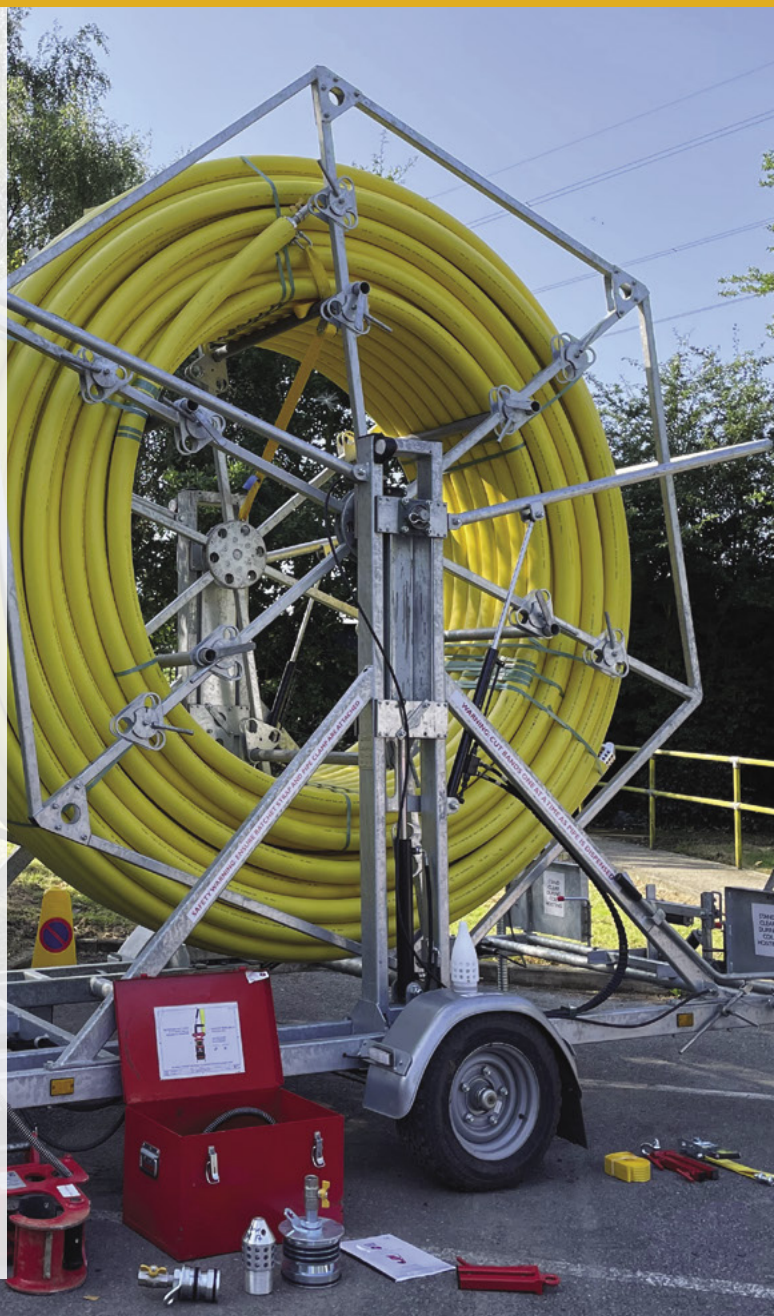
STEVE VICK INTERNATIONAL

Steve Vick International (SVI) will be showcasing some of its latest innovations at No-Dig Live. Demonstrations of the Perpetual Pipe Pusher, the all-new PE Cutter, FBOS and ESEAL techniques and its Pipe Feeder for District Heat Pump trailers will be taking place daily on stand no. 19, outside.

The Perpetual Pipe Pusher is a robust and proven attachment, designed to continuously insert PE from 63mm (2 in) up to 180mm (6 in) diameter, achieving fast and efficient insertion lengths of 300 m plus. The PE Cutter, a joint NIA project with Northern Gas Networks, is the latest machine to join the family of SVI cutters and is a circumferential cutter, capable of cutting PE pipe up to 900 mm in one continuous motion, quickly and safely. The SVI Pipe Feeder for District Heat Pump coils is an attachment that fits onto the SVI trailers and enables the pipe to be pulled off the trailer with ease. As the PE pipe passes through the feeder it is straightened, allowing for easier dispensing.

Alongside these newer innovations, demonstrations will also be taking place of some of SVI's more well-known products, Live Mains Insertion, Rapid Service Isolator, SMARTester™, CRACKERJACK™, the Rapid Window Cutter and the Rapid Rotary Cutter.

SVI looks forward to welcoming customers old and new to the stand where they can be assured of some interesting demonstrations, a warm welcome, a hot coffee and some tempting treats.



14-16 September 2021 East of England Arena & Events Centre, Peterborough

SUBSCAN

At Subscan, the 4x4 Off Road Recyclers mean there are no locations that are off limits when it comes to client's drainage requirements. Featuring the same capabilities as the road-going Jet Vac Recyclers, Subscan's off-road units are capable of cleansing almost any pipe, sewer or culvert. This reduces the need to lay expensive track matting or build a temporary road construction, delivering both cost and time efficiencies for clients.

In certain cases, drains and sewers have been laid in areas which are not accessible by standard drain cleaning trucks, making it impossible to clean. At Subscan its equipment allows its team to access drains and sewers in rough terrain, embankments, narrow footpaths, woodlands etc., and situations where access is difficult. All off-road equipment complies with the agriculture and environment regulations, along with keeping disruption to wildlife and environment to a minimum.

At the No-Dig Live Show, Subscan will be exhibiting some of its off-road units, along with some of the latest drain lining techniques, topographic and underground utility technology to name a few."

SUNBELT RENTALS UK

Sunbelt Rentals UK are delighted to be exhibiting at No-Dig Live 2021! You can see demonstrations of our latest investments, including:

- SmartSite
- Pipeline commissioning
- Electric-powered pipe bursting
- Large diameter ductile iron pipe solutions
- All-terrain butt fusion
- Fibre optic solutions
- Twin capstan winches

We are also launching our SmartSite solutions this includes:
- SMARTTorque – creating quality assurance in mechanical jointing & vehicle maintenance
- Pressure Testing – creating quality assurance in pipeline commissioning

In helping our customers reach their emissions targets, we are also bringing a host of greener solutions, including a battery-powered excavator and the EFuze. Come grab yourself a free coffee and chat with Utilities product experts. In 2020, we rebranded, bringing 18 specialist business units under the one name, including A-Plant, PSS Hire, A-Plant Lux, Live Trakway, Opti-Cal and more. Come and see the power of Sunbelt Rentals on outdoor stand 7.

2022 TRENCHLESS ASIA

TRENCHLESS ASIA 2022

27-28 July

Kuala Lumpur Convention Centre, Kuala Lumpur, Malaysia

The twelfth event in this outstanding series returns to Kuala Lumpur.

Floor plan extended due to phenomenal demand – Book your stand now

- Featuring ISTT International No-Dig
- Trenchless Technology
- Underground Infrastructure
- Pipeline Technologies
- Underground Utilities
- Trenchless Solutions for Urban Flooding
- Knowledge Transfer
- Green Technology

For more details regarding exhibiting and sponsorship opportunities please contact:
Paul Harwood at pharwood@westrade.co.uk or +44 (0)1923 723990
Stuart Hillyard at shillyard@westrade.co.uk or +44 (0)1923 723990

Book your stand today – pharwood@westrade.co.uk

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SYNTHOTECH

Synthotech is a leading British engineering business, focused on the development of pioneering 'must have' products and services for the utility and infrastructure markets around the world.

Innovation is at the heart of everything we do. For over two decades we've led the way in driving significant advancements in the exploration and maintenance of under pressure pipework. With over 25 years of experience, our solutions are trusted by some of the most significant gas network owners in the world.

Exhibiting at No-Dig Live 2021 presents an exciting opportunity to demonstrate the latest innovations and solutions from Synthotech. In addition, Synthotech's familiar and trusted turnkey engineering solutions, such as in-pipe CCTV systems, will also be on display to show the industry the benefits of such solutions.

Synthotech will be exhibiting at Stand 35 of No-Dig Live 2021. Visit the stand during the event to find out how our advanced pipeline solutions can benefit the utilities and infrastructure markets. Whether its easing inspections and maintenance, reducing excavations, as well as time and cost savings, Synthotech is committed to providing significant solutions to the utility and infrastructure markets.

TRACTO UK

Bedford, UK-based TRACTO UK is the original inventor of the GRUNDOMAT mole, which is still the most popular soil displacement tool on the market. The company has an unparalleled range of trenchless solutions to facilitate underground connections and renewals with minimal intrusion and maximum efficiency. Many of the machines will be showcased at No-Dig Live.

Delighted to be back at face-to-face events, TRACTO UK has a static display that includes the GRUNDOPIT PS60, GRUNDOBURST 800G, GRUNDOPILE and the renowned GRUNDOMATS, plus a wide range of ancillary equipment. A comprehensive demonstration programme will take place throughout the 3-day event with live demos of the GRUNDOPIT PS40, and the innovative Long Handled Tools. The latter is a set of tools developed by TRACTO UK for gas and water mains replacement programmes for service change-overs from above a 650 mm keyhole.

TRACTO will also have a stand featuring the popular GRUNDOWINCH, a GRUNDOCRACK and GRUNDOROCK dynamic pipe bursting system, whilst new TRACTO dealer, TA Drilling, will display two GRUNDODRILL all-terrain HDD machines; the King of Rock 18ACS and the all-new, innovative 13 t rig, the ACS130. Located outdoors at Stand 5 the team is looking forward to welcoming customers old and new.

14-16 September 2021 East of England Arena & Events Centre, Peterborough

TRENCHLESS GROUP

Come and meet the team on the Trenchless Group stand at No-Dig Live. After so long away the company thrilled to welcome customers past, present and future to Outdoor Stand 55. The team be on hand to show all of its Trenchless products, such as the full range of impact moles by Essig which will be fired-up with a C14 portable compressor if visitors want to see it!

The company has a Hercu piling mole, a leading product in its class for power and reliability, the EasyDrill mini HDD system with an excavator from the neighbouring Buckhurst Plant Hire stand, a high spec cable drum trailer and a couple of capstan winches from Jakob Thaler and, of course, a selection of the range of cable laying accessories – rollers, drum stands, cobras, Chinese fingers and so forth. Trenchless Group's 50 t pipe burster by TRIC will make an appearance, along with one of its fleet of Perforator guided auger boring rigs so visitors can see what Trenchless Solutions contracting division gets up to.

There will also have a Hammerhead 125 t pipe (rod) burster which is amongst the largest currently operated in the UK. As well as that product list the company will have food and beverages and as much chat as visitors can handle.

ULC ROBOTICS

ULC Robotics are set up to showcase their pipeline inspection and maintenance cameras and crawler systems, and discuss their latest revolutionary innovation, The Robotic Roadworks and Excavation System (RRES) on outdoor stand 57 at No-Dig Live 2021.

Delivering detailed visual inspection and mapping data inside pipelines from a single excavation, the M1 Inspection Crawler, VGC Crawlers, and the PRX250 are deployed for the gas industry to support project planning, pre-rehabilitation mapping, and identify and locate internal features. ULC Robotics is set to conduct daily demonstrations of the technologies in action throughout the event.

With upcoming RRES field trials in the UK set for this year, ULC Robotics will also be on hand to discuss RRES, which was co-developed by ULC Technologies and SGN to replace conventional excavation methods by using below ground sensing, artificial intelligence, and machine learning to conduct an autonomous end-to-end excavation and reinstatement process.

The robotic system has already received the 2021 RBR50 award in the Application & Market Innovation class for utilities, and has been shortlisted for the 'Innovative Product' award at the UKSTT Awards which is taking place during No-Dig Live 2021.

"I am delighted that we will be attending the event to showcase our pipeline inspection crawlers and cameras to the trenchless industry, as well as discuss the potential in expanding the capabilities of the current RRES platform," said David McLeod, Head of Business Development at ULC.

"We will be on hand to talk to demonstrate our crawlers and talk to event delegates about the current RRES system, and the opportunities in developing new tooling and use cases for the platform to overcome challenges across multiple industries."

If you would like to set up a meeting with ULC Robotics, please contact: alexandra.pender@spx.com.

VAC-EX

Everything Vac-Ex does aims to provide a method of excavation that will allow the exposure of buried services and utilities without damage. The use of vacuum excavation is not only safer than hand or mechanical dig but quicker and easier. Also, in many applications, less material needs to be removed from the ground. The company's Air-Ex air lance when connected to an air compressor will agitate the ground by injecting a blast of air to break up and loosen compacted ground, it can then easily be removed with the high level of vacuum from one of Vac-Ex's compact vacuum excavators. When working in an area full of existing services it is often the only way the ground can be removed.

The company manufactures its most compact machine the Air-Vac tracked and will be launching at the show its new larger unit the T-Vac 2. Each machine has been designed to be compact, easily towed and can be operated by customer's own staff. Compact Vacuum Excavators offer the advantage that they are cost effective to mobilise and less disruptive by reducing traffic management or inconvenience to the public.

VERMEER UK

Vermeer UK will again be on Stand 25 at this year's No-Dig Live Show and looks forward to catching up with valued customers and meeting new connections.

Renowned worldwide for reliability and build quality the company will have on show a range of Horizontal Directional Drilling equipment offering Trenchless installation solutions for a variety of sectors including Fibre Optic cable, Utilities, Ducting, Pipelines and Irrigation. A display of Vermeer's trusted HDD tooling will be on the Stand with crossover capabilities for which ever HDD equipment you use.

To complement its HDD equipment, Vermeer UK will also be showing a range of Pedestrian and Ride-On Vibratory Ploughs and Chain Trenchers providing an alternative method of installation with minimal ground disturbance. With the option of either quad tracks or wheels these are ideal for both rural and urban work including Fibre Optic cable, Duct, Utilities and Irrigation. Equipped with the latest on-board technology to assist in achieving high productivity and optional attachments including Reel Carrier, Rockwheels, Backhoe and Back Fill Blade.

As UK dealer for a number of world leading suppliers in the Trenchless sector, other equipment and information visitors be able to see DCI Locating equipment for Directional Drilling, the McLaughlin range of Soil Displacement Hammers/Moles, Mincon DTH Hammers, Infinity PDC Tooling, Dupagro Mixing & Recycling Systems and Cebo Drilling Fluids.

VIVAX-METROTECH

We will be showcasing our array of market leading underground utility locators and Pipeline Inspection cameras. On the stand will be the Vloc3-pro advanced multi directional Locator, the easy-to-use VScan cable Avoidance tool alongside our Vcam6Hd and VcamMX2 pipeline inspection cameras.

We are also excited to be introducing the new Vloc3 RTK-pro - a brand new locator with built in cm accurate RTK positioning, this allows the user to log accurately underground utility position without the need to go back with a separate GPS device. The vLoc3 RTK-Pro receiver is the first to add RTK GNSS accuracy to a utility locator. Using the RTK-Pro internal cellular module with 4G LTE capabilities, the operator can connect to NTRIP RTK caster that provides RTCM 3 corrections. By utilising these corrections, the operator can collect both utility location data along with the geographical location of the utility with survey-grade accuracy.

The RTK-Pro was designed for use at all operator levels, utilising user-friendly and intuitive locate screens. Operators simply confirm the utility data with the press of a button and align the electronic spirit level to store the data. All field data is sent to the cloud and retained in the receiver's onboard storage for review and exporting to external mapping programs.

Come and see us and take a look for yourself.

WARDSFLEX

It's great to finally be exhibiting again and Wardsflex are very happy to be at No-Dig Live 2021 for our first time out this year. Find us on indoor Stand 11.

As usual, we will have lots of examples of our regular well-known Wardsflex products and associated tools on display. In addition, you will be able to see some of our robust manhole keys, drain rods and gully grabs. This year we also have a new electronic drain tracer to replace our very popular but no longer available PP3000. The 512R is great value for money and will detect all sondes or camera sondes on 512Hz frequency.

WESTWOOD PIPELINES

A leading, independent supplier of polyethylene pipes and fittings, Westwood Pipelines has provided a reliable service to customers since 2003. Now part of the Egeplast Group, Westwood have an unrivalled range of products, including fabricated fittings, making us the single source for the water, drainage, and irrigation industries.

Innovation has been at the heart of our business growth and includes the highly successful SLA BARRIER PIPE ideally suited for all trenchless installations, the new SLM DCS system enabling instant integrity checks for damage free installations and the 3L LEAK CONTROL range specifically designed with a unique monitoring system to detect damage. Our innovative products do not stop there so please come and visit us at the show and we can explain our offer in more detail.

Westwood provide a comprehensive service and have established strong partnerships with a range of Utility Companies across the UK. With trusted technical support from a friendly and approachable team, we take pride in delivering high quality products at competitive prices. Our passion for the work we do is laid into the frameworks we build, the customer relationships we value and the trade companies we partner with.

Westwood Pipelines | Making Great Connections since 2003

Part of the Egeplast Group

www.westpipes.com

WILLIAMS TANKER SERVICES LTD

Williams Tanker Services Ltd is delighted to be taking part in No-Dig for the first time this year to premiere its new distribution and support partnership with waste tanker manufacturer, Cappellotto.

WTS is the UK's sales and support agent for Cappellotto, Europe's largest manufacturer of waste tankers. The Italian based manufacturer is a market leader, known globally for developing, designing and producing state-of-the-art equipment for the high-pressure cleaning of ducts and pipes, the suction of sludge, dry and solid materials, as well as vacuum excavators. Cappellotto's innovative and proven designs of quality equipment operate in over 40 countries across Europe, Asia, North America and the Middle East.

To support the Cappellotto product in the UK, WTS has a dedicated and experienced tanker customer service team, extensive mobile service van network, vast waste tanker spares stock and an 18-bay tanker workshop in Leeds, all on hand to deal with whatever customers need. From new tanker purchase enquiries, to booking in a service, requesting an estimate or asking for technical assistance, WTS offers world class customer service from a specialist tanker team based from West Yorkshire.

WTS is proud to be working with Cappellotto and is excited to showcase the Cappellotto tankers to new and existing customers, giving some their first opportunity to witness first-hand what makes Cappellotto so special.

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www.trenchless-romania.com

WINN & COALES LTD (DENSO)

For more than 90 years, Winn & Coales (Denso) Ltd, stand 131, has been creating bespoke and off-the-shelf solutions that provide enduring protection against corrosion and chemical attack to buried and exposed pipes, valves, fittings, steelwork, marine structures, tanks, and concrete bunded areas.

The company is at the forefront of innovative corrosion prevention technology, focused upon developing an extensive range of solutions to meet the needs of the oil, gas, water, and utilities sectors.

One of the latest innovations of the company is Denso Bore-Wrap™. It is engineered to protect field joint coatings and factory-applied pipeline coatings from the abrasion stresses and scarring of directional drilling, HDD, and boring. It is an abrasion resistant, sacrificial outer laminate which protects pre-approved field joint coatings and mainline coatings such as epoxies, shrink sleeves, and FBE.

Denso Bore-Wrap™ combines the Company's experience of protective material with a deep understanding of severe pipelining conditions. This approach has led to a remarkably effective and reliable system which complements the other coating systems within their current range. It also helps ensure protection of the primary coating when customers need it the most.

In May 2021, the parent company Winn & Coales International expanded its product portfolio with the acquisition of the global Viscotaq™ business including Amcorr Products & Services Inc, manufacturer of viscoelastic protective coatings.

Winn & Coales (Denso) Ltd offers a full range of coatings for pipelines including; Petrolatum, Bitumen, Butyl, and Viscoelastic tape wrap systems, liquid epoxy coatings, heat shrink sleeves, and a range of outer-wraps. From sub-zero environments to extreme high temperatures, their range of coatings are capable of withstanding the toughest conditions, as well as proving to be cost-effective and maintenance-free for many years to come.

The UKSTT Awards 2021

SHORTLIST ANNOUNCED

Awards Ceremony:
Wednesday 15th September

in Association with Westrade

This year's nominations recognise exceptional innovative projects and products across seven categories.

Highly prestigious, the UKSTT awards have been at the heart of the industry since 1995. Representing the best of a highly competitive field, the shortlist for 2021 has been selected by an independent panel of industry experts.

This year's winners will be announced at the Gala Dinner & Awards Ceremony on the evening of Wednesday 15 September during No-Dig Live 2021.

THE SHORTLIST
INNOVATIVE PRODUCT

SPONSORED BY

Image courtesy of Qinov8

QINOV8 UK LTD – THE AQUAPEA

Recent advances in polymer technology have enabled the development of a ground-breaking alternative to traditional pipeline leakage reductions and repairs called the Aquapea.

This is a pea-sized product made from a specially formulated two-part polymer with a buoyant polypropylene core, which allows it to free swim inside customers service pipelines and in most cases, repair the leaks without unnecessary costs of excavations and with little impact on the customers and environment.

The Aquapea is WRAS Approved and is water quality tested to BS6920 'for use in contact with water intended for human consumption'.

This is in every sense a trenchless technology.

WESSEX WATER LTD, HEADLIGHT AI LTD, BRIGHT INNOVATIONS GROUP LTD – 'TELESTO' 3D LIDAR MODELLING OF TUNNELS IN SEMI-TURBULENT FLOW

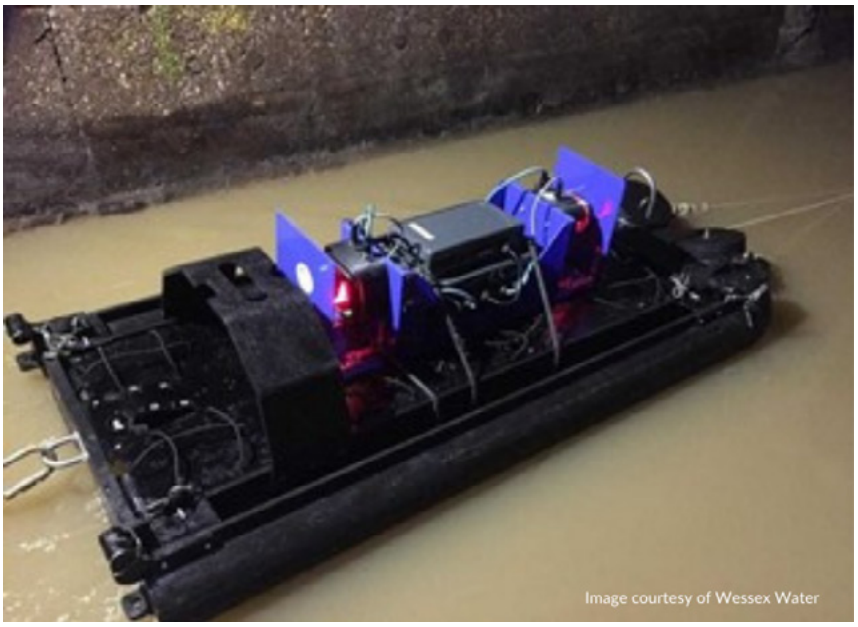


Image courtesy of Wessex Water

Telesto is a multi-sensor system with intelligent software that attaches to a floating platform that traverses underground assets for 3D modelling in semi-turbulent flow. It enhances the health and safety for workers involved in the surveying of subterranean assets by preventing confined spaces entry, thereby removing the associated hazards. It goes beyond CCTV and laser profiling solutions on the market and provides a more cost-effective route towards asset digitalisation compared with traditional surveying techniques. The customer obtains the 3D information and the position of defects and anomalies, which are automatically extracted and reported using traditional and machine learning approaches.

SGN, ULC TECHNOLOGIES & RPS – ROBOTIC ROADWORKS & EXCAVATION SYSTEM

Image courtesy of SGN & ULC

SGN and ULC Technologies have collaborated to develop an advanced robotic system to pave the way for change in the way utility roadworks are performed. The Robotic Roadworks and Excavation System (RRES) will replace conventional methods of excavation, utility interaction and reinstatement.

Using a precision robotic arm with hot swappable tooling including a below-ground locating sensor package, RRES will use AI, machine vision, and 'soft-touch' excavation tools on an electrically powered mobile platform to provide an end to end solution.

By eliminating the need for traditional equipment and processes, the system promises a range of benefits including minimising disruption, emissions and safer working conditions for operatives in the field setting a new standard for the future of roadworks.

RENOVATION WATER & WASTEWATER

SPONSORED BY

TPMD, SOUTHERN WATER – HEADING UNDERGROUND – UPGRADING THANET'S SEWERS

The sewers beneath the streets of Ramsgate and Broadstairs are unique; constructed more than 100 years ago, and some more than 28 metres below the surface, pipes rest at the bottom of hand-dug chalk tunnels. Southern Water is investing more than £30 million upgrading this ageing network, ensuring it's fit for future generations. Delivered by confined space and trenchless technology experts, TPMD, this complex engineering challenge comprises of tunnel repairs and strengthening, patching, CIPP lining, manhole upgrades and new storage tanks. Working in more than 170 streets, over two summer seasons, specialist construction skills reduced the impact on these bustling seaside towns.

WESSEX WATER & ONSITE LTD – WEYMOUTH SALINE INTRUSION SEALING

As an 18-year high astronomical tidal surge approached the sound coast in July 2020, Wessex Water identified chloride spikes via saline ingress into the sewers, around the historic harbour in Weymouth Dorset. As the sea water took advantage of defects in the 600 mm trunk sewers, the process at the Radipole sewerage treatment centre would be affected. Within a few weeks of appraisal, a £450,000 scheme by Onsite Ltd, sealed 700 m of sewers and adjoining manholes, on cost and ahead of programme. A sustainable matrix of solutions meeting high standards of H&S compliance, over a continuous framework partnership of 20 years.

WESSEX WATER, ONSITE LTD & BATEMAN CONSULTING PTY – THE RIVER PARRETT TWIN CIPP PRESSURE LINING RENOVATION

When considering the British Water Industry, the use of Cured in Place pressure liners is still relatively new, considering they were first used in the UK by Insituform Permaline Ltd; and abroad by Ashimori and Osaka Bosui and the development of Paltem and Phoenix in the 1980's.

But with the new ISO 11297, we have the opportunity to encourage their use to a greater degree, as Wessex Water have at the River Parrett, Somerset. Twin 450 mm diameter Class A, 'Independent' pressure linings , saving almost £1 million over alternative methods, using submarine eversion techniques to overcome highly fluctuating tidal threats.

TERRA SOLUTIONS, IRISH WATER & BYRNE LOOBY – DUBLIN'S PHOENIX PARK & RIVER LIFFEY

The Liffey Siphons are twin 900 mm diameter foul sewers approximately 3.4 km in length, under Dublin's Phoenix Park & River Liffey. It is a key section of sewerage infrastructure for Dublin's needs. The siphons were constructed in the mid-1980s to connect the Blanchardstown to the Grand Canal Sewer System and onward to Ringsend for treatment. After cleaning & CCTV surveying the lines a suite of challenging trenchless installation/remedial works were deployed to rehabilitate the siphon inlet/outlet chambers, the two tunnels through which the siphons pass, tunnel access shafts, as well as upgrade works to the hatchboxes and flow-meters on the siphon line.

China-Euro PTT 2021

2021中欧管道工程与非开挖修复技术国际学术会议

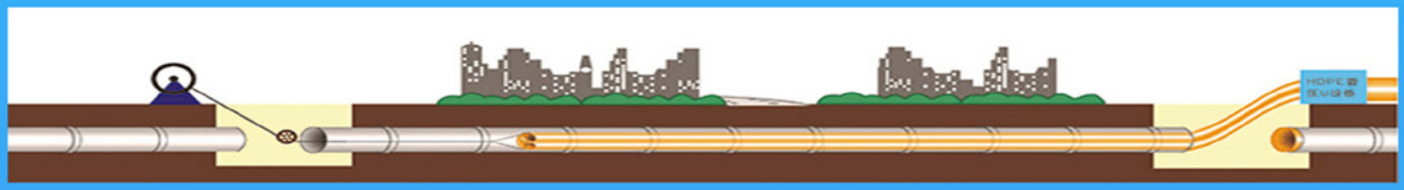
2021 China-Europe International Conference on Pipelines and Trenchless Technology

November 5-7,2021 · Tianjin China

Topics

The main topic of the conference is "Standardization and intelligentization of trenchless technology for urban water and drainage pipelines".

(1)Pipeline engineering and trenchless repair technology laws, regulations and standardization.
(2)Urban pipeline inspection technology and equipment.
(3)Urban pipeline dredging and pretreatment, sewer sludge treatment and disposal.
(4)Trenchless repair of urban pipelines.
(5)Intelligent pipeline network and intelligent water services.
(6)Environmental rehabilitation and town sustainability.



Organizers

· China-Euro Joint Center for Trenchless Technology
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· Tianjin Marine Environmental Protection and Restoration Technology Engineering Center
· College of Marine and Environmental Science, Tianjin University of Science & Technology
· College of Chemical Engineering and Materials Science, Tianjin University of Science & Technology

Co-organizers

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For more details regarding exhibiting and sponsorship opportunities please contact:

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NEW INSTALLATION WATER & WASTEWATER

Image courtesy of Barhale

BARHALE, BALLYMORE & NICHOLAS O'DWYER – MILL HARBOUR SEWER DIVERSION

Civil engineering and infrastructure specialist Barhale was engaged by Ballymore to design and build an adoptable solution facilitating the construction of 766 new homes in Canary Wharf. The initial client solution encroached within the DLR footprint. Barhale's innovative solution reduced risk, time and cost. The location entailed working outside of the footprint of the future apartment blocks' site to allow the diversion of an existing 1,600 mm sewer connecting to the existing Thames Water sewer. Additional challenges were presented by the need to negotiate the other utilities, telecoms and heavily-used roads supporting one of the world's major financial centres.


Image courtesy of McAllister Group

MCALLISTER GROUP & TIDEWAY TUNNEL (FERROVIAL) – CHELSEA FLUME, THAMES TIDEWAY TUNNEL

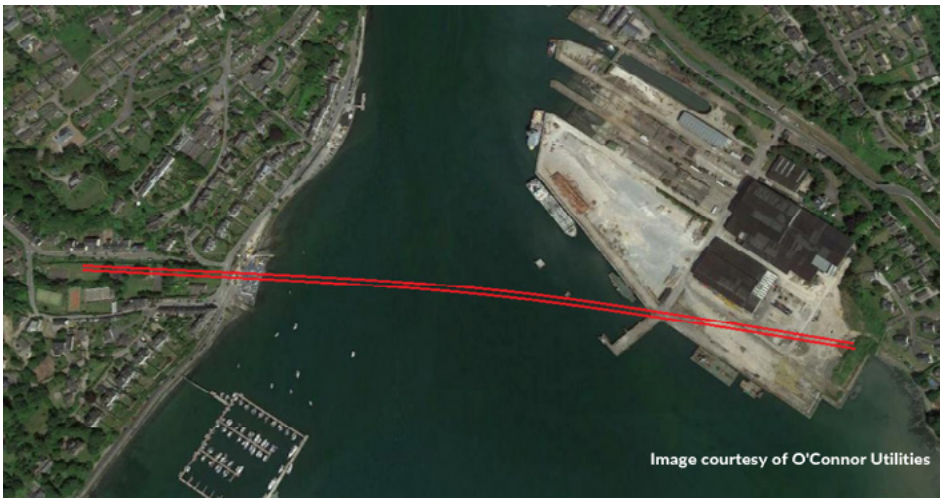
The project scope was to introduce a temporary flume structural liner for Thames Tideway Tunnel into the Low-Level No.1 (LL1) Thames Water sewer on Chelsea embankment to safeguard the asset during the construction of a new weir chamber connecting on to the main Tideway tunnel beneath the flume.

The LL1 sewer was exposed to the springer level where the temporary support cage/leakage liner was removed. After which the mild steel flume was installed and supported by 16no. rods to a top beam at ground level.

The LL1 sewer is a 2,084 mm diameter circular brick sewer originally constructed by cut-and-cover methods in the late 19th century. Cover to the sewer is approximately 8.5 m below road level.

The mild steel flume installed had an internal diameter of 1.9 m and spanned approximately 14 m of the weir chamber shaft.

O'CONNOR UTILITIES LTD, IRISH WATER & ERVIA – CORK HARBOUR MAIN DRAINAGE SYSTEM



The Cork Harbour Main Drainage System project was developed to end the discharge of raw sewage into Cork Harbour and to achieve compliance with the Urban Wastewater Treatment Directive. 14 Pumping Stations and 27k m of sewers have been installed to collect 40,000 wheelie bins per day of sewage for treatment at the new Shanbally Wastewater Treatment Plant.

O'Connor Utilities were contracted to design and install two parallel, kilometre long x 500 mm diameter pipelines beneath the Rive Lee estuary by HDD to connect 20,000 properties on the east side of the harbour to the treatment works on the west.

NEW INSTALLATION ENERGY & COMMUNICATIONS

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Beyond the Ordinary

ECO DRILL LTD, VOLKER INFRASTRUCTURE, A F HOWLANDS ASSOCIATES & ALRESFORD ASSOCIATES – HORNSEA 2 WIND FARM ONSHORE

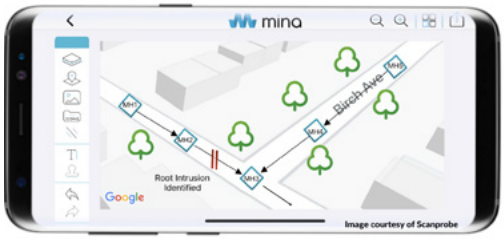
Eco-Drill Ltd undertook horizontal directional drilling at 62 locations along a 40 km route from Horseshoe Point, south of Grimsby, to the National Grid onshore substation in North Killingholme, installing 3 individual directional drills at each location for the Hornsea 2 Wind farm (an addition to the world's largest off shore windfarm). Each of the individual 186 drills involved installing 3-way 250 mm diameter SDR 11 electric cable duct in tre-foil configuration from 40 m to 400 m in length. The use of Radius Pipe systems 'ClearDuct' pipe resulted in no internal de-beading required which meant the elimination of CCTV survey.

APPLICATION OF DIGITAL TECHNOLOGY

SPONSORED BY PROKASRO

SCANPROBE TECHNIQUES LTD – MINA SURVEY

Mina Survey is a free mobile app available on iOS & Android, which enhances the trenchless survey capabilities for the drainage and utilities industries. Connecting wirelessly to your Scanprobe push-rod camera system, it enables the user to create and deliver fully formatted reports with in-pipe photos & digital drawings to the customer on site, in minutes, at no extra cost. Saving the engineer time and effort, and providing the customers with a visual and trustworthy report.



PLOWMAN CRAVEN LTD & IWJS – MACCLESFIELD GYRO

Plowman Craven's utilities team was asked to find the line and level of 2x 90 m culverts that ran under a road so that connections could be made from a new housing development in Macclesfield.

Using a state-of-the-art gyroscopic mapping system our surveyors were able to successfully locate both the 600 mm and 800 mm diameter culverts at a depth of 15 m – despite the many challenges of dense vegetation, dangerous access and utility congestion.

WESSEX WATER LTD, HEADLIGHT AI LTD & BRIGHT INNOVATIONS LTD – 'TELESTO' 3D LIDAR MODELLING OF TUNNELS IN SEMI-TURBULENT FLOW

Telesto is a multi-sensor system with intelligent software that attaches to a floating platform that traverses underground assets for 3D modelling in semi-turbulent flow. It enhances the health and safety for workers involved in the surveying of subterranean assets by preventing confined spaces entry, thereby removing the associated hazards. It goes beyond CCTV and laser profiling solutions on the market and provides a more cost-effective route towards asset digitalisation compared with traditional surveying techniques. The customer obtains the 3D information and the position of defects and anomalies, which are automatically extracted and reported using traditional and machine learning approaches.

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PUBLIC SEWER SERVICES, ANGLIAN WATER SERVICES LTD, SYKES PUMPS & HIGHWAY SAFETY MANAGEMENT LTD – WOODFIELD ROAD, BENFLEET, ESSEX

Condor Pipe glides to the rescue

A 300 mm diameter foul water pipe was 75% deformed along with significant root infiltration with further structural defects upstream causing a risk of bank erosion, landslides and damage to badger setts along with residential properties. PSS devised a way to mix, match and adapt a methodical system to repair the pipe with little impact to the environment.

The works were completed in a fraction of the time, significantly reducing the budget cost to the satisfaction of the client, stakeholders and residents.

WATERTIGHT MANAGEMENT LTD & SEVERN TRENT WATER – CAMERS GREEN MAINS RENEWAL

The Camers Green project started in November 2019 with the purpose of installing 8,825 m of new water mains replacing the existing, ageing 3 in, 4 in and 6 in AC & CI water mains.

Watertight Management Ltd carried out the work on behalf of Severn Trent Water Limited as part of their mains replacement programme with a target completion date of April 2020 in order to meet their leakage and burst criteria.

The detail design and environmental support was provided by Severn Trent Water Limited's framework suppliers.

There were numerous highways, private land, customer and environmental challenges.

WESSEX WATER & ONSITE LTD – WEYMOUTH SALINE INTRUSION SEALING

As an 18-year high astronomical tidal surge approached the sound coast in July 2020, Wessex Water identified chloride spikes via saline ingress into the sewers, around the historic harbour in Weymouth Dorset. As the sea water took advantage of defects in the 600 mm diameter trunk sewers, the process at the Radipole sewerage treatment centre would be affected.

Within a few weeks of appraisal, a £450,000 scheme by Onsite Ltd, sealed 700 m of sewers and adjoining manholes, on cost and ahead of programme. A sustainable matrix of solutions meeting high standards of H&S compliance, over a continuous framework partnership of 20 years.

YOUNG PROFESSIONAL SPONSORED BY PICOTE LIFE FOR PIPES TRACTO

GORDON MCMILLAN – INNOVATION PROJECT OFFICER, SGN

Innovation is key in unleashing the potential of trenchless technology within the utility industry. The Robotic Roadworks and Excavation System (RRES) has the potential to revolutionise roadwork operations and set a new standard.

Throughout 2020 Gordon has been working on developing the world's first all-electric autonomous robot which fuses artificial intelligence, cutting edge robotics and advanced custom tooling.

As RRES will take up less space than conventional methods and remove the operator from the hazardous excavation zone, the system will have significant financial, safety and environmental benefits.

JOSH BENTLEY – CRITICAL SEWERS ENGINEER, WESSEX WATER

Josh took his first steps into the world of trenchless technologies when he started a new role in the Wessex Water Sewer Rehab Team in 2019. Before joining this team, Josh had completed his first 2 years of a 3-year civil apprenticeship, spending time in other departments linked with Wessex Waters Engineering and Construction sector. One of these departments being sewer rehabilitation. Within this 'rotation' Josh was able to see the new innovative ways in which Wessex Water repaired sewers and tunnels. Seeing the possibilities and ideas people created which had huge beneficial outcomes sparked his interest in the industry ever since.

LIFETIME ACHIEVEMENT AWARD WINNERS

CHRIS REES

Chris Rees took his first steps towards a career in the trenchless industry when he began his degree in Civil Engineering at London University in 1958.

In 1960 Chris joined his grandfather's company, William F Rees Limited, and took responsibility for the development and operation of the Seerthrust pipe jacking operation. This was a new technique, with Chris being one of a few engineers in the UK providing this revolutionary method of construction.

Chris became Managing Director of Rees Construction in 1965, overseeing the company's construction operations – including Seergun – a method of relining sewers using Gunite & assisted in setting up the Pipe Jacking Association (PJA), to promote the use of the technique.

Chris worked very closely with the Water Research Centre (WRC) in the formative years of UK sewer renovation and made a major contribution to the understanding of GRP lining of sewers. He collaborated with the WRC and Wessex Water to formulate the equations for GRP panel lining design, SRM Type 1. All of this research was eventually consolidated and formed the basis of the WRC's publication "˜The Sewer Renovation Manual', later published in the mid-80s.

MARTIN KANE

Martin started his career with Severn Trent as a wastewater treatment specialist. He was the first external recruit into the STW divisional office at Coventry in a team specialising in the design and build of sewage treatment plants. In 1987 he joined the water distribution department. Martin was interested in all aspects of pipework from design, installation, maintenance and operations & it was clear on privatisation that pipeline infrastructure was going to be a high ticket item & Martin created a team specialising in Rehabilitation.

Martin joined the Water Executive team when he secured the position of Director of Engineering in 2005, later joining the main Board of Severn Trent in 2007 until 2015.

When he was asked what his greatest personal achievement in the water/trenchless industry was, Martin said "The single moment which touched me most was picking up a trophy at the Severn Trent Awesome Awards a couple of years ago. The Award was for making an 'Outstanding Contribution'. You have to be nominated and voted for by other folks in the company. Recognition by my colleagues was truly special".

Recognising the link between rehabilitation and Trenchless technology Martin joined the UKSTT's board and in 1997 became the Society's Chair.

LIFETIME ACHIEVEMENT AWARD WINNERS

NIGEL GARDENER

Nigel's career started out in heavy plant but after a few years he received the opportunity to assist with a moling demonstration, carrying out a road crossing. From here, he showcased the new technology to the industry, and this is where he found his love for working together with customers to solve their trenchless challenges. As the years went by, the equipment available evolved which allowed him to travel all over the world introducing the technology to various utility companies and contractors.

One of Nigel's biggest challenges within his career was introducing trenchless technology to the Asian market. However, once they had demonstrated the difference trenchless technology could make to their infrastructure, they started to work with one of the biggest authorities in Malaysia.

When asked what he sees as being his own greatest personal achievement in the trenchless industry? Nigel said "For me, it's never been about just one thing. I have enjoyed watching the industry evolve over the 47 years that I have been part of it. I have always loved solving challenges and working with customers to find the right equipment for them. Seeing our solution come to life and make a difference to their business is what it's all about for me."

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