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ISSUE 128

APRIL 2017

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INDUSTRY, COMPANY AND INSTITUTION NEWS AND RESEARCH



MINI-CAM INVESTS IN NEW AUSTRIA FACTORY

Pipeline inspection equipment specialist Mini-Cam has increased its production capacity by investing in a new factory in Austria.

The purpose-built unit has been developed for its subsidiary company InPipe Innovation at a cost of €500,000 (£430,000). It has enabled InPipe to move from a small workshop to a 7,500 sq.ft (700 m²) facility in the Alpine village of Riezlern, Kleinwalsertal, near the German border.

The facility is managed by Dietmar Jochum and has currently has eight staff, with further recruitment planned. Mini-Cam managing director Nigel Wilson said the site will play a key part in the firm's growth.

It is used for the mechanical design and manufacture of precision parts and pre-assembly of Mini-Cam's range of crawler and push camera inspection systems, which are deployed in underground surveys in more than 40 countries. Final assembly takes place at Mini-Cam's headquarters in Warrington.

Nigel said the expanded InPipe operation would enable the company to hold more stock in Europe to meet growing demand. "This new building gives us a strong European presence and room for expansion," he added. "We started working with Dietmar in 2010 when the idea for our Proteus pipeline crawler inspection system was born, and it is extremely satisfying to see our Austrian subsidiary grow with this purpose-built facility. Austria and southern Germany are renowned worldwide as being centres of engineering excellence, so being in this location also gives us access to the latest machining techniques and skilled staff. It is a very exciting development for Mini-Cam as we embark on our next phase of development."

Mini-Cam, which is backed by private equity firm LDC, supplies customers in the water and wastewater industry as well as municipal authorities and companies in the oil and gas, petrochemical, construction and engineering sectors. Website: www.minicam.co.uk



Mini-Cam's new factory site in Austria. Inset facilities inside the factory.

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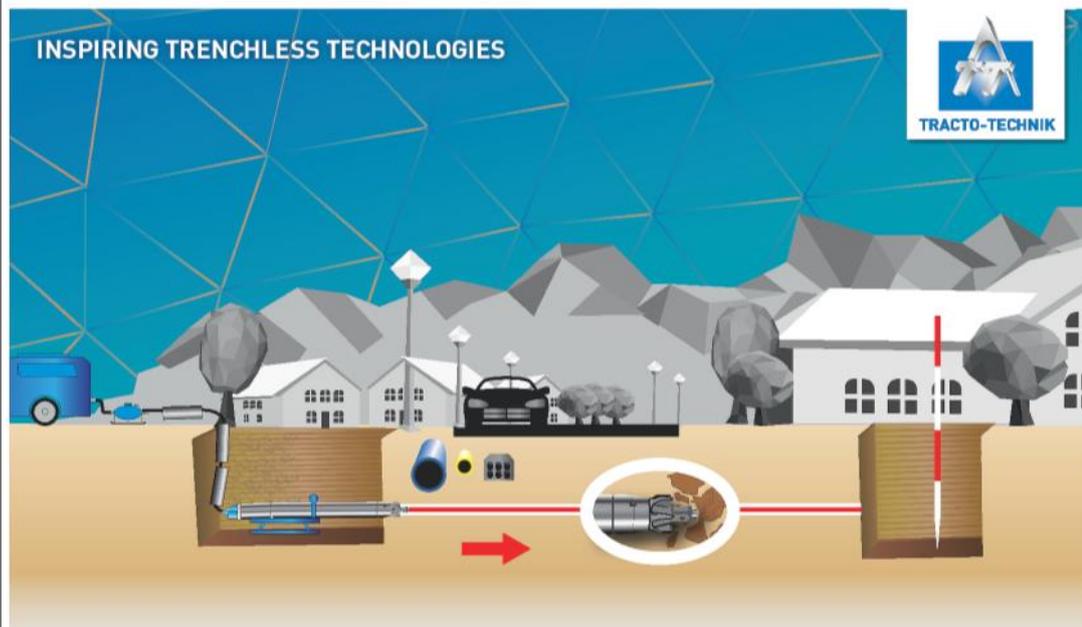
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INDUSTRY, COMPANY AND INSTITUTION NEWS AND RESEARCH



TTC CELEBRATES 10 YEAR PARTNERSHIP CTRD

Trenchless Technology Center (TTC) is an industry/university/government research centre at Louisiana Tech University, USA. For 27 years, TTC has served as a global leader for the development of technologies influencing almost every aspect of trenchless construction methods. On 7 and 8 April, 2017, TTC and Dr Tom Iseley hosted an 14 member China delegation. The China delegation visited TTC and Louisiana Tech University to celebrate the 10 year TTC Partnership with the China-U.S. Joint Center for Trenchless Research & Development (CTRD). On April 7, the China delegation had a lunch meeting with the Mayor Tyler (City of Shreveport) and the Program Management Team (PMT) leaders in Shreveport, Louisiana. This program was sponsored by CDM Smith, the program manager. Walter Carpenter, CDM Smith, made a presentation on how it is assisting the City of Shreveport to meet the objectives and milestones of the Federal Consent Decree. He described how trenchless technologies are critical to helping the City of Shreveport meet the Challenges. Dr Ma Baosong, Professor at the China University of Geosciences, provided an overview of the China Delegation programme and the China-U.S. Joint Center for Trenchless Research & Development programme. In the afternoon of 7 April, the China delegation had a tour of the TTC state-of-the-art Facility in the South Campus in LA Tech University to become more familiar with the TTC operation and research programme.



The banquet ceremony at the Davison Athletics Complex in Louisiana Tech University.

A banquet was held on 7 April at the Davison Athletics Complex in Louisiana Tech University where Dr Les Guice introduced Dr Bill Marcuson as the guest speaker. It was an honor to have Dr Marcuson, who is the past president of the American Society for Civil Engineers (ASCE), as the guest speaker. Dr Tom Iseley introduced Dr Ma Baosong, Professor at the China University of Geosciences, who made a presentation on trenchless technology (TT) developments in China. The official celebration of the 10 year TTC Partnership with the China-U.S. Joint Center for CTRD will be held on October 2017 in conjunction with the International Conference on Pipelines and Trenchless Technology (ICPTT) in China.

TTC has strengthened its international leadership over the past couple of years. For example, in China, TTC has established agreements with the China University of Geosciences in Wuhan, Xi'an Jiaotong University in Xi'an (XJTU), Institute of Geosciences and Environment in Wuhan, and Tianjin Qingcheng Water. Programmes identified for potential funding include the Sponge City Program, utility tunnels, pipeline seismic analysis, smart pipeline networks, etc.

In partnership with XJTU, Dr Iseley gave a lecture regarding Overview of Trenchless Technology on 17 October, 2016; he received a 3 year Adjunct Professor appointment from the President of XJTU, Dr Shuguo Wang. TTC is collaborating with the China University of Geosciences (CUG) in Wuhan, China on research projects. Recently, Peng Zhan who is a Ph.D. candidate in Geological Engineering at the CUG has joined TTC to complete his research. His research topic is about the largest curved pipe jacking roof support structure to date which is currently being constructed in Zhuhai, China. This tunnel project consists of 36 pipelines installed by microtunnelling. TTC host a Visiting Scholar from China who is the Director of Construction Engineering Teaching & Research Section at Hubei Urban Construction Vocational and Technological College. Two more Visiting Scholars will join TTC in summer from the College of Environment and Civil Engineering, Chengdu University of Technology and the Southwest Petroleum University, China.

TTC has a MoU with the following two organisations including: the Tianjin Qingcheng Waterworks Engineering Co., Ltd. (TQCW) and the Tianjin Hua Miao Research & Design Institute of Water & Wastewater Co., Ltd. TQCW has purchased over 12, 200 sq.ft of prime office space in the prestigious business district of Tianjin, China. Tianjin is a neighbouring mega-city to Beijing. This space has been dedicated to the Trenchless Technology Center – Tianjin (TTC-TJ) through the MoU partnership agreement.

Dr Iseley participated in the Planning, Construction and Operation of Common Utility Corridors ITACET Conference in Chengdu, China on 25 and 26 April, 2017 along with Dr Robert Stein (Stein & Partner, GmbH (S&P)), who served as a guest speaker in the conference. On August 30, 2016, the TTC at Louisiana Tech University and Stein & Partner, GmbH (S&P), based in Bochum, Germany, entered into an agreement to expand the awareness of the UNITRACC (Underground Infrastructure Training and Competence Centre) training and learning programmes. This joint initiative is led by Dr Tom Iseley of TTC and Dr Robert Stein, CEO for S&P. Website: www.latech.edu



The China delegation had a lunch meeting with the Mayor Tyler (City of Shreveport) and the Program Management Team in Shreveport, Louisiana.

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INDUSTRY, COMPANY AND INSTITUTION NEWS AND RESEARCH



VACUUM EXCAVATION DEMAND DRIVES RECRUITMENT PUSH

Having seen a rise in demand for safer, vacuum excavation in 2016, hire provider Pier (UK) is introducing new vehicles and operators to its team.

One of the first businesses in the UK to provide vacuum excavation hire, Pier (UK) is now the largest provider in the UK and Europe. As vacuum excavation becomes more recognised within the industry, the demand for hiring the equipment is on the rise, with the company investing in more new machines again in 2017.

To meet the increase in bookings, Managing Director Sean Quinn has also welcomed additional drivers and operators to the team to boost the personnel available to satisfy customer requirements.

Following the successful recruitment drive, Sean Quinn said: "It is great to see more and more businesses recognising the safety benefits vacuum excavation has over traditional methods. This rise in demand meant we needed to order more new equipment to ensure equipment is available when our customers need it. More importantly though it meant bringing on board new members of the team to operate the equipment, training them to the high standards our customers expect."

As well as an extensive in-house training programme, Pier (UK) is incorporating the new CPCS A78 qualification into staff training, through an external training provider. This ensures staff not only receive hands-on experience, but skills that are industry recognised and standardised across operations.

This increase in fleet numbers has also introduced a need for a full time role managing the vehicles. The newly appointed Transport Manager must rigorously coordinate the current fleet of 30 suction excavators, operator vans and various support vehicles, ensuring all equipment is regularly serviced, and any maintenance jobs are completed promptly so the fleet is always ready to go when needed. By financially investing in a purpose-built workshop completed on site in 2016, Pier (UK) can now complete maintenance and servicing quickly, ensuring fast turnaround for fleet availability.

With new vacuum excavators ordered throughout 2017, the company is also actively seeking Business Development Managers to join the business and work across the UK seeking new customers and opportunities to introduce vacuum excavation. Website: www.pier-uk.co.uk



Increasing demand for Vacuum Excavation calls for increased staffing.

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INDUSTRY, COMPANY AND INSTITUTION NEWS AND RESEARCH



WATER DRAGONS COMPETITION 2017 NOW OPEN FOR ENTRIES

According to Henry Ford: "If you always do what you have always done, you will always get what you have always got."

Future Water Association (FWA) launched Water Dragons in 2008. It provides a unique opportunity for companies to pitch product, service or process innovations to a panel of senior water company executives and industry specialists: 'Water Dragons'. Entries are now invited for the 2017 Competition and FWA is currently completing arrangements for four Regional Heats throughout the year culminating with a Grand Final at the beginning of 2018. Now in its tenth year, Water Dragons is itself innovating, 2016 saw three regional heats, attracting a wide range of excellent entries from across the sector, all in front of a live audience. Like all the best ideas, the fundamentals underpinning Water Dragons are simple and straightforward. Companies pitch their innovations to the Dragons. The Dragons then cross-examine the presenters, focussing on three key areas including Have they clearly identified the potential size and value of the market?; Have the presenters thought through how their innovation would be implemented?; No innovation operates in a vacuum - how will its introduction impact on existing operations, working practices and systems?



Water Dragons dovetails with the Future Water Association's 'Innovating for the future' roadmap, innovation training modules and the newly launched Young Water Dragons. Together they help members travel the innovation journey with increased confidence and certainty. Chair of the Innovation Steering Group at Future Water Association Alastair Moseley commented: "I am really impressed with how Water Dragons has grown and evolved, encouraging and bringing real innovation into the water sector."

Paul Horton, CEO of Future Water Association said: "Encouraging new ideas, creativity and new ways of thinking is essential to a water sector that has to meet many challenges, changing weather patterns, populations changes, urbanisation, regulation. I am also delighted that in 2017 collaboration with the Institution of Mechanical Engineers, Institute of Water and Chartered Institution of Water & Environmental Management, will bring professionals from across the sector into the heart of innovation and future thinking."

Simon Dray from Sponsor, Hydrosave added: "Innovation is at the heart of our business and we believe it should also be at the heart of development across the water sector. Water Dragons is a competition that we are delighted to sponsor. It encourages new ideas, new technology and new entrants into our sector and it is great for networking". Website: www.futurewaterassociation.com

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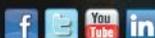
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INDUSTRY, COMPANY AND INSTITUTION NEWS AND RESEARCH



WATER INDUSTRY BIM INITIATIVE SHORTLISTED FOR AWARD

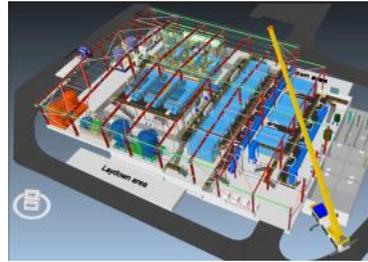
A whole-sector initiative to clarify the meaning of BIM in the water industry has been shortlisted for a Utility Week Star Award for collaboration. Every water and sewerage company (WaSC) in England, Wales, Scotland and Northern Ireland joined trade association British Water and BIM4Water, a specialist volunteer group, to set a water industry framework for building information modelling (BIM).

The WaSCs, responding to comments from the supply chain, worked together to review the national BIM standards and document an agreed definition of what BIM means to them as clients. The draft BIM Guidance for the Water Industry Owner Operator was formally launched for industry review at the 4th British Water BIM conference on 30 March 2017.

BIM4Water and British Water represent members from across the water sector including WaSCs, equipment suppliers, designers and contractors. Since 2013, members have been grappling with the meaning of BIM and in particular what BIM means for water companies and their customers.

Andrew Cowell, chair of BIM4Water said: "BIM and the new Guidance are about information management and how the water industry gears up to sharing data and operating in a digital environment. It is significant that water utilities have pulled together and are recognising the push for clarification from the supply chain. It is about a different way of working, with opportunities for efficiency in design, delivery and on-going maintenance and asset management. Water companies are acknowledging that while there is no regulatory mandate for BIM, improving data sets will help them meet Ofwat regulatory targets and that there is a lot of value to be gained from having a strong digital strategy."

Paul Mullord, British Water's UK Director says, "Suppliers have sent a consistent message to the utilities about the efficiency savings to be had if they adopt a more coherent and consistent approach to the information they require to operate and maintain their assets across the lifecycle. They have listened and, with this document, demonstrated what extraordinary leaps can be achieved when the whole sector works together." Website: www.britishwater.co.uk/bimdocs.aspx



Clarification on BIM will help water and sewerage companies deliver efficiencies.

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TBM TAKES ON EIGHTH BORE

A Robbins TBM, recently christened 'Augustine', is being commissioned to undertake its eighth bore after being launched by contractor Eiffage Civil Engineering on 3 March, 2017. The TBM, which was extensively modernised and upgraded during the rebuild for the Galerie des Janots project in La Ciotat, France, has previously completed seven other successful projects across Europe and Hong Kong. This time, it will bore the Janots gallery to improve access to water in the communities east of the Aix-Marseille-Provence metropolis (Cassis, Roquefort-la-Bédoule, La Ciotat and Ceyreste). "It is a single machine of 3.5 m (11½ ft) diameter, 250 metric tons (275 US tons), and 135 m (443 ft) long, that will work 24 hours a day for almost 10 months during this operation." said Marc Dhiersat, Project Director of Galerie des Janots for Eiffage.

Currently, the machine is ramping up as back-up decks are being installed. As of April 2017, the machine has bored more than 51 m (167 ft), mainly encountering limestone. "Limestone is a rock easy to dig, but one can be confronted with the phenomenon of karst." explained Loïc Thévenot, Director of Underground Works for Eiffage. "For this purpose, the tunnel boring machine is equipped with a probe drill. If the karst is small, we will fill it with concrete. If it is large, we will erect a small parallel gallery."

Galerie des Janots is one of the fourteen operations designed to save water and protect resources, which are being carried out by the Aix-Marseille-Provence metropolis, water agency Rhône Méditerranée Corsica, and the State Government. The future Janots gallery will replace existing pipelines currently located in the railway tunnel that have significant safety and vulnerability deficiencies with estimated water losses of 500,000 m³ (132 million gallons) per year. According to Danielle Milon, Mayor of Cassis, "This is an investment of €55 million (US\$59 million) with 11 million in aid from the water agency. This project required 10 years of reflection and work to improve water supply, and water is essential for the development of each municipality, and for citizens' well-being."

Augustine is boring a tunnel 2,750 m (1.7 miles) long, and will pass under Le Parc National des Calanques, with cover between 15 and 180 m (50 to 600 ft), in order to replace the pipes that are currently being utilised for the water supply networks. Website: www.robbinstbm.com



The Robbins Main Beam TBM boring its eighth tunnel in La Ciotat.

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The new HammerHead Roughneck™ R200 rock hammer is engineered specifically for horizontal directional drilling applications.

HammerHead Trenchless Equipment, a Charles Machine Works company, has introduced the new HammerHead Roughneck™ R200, the first 2 in (50 mm) diameter rock hammer engineered specifically for horizontal directional drilling applications. The R200, the smallest pneumatic rock hammer of HammerHead's Roughneck line, is designed to expand the capabilities of small utility drills allowing 7,000 to 10,000 lb (3 to 4.5 t) class directional drills to effectively drill through solid rock as well as other difficult soil conditions.

The R200 rock hammer was made to be the most efficient system available to HDD contractors in communications, gas, electrical and water service installations. The R200 model drills a 3 1/8 in (79 mm) diameter pilot hole.

"The R200 allows operators to use a small drill on jobs they could not before. If they needed to drill through solid rock, they would have to bring in a large drill to supply enough power which requires more labour, more support equipment, and more time to complete the job. With the R200, contractors can save money by maximising the capabilities of a small drill." explained Josh Hood, HammerHead HDD product manager. "When working in small spaces or drilling short distances such as under a road bed, it makes sense to use a small drill and now contractors can, regardless of soil conditions."

A key feature unique to the R200 rock hammer is the electronically-controlled air flow. With the touch of a button, the operator can adjust the air flow from open to closed and anywhere in between which allows them to manage the power of the hammer on the fly. This feature is critical in situations where soil conditions change abruptly. The ability to reduce or increase power quickly prevents costly interruptions during the bore.

The HammerHead R200 air hammer shares similar features with the other models of the HammerHead Roughneck line. The Roughneck R400, R500 and R600 are recognised as some of the most trusted and productive pneumatic rock hammers available for HDD applications. All four models are capable of drilling at rates of up to 150 ft/hour (55 m/hour) with exceptional steering performance. Additionally, all Roughneck rock hammers feature side-load high-flow housing, a patented pull back kit system and a lightweight control station.

Serviceability is a key design feature in all HammerHead pneumatic hammers and the R200 is no exception. Patented spanner wrench holes in the front and rear of the hammer reduces the number of breakout jaws required when performing maintenance or changing out rock bits.

The HammerHead R200 rock hammer is offered as a complete system to get contractors up and running. The system includes a R200 Roughneck air hammer, offset and angled offset bits, patented pullback kit, control station/oiler with tethered electronic remote control, hydraulic breakout tooling, 2 1/2 in (64 mm) universal high-flow housing, and a conversion kit specific to the drill.

The R200 rock hammer system is available from HammerHead Trenchless Equipment or from authorised dealers, worldwide.

Website:
www.hammerheadtrenchless.com



The Control Station for the HammerHead R200 rock hammer.

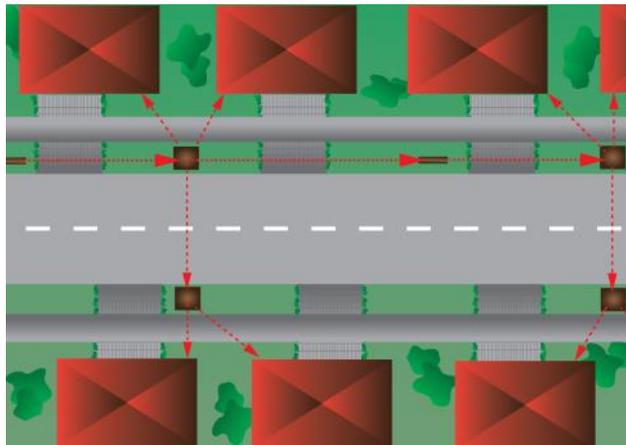
IMPACT HAMMER TECHNOLOGIES

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GRUNDOMAT AIDS ARROW CONSTRUCTION ON VERIZON'S FTTP PROGRAMME

While fibre optic cables to the home are designed to provide access to the latest that technology has to offer, like high speed broadband internet and hundreds of high quality, high definition television programmes, the tools that are often used to install those cables are often very basic. One in particular, the soil displacement hammer, has been performing just these types of service installations for over 40 years. While the accuracy of the tool has improved since the early days, the concept behind it has not changed and today's crews are improving their efficiency, lowering the restoration costs and generating good public relations through the use of this piece of classic trenchless technology.



Schematic illustration of the 'stich boring' method used for installing bores from very small pits.

Verizon is one of the major US telecommunication companies pushing fibre-to-the-premises (FTTP) services. The company began implementing its FTTP programme in early 2002. Since then the programme continues to expand and now includes projects in several states and large cities like Tampa, Florida. In May of this year, Verizon announced that an initial group of more than 40,000 Tampa area households were now able to receive its product offerings through its all-digital fibre optic network. The company had already deployed over 3 million feet (915 km) of fibre in the Tampa area. By the time the programme is scheduled to be complete, five years from now, over 9 million feet (2,750 km) of fibre optic cable will be installed. Installing the conduit that houses the cable is part of Stuart Greenburg's job. As owner of Arrow Construction of Dunedin, Florida, his crews are installing conduit in various locations across the State, helping Verizon complete its FTTP programme. The GRUNDOMAT soil displacement hammer plays a major role in daily operations. Greenburg has been using the tools for over 15 years. Over the last five years his crews have been using them on a regular basis. For the Verizon project, they are using them daily. He said: "On a good day we are trying to install 1,000 ft (305 m) of conduit. If I could use the displacement hammer all the time, I would. With a directional drill if we get ten (10) 40 ft (12 m) shots that is a good day. With GRUNDOMAT we can do over twice as much work. We can do 30 in a day with the missiles."

GRUNDOMAT specialist Jason Land from trenchless equipment manufacturer TT Technologies, Aurora, Illinois, supplies the displacement hammer and other pieces of trenchless equipment to Arrow Construction. According to Land in addition to its productivity, minimal disruption is a key benefit of the trenchless tool. He said: "Restoration is a time consuming and expensive process. It can make up almost 80% of the cost of an installation project. With the cost of restoration so high, trenchless options are extremely attractive, soil displacement hammers especially. Plus the trenchless application is ideal for these last mile operations. Everyday Arrow Construction crews are working in established neighbourhoods with driveways, sidewalks and landscaping. Not only are they saving money and time, they are building goodwill with the residents."

Arrow Construction partners Steve Vance, Miguel Esquivel and Stuart Greenburg have over 18 years combined experience working with telephone, CATV, fibre optics and power industries. Arrow Construction crews have been working on the Verizon FTTP program for several years already. According to Greenburg the project has kept them busy. He said: "We have been putting

The Verizon FTTP programme utilises GRUNDOMAT soil displacement hammers from 50 mm to 95 mm diameter .

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in 8 to 10 hours days and half day Saturdays as well. Our regular activities include stitch boring primarily in front yards and going under driveways. We have got so many compliments on our work on this project and we let our work speak for itself. Now we have been flooded with calls for other projects. It is almost at the point where we are having to turn down work!”

HAMMERS

Typically displacement hammers range in size from as small as 1¼ in (45 mm) diameter up to 7 in (180 mm) and can bore accurately up 150 ft (45 m) in length. A minimal crew compliment is needed to operate a displacement hammer and only small entry and exits pits are required for most projects. The tools can usually be fitted with different types of cones or heads for various soil conditions. In addition, the tools can be used to perform a standard bore, or they can be outfitted with a range of pipe and cable pulling adapters/accessories to pull in product pipe, conduit or cable while boring.

Land said: “The GRUNDOMAT is very versatile. It can be used for other applications like pipe bursting and pipe ramming. Because the tool can be used in so many ways, it represents one of the most useful trenchless construction tools available. Contractors and utilities can get a lot out of their displacement hammers. For Arrow Construction the tools get put to the test everyday.”

Accuracy, which was once an issue with the hammers of 40 years ago, is not an issue with today’s reciprocating chisel head, spring-loaded piercing tools, like the GRUNDOMAT. Greenburg said: “The guys put a level on there and shoot it. We recently bored under a parking lot, two bores at 80 ft (25 m) and two at 88 ft (27 m). The pit was about two-shovel-lengths wide, and we hit it like a directional bore. People associated with the project were telling us, ‘You cannot shoot over 40 ft (42 m) with those missiles.’ I said, ‘Well, we completed two of them before you even got here!’ We have proved them wrong time and time again.”

VERIZON PROJECT

According to Land, the Verizon project is giving the Arrow Construction crews the opportunity to use the piercing tools to the fullest. He said: “Arrow has two 12 man crews boring under driveways and yards everyday. Basically crews are installing single, double and triple conduit runs of 1¼ in (32 mm) diameter polyethylene. They probably have over a dozen piercing tools and they are working them constantly.”

Arrow crews are installing conduit for terminal bores (i. e. service connections) and path bores. Greenburg explained: “For the path bores we are basically feeding the neighbourhood. To accomplish that, we are performing what is called stitch boring with the GRUNDOMAT. There are small pits on either side of the driveway. You bore from one side to the other. Then you shoot the yard to the next driveway pit. The shots are usually 30 to 40 ft (9 to 42 m) long. With small pits, you have eliminated a large portion of restoration. For the service connections, we are dealing with a vault system. Basically we are bringing the sub-duct up into a vault system from across the street. So, approximately, and it can vary, you are placing a vault every 250 ft, (72 m) the conduit is installed to opposing corners and a small 4 in (100 mm) diameter piece of conduit sticks out in a bed of stone on the surface.”

For a majority of the horizontal boring work, Arrow crews use 2 in (50 mm) through 3¾ in (92 mm) diameter pneumatic piercing tools. Typically mule tape is pulled in while boring. Once the run is complete, crews pull the conduit in with the mule tape. In certain circumstances they will complete the bore, then attach the conduit to the front of the tool and back the tool through the boring, pulling in the conduit. Depending on soil conditions boring times range from a few minutes to a half an hour.



The Arrow crews, however, are not installing the fibre themselves. They are simply creating the path for the fibre installation. Most of the conduit being installed comes preloaded with mule tape to help facilitate the fibre installation. Greenburg said the installation of the fibre usually occurs within a week of the conduit installation depending on crew schedules. By that time, Arrow Construction crews have moved on to begin boring in the next neighbourhood. Website: www.tracto-technik.com

Small trenches along the road are used for creating the path bores using the ‘stitch boring’ method.



The GRUNDOMAT hammer is launched inside small trenches dug on either side of the driveways.



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HORIZONTAL DIRECTIONAL DRILLING

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ONGOING HDD GAS PIPELINE INSTALLATION IN TAIWAN

In 2015 Trenchless Engineering Services Pvt. Ltd. (TESPL) was awarded a project to complete an HDD installation of a 26 in (660 mm) diameter gas pipeline by CPC TAIWAN EPC. Siva Kumar Vilvanandan (General Manager) was seconded to Taiwan for the execution of four challenging crossings under the leadership and guidance of Vipin Gupta (CMD of TESPL).

The first HDD bore was located at the Taichung harbour strait and comprised a 1,418 m long crossing with a compound S-curve having a 1,000 m radius, known as the LNG project (see *Trenchless Works* March 2017 [issue 127](#) page 14). After the LNG job, TESPL was granted approvals for and permission to start the next phase of the HDD work which was the Sec D WUSI River crossing.



Site preparation works for the Sec D Wusi River HDD crossing. Inset: Ramming in the casing.

SEC D WUSI RIVER

The SEC D WUSI River project comprised a bore to install a 26 in (660 mm) diameter gas pipeline over some 680 m length to a depth of 56 m. The challenge for the project was that bore needed to pass through ground comprising heavy size cobbles most of which were approximately 18 in². The cobble ground extended from just below surface to a depth of some 20 m on both sides of the river. Knowing the conditions in advance enabled TESPL to do its research to enable it to anticipate the worst conditions and pioneer what turned out to be quite a unique methodology which they could apply with the utmost confidence.

TESPL set project priorities by evaluating the available engineering solutions to overcome the surface cobbles sections and ultimately decided on the excavation of a cofferdam with a 12° gradient and an area covering 4 m wide by 35 m long from the bore entry point. Once installed the cofferdam would have a 42 in (1,067 mm) diameter casing rammed into the ground from the end wall of the cofferdam over a length of another 30 m at an angle of 12° or to a depth from surface of 16 m. This casing would then pass through the cobble section as indicated by the ground investigation bore samples and fit in with the TESPL bore design profile.

The plan was to ram in the casing and auger out the cobbles after each pipe ram was completed. Once the large diameter casing pipe was installed a further 12 in (300 mm) diameter casing pipe was mounted inside the first casing with 38 in (965 mm) diameter centralisers spaced along it at a uniform distance. This casing was one through which the drilling rods and down hole tooling would pass so as to reinforce the pipe string and prevent it from buckling during the pilot hole bore whilst keeping the rod string central as the bore progressed thereby easing the rod deployment and recovery. This also centralised the rod string ahead of the various diameter reaming operations and product pipe pullback operations which were to follow to complete the bore.

Once the sections covering the cobble ground on both side of the river were completed, the process of installing the pilot bore began and once through the cased ground section the pilot hole was advanced to its horizontal section of the bore profile. This alignment was held for the length of



Preparing the launch site for the drilling rig. Inset: the centralising casing used to stabilise the drill string during the pilot bore operations.

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the under river crossing section before building up the curve for the approach to the exit point where the operators would again encounter the dense cobble ground at a depth of 18 m from surface at the exit side where a similar cofferdam arrangement to that on the entry side of the bore had been prepared. This time the distance of cofferdam wall from the entry point to surface was 40 m with the depth from surface being 9 m. In the same way as for the entry side a further pipe ram was completed to install another 42 in (1,067 mm) diameter casing pipe which was again augered clean and installed with a 12 in (300 mm) diameter centralising casing pipe.



The two drill rod strings having met precisely underground are brought to surface to prepare for the reaming operation.

What made the project particularly interesting at this point was that rather than aim the drill string of the first pilot at the exit point and try to perfectly hit the mark to achieve the exit of the bore on target, a second bore was commenced from the exit side drilling towards the previously drilled bore path and known position of the drilling head with the second bore maintaining the 'exit' radius required.

This was technically challenging as it required the drilling crew to keep the bores from either side of the crossing perfectly aligned to ensure the bores met at the point required. As the ground through which both bores had to pass after the cobble sections was a mudstone formation the chance to form a 'key slot' with barely inches to spare was vital otherwise the reamers used to enlarge the bore to the final diameter would not be able to line up with the steel casing.

The worst case scenario would have been that the reamers would never be able to enter into the casings at either end of the bore.

So TESPL designed a 12 m long length of 12 in (300 mm) diameter casing with a 38 in (965 mm) diameter centraliser which was slid into place with a drill pipe to a position at the end of the 42 in (1,067 mm) diameter casing to aid the guidance of the operational drill string into the 12 in (300 mm) diameter casing.

This method enabled the centralisation of the reamers at the hole end of the 42 in (1,067 mm) diameter casing on either side of the crossing for entering and leaving the casings.

At this point TESPL was almost ready to install the product pipe. However experience had shown TESPL the damage effects of friction that can have on the coating of such gas product pipe coating damage during the installation operation.

So, it was decided to apply an additional DENSO tape layer to the surface of the product pipes at areas where the casing might contact the product pipe during installation thereby avoiding any rupture or damage during the casing pipe retrieval after product pipe installation was completed.

Ultimately the Sec D WUSI River crossing installation was completed very successfully to the satisfaction of both contractor and more importantly to the satisfaction of the client.

Furthermore, on completion of the works, TESPL restored its job site to its original condition on both sides of the river as per conditions required in the contract including retrieving the large diameter casings on both sides of the river crossing. Website: www.trenchless.in (this article is based on information provided by Vipin Gupta CMD - M/s Trenchless Engineering Services Pvt. Ltd.)



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PIPELINE REHABILITATION

For General Information on Pipeline Rehabilitation [click here](#)



C.J. KELLY INTRODUCES SPRAY-LINER TO THE UK MARKET

In January 2017 the Germany-based KOB Group, manufacturer of Brawoliner®, acquired Spray-Liner GmbH based in Bergisch Gladbach. This acquisition combines two world-renowned names from the global pipeline rehabilitation industry. This combination expands KOB's range of solutions in the trenchless sewer rehabilitation sector and reinforces its position as the leading system supplier in Europe for all rehabilitation specialists in the construction and property sector.

As KOB's main distribution partner within the UK and Ireland C.J. Kelly Associates is currently in the process of introducing the Spray-Liner® system into its UK portfolio. With increasing awareness across the UK of the potential for trenchless and minimum access pipeline rehabilitation within existing building structures, the timing of this introduction could not be better.

Spray-Liner is a specialist system for the sealing of damaged wastewater pipes quickly and efficiently, particularly in buildings (so-called in-house rehabilitation). Applicable to pipelines from as small as 34 mm diameter up to as much as 155 mm diameter as well as various pipe materials, Spray-Liner® is highly effective across most of the pipeline diameters currently within existing buildings and will therefore be of interest to not only sewer contractors but possibly even plumbers and building renovation companies. In October 2016, Spray-Liner® also gained the approval of the German Institute for Building Technology (DIBt).

The new technology will also be of interest to home owners and insurance companies as an interesting alternative to the open construction methods often used as standard procedure to date. Just as with BRAWOLINER®, the Spray-Liner® method requires no walls or floors to be opened to access and rehabilitate damage pipes.

Spray-Liner® uses a specially developed, high quality epoxy resin system that is evenly applied to the inner wall of the pipe under repair using a spray head inserted into the pipe. Whilst the host pipe has to be clean it is not necessary with Spray-Liner that the pipe is dry prior to application of the coating. During the installation process the spray head assembly is capable of negotiating pipe bends up to and including 90°. The system can also be used to coat lateral/side connections. In all cases the coating makes an effective bond to the pipe surface irrespective of the pipe material. The materials used are also guaranteed styrene free and do not shrink during the cure process. Once applied the internal coating restores the water impermeability as well as ensuring abrasion resistance which provides additional service life.

Commenting on the launch of the new system John Kelly Senior Partner with CJ Kelly Associates said: "We have worked KOB Group for many years and the addition of the Spray-Liner® system to the company's rehabilitation range now gives us the opportunity to offer renovation technologies for all pipes from as small as 34 mm upwards both in building and in the traditional areas outside of the building structure. The move towards the use of renovation techniques inside buildings means this

new Spray-Liner® system provides an answer to many of the rehabilitation problems facing building maintenance companies and pipeline engineers today. We see a very strong future for this technology in the UK." Website:

www.cjkelly.com

Spray-Liner® can coat both main lines and laterals and (inset) Spray-Liner® is applicable to a wide range of pipe diameters.



A schematic of how Spray-Liner® is applied within a pipe.

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PIPELINE REHABILITATION

For General Information on Pipeline Rehabilitation [click here](#)



FAST REPAIR AIDS CRITICAL WATER SUPPLY

A simple, permanent repair was recently carried out to a leaking concrete reservoir in Queenstown, New Zealand, using specialist hydrophobic grout Hyperflex, supplied by Source One Environmental (S1E) in the UK.

“The repair was essential as the leakage was causing erosion to the hillside on which it is situated.” explained Ian Fraser, S1E’s New Zealand representative. “It forms part of Queenstown’s drinking water supply system, so it was critical that the repair was carried out without delay and was successful and permanent, with no need to return. The town has an urban population of more than 14,000 residents, so any issues could have caused a major headache.”

Infrastructure managers had discovered leakage from the joints between the walls and base of Arrowtown reservoir, as the original silicon sealant had broken down. The problem was worsened by tree root ingress.

Hyperflex was selected to permanently seal the gaps that had appeared as, once installed, this closed-cell hydrophobic grout will not allow the passage of any water and does not shrink over time. It was safe for this application as it has US approval NSF 61-2007, for contact with potable water. Hyperflex was designed to combat widespread, low flow rate infiltration and flows to fill any void, even down to the finest cracks, during installation with an expansion rate of 20:1.

The installation process was straightforward and took only three days:

- Day 1: A thorough power wash of the walls and the channel at the intersection of the wall and base, followed by treatment for tree root ingress.
- Day 2: Chlorine spray and wash and installation of Hyperflex, mostly using a standard caulking gun.
- Day 3: Removal of the excess Hyperflex, addition of a fillet of water-stop and cement around the entire base/wall intersection, then final power wash and chlorine wash before refilling with water.

“The gap around the base varied in width, but the Hyperflex flowed to fill the entire void. Good penetration between the walls and the base became apparent when the foam appeared underneath the reservoir where excavation had taken place to repair valves.” explained Ian.

Hyperflex is ideal for the repair of tunnels, manholes and bunds and can be used for ground stabilisation purposes. It is a complementary product to SealGuard II, a faster-acting polyurethane product designed to stop rapid water flow. Both products are available exclusively from Source One Environmental. Website: www.s1e.co.uk

Queenstown, NZ, has a population in excess of 14,000, which relies on the water supply from the reservoir. Inset: After initial installation of the Hyperflex, the void was completely filled as shown by the appearance of the foam in the valve excavations.

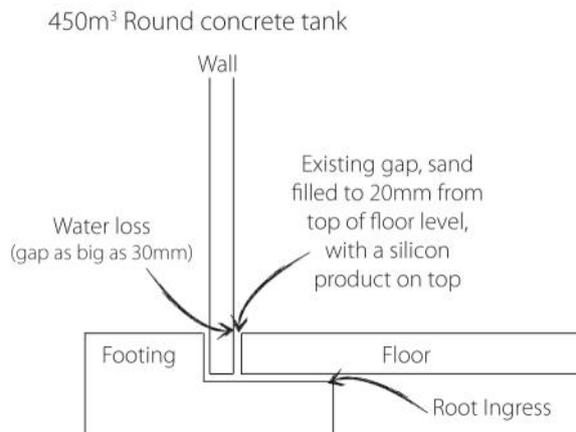


Diagram showing the initial problem at the base of the reservoir walls.

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McELROY INTRODUCES THE ACROBAT 180

The McElroy Acrobat™, a hydraulic butt fusion machine originally designed for the plumbing and mechanical industry, is now available for the underground/construction market.

Priced competitively, the Acrobat 180 is ideal for those interested in a reliable, easy-to-use machine. It butt fuses 63 mm to 180 mm (2 in IPS to 6 in DIPS) HDPE pipe and fittings with a variety of pressure ratings. With its light weight, it can be carried from joint to joint but still maintains the same rugged reliability expected of any McElroy butt fusion machine.

The Acrobat 180 is the perfect tool for in-ditch work and tie-in fusions and provides a cost-effective alternative to electrofusion which requires the purchase of additional fittings. It functions in tight work spaces by removing the base and converting the carriage from 4 to 3 jaws. The top jaws can even be removed for easier manipulation around pipe and fittings.

“The Acrobat 180 is a sophisticated machine that is easy to operate at the same time.” said Jason Lawrence, Director of Product Development. “While the capabilities of the machine are impressive, it is not intimidating. It was engineered from the user’s perspective and what they need to meet the demands of their job.”

Two Hydraulic Power Unit (HPU) options are available to provide fusion pressures up to 800 psi or 1,500 psi. Both HPUs allow the operator to easily pre-set the carriage, facer and heater pressures, eliminating repetitive adjustments between operations. Both HPUs offer a smart design so that both the heater and facer plug into the HPU, allowing the entire machine to draw power from only one receptacle.

The Acrobat 180 is also compatible with the DataLogger® for joint reporting and quality assurance which is a growing requirement on jobsites today.

McElroy machines are built to last with hard-anodised aluminium surfaces that prevent corrosion. They come with an industry-leading 5-year warranty. Website: www.mcelroy.com



The McElroy Acrobat 180 is now available for the underground/construction market.

EASIER LARGE DIAMETER PATCHING

A new style of packer, which makes large patch repairs easier and which can mend oval pipes, is now available in the UK, courtesy of Source One Environmental (S1E). The system is known as the Pillow Packer.

“This product is the latest addition to the Pipe Doctor No-Dig patch repair system.” explained S1E Business Development Manager, Russell Edwards. “It is another tool to achieve professional repairs, offering a unique way to fix larger infrastructure while solving some difficulties on-site.”

The product has been on sale in the Americas via S1E’s US sister company, where it has been fully trialled and tested. Here in the UK, S1E has conducted successful joint tests with contractor PBF Drainage, who have now trialled it with a Water Company client.

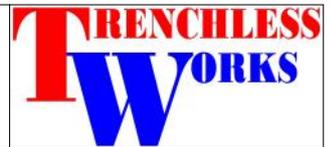
“Everything went perfectly on our first 900 mm diameter repair, with an excellent smooth finish to the patch. The client was really happy with the result and we found that there was none of the usual headaches you can get when repairing at this size.” commented James Stern, PBF Drainage’s MD. “We have successfully installed over thirty of these large diameter repairs since we have had our pillow packer and we have gained huge experience with this system.” Pillow packers are oblong in shape, rather than circular, and lighter in weight than traditional packers of equivalent size. Three sizes are available, offering repair of pipes from DN750 to DN1800.

The pillow packers fold down prior to installation in the pipe, which makes them easier to manoeuvre and the repair can therefore be achieved with fewer operators. During inflation, the packer grows to the size of the infrastructure into which it is placed and it can form to shapes that are not circular, particularly allowing the full repair of oval as well as circular pipes. When not in use, pillow packers fold flat for easier transportation and storage.

“The new pillow packer offers contractors an alternative that will make their lives easier when offering their own customers a low-cost, low-disruption repair.” concluded Russell. Website: www.s1e.co.uk



A demonstration a Pillow Packer installation.



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SUPPORT EQUIPMENT, ACCESSORIES & SERVICES

For General Information on Support Equipment & Accessories [click here](#)



NUMA OFFERS LARGEST RANGE OF DTH HAMMERS AND BITS

Numa, one of the world's leading drilling technology provider, offers one of the largest ranges of DTH rock drilling hammers and bits available in the industry today for drilling holes 3 in all types of conditions, applications, and industries. Numa works with drillers on job sites around the world to support its products and gain first hand insight for advancing DTH product design. The company holds 13 patents, with more pending, for DTH equipment capable of drilling vertical, horizontal, and reverse circulation holes. Numa products operate in 11+ industries including construction, oil & gas, mining, quarry, geothermal, water well, and more.

Numa's wide range of DTH products includes: Small Hammers and Bits: For drilling holes from 3½ in to 10 in (89 to 254 mm) diameter Numa offers eighteen different small diameter hammers for diverse drilling conditions. Built specifically for longevity and penetration rate, Numa's Patriot® hammers and bits drill at high frequency and require less air. Even against high heads of water.

Mid-Range Hammers and Bits: For drilling holes from 7⅞ in to 20 in (200 to 508 mm) diameter Numa's mid-range hammers and bits provide a combination of speed and life to excel against hard, abrasive and just plain nasty conditions. A simplified hammer design with less internal components promotes less vibration and smooth operation.

Large Hammers and Bits: For drilling holes from 18 in to 48 in (457 to 1,219 mm) diameter Numa pioneered the large hammer industry and leads the market in performance and reliability. Forward thinking designs have proven themselves again and again in worldwide applications.

Reverse Circulation Hammers and Bits: For drilling holes from 5¼ in to 36 in (133 to 914 mm) diameter Numa's Reverse Circulation products have the unique ability to bring all cuttings up the centre of the hammer and drill string to be safely collected at the surface, which is essential in today's environmentally conscious society.

Super Jaws® Bits: For drilling holes from 5½ in to 42 in (457 to 1,066 mm) diameter Super Jaws provides superior performance for simultaneous drilling and casing in hard rock and overburden formations. Wings extend out to drill a full diameter hole then retract to bring all tooling to the surface. No expensive tools are left in the hole and no casing teeth are required. Website: www.numahammers.com



NUMA hammers and bits include HDD drilling tools.

SPONSORS LINKS

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MTS Suction Systems UK Ltd, is a subsidiary of MTS GmbH, manufacturer of MTS Suction Systems, providing full sales, service, spares and support across the UK and Ireland for the full MTS range including Suction Boxes, City Dino's and larger DINO equipment, as well as bespoke systems.

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UKSTT NEWS

JOINT UKSTT/PIG - DURHAM

On 22 March 2017 the United Kingdom Society for Trenchless Technology (UKSTT) and the Pipeline Industries Guild (PIG) held a joint technical event in Durham. This is a continuation of the annual joint technical events that are held in the North East showcasing the winners and shortlisted entries from the UKSTT and PIG Awards Ceremony's.

A number of representatives from local utilities, contractors, consultants and innovation companies were present on the evening with the theme being on 'Innovation'. Past Chairman, Ian Ramsay made a brief presentation representing UKSTT whilst Vince Braniff, PIG Northern Branch Chairman updated the audience on their upcoming events.

Many thanks go to Northumbrian Water, Richard Johnson and Vince Braniff for hosting the event and to the following speakers:

Ian Clapham - Lanes Group - Installing a chemically-resistant sewer lining using UV technology
Andy Sparkes - Synthotech - Water Extraction systems for live gas mains and services Synopsis
Alistair Kitching - Tellus Utilities - improving clients' service quality and reducing the total cost of ownership of assets in harsh and demanding environments.

Ian Tindell - HTC - 'Pnueclean'

Many thanks also to sponsors: Lanes Group and Synthotech

UKSTT SUBCOMMITTEE MEETING

On 16 March the Membership Services committee and the Technical and Education committee met at Camden House. A summary of the major decisions is shown below;

- Septembers Council meeting will be put back a couple of weeks to the 28 September to coincide with World Trenchless Day. Suggestions on how UKSTT and members can celebrate this day will be welcome, contact Lynn on 01926513773
- Award entry deadline date has been set as the 7 July 2017.
- Reading roadshow is being supported by Thames, Eight20 and Lanes. Corporate members are invited to submit presentations. Further information to follow.
- Video's will be recorded of training seminars to host on the UKSTT 'YouTube' channel

Vice Chair Matthew Izzard, secured a meeting with Severn Trent on the 30 March to discuss setting up a liaison meeting for UKSTT members.

LIAISON MEETING UPDATE

Severn Trent Waters Chief Executive, Liv Garfield, has expressed a desire to see greater effective use of trenchless technology. Subsequently a liaison meeting was held at the STW Head Office in Coventry with UKSTT on 30 March (as mentioned above) to look at ways the Society can support Severn Trent Water achieve this aim.

Acting Chairman, Matthew Izzard and Business Development Manager, Lynn Maclachlan met with Celia Jackson and Sally Rumens, both from Severn Trent, and Andy Tomlinson from Amey. The objective was to confirm the support and activities of UKSTT and to arrange a future presentation useful to them for trenchless technology techniques and innovation.

Severn Trent has targets around 'Always On' therefore would welcome presentations showing how they can maintain continuous flow of water whilst Trenchless Technology is being performed along with a specific focus on mapping and inspection. The session is to take place on the 31 May at Severn Trent's offices in Coventry and the target audience will be design engineers and planners from Severn Trent Water, Principle Contractor AMEY and supporting sub-contractors. The initial meeting will be relevant to clean water only with the intention to hold a wastewater session later on in the year.

Members interested in being involved at this event should submit a non-commercial synopsis of the technology they wish to present to admin@ukstt.org.uk by the 5 May for submission to Severn Trent Water.



MEMBERS NEWS

MORRISON UTILITY CONNECTIONS

Morrison Utility Connections, a major projects Independent Connection Provider (ICP) and part of Morrison Utility Services, has been commissioned to build and connect one of the world's largest and most sophisticated battery-based energy storage systems. Scheduled for completion by summer 2018, the 49 megawatt (MW) lithium-ion system will respond to fluctuations in electrical demand in less than a second, supporting the creation of a Smart Grid.

Morrison Utility Connections will undertake the work on behalf of energy storage pioneer Younicos which has been chosen to design and deliver the battery-based energy storage system on behalf of international energy and services company, Centrica.

Based on the design for Younicos' turn-key battery solution, the scope of works will include the design and construction of the building, civils works, building services, HV electrical system, 132 kV connection to the grid and the installation of 16 inverter transformers to connect the batteries.

The battery plant will be built at the site of the former Roosecote coal and gas-fired power stations in Barrow-in-Furness, Cumbria, UK. Younicos software will be key to ensuring that the system meets the various demanding requirements set by the UK Transmission System Operator (TSO).





Wednesday 13th September 2017

at The Warwickshire Golf Club - Leek Wootton, Warwick, CV35 7QT

Teams of 4 players in an 18 Hole Stableford Competition

Entry Fees: FWA & UKSTT Members: £475.00 + vat

Non-members: £575.00 + vat

Including 18 Holes of Golf on the magnificent 'Kings Course'

Bacon Rolls Tea/Coffee on arrival

3 Course Dinner & Prize Giving

Prizes for Overall Competition, Nearest the Pin & Longest Drive

Non-Players (full use of leisure facilities + 3 course dinner)

Members of the FWA & UKSTT: £65.00 + Vat

Non-members: £95.00 + vat

**For further details and a booking form please contact Future water Association on
Tel: 01926 513771**

or

Email: events@futurewaterassociation.com

Morrison Utility Connections Contract Director Andy Clark commented: “The requirement for battery storage facilities by the Grid and others is still in its infancy but is predicted to grow significantly over the next 5 to 10 years. We are delighted to have been selected for this ground-breaking and high-profile project and we will draw upon our highly experienced internal design and construction team to successfully delivery this facility which, once complete, will be one of the largest battery storage plants in the UK.”

Younicos Chief Commercial Officer Jayesh Goyal added: “We look forward to working with Morrison Utility Connections to deliver the world’s most sophisticated battery installations. Together we will deliver a state-of-the-art battery plant that will allow Centrica to demonstrate the technical and economic value of batteries in meeting peak demand, while also improving grid performance and resiliency for ratepayers in the UK in the years to come.”

OTHER NEWS & EVENTS

NO-DIG ROADSHOW 2017 - June 22 in Reading, UK. Website: www.westrade.co.uk

NO-DIG ROADSHOW 2017 - October 19 in Leeds, UK. Website: www.westrade.co.uk

ISTT AFFILIATED SOCIETY NEWS

NO-DIG DOWN UNDER 2017 - Sept 12 to 15, 2017 - Gold Coast, Australia. Details from: www.nodigdownunder.com

TRENCHLESS WORLD CONGRESS 2017 - September 25-27 - Medellin, Colombia.
Details from: www.nodigcolombia.com

MEMBERSHIP BENEFIT

UKSTT Technical Enquiry Service - over £1 million of potential work per annum

The UKSTT website has a dedicated link for visitors to raise technical enquiries they may have concerning the world of trenchless working. In addition, the administration team in Kenilworth, receive many calls seeking help.

As part of the Corporate Membership benefits package many of these work associated potential advisory/problem solution queries generate business directly or indirectly for our members.

These enquiries are passed directly to our Corporate members and if they are able to assist or put a tender in they are then in a position to respond directly to the enquirer.

Based on review and demand the service has improved over the years and currently logs nearly 100 technical enquiries per annum and, although some verbal enquiries are dealt with immediately over the phone the majority are captured within a database which is reviewed and circulated to council members monthly.

For further membership benefits please visit our website or contact Lynn on 01926513773 or email: admin@ukstt.org.uk

JOIN TODAY

Join the UKSTT and become part of the International Society for Trenchless Technology. Members are entitled to access the services provided on the ISTT website to include free downloads of technical papers and reports from the Technical Resource Centre TRC. Members also receive quarterly mailings of Trenchless International (TI) - ISTT’s official magazine. To find out all of the benefits that your company could receive take a look at the website www.ukstt.org.uk/ or speak to Lynn on 01926 513773 or email admin@ukstt.org.uk



WHY UKSTT?

Without members trenchless technology would be in a hole!

Supporting the UKSTT helps to promote trenchless technology to Local and National Government, enabling them to minimise utility disruption. The UKSTT also promotes advanced trenchless techniques to the Utility Industry through education programmes, technical seminars and networking.

Join us now - call: 01926 513773 or email: admin@ukstt.org.uk

United Utilities nationalgrid Eastern Cheshire Water Bournemouth Water

Support the UKSTT - Join the trenchless revolution: www.ukstt.org.uk

Horizontal Directional Drilling (HDD) Masterclass

A one day masterclass comprehensively covering all aspects of HDD.
Thursday 4 May 2017



Masterclass Programme: CPD Qualified Seminar

HDD Special Projects – Evaluation, Costing and Risk Assessment

– Kim Staheli, Staheli Consultants

HDD Guidance Systems – The Way Forward

– Scott Stone, Visser & Smit Hanab

Adapting existing HDD Technology for Gravity Pipe Installation

– Barhale plc

Application & Requirements for Rock Drilling

– Jim Albarella – Tracto-Technik

Use of Bentonite and Polymers in HDD

– Frank Ooms, Cebo UK

Full Face Hole Opening: Technology & Equipment Involved

– Herrenknecht International Ltd

Important Points regarding the Pit End of an HDD Shot

– Kevin Burt, T A Drilling Ltd

Compact Environmental Drilling

– David Furlong, Mole Group

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Venue: The National Motorcycle Museum,
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DELEGATES: £150pp + VAT
10% Discount for UKSTT, BDA,
& FWA members.

The full programme will be supplied to all registrants.

The organisers reserve the right to amend the programme if necessary.

www.ukstt.org.uk

Enquiries contact UKSTT Tel: 01926 513773 Email: admin@ukstt.org.uk

EVENTS AND MEETINGS



WORLD RENOWNED TRENCHLESS ASIA EVENT RETURNS TO KUALA LUMPUR IN 2018

Westrade Group Ltd, the organiser of the world-renowned Trenchless and No-Dig technology exhibitions, has announced the launch of the 10th Trenchless Asia event. The exhibition and conference will return to the Kuala Lumpur Convention Centre, Malaysia from 7 to 8 May 2018.

Trenchless Asia 2018 follows up on the success of the last event in 2016, which attracted over 1,500 visitors from across Malaysia, Philippines, Singapore, Australasia, China, Hong Kong, Japan, Korea, India and Thailand. The event is once again supported by Platinum Sponsors JBP Group of Companies.

The high quality conference programme that runs alongside the exhibition was previously opened by YBhg. Datuk Loo Took Gee, Secretary General, Ministry of Energy, Green Technology and Water (KeTTHA) and the 2018 programme will once again boast some of the sector's leading innovators, pioneers and thought leaders.

Commenting on the launch of Trenchless Asia 2018, Paul Harwood, Managing Director of Westrade Group Ltd said: "We are excited to be returning to Malaysia in 2018 to celebrate our 10th Trenchless Asia event. Everywhere you look across the region, there are large scale infrastructure projects, the vast majority of which will incorporate trenchless technology to realise the commercial and environmental benefits that it has to offer."

The decision to return to Malaysia and the Kuala Lumpur Convention Centre is significant. The country has a number of major ongoing infrastructure investment programmes including the US\$1.7 billion Klang Valley sewerage project, a RM3.6 billion project funded by the Energy, Green Technology and Water Ministry (Kettha) which will be completed by September 2020 and the Malaysia Plan that has over RM80 billion of projects including tenders in public transport, oil and

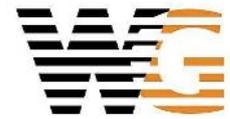


gas downstream infrastructure and water-related jobs. Website: www.trenchlessasia.com

The very busy Trenchless Asia 2016 event show the high level of interest in the technologies on display.

SPONSORS LINKS

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Westrade Group Ltd

Westrade Group Ltd is an independent company specialising in trade exhibition and conference organisation. Events include the 'TRENCHLESS' and 'NO-DIG' series across Europe, the Middle East, Asia and Africa.



Event supported by **GSTT**

Trenchless Romania

2-nd Edition
Conference & Exhibition

15 June 2017 Hotel Caro Club Bucharest

www.trenchless-romania.com

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Supporters	Principal Media Partner	

NO-DIG ROADSHOWS

2017

NO-DIG ROADSHOW



A series of one day seminars and technology showcases providing an insight into the very latest innovations in trenchless technology.

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Limited space available

Reading 22 June 2017 The Holiday Inn

Technology Showcase

A number of key suppliers will be on hand to present their products and to discuss your special applications.

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- Picote UK
- PipeHawk Plc
- PSS Hire
- Radiodetection
- Scanprobe Techniques
- Stanton Bonna Concrete
- Trenchless Sales UK

Leeds 19 October 2017 The Met Hotel

Technology Showcase

A number of key suppliers will be on hand to present their products and to discuss your special applications.

- C.Scope
- C J Kelly Associates
- Picote UK
- PipeHawk Plc
- PSS Hire
- Radiodetection
- Scanprobe Techniques
- Trenchless Sales UK

UKSTT Awards - 19 October

The UKSTT Awards and dinner will commence at 7pm at The Met Hotel, with a Drinks Reception, three course meal and entertainment.

Ticket costs:

Book before 18 August 2017 to receive the Early Bird Rate: £90+VAT

Bookings received after 18 August 2017: £100+VAT

To book your tickets, please contact Westrade at trenchless@westrade.co.uk



Supported by



Event Partners



The NO-DIG ROAD SHOW series is organised by Westrade Group Ltd and supported by the United Kingdom Society for Trenchless Technology (UKSTT).



Enquiries to Westrade Group Ltd Tel: 01923 723990 Email: trenchless@westrade.co.uk

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EVENTS AND MEETINGS



2017

May 25-26

3rd Water Loss Forum - Ankara, Turkey.

Details from: www.waterlossforum.org/en

June 15

Trenchless Romania 2017 - Bucharest, Romania.

Details from: www.trenchless-romania.com



June 20-22

Paris No-Dig Live - Paris, France.

Details from: www.fstt.org

June 22

No-Dig Roadshow 2017 - Reading, UK

Details from: www.westrade.co.uk

August 16-17

Asset Management for Critical Infrastructure Summit 2017 - Sydney, Australia.

Details from:

www.assetmanagementforcriticalinfrastructure.com.au

September 12-15

No-Dig Down Under 2017 - Gold Coast, Australia.

Details from: www.nodigdownunder.com

September 25-27

Trenchless World Congress - Medellin, Colombia.

Details from: www.nodigcolombia.com

October 11-12

NSTT No-Dig Event – Nijkerk, The Netherlands

Details from: www.no-dig-event.nl

October 19

No-Dig Roadshow 2017 - Leeds, UK

Details from: www.westrade.co.uk

December 6-7

STUVA Expo 2017 - Stuttgart, Germany.

Details from: www.stuva-expo.com

2018

March 13-16

BAUMA CONEXPO AFRICA - Johannesburg, S. Africa

Details from: www.bcafrica.com

March 25-29

No-Dig Show (NASTT) - Palm Springs, USA

Details from: www.nodigshow.com

May 7-8

Trenchless Asia 2018 - Kuala Lumpur, Malaysia.

Details from: www.trenchlessasia.com

September 18-20

No-Dig Live 2018 - Peterborough, UK.

Details from: www.westrade.co.uk

If you have an event, course or meeting scheduled and would like to add it to this listing please forward details to: ian@nodigmedia.co.uk