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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. 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 we have accumulated unrivaled engineering and manufacturing experience for both Circular and Non-circular buried infrastructure worldwide. **At Channeline, we are proud of our heritage and are committed to offering economic custom solutions to our existing and future customers in the Storm and Wastewater Sectors.**

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Beyond the Ordinary
ENTERING THE SECOND HALF CENTURY OF HDD

This year marks the start of the second half century of HDD. Since 1971, when inventor Martin Cherrington completed the first crossing of the Pajaro River in Northern California, HDD has become a mainstay technique for installing a wide range of underground utilities. One thing that the COVID-19 pandemic revealed was the lack of consistent fibre optics networks throughout the world. Today, we can see HDD rigs everywhere upgrading these telecommunication networks to provide better bandwidth to support the increase in remote work and learning. In addition, municipal infrastructure, energy pipelines, and electrical conduits are commonly being installed with HDD. Today, we are seeing HDD's contribution to building alternative energy infrastructure such as offshore wind and solar farms further demonstrating the breadth of applications of the technology. This issue takes a deeper look at HDD by exploring, among other things, favourable ground conditions, achievable installations, and the inherent advantages of adopting HDD compared to other installation methods.

U.S. HDD rig manufacturers Vermeer, Ditchwitch, and American Augers continue to dominate the North American market, while Chinese manufacturers XCMG, DW-TSX, Drillto Trenchless, and Goodeng maintain large market shares in China and Southeast Asia. Apollo, the sole manufacturer of HDD rigs in India, was recently unveiled to meet their local demand. European manufacturers TT Technologies, Prime Drilling and Herrenknecht continue to have solid footprints throughout the region.

We continue to expand the boundaries of HDD through a combination of improved equipment, better engineering design, and the ingenuity (and risk taking) of highly skilled contractors. Today, you can go to all corners of the world and see an HDD rig installing a critical utility for the betterment of society. To my knowledge, the record length was a 5.2 km installation of twin 500 mm diameter steel aviation fuel lines across the Hong Kong harbour back in 2018. The USD166 million (€150 million, £126 million) project took 30 months for completion and had stringent environmental considerations. I have no doubt that we will see longer installations involving HDD in the not-to-distant future!

I have often been asked what I felt has been the biggest innovation(s) in the HDD industry over the past 25 plus years. To me, all sectors of the industry have continued to innovate to make the technology more reliable and effective; however, I would point to advancements in locating equipment/technology as the biggest improvement. From walkover to non-walkover locating systems, the industry has risen to the challenge of making HDD more accurate and easier for contractors to install pipelines over longer distances and increased depths.

I am excited that the HDD industry has and will continue to grow in use as more and more stakeholders see the environmental, economic and social benefits of adoption. Continued educational efforts by all stakeholders will go a long way in educating the public and other interested parties on the benefits of HDD.
Mindi Vanden Bosch was recently named as the next Vice President of Operations at Vermeer Corporation. Prior to joining Vermeer in 2008, Mindi held roles in continuous improvement at Cascade Engineering and treasury management at Fifth Third Bank. At Vermeer, Mindi has held leadership roles in marketing, finance, human resources, continuous improvement and most recently served as the managing director for the Forage Solutions Product Group.

“Vermeer is a part of who I am. I love the people, I love the product we build, I love the impact our equipment makes. Having watched Vermeer grow as an organisation through the leadership of my grandfather, my uncle, my mother and now my brother, I am excited to take the experiences I have had to help lead the team and the important work they do.” said Mindi.

“Mindi’s passion for people and her love for problem solving bring important qualities to our operations. Personally, I am proud to have my sister take this role and oversee such a critical part of our business and lead a large, important part of our workforce.” said Jason Andringa, president and CEO.

Vermeer Corporation is family-owned and -operated, celebrating nearly 75 years of operation. The Vermeer family and Vermeer leadership have built intentional succession plans for family members who want to be a part of the business. Both Jason and Mindi have worked extensively with the board of directors, company leadership and family office to meet the leadership requirements.

“Operating a family business requires incredible intentionality. The Vermeer family saw that early on and implemented important steps to help build a successful business while maintaining healthy family involvement. Having Mindi move into this role demonstrates the forward-thinking of those involved in business planning.” said Brian Gardner, chair of the board at Vermeer Corporation.

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For further information on the benefits of this innovative material please visit https://resiline.co.uk/ or contact andrewd@resimac.co.uk geoffh@resiline.co.uk
NEW BOARD DIRECTORS APPOINTED AT BARHALE

“Owen will bring valuable expertise and experience as we further bolster our civil engineering business through the restructuring of our engineering services, expand our rail offering and enhance our capabilities to our core water sector clients.”

Barhale has strengthened its senior team with the appointment of two new directors.

Owen Mills and Andy Dodman will join the board at the civil engineering and infrastructure specialist in the roles of Engineering Director and Health, Safety, Environment and Quality (HSEQ) Director respectively.

New to Barhale, Owen Mills joins after six years as Head of Engineering at Keltbray’s rail division where his responsibilities included the design and implementation of engineering management processes, maintaining compliance and the promotion of value engineering and design to cost principles. He also had overall responsibility for technical assurance and quality delivery.

Previously, Mr Mills operated in a senior engineering role for Balfour Beatty on a number of large-scale, multi-million pound, multi-discipline projects.

Andy Dodman’s appointment to Director of HSEQ maintains a well-established tradition at Barhale of promotion from within. Mr Dodman joined the business in 2001 as a senior site agent before moving into a safety adviser role just a year later. He became Group Safety Manager in 2008 and subsequently led the integration of the safety function into a wider HSEQ portfolio. He now expands the remit further as he takes overall responsibility for wellbeing too.
Chief executive Martin Brown, described the appointments as an important step for Barhale. “Owen will bring valuable expertise and experience as we further bolster our civil engineering business through the restructuring of our engineering services, expand our rail offering and enhance our capabilities to our core water sector clients,” he said. “He brings a 15-year track record of top-flight engineering know-how to Barhale. Equally importantly, his knowledge of best-in-class engineering process is second-to-none and he will lead on how we implement a more proactively assured approach to our engineering services across all of our operations.”

He continued: “Having previously worked with Owen, I have had first-hand experience of his professional expertise and his ability to work with customers to both influence and implement value engineered solutions and design to cost principles. He will prove a great addition to the Barhale team and will play an important role in the business’s strategic development.”

Martin Brown also said that he sees a strong commitment to HSEQ as a principle at the very heart of Barhale’s ethos. “Andy has been instrumental not just in developing the HSEQ function within the business but also in helping to enshrine awareness and best practice in every member of our team. Tunnelling and civil engineering is often carried out in challenging environments and it requires care, discipline and mindfulness at all times.”

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BLUELIGHT SYSTEM DELIVERED

PBF Drainage Services Ltd, the UK distributor for Bluelight, has with great pleasure announced that it has handed over another new Bluelight system. Waterways Drainage Specialists Ltd has had such great success with its initial smaller 40 m curing system that it has decided to purchase a second complete system.

Utilising the 40 m medium light head for curing multiple 90° bends in liners from DN100 - DN225 and a 100 m large light head reel for curing up to DN300 in felt liner and DN400 in glass liners, this system along with the company’s new KrasoTech GmbH 700 inversion drum, Kaeser M13 compressor and 5 kVA Stephill generator, is another fantastic addition to John Lawler’s company and his team.

John Lawler of Waterways Drainage Specialists commented: “We have never looked back and could not be happier with our first Bluelight system. It has changed the way we think about lining. We will not ever use ambient cure or hot cure again if it can be avoided. Adding another system to our capabilities means that we can now install liners up to DN300 with our Bluelight equipment and up to DN1200 with our UV equipment”.

Bluelight is small and compact easily portable and reduces risk and labour costs, no big filters, no more towing of compressors you can increase warranties due to its high quality and thorough testing. The WRC approvals mean the PAA-F liner is installed to a certain standard providing clients with the quality they expect and deserve.

www.bluelight-gmbh.de
Cj Kelly International is pleased to announce that Scotjet Ltd has been appointed as its first distributor and reseller for Picote products in Scotland.

Established in 1998, Scotjet initially focussed on the sale, hire and service of high-pressure water jetting equipment to water authorities, local councils and industrial cleaning contractors with its ‘bread & butter’ operation being the supply of drain and sewer cleaning equipment. Since then, the company has grown into a single-source supplier to the water utility industry with various frameworks in place including the sole supply of jetting equipment, hoses, nozzles and consumables for sewer response with Scottish Water.

WHY PICOTE?

David Gordon, Managing Director of Scotjet Ltd, commenting on why the new Picote products suited his company, said: “The range of products we supply to the water industry has hugely increased in recent years including the supply of pipe rehabilitation equipment and we recognise that the Picote Miller machines are more than your traditional spring machine. The range fits in perfectly to where we have an established reputation in the drain and sewer cleaning supply chain and also the direction our supply range has also been diversifying into. The opportunity to get involved with Cj Kelly International and Picote was an exciting one, dealing with John and Martyn (both partners in Cj Kelly International) has been a great experience, we share a lot of similarities as family businesses in the same industry and have similar views on our route to succeeding with Picote in Scotland.”

>
David continued: “The Picote range offers an efficient alternative to water jetting for the unblocking and cleaning of drain and sewer pipes, a solution to a common customer problem of failed patch liner removal, and opens up new doors in general for pipe rehabilitation equipment to our existing customers and potential new customers. We love to provide solutions for our customers problems and anytime we can provide a No-Dig solution for our clients it is generally a satisfying solution all round.”

In closing David stated: “The Picote range has been a great addition to our core stock, it is one I have been looking to add for some time. I am delighted to be able to offer this as currently the only stockist based in Scotland. We will be holding machines for sale or rent as well as a large stock of accessories and tools at our depot in Glasgow.”

John Kelly of Cj Kelly International added: “Scotland is now home to an excellent distributor of Picote equipment and we are very pleased that we can welcome Scotjet to our family of Picote resellers. We look forward to working closely with and supporting David and his team now and into the future.”

For Picote Dawn Greig said: “It is really good news that Cj Kelly International’s efforts to broaden the availability of Picote products with a distributor in Scotland have come to fruition. We would like to congratulate all concerned that this has now been made possible.”

**RECENT PROJECTS**

As a framework provider to Scottish Water for sewer response equipment Scotjet has a close connection with the utility and its framework contractors. Envirorclean, based in East Kilbride, has had some recent success with Picote equipment whilst contracting through the Scottish Water alliance. The company recently utilised a Picote Grabber Tool to remove a mash hammer from a sewer where it is believed it prevented a dig-up of a pavement and lamppost. On another project, the company also removed concrete from a sewer in less than an hour using a Picote Miller machine after its Jet Vac failed to make any impact on the obstruction.

www.scotjetltd.co.uk or www.cjkelley.com
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Following the acquisition of UK based Westwood Pipelines by egeplast International GmbH the business will be rebranding as egeplast UK from the end of March this year. Westwood Pipelines has a 20-year track record in supplying fabricated fittings and pipe products through its partnership with Egeplast International GmbH, a €150 million (£125 million or US$165 million) company which operates in 30 countries.

The rebrand will reinforce Westwood Pipelines’ position as a UK manufacturer and supplier of polyethylene pipe systems to the utilities sector and enable the company to target new market sectors.

“The transition to egeplast UK will support our ambitious growth plans. It will enable us to build upon our outstanding track record in the delivery of exceptional and innovative solutions, and to provide customers with future-proofed pipe systems that safeguard future generations.” said Andy Buchan, general manager at Westwood Pipelines. “We now have the backing of a premier European manufacturer of polyethene pipe systems which gives us the opportunity to develop additional capacity and, importantly, cement our position as a manufacturing company supporting the UK’s utilities sector. The acquisition will also enable us to provide enhanced customer service and innovative product offers to target additional market segments such as the gas, power and cable industries.”

The integration of the business into the egeplast group has begun and customers will start to see the appearance of the new branding from the end of March. Westwood Pipelines is keen to stress that the Westwood Pipelines team and ongoing operations at its UK facilities will remain unchanged.
No-Dig Down Under is Australia’s largest conference and exhibition dedicated to the trenchless construction, rehabilitation and location of utility infrastructure.

If you’re involved with major tunnelling projects, the installation of major infrastructure that utilises trenchless technology methods, or manage utility assets, No-Dig Down Under is an unmissable event.

Returning in person in 2022, No-Dig Down Under brings together world-leading experts in trenchless technology across three conference streams, alongside the latest in new equipment on display in the exhibition hall.

Tickets are available online now, with FREE entry into the exhibition hall.

www.nodigdownunder.com
The IMS Robotics Group recently announced the establishment of another group company, IMS Robotics UK Limited.

With its dedicated hire fleet, the Leeds based headquarters provides full technical service support and sales services for the full range of equipment including house connection cutting robots, main line cutting robots, UV curing equipment and ultra-high water jetting technology.

IMS Robotics UK Limited will also represent all other products and brands of the group including consumables, relining equipment, nozzles, cutting tools and other products for professional sewer cleaning and rehabilitation as developed by Hurricane Trenchless Technologie GmbH and KARDIAM Diamantwerkzeuge GmbH.

IMS Robotics UK Limited has been established as a joint venture company between the IMS Robotics holding company in Germany, and Mark Douglas and Simon Tucker in the UK.

The board of the company will be completed by Konstantin Wolf, who serves IMS Robotics Group as Head of Sales and member of the executive board.

The sales efforts of IMS Robotics UK Limited will be managed by John Rose, an experienced, well-known, and well-connected professional in the sewer rehabilitation industry.

“We could not be more excited about our newest member of the IMS Robotics Group, and we are looking forward to working with the UK team to develop the business in the UK and Irish markets. We will support our clients with the highest possible level of sales, service and rental park supply,” Konstantin Wolf stated.

“We are thrilled to start this new chapter of the IMS Robotics Group as a team in England. We will work with our clients to deliver a highly reliable, flexible and customer-focused service to meet the demand of the market.” said Simon Tucker and Mark Douglas summarising the sales and service strategy of the company.

www.ims-robotics.co.uk
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In recent years the infrastructure of gas and water pipes has rapidly declined, creating a need for new innovative pipe pulling technology designed to restore pipes up to 100 years old.

In the UK, for example, the original infrastructure of gas pipes was primarily galvanised steel, which is known to be prone to corrosion, therefore needing to be replaced.

The challenges being faced by pipe replacement contractors come from a variety of factors. Starting with assessing the actual scale of the replacement project. In the UK alone, there are estimated to be over 275,000 km of gas mains, which is being replaced at approximately 4,500 km/year.
Furthermore, the time it takes to complete a replacement job and how utility companies can reduce this time in order to keep a variety of knock-on effect factors to a minimum, is vitally important, including costs and impact on the public. A significant advance in trenchless technology has become a widely used solution to this factor, pipe pulling.

Other important challenges faced by pipe replacement projects is the prospect of utility strikes when working with gas and water pipes. The risk of damage to other piping networks can be high. Pipe pulling reduces this utility strike risk factor, keeping local residents and workers safe, and disruption to a minimum.

Aiming to keep disruption to a minimum for homeowners and the public is necessary during pipe replacement. By digging up an original ground surface it can take extended amounts of time and is non-economical when restoring the ground to its original state after pipe replacement. This can mean that fewer homeowners are willing to let gas and water companies replace pipes due to the disruption, therefore leading to further deterioration of outdated pipelines.

Keeping the safety of workers and the public in mind during pipe replacement is imperative with contractors working in public places, turning them into potentially dangerous construction sites with gaping holes left during the initial dig phase. This danger aspect is particularly reduced by the innovative use of trenchless technology making the replacement much safer for everyone involved.

Reinstatement of property in a public area, once pipe replacement has finished, is also time-consuming and costly. For example, public crossings follow a specific set of material guidelines that in turn need to be followed during reinstatement. Reinstatement involves returning the ground to its original condition and this can vary for each project. It also depends on the size of the excavation taking place to how long and costly it will be to fill and completely reinstate once work is completed. Another bonus of pipe pulling is that it requires very little excavation, therefore is usually more economical to reinstate.
Moreover, ground conditions can never be guaranteed to be optimal for each pipe replacement project. The success of moling or drilling depends largely on the operator. However, the softness and hardness of the surface ground also plays a factor in carrying the weight of any moling or drilling equipment and in what direction it enters the ground. This technique helps alleviate the chance of losing pipes while pulling, avoiding more disruption to the ground surface.

For pipe replacement contractors, keeping construction machinery safe and useable also ties in with keeping a pipe replacement project economical. Pipe pulling machinery can be costly, especially to repair. To keep costs down, contractors want to maximise the cost life of their machinery. However, the cost of the machinery rises considerably in correlation to the size of the equipment itself. Therefore, by using a smaller more efficient machine such as the KPP300 or KPP400, contractors can minimise costs. Smaller machines also take less workers to operate them due to the small size.

Finally, old decommissioned pipes that are left in the ground after new pipes are installed by other means and can be a hazard and potential contamination factor to the ground below. They are also considered environmental waste. Due to this the old pipes need to be disposed of correctly. Pipe pulling extracts the old pipe in the same procedure as inserting the new one, therefore eliminating any chance of decommissioned pipes being left to contaminate the ground.

So, the idea of pipe pulling offers several advantages in the right circumstances including cost effectiveness, minimal environmental impact, safety and public acceptability.
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www.nodiglive.co.uk
Drainage and wastewater specialist Lanes Group plc is gearing up to mark its 30th anniversary with a programme of activities throughout 2022 to celebrate the achievements of its teams and raise money for its charities.

The company, famous for its bright pink branding, began as a one depot drainage company in Leeds, West Yorkshire, UK in November 1992, employing 15 people with a turnover under £500,000. It now operates 20 depots, 11 utility hubs, and five specialist service centres, employs more than 2,200 people, and has an annual turnover of over £215 million, making it, it is claimed, the UK’s largest drainage and wastewater specialist.

Lanes Managing Director Wayne Earnshaw, said: “It is exciting to have contributed to Lanes’ transformation over the last three decades and I strongly believe there are many more successful years to come. What began with one small depot has become a company that, every day, solves the UK’s biggest drainage and wastewater challenges. With highly-skilled and committed teams using the most sophisticated drain maintenance technologies in the world.”

Wayne Earnshaw’s father, Allan Earnshaw, and Graham Tattersall triggered the company’s rapid development when they bought Lanes for Drains from its founder, John Lane. Within five years, Lanes for Drains had expanded to South Yorkshire, Lancashire, Greater Manchester and the East Midlands, with 100 employees and a turnover that had shot up to £5 million.
Through a process of careful acquisition, new depot openings and service development, the now rebranded Lanes Group has maintained that impressive and sustainable growth, while remaining a family-run business.

Wayne Earnshaw said: “Lanes is a business built on family values, where caring about the wellbeing of our people and supporting their success is important to us. It is a reason why a good number of our colleagues have been with us for many years as Lanes has grown. We are now looking forward to marking our 30<sup>th</sup> anniversary during 2022 by reflecting on how far we have come, and celebrating the work of the very many people who have contributed to our success, while giving back to the communities we serve.”

Lanes will also use the anniversary to thank Lanes teams for contribution as essential workers during the COVID-19 pandemic - keeping the nation's sewers flowing, and delivering vital drainage services to thousands of businesses and countless householders.

The company's 30<sup>th</sup> anniversary plans include a major fundraising challenge that aims to turn the country Lanes pink, as teams from every depot will be invited to raise money for the company's nominated charities.

Lanes is relied on by companies big and small, and many government organisations and public agencies, to deliver a comprehensive range of drainage services, which have won a string of industry awards.

It is also one of the UK's largest wastewater maintenance service providers. Clients include Severn Trent, Yorkshire Water, Scottish Water, Wessex Water, Northumbrian Water and United Utilities.

Since 2014, Lanes has been the sole wastewater network services maintenance partner for Thames Water, the UK's largest water company, delivering a broad range of services, including reactive sewer unblocking, planned sewer cleaning, sewer lining, tankering and waste management.
Lanes has won international recognition and multiple awards for its innovative approach to service delivery for Thames Water, which has included ground-breaking safety systems and the world’s first 360° virtual reality training theatre.

In 2019, it backed its strong support for sustainable business and environmental protection by launching Unblocktober, the world’s first month-long action campaign to safeguard sewers, rivers and oceans.

Every October since then, Unblocktober has persuaded thousands of people to take time not to dispose of damaging fats, oils and grease (FOG) and plastics, including wipes, down sinks and toilets.

Other key milestones include:

• In 1998, the creation of the Lanes Rail Division, which now operates a multi-million pound contract delivering drainage and FM services for Transport for London, as well as working for Network Rail, Crossrail and HS2

• In 2007, the launch of a new national sewer rehabilitation and lining division, based in Manchester, which delivers lining services across the UK, and is a leader in ultraviolet CIPP lining

• In 2015, the acquisition of AQS Environmental Solutions in Ireland, Lanes’ first non-UK investment, with AQS going on to enjoy its own success, expanding and growing its services.

In 2020, Lanes launched its latest business venture, setting up Lanes Infrastructure to deliver excavation and ducting installation services for the broadband industry.

The Lanes-i launch has been a big success, with the business building a rapidly growing portfolio of contracts, aided by an innovative business model that combines digital operational systems with industry-leading safety and quality standards.

www.lanesfordrains.co.uk
M Group Services is leading the way in terms of its approach to ESG as confirmed by the rating supplied by an independent, internationally recognised, risk ratings agency Sustainalytics.

A market-leading supplier of services to the UK and Ireland’s essential infrastructure, with a commitment to a sustainable future and the UK’s Net Zero by 2050 target, M Group Services has received an ESG rating of 9.6, based on an in-depth independent analysis by ESG risk ratings agency, Sustainalytics.

This is the best performance in the business support services sector, compared to a sector average of 21.9. It means the Group has a ‘negligible risk’ of reputational and operational risks through its direct and indirect suppliers.

The rating also puts the group among the top one per cent of global companies for its commitment to the environment and sustainability, managing the impact on and support for local communities and its commitment to established policies and procedures.

Supporting a sustainable future and the UK’s target to achieve net-zero by 2050 is fundamental for M Group Services which is continuously developing new ways of working and supporting clients to meet their net-zero aspirations. The outstanding ESG rating achieved, highlights the effectiveness of the steps the Group has been taking to evolve operations.

Steps already taken include, among other innovations:

• Introducing Hydrotreated Vegetable Oil (HVO) fuel in lieu of diesel
• Signing the EV100 commitment to transition our core fleet to electric
• Continued use and development of no-dig technology, and applying it across multiple sectors
• Trialling ‘non-crete’ infrastructure, manufactured from plant-based bio polymers

Jim Arnold, M Group Services’ Chief Executive, said: “We are absolutely delighted to have been awarded an ESG rating which is the best in our sector and one of the best in the world. This recognises the on-going commitment of everyone in our group to continually review and improve our work to ensure it is as sustainable as possible.

We have grown rapidly over recent years, through organic growth and acquisition, and proactively chose to get ourselves benchmarked against the best in the world. Our ambition to be one of the very best ESG performing businesses underpins our ability to be a leader in the UK’s infrastructure services sector and supports our clients’ plans to deliver their own net-zero targets. We have ambitious ESG targets in place to drive continuous improvements across the business, including a reduction of carbon output by 50% by 2030 and joining the Science Based Targets initiative and the UN Global Compact in 2022 and it is great that our efforts to date have been recognised.”

www.mgroupservices.com
Sewer rehabilitation specialist IBAK, known for its robotic cameras and cutters, is hosting a week of demonstrations for potential customers.

Taking place between 25 and 29 April at its base in Germany, the demonstrations will focus on the functions and benefits of the full range of cutters. They will particularly be showing the powerful MicroGator and flexible MicroGator Air cutters.

“The demonstration week offers a great opportunity for customers considering their next cutter purchase to have an in-depth look at what the IBAK equipment offers.” commented Terry Ingleby, Sales Manager at S1E, IBAK’s UK distributor.

www.s1e.co.uk
Events specialist Westrade Group has just welcomed back Chantel Avis to its newly created Group Event Director role.

Chantel returns to the Group having previously worked there for over 7 years as an Event Manager and PA before moving into an operational role in the construction sector for the past 3 years.

Her passion for events, however, has drawn her back and she feels now is the right time to mark a return as Westrade enters into an accelerated growth period with new events, new projects and new publishing and media commitments. Chantel comments: “This is a significant moment for me in my career as I get back to doing what I love and get back to working with Westrade. I am relishing the opportunity to provide leadership, direction and support to the Events Team and will be focused on producing top quality client and in-house events.”
Having consulted extensively with the Malaysian Government and Ministries as well as many Malaysian-based supporters, Westrade Group has taken the decision to postpone its ever-popular Trenchless Asia show until 17-18 May 2023. As before, the show will take place at the Kuala Lumpur Convention Centre.

Given that current thinking suggests the borders of Malaysia will remain closed for the foreseeable future, this seems a wholly sensible move on Westrade's part and allows exhibitors and delegates a generous amount of time to adjust their marketing and procurement plans for the 18 months ahead. There is always an exceptional level of interest in this annual show: in fact, this one is set to be the biggest in its 25-year history (based on a floorplan which had to be extended into two halls to meet demand). All existing bookings will automatically transfer over to the new show dates.

Paul Harwood, Managing Director of Westrade, comments: “Whilst admittedly disappointing to all involved in this superb event, we feel this pre-emptive move will allow sponsors, exhibitors and visitors to operate in a safer environment and one which will provide the absolute maximum return on their investment.”

Trenchless Asia, scheduled to take place in Manila 2023, will now move to 2024.
International No-Dig Helsinki is the major annual international gathering for trenchless technologists to meet and discuss the latest industry developments.

- Reach new markets at this major event targeting influential audiences to be drawn from the European markets, as well as attendees from further afield
- An opportunity to display and demonstrate products to a highly targeted audience
- Ensure your brand has a profile in the presence of the industry’s premier decision makers
- Take a leadership position and play a major role within the Trenchless/No-Dig sector
- Be seen at the region’s only industry specific exhibition and conference with a proven track record that truly demonstrates Trenchless/No-Dig technology and its capabilities
- Be seen alongside influential supporters representing Europe

To be seen amongst the world’s leading providers and show your innovations, book a stand at International No-Dig Helsinki.

Contact Paul Harwood at pharwood@westrade.co.uk or +44 (0) 1923 723990

CALL FOR PAPERS NOW OPEN FOR SUBMISSION
Having recently celebrated 50 years since Horizontal Directional Drilling (HDD) first launched onto the underground construction market, Trenchless Works thought it might be appropriate to see what Horizontal Directional Drilling (HDD) has to offer the buried construction industry in the 21st century.

Herrenknecht HDD Rigs can be employed in any terrain.
HDD essentially is a multi-stage process by which a pipe, duct or cable can be placed underground without the need to open-cut or excavate large tracts of ground along the planned route of the service. The process starts with a ground investigation which establishes what if any obstacles may lay in the proposed path of the installation route. This allows the route to be altered if necessary to avoid such obstacles and to establish the ground type(s) through which the drilling operation will need to pass.

The HDD process essentially comprises the boring of a pilot hole along the planned route of the installation. Depending on the ultimate size of the product pipe, duct or cable this pilot bore is then expanded to the required size using reamers. If the final dimensions of the bore are such that multiple reamer sizes are required this is done in stages with drill rods being attached behind each reamer to allow the next stage to be completed, until the final diameter is reached. Normally the final diameter of the bore is between 30-50% larger than the product pipe/cable that is to be installed. Finally, a lead reamer is attached to the final drill string to ensure the bore remains open as the product is pulled into the void created. A swivel attached to a towing head is then attached behind this reamer to which is attached the pipe, duct or cable. This product string may be a simple single pipe or cable or it may comprise several pipe or cables depending on the requirements of the installation.

Generally, HDD is best suited for installing pressure pipes and ducts/conduits where precise grades are not required. However, with the correct skills of the operator and the right locating systems on grade bores are also possible.

Currently available HDD rigs can handle almost any ground type from soft soils to hard rock. The difference comes in selecting the drill heads and follow-up equipment that are suited the ground to be encountered. In softer ground blade drill bits are generally sufficient, whilst for harder ground and hard rock drill bits with specially designed inserts may be used or there may be a need to utilise roller bit (similar to those seen on major vertical drill rigs). This selection important as the first stage of the drilling operation is a pilot bore through virgin ground to establish the primary route for the bore. The drill bit is usually angled so that it can be orientated to provide a steering bias as the bore advances to enable the drill operator to ‘steer’ the drill head along the required route. In harder ground a ‘bent sub’ is often utilised to provide the steering bias required.

Depending on the ground type, depth and length of the bore and the obstacles the bore may be passing beneath (such as roads, rivers, canals, developed land etc.), there are various navigation options.
Currently available HDD rigs can handle almost any ground type from soft soils to hard rock.

For shorter bores and generally shallower depth there is what has become known as the ‘walk-over’ system. With this system, a transmitter sonde is placed just behind the drill head in the drill string which emits a distinctive signal that can be picked up by a receiver on surface. The sonde is orientated such that when the receiver is over the top of the sonde the location of the drill head is known to the operator. The orientation of the sonde also indicates the rotational position of the drill bit and the signal can be used to estimate the depth of the bore below surface. This system is usually used over ground surfaces but has also been utilised for shorter water crossings using a boat. Some navigation systems also have the facility to establish position over some distance and can be used as an ‘aim-point’, minimising the need for personnel to enter hazardous areas such as trafficked roads or fast flowing waterways.

DigiTrak is probably one of the best-known names in the sector for this type of guidance system. Currently the company offers the new DigiTrak Falcon Plus range of HDD locating systems which it is claimed provide a worry free, easy to use and versatile solution that operators can rely on to get the job done without interruption. The range includes the DigiTrak F5+ which offers a range of over 1,000 frequencies, for locating up to 180 ft (55 m) depth at 220 ft (67 m) data range. Increasingly, customers are requiring digital as-built reports for HDD installations. So, the systems offers integrated iGPS and Log-While-Drilling (LWD) functionality which allows the operator to easily generate polished and professional as-built reports with GPS data. The LWD Mobile app, with available DDM Cloud subscription, brings all the features of DigiTrak’s desktop as built software to the palm of the operators’ hand. It is also possible to quickly export, edit and email as-built reports right from a mobile device. It is also possible to monitor Downhole Fluid Pressure Data in Real-time.

The DigiTrak Falcon F2+ offers all the benefits of Falcon technology plus new improvements including:

- Increased depth and data range – 160/200 ft (48/61 m) combined with more frequencies to get more jobs done.
- Quick Scan Pair - with just two clicks, it is now easier to scan, pick and pair a locator to custom frequencies.
- New 19 in capability for the deepest and most powerful DigiTrak F2+ transmitter on the market.

The company also offers the Falcon F1® location system.

For longer, deeper bores HDD uses what is commonly known as wire-line navigation. Here, an assembly is attached behind the drill head that holds a directional instrument along with an inclinometer for grade monitoring. This is connected to surface via a wire running inside the drill string. By utilising the directional output, the inclination and the length of drill string in the hole the position of the drill head can be calculated.
“For longer, deeper bores HDD uses what is commonly known as wire-line navigation.”

A well-known name in this area of guidance is the ParaTrack system from Vector Magnetics. The ParaTrack Steering Tool is multi-functional in its role. State of the art magnetic and gravity sensors in a lightweight yet rugged housing provides reliable survey information on its own. When the project requires the added precision of guidance, the Tool acts as a receiver for multiple magnetic tracking sources including AC Surface Wires, and the Beacon Tracker System. When magnetic interference renders these sources less than ideal, the ParaTrack Gyro Module keeps the project on track.

ParaTrack2 is claimed to be the evolution of magnetic wire guidance. Based on low current AC power, driven by a small light weight power supply, and utilising inexpensive, light gauge wire, ParaTrack2 saves money by significantly reducing setup and survey time, while also offering superior survey quality at deeper depths or in magnetically noisy environments versus DC-powered systems.

Setup is flexible, with multiple possibilities of coil configurations. The most common configuration is a closed loop with the guide wire along the centreline and the return wire located offline minimising its magnetic contribution.

Alternate options include a single wire with earth return (no return leg, saving significant setup time), or even the placement of one leg in an existing product line to enable precise parallel pilot hole tracking from entry to exit. In cases where placing a wire along the entire length of the bore is not feasible, ParaTrack2 integrates seamlessly with our other guidance and tracking sources including the Beacon Tracker System and the ParaTrack Gyro Module.

The whole world of HDD Technology

PD 45/19 CU-Hybrid  PD 80/45 CU  PD 150/70 CU+
MDD-Rigs  PD 600/180 RP  Prime Pipe Pusher

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The powerful AC magnetic signal generated by ParaTrack2 enables tracking at extreme depths of up to 1500 ft (460 m), allowing the locating of the drill head as much as 10x earlier than competing surface verification methods. This translates to the most accurate punch-outs with the absolute minimum risk of costly positional errors.

Optional add-ons are available including the At Bit Inclination Assembly providing inclination measurements directly at the bit for the first time in the HDD market and the Pressure Module allowing the monitoring of annular and pipe pressures while drilling, preventing costly frac outs.

To lubricate the drill head, remove generated spoil and support the borehole sides, drilling fluid or ‘mud’ is used during HDD operations. Depending on the ground type, drilling muds can be adapted to most, if not all, circumstances. However, it may be that in complex soils or with changing geology, the support of drilling mud specialist engineers such as Cebo or Baroid may be required on site, as well as more complex mixing and pumping systems. Each project should be judged on its individual circumstances as rarely are two ground conditions alike. Contractors may find it beneficial to consult with mud specialists prior to commencing operations.

Across the industry there is a plethora of companies offering rigs and support equipment from drill bits and drill rods, through sonde housings and guidance systems to reamers and ducts pulling heads and swivels.

HDD Rig Manufacturers

Apollo Techno International FZCO – From its humble beginning in 2018, Apollo has emerged as a highly versatile provider of a comprehensive suite of HDD Rigs from 5 t to 160 t capacity. The company also provides a range of related services from its state-of-the-art factory where it offers a proactive and highly skilled technical team that is dedicated to advancing trenchless technology, reliability, and responsive service.

Contractors choose Apollo products as a durable and cost-effective means of installing product pipe in rigorous ground conditions. While innovation and technology have advanced, Apollo Rigs still accurately bore today with factory upgrades and available support parts/tools.

Apollo has built its reputation on delivering driller friendly rigs, personalised customer support and it takes immense pride in its customer’s successes. That is how Apollo’s core customer base has seen repeat business since its inception.
Ditch Witch/American Augers – Now part of the Toro Group, the HDD machines from Ditch Witch start at the JT5 model and range through to the JT100 model. American Auger drill rigs are also now marketed through the global Ditch Witch dealership network. The Ditch Witch JT/AT32 model is the latest addition to the range and is designed to boost productivity, with the New Ditch Witch AT32 being an All-Terrain Directional Drill.

The Ditch Witch JT20 model offers an Auto-throttle feature which is designed to save fuel and reduce pollution by slowing the engine to idle after 15 seconds of inactivity. When the operator resumes work, the auto-throttle engages. The rig also offers an advanced cooling system that uses five fewer gallons of fluid than competitive systems offering exceptional efficiency and less environmental impact.

The Ditch Witch JT100 model offers All-Terrain technology that enables enhanced rock drilling at a low fluid level, decreasing overall jobsite waste, minimising clean-up and reducing the environmental impact. The inner pipe works as a mechanical motor, driving the bit during the bore. The outer pipe thrusts the bit forward while steering the drill shaft. During back reaming, the outer pipe transmits full machine torque downhole.
From the American Augers range of drill rigs are there are the DD240T and the DD110 models.

The American Augers DD110 is the latest design in the 100,000 lb drill range which features:

- 110,000lb (50 t) thrust and pullback capacity
- A hydraulic system with modern workloads in mind.
- Flexible operator controls for all operators on the market.
- Simple systems for increased reliability.
- Bid power in a small weight conscience package.
- Speed to improve productivity.
- Quiet-Pak® engine enclosure to reduce engine noise.
- Articulated cabin provides exceptional visibility and comfort.
- Dual joystick controls with integral function switches.
- An extended pipe-loader lift that enables pipe boxes to be changed without shutting down the drill rig.
- Wire-line ready and equipped with the latest HDD technology and PinPoint® telematics.
The American Augers DD240T model is claimed to be the most customisable rig in the industry offering a truly customer-driven design in a rugged package for tough environments.

The drill rig features:

- 240,000 lb (108 t) thrust and pullback capacity
- The patented Dual man onboard offboard cab for fitting a wide variety of job sites.
- Full length travelling wenches to assist those stubborn tool joints and allowing to pull tolling up on the drill frame.
- American Auger’s standard slip spindle that can be easily changed when needed.
- A low spindle centre which allows the pipe to enter the ground closer to the drill when entering at low angles.
- A new MTU Engine that was designed for Tier 4 Final applications. It does not require a regen cycle and is a hard worker.
- Flexible Operator Control settings for reduced training time.
- Quiet-Pak® technology surrounding the engine compartment.
- Equipped with the latest HDD technology and PinPoint® telematics.

Ditch Witch UK & Ireland, the UK dealership for Ditch Witch ad American Augers drill rigs also offers exclusively Supa Pit Dry Solidifier, a liquid waste solidification reagent by MetaFLO technologies.
Dumping or disposing of liquid spoils, like drilling fluids, can be both time consuming and costly for any contractor. Supa Pit Dry Solidifier is a safe and reliable way of turning liquid spoils into a manageable solid, reducing risk and liability while improving on-site safety.

It is claimed to offer an estimated 30% to 60% cost saving in waste material disposal, as users can decrease the number of trucks required to process the waste, as well as reduce the distance required to travel to the final disposal location. Plus, as the solidification reagent crates dry, stackable solids, the handling and transportation of waste becomes much easier.

As well as improved efficiency on-site, Supa Pit Dry can help significantly reduce environmental impact and carbon footprint. With a range of applications, including directional drilling and vacuum excavation, Supa Pit Dry is the perfect addition to any underground construction contractors’ toolkit.
**Herrenknecht** – HDD Rigs developed by Herrenknecht can be delivered in five different standard configurations. All models have a control cabin, as well as their own power supply pack powered by a diesel or electrical engine, in a sound-insulated container or onboard. Depending on the application, the attached power packs have an output ranging from 328 kW to more than 940 kW and are engineered to customer requirements.

Combinations of all types are possible and one of Herrenknechts’ strengths. Fusions of trailer and modular rigs or compact and crawler rig merged with an electrical power unit are often made and jobsite approved. Herrenknecht rigs are defined by their pulling forces, which are between 80 and 600 tonnes (800 and 6,000 kN).

Frame Rig: As the low weight and easy transport option, Frame Rigs are a reliable and economical solution. Without its own transport or motion system, the Frame Rig reaches the jobsite on a regular truck trailer. A standard crane is sufficient for loading and unloading and for aligning the rig on the jobsite.

Trailer Rig: The great advantage of Trailer Rigs is their extreme flexibility. Due to their low-weight design, they can be transported with standard semi-trailer trucks. A crane is not required, neither for setup and demobilisation, nor for alignment and commissioning. This makes Trailer Rigs particularly suitable for projects in which long distances in between several crossings are to be covered.

Crawler Rig: On jobsites in rough ‘off-road’ terrain not accessible to trucks or cranes, Crawler Rigs offer considerable advantages. Their robust and mobile crawler with its caterpillar tracks enables mobility and manoeuvrability on difficult terrain.

Modular Rig: To be able to use HDD Rigs in remote regions, Herrenknecht has developed another innovative solution. Modular Rigs can be dismantled into two or three modules and transported in standard freight containers. On site they are re-assembled. An optional, remote-controlled crawler adds further mobility on the jobsite.
Herrenknecht HDD Rigs can be employed in any terrain.

Compact Rig: This short and compact designed rig is optimised for smaller projects and inner city applications. Using range 1 (6 m/20 ft long) drill pipes and optionally equipped with onboard control cabin and high-pressure Mud Pump, the rig serves all customer needs.

Target-oriented implementation of customer-specific requirements is part of Herrenknecht’s daily business. References from successfully completed projects are HDD Rigs operating in ambient temperatures of down to -20° Celsius, a specially designed rig for a project on an Australian island where the focus on nature and wildlife preservation was of utmost importance, or corrosion-proof equipment for sea outfall projects directly along the coastline. Other specialised rigs can even be dismantled in such a way, that they can be transported by helicopter. Pipelines are successfully installed worldwide using powerful HDD Rigs from Herrenknecht. The geological application range of the proven trenchless HDD method covers everything from soft loose soils to hard rock. Ancillary HDD equipment such as high-pressure mud pumps, bentonite mixing equipment, separation plants, drill rod storage, mobile break-out units, or bentonite pumps are part of the Herrenknecht portfolio.

Prime Drilling – Prime Drilling has enlarged its drill rig spectrum and now also offers hybrid and electric equipment.

The innovative new hybrid and electric rigs manufactured by Prime Drilling provide a variety of benefits for the customer. Thanks to their electric power packs these machines run much quieter than conventional rigs and allow overall noise levels to be minimise.
Their special feature ‘Power on Demand’ enables significant energy savings with the majority of drilling sequences rarely requiring higher performance levels. In contrast to fuel-operated machines only the actual power required is generated.

Furthermore, the rigs can be operated independent of local engine directives or diesel quality, not to mention the substantially minimised risk of oil leaks or hydraulic hose bursts.

Low-maintenance technology and elimination of engine service requirements boast the advantage of their smooth on-site operation with next to no downtimes. The machines vibration-free drives, noise reduction and sensitive adjustment range increase working comfort significantly.

The electric drill rigs do not require any fuel logistics (if connected to the existing electrical network) and the available power packs are optional for any individual emission regulations. Prime Drilling also uses standard industrial components to ensure their high local availability.

The rigs use a state-of-the-art electric motor. The permanent magnet synchronous motor installed is equipped with a four-quadrant frequency converter. A transformer oil cooler with biodegradable oil serves for optimum heat dissipation.

They also offer a compact drive solution. Each motor features a 140 kW S1 continuous output at 650 V DC nominal voltage. The motors are protected to IP 69k. All load-sequence data can be saved and retrieved.

This in turn provides high customer satisfaction. Customers worldwide value Prime Drilling’s innovative technology and the company claims to have sold more electric drill rigs on the market than any other vendor so far.
Tracto – German manufacturer TRACTO is known for its innovative and high-quality No-Dig systems for underground pipe installation and renewal. Since the invention of the GRUNDOMAT soil displacement hammer, which laid the foundation for trenchless pipeline construction some fifty years ago under the trademark of the ‘Mole’, TRACTO has consistently advanced trenchless technology and raised it to new levels. This is especially true for the horizontal directional drilling (HDD) with steerable drilling rigs.

TRACTO, a pioneer of steerable drilling, offers the GRUNDODRILL range of drilling rigs which, over the years, have become more and more innovative, powerful and ‘intelligent’. Milestones of horizontal directional drilling technology at TRACTO are, for example, functions such as fully automated drilling or HDD devices such as the GRUNDODRILL 18ACS, known as the ‘King of Rock’, which for the first-time enabled jet and rock drilling with one device.

Now TRACTO has combined innovative technology and maximum automation to provide more flexibility and productivity in HDD drilling technology. An intelligent control concept ensures that the overall performance of the drill rig is optimally transferred to the individual components depending on the task at hand. This, it is claimed, makes the new GRUNDODRILL generation the most efficient and productive drilling rigs in its performance classes on the market.

Thanks to its narrow construction, the new GRUNDODRILL can easily manoeuvre and work in restricted space.
Special features of the new GRUNDODRILL generation include:

- Intuitive operating concept
- Increased productivity of the drilling process
- Remote controlled drilling
- Rock drilling in all performance classes
- Integrated locating solution
- Digital tools

The design of the new GRUNDODRILL generation combines numerous innovative individual solutions in a steerable drilling rig with outstanding functions. Currently, two models are offered in the 130 kN class, the GRUNDODRILL JCS130 and the GRUNDODRILL ACS130. Thanks to the consistent overall concept, all future models in the series will also have the same features, which ensure that the maximum performance is always available for the drilling process and pipe pulling.

The intuitive operating concept was developed in close cooperation with master drillers and experts in ergonomics and biomechanics to consistently adapt it to the needs of the operator. Almost all functions of the drill are controlled via a central touch screen, which enables ergonomic and fatigue-free work. At the same time, the control of even the most complex drilling processes is significantly simplified, because the entire operating concept is self-explanatory and intuitive - along the lines of modern smartphones or tablets. Alternatively, all central functions of the drilling rig can be controlled manually.

In addition, an integrated camera concept provides the operator with an optimal overview of all important areas of the drilling rig at all times and automatically. This allows problems to be detected at an early stage, which improves safety on the jobsite. >
Significantly increased rotational power and drilling fluid capacities lead to a considerable increase in productivity. The high drive power that is matched to this is efficiently implemented and is transferred to the individual components via the intelligent control concept in such a way that the drilling rig can be optimally adapted to any geology. Via a powerful rotary drive with variable torque adjustment, torque and speed can be optimally adapted to the respective geology and the drilling tools. Compared to conventional drilling rigs, the power output in the entire speed range is therefore considerably greater. Improved mud technology, in which the maximum amount of mud is applied at the same time as the highest possible pressure, ensures rapid drilling progress and maximum clearing performance during the back-reaming process.

The new generation GRUNDODRILL drilling rigs can be fully remote-controlled even in drilling mode. All functions can be managed and monitored from outside the operator's cabin with a specially designed remote control. The remote control combines the same operating elements found in the cabin in an outdoor-capable tablet that is used as the central operating unit for the machine control. In combination with a special camera concept, control of the entire drilling rig is always guaranteed, even when operating with the remote control. The greater flexibility also leads to more productivity. Short-term personnel shortages, e.g. when mixing new drilling fluid, can be bridged by having the machine operator working the drilling rig and the locating system at the same time. The fact that the operator can move freely with the remote control and keep an eye on all operations contributes to safety on the construction site as well.

With the intelligent machine concept, all existing and future models in the series can be used as a Jet Condition System (JCS) with single rods in conventional soils or work as an All Condition System (ACS) with twin-tube rods in complex geologies and rock. A specially designed plug-in connection for the inner rods of the twin-tube rods ensures reliable torque transmission in the tightest of installation spaces to guarantee particularly high flushing performance in all geologies.

Permanent monitoring of the drill head's position is vital for steering the directional drilling process properly. By integrating the locating system's display into the control concept of the new GRUNDODRILL generation, all machine data and locating information are displayed on a central screen, even during remote controlled drilling. For this unique feature, TRACTO relies on the locating technology of renowned manufacturer Digital Control (DCI). The fusion of drilling rig and locating technology into one unit simplifies the control of the drilling process considerably and facilitates training of new operators and drilling experts.

New software solutions for three-dimensional route planning or simple fleet management also simplify planning and project management.

The overall concept of the new generation GRUNDODRILL offers the user even more advantages. A modular design with a large selection of options allows each drilling rig to be configured according to individual requirements and types of application. Design and equipment are tailored for high operating comfort and maximum ease of work. As an example, the comfortable operator's cabin with its panoramic all-round view makes swivelling the cabin unnecessary for drilling and allows working even in very confined spaces. >
Trenchless Solutions – Marketed in the UK by Trenchless Sales UK, part of the Trenchless Solutions Group, the EasyDrill FD10G is manufactured by EasyDrill Limited which claims to be the only company world-wide specialising in designing and building directional drills as attachments, using a quick hitch, for mini excavators. The EasyDrill FD10G horizontal directional drill is preferred by drillers for installing underground services such as fibre optic broadband, gas, power and other services because of its efficiency, cost effectiveness and versatility. Designed as an attachment via a quick hitch for mini excavators, the EasyDrill has a thrust capacity of 8,000 lb (3,628 kg) and pull back capacity of 10,500 lb (4,764 kg) as well as a torque capacity of 1,225 ftlb (1,660 Nm) which is claimed to exceptional for a drill of its size. The system can be Pit or Surface launched.

Also marketed by Trenchless Sales UK is the Roddie Pit Shot horizontal directional drill is used for installing underground services such as fibre optic broadband, gas, power and other services because of its efficiency, cost effectiveness and versatility. The pit launched Roddie has a thrust capacity of 15,000 lb (6,804 kg) and pull back capacity of 15,000 lb (6,804 kg) as well as a torque capacity of 1,100 ftlb (1,491 Nm).
**Vermeer** – Vermeer started manufacturing horizontal directional drills in 1991 and is on its S3 generation of drills. These drills have enhanced speed, simplicity and sound reduction. Most Vermeer HDD models available today have received high performance specs and can be equipped with Vermeer productivity tools for improved diagnostics and telematics.

Utility directional drills – The smallest Vermeer utility directional drill is the D8x12. This compact and highly productive drill is sized for working in tight spaces, features straightforward controls and is well suited for small service installations, including gas distribution, power, water and telecommunication networks. The Vermeer D8x12 horizontal directional drill is equipped with a 48 hp (35.8 kW) Kohler diesel engine and offers 1,000 ftlb (1,355.8 Nm) of spindle torque and 7,850 lb (34.9 kN) of thrust/pullback.

The next model in the Vermeer utility range is the D10x15 S3 with a 60 hp (45 kW) diesel engine, maximum carriage speed to 208 fpm (63.4 m) and 1,500 ftlb (2,033.7 Nm) of spindle torque to help contractors install more product per day.

The Vermeer D20x22 S3, D23x30 S3, D24x40 S3 HDDs are among the most popular models for installing fibre cabling. The D20x22 S3 features class-leading 167 fpm (50.9 m/min) carriage speed and rotational speeds of 257 rpm. With 24,000 lb (106.8 kN) of thrust and pullback and 3,000 ftlb (4,068 Nm) of rotational torque, the D23x30 S3 is equipped to maximise machine and jobsite efficiency. The larger D24x40 S3 has 28,000 lb (124.6 kN) of thrust/pull and can produce 4,200 ftlb (5,694.4 Nm) of rotational torque.

For larger utility directional drills, Vermeer offers the D40x55 S3 and D60x90 S3. Those units are capable of producing 40,000 lb (177.9 kN) and 6,000 lb (2669.9 kN), respectively. >
Vermeer also offers two dual rod units in its utility drill product line. The D23x30 DR S3 and D40x55 DR S3 deliver similar performance as the single rod drills with the same model number. However, these units integrate dual rod technology to manoeuvre through rock efficiently.

Vermeer also manufactures a wide range of large directional drills designed for larger diameter and longer distance directional drilling. The Vermeer D220x500 S3 Navigator® horizontal directional drill is the latest model. With the ability to be configured for large-diameter water and utility installs in urban areas, as well as challenging pipeline work, the Vermeer D220x500 S3 delivers up to 52,600 ftlb (71,316 Nm) of torque at a spindle speed of 36 revolutions per minute, 240,400 lb (1,069.4 kN) of thrust/pullback, and fluid flow rates of up to 350 gal/minute (1,324.9 l/min) if the onboard pump is selected. The D220x500 S3 is available with an onboard or stand-alone operator cab and a 30 ft (9.1 m) rod rack.

Vermeer also produces a line of drills specifically designed for the needs of emerging markets in Asia, Latin America and other developing nations. Vermeer recently introduced two directional drills for contractors in these regions — the Vermeer D130S and D60S. The D130S is equipped with 130,000 lb (578,200 kN) of thrust and pullback and 15,000 ftlb (20,337 Nm) of rotational torque. Also, the D60S has 60,000 lb (266.9 kN) of thrust and pullback and 9,000 ftlb (12,202.4 Nm) of rotational torque.

For the larger projects Vermeer offers the D130S rig.

A Vermeer D8x12 drill rig in action.
Whilst this review covers a significant portion of the HDD market it is not fully comprehensive. For example, it should be noted that some of the manufacturers highlighted herein offer a range of smaller pit launched drills as well as their surface launched ranges, with at least one offering a rig that can be operated via a manhole access whilst being operated from surface fully remotely.

Anyone interested in this technology should contact any or all of the companies mentioned above and others that may be found by an online search or with a visit to a relevant trade event in their region, many of which are advertised in the Diary section of this publication.

However, summarising the technology, HDD offers the potential to install new or replacement pipelines, ducts and cabling without the need to excavate large pits and long trenches on the surface making the HDD process very environmentally-friendly compared with open cut techniques. The installation, when correctly planned and using the right equipment, can install networks from small to large diameters over a short to long distances, safely, at a lower cost compared with traditional methods (when all aspects of the traditional operations are taken into account including site waste disposal, traffic management, possible compensation claims etc.) and with minimal disruption to the surroundings, local businesses and the general public who can carry on with their daily businesses and lives.
Horizontal Directional Drilling is arguably the most efficient method for the trenchless installation of underground pipelines. It is certainly the method that ensures the least damage to the local surroundings, by eliminating the need for open trench work and subsequent reinstatement.

The ability to install a pipe or ducting under and around obstacles, such as roads, rivers, trees and buildings, ensures disruption is kept to an absolute minimum and depending on the size and nature of the job, there is an increasingly wide choice of machinery and contractors that can undertake these precision drills.

TRACTO UK is the British subsidiary of the German trenchless pioneer, TRACTO. From the flagship New Generation GRUNDODRILL, with its touch screen, remote-control operation, comfortable operator environment and unique ability to operate productively in complex geologies and rock, to the smaller GRUNDOPIT PS40, there is a TRACTO solution for any HDD drilling project.
Originally, The GRUNDOPIT PS40 was developed for near-surface house connections. The extremely compact Mini-HDD rig can work from 1 m x 1.25 m pits and fits neatly into a standard pavement width which makes it a highly suitable machine for FTTP connections. With fibre optic infrastructure often located beneath the pavement and the low distance between the bore axis and bottom of the starting pit, a PS40 can bore directly above the existing underground network from its flat starting pit. The compact machine also facilitates the connections of other utility services, such as water and electricity, right up to the core bore hole in a building. With thrust and pulling forces up to 40 kN the GRUNDOPIT PS40 can install pipes up to 125 mm diameter and 50 m in length, even challenging soil conditions. Thanks to its versatility, there are plenty more unusual jobs that requires its combination of small physical footprint and impressive power.

At the popular British theme park, Chessington World of Adventures, a PS40 GRUNDOPIT was recently specified to complete the underground installation of two x 110 mm diameter drainage pipes. The job, which was part of wider works completed by trenchless technology specialist, Impact Utilities Ltd, required a machine with a small footprint, that could be positioned in a pit underneath the Pirate Ship, to re-direct water away from the concrete open chamber beneath. Prone to flooding, the chamber had to be pumped out regularly with submersible pumps. This was not only inconvenient, but disruptive to the smooth operation of the ride. The installation of new drainage pipes with a 1 in 40 gradient fall was designed to ensure the floodwater could drain naturally and eliminate surface water around the attraction.
A 1 m x 1.25 m launch pit was prepared under the ship and the GRUNDOPIT PS40 was positioned inside ready to drill the path for the pipes. The correct fall for the first pipe was quite difficult to achieve, but thanks to the experience of the operator, the first day resulted in the successful installation of a 110 mm diameter pipe to direct surface water to a large bank near the rollercoaster opposite.

A further challenge occurred during the drilling of the second drainage pipe. Solid concrete was encountered on the bore path, which had to be removed before the installation could be completed. Nonetheless, the second 110 mm diameter pipe was successfully installed in order to sustain the water height in the surrounding lake. As part of this project, a valve was fitted to empty the lake if required. The whole job was completed in just two days and was only possible thanks to the compact nature of the GRUNDOPIT PS40.

For businesses and operators interested in finding out more about this innovative technology, TRACTO UK offers an ‘Introduction to HDD’ course that can be delivered at a TRACTO Training Centres in Bedford, Cheadle and Kircaldy (Scotland) or on site at the customer’s premises.

www.tracto.com/uk
Stand Costs
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The No-Dig Road Show series is organised by Westrade Group Ltd and supported by the United Kingdom Society for Trenchless Technology (UKSTT)
Family owned, Peter McCormack & Sons Ltd. (McCormack Drilling) recently undertook a series of major HDD projects at Barking Riverside Limited (BRL), which is a joint venture between L&Q and the Mayor of London. Since 2019, McCormack Drilling has been contracted by UKPN (UK Power Networks) (the client for the works) and Clancy Docwra (the principal contractor) to undertake a number of cable diversion projects, utilising HDD techniques as part of ongoing construction works.

The purpose of the latest HDD bores at Barking was to allow UKPN and Clancy Docwra to divert electrical circuits from the development land to facilitate Barking Riverside's plan of achieving the construction of 10,800 new homes on the site.

In total four HDD bores around 430 m in length were required for this section of the works which were completed utilising McCormack's American Augers DD440T rig (which offers some 200t push/pull capacity) and associated fluid recycling plant. Rigs and support equipment of this size/footprint are rarely operated in such a relatively confined urban environment and this in itself made for some interesting logistical challenges for the drilling crew.

All the bores were designed to accommodate pipe bundles comprising three 180 mm diameter SDR11 pipes and six 125 mm diameter SDR11 pipes.

Overall, the project utilised some 16 km of welded pipe. All pipes, once welded, were internally and externally de-beaded with each joint inspected by CCTV. Further post installation checks were undertaken whereby the installed ducts were verified by swabbing.

Understanding Geology

The prevailing ground conditions were mainly within the Thanet Formation containing sand/gravel which was overlain by superficial, compressible deposits of alluvium made up of peat, silt and clays. The area also contained significant areas of made-ground derived from deposits from the nearby former coal-fired power station at Barking Reach. The geology was challenging but the site team were able to use their previous knowledge of the locality to overcome the difficulties.
Apart from the ground conditions, the only significant challenges during the course of the bores were the 180° bend radius on the pipe welding corridor which required a bespoke engineering solution by McCormack Drilling to ensure pipe installation was successful. There was also a change in one design length to accommodate the discovery of some redundant cables.

Commenting on the HDD works, George Pali, project manager for Clancy Docwra said: “May I say that the lads are doing a fantastic job, both in terms of safety as well as productivity within the environment they have. I love the attitude.”

Farhan Nomani, project manager for UKPN added: “Almost there with a horizontal directional drill scheme to future proof power supply to East of London. One of the largest HDD rigs in the UK is being managed by the team. Excellent work is being done by the team with great care to safety and expertise in precision engineering. Brilliant efforts by McCormack Drilling in collaboration with the team at Clancy Docwra.”

Peter McCormack & Sons (McCormack Drilling) was established in early 1970’s as a utilities contractor and has been specialising in Horizontal Directional Drilling since the early 1990’s. It has a proud history of being a family owned and operated business which specialises in ground-breaking trenchless solutions throughout the UK and Ireland incorporating a bespoke, in-house design service. Its equipment portfolio offers rigs from its larger 200 t Maxi rigs, through 50 t mid-size or Midi rigs to 20 t Mini rigs which, across the range, are capable of installing pipe diameters from 20 mm up to 1,200 mm diameter with a range of over 1,200 m.

Dominique Huc, Territory Manager (Europe/Africa/Middle East) for American Augers recently wrote about McCormack: “I have had the privilege of working with them for the past 5 years. Our relationship as a supplier to provide equipment and services has been excellent. As a reputable company, McCormack has been in the industry from the early 1990s using mainly our brand American Augers for the HDD projects. They always impress me with their efficiency, quality of work, first-rate problem solving and project management abilities. McCormack & Sons was and is a reference for our brand in the HDD industry for the UK and Ireland market. They have proven their capabilities. In my current position, when someone asks me to recommend a drilling contracting company using our type of equipment, without hesitation I always recommend Peter McCormack & Sons.”

Video footage of some of McCormack’s major HDD’s can be found on the website: www.mccormackdrilling.com
ROCK TOOLING OPTIONS FOR HDD

Arguably, bit selection to obtain optimum drilling efficiency and economy for given ground condition is the most critical issue for HDD in rock. Pilot holes can be drilled using rotary, roller cone or percussive techniques dependant on the mechanical properties of the material to be drilled.

Rock “hardness” measured by compressive strength in Psi or MPa, is a major consideration. This is defined as the maximum compressive stress that, under a gradually applied load, a given solid material will sustain without fracture.

Rotary Drilling – PDC Bits

Rocks of low to medium hardness (up to 25,000 Psi compressive strength) are usually suitable for rotary drilling; these will include sand, shale, mudstone, sandstone and limestone.

A modern example of rotary cutting tools are PDC bits. They use a synthetic diamond cutter to shear the surface of the rock. PDC bits have several advantages which include:

• They offer a higher rate of penetration, longer life and increased steerability compared to conventional methods
• No moving parts
• Less stress on the drill rig
• Lower torque required
• Less vibration on the drill rods
• Producing clean holes with a consistent size
• Repairable
• Diameters from Diameters from 1⅞ in to 18 in (48 mm to 458 mm) typically
Drilling with Roller Cones - Tricones

Tricones have a range of designs and specifications making them suitable for a wide variety of rock formations. Mill Tooth tricones are designed for drilling rock up to approximately 6,000 Psi compressive strength, whereas TCI tricones have designs available that are suitable from 5,000 Psi to over 50,000 Psi. Rock types include soft sandstone and limestone through to Basalt.

The roller cones on a tricone bit rotate together with the drill rod and cut the rock without percussion under pressure provided by the drill rod from the surface. Inserts situated on the surface of the roller cones penetrate the rock under pressure and crush it.

Tricones have a number of advantages and include:

• Versatility - Option for nearly every type of rock
• Low in initial investment
• Excellent impact resistance which makes them suitable when the rock is fractured.
• Diameters from $2\frac{15}{16}$ in to 26 in (75 mm to 660 mm) typically

Percussive Drilling

Down the hole (DTH) Hammers are excellent when ground conditions are very hard, especially above 30,000 psi compressive strength. Rock types include hard limestone, granite and basalt.

DTH drilling uses a pneumatic hammer directly behind a carbide impregnated drill bit. The bit is held against the rock surface under load and the impact from the hammer shatters the rock.

DTH Hammers and bits have several advantages and include:

• Faster penetration rates in very hard rock
• Directional hammer bits are usually supplied as either Convex or Slant face bits depending on the ground conditions
• Lower wear rates in abrasive ground conditions, especially above 30,000 psi
• Suitable for solid rock
• Diameters from 4 in to 7½ in (100 mm to 190 mm) typically
Hole Opening / Reaming

As well as the above pilot hole techniques, rotary drilling can be used for hole opening where larger bore diameters are required.

PDC Reamers

PDC reamers work on the same principle as PDC bits with a synthetic diamond insert shearing the rock.

- Reaming up to 12 in (300 mm) extra diameter in 1 pass (e.g. 6 in (150 mm) pilot to 18 in (450 mm))
- Less stress on the drill rig - lower torque required and less vibration on the rods
- No moving parts for increased reliability
- Clean holes with a consistent size
- Repairable and replaceable cutters
- Diameters from 4 in to 7½ in (100 mm to 190 mm) typically

Hole Openers

Hole Openers use similar cones to tricones arranged around a central body to open the pilot hole up to the required finished size.

- Cost-effective solution
- Enable larger holes to be drilled with smaller rigs by drilling in stages.
- Usually up to 4 in (100 mm) diameter hole opening, depending on ground conditions
- 8 in to 60 in (200 mm to 1,524 mm) diameter
- Mill Tooth or TCI
- Standard 5 cone – other options available
- Diameters from 8 in to 48 in (200 mm to 1,200 mm) typically

Infinity has several resources available online to help their customers choose the best bit – https://www.infinitytoolmfg.com/resources/

Since 2009, the name Infinity Tool Manufacturing has been synonymous with manufacturing and supplying market leading rock tools to the HDD industry. Products are manufactured in a world class facility to ISO 9001 international quality management standards. The manufacturing facility is located in Benton, Illinois, USA with distributors and agents located across the globe.

Infinity offers advice to support you with your rock boring challenges. To discuss operating procedures when using rock tools or which products are best suited to your specific ground conditions, please get in touch with Infinity’s customer service team.
HDD – THE IMPORTANCE OF INSPECTION!

The drilling unit along with the drill-rods/pipe are the pieces of equipment that take the strain of every job and without them the HDD rig operation comes to a standstill. But everyone is aware of the implications of Non-Productive Time (NPT) caused by drill stings parting or damaged drill pipe on rigs and the costs that can be caused by neglecting the very equipment that is primary to any drilling project. So, it is essential to consider the potential cost of ‘Lost-in-Hole’ equipment.

How can operators prevent this cost, how can they mitigate the risk of drill strings parting, can operators ensure clients that they have maintained the equipment regularly and consistently and place liability away from the equipment? Has anyone thought about NDT Thread & Drill Pipe Inspection Services?

SlimDril has for over 20 years provided thread inspection certification for any of the equipment it sells, rents or repair, this ensures the equipment is ready for use and the client has the documentation to support it, but SlimDril went that bit further and in September 2021 started a Thread Inspection and Restoration Service.

The service is fully mobile and inspections can be carried out onsite, at the client premises or indeed at the SlimDril Facility. The company’s lead inspector has over 30 years of working knowledge and experience of inspection and restoring threads where possible, the inspector will show the client the damage to threads, the cracks and the wear to a wide range of drill pipe, threaded tooling and cross-overs.

The company can re-face seal areas on site, re-dress threads (both where it is possible to be able to do so) and provide advice on conditions for use. The service is to ensure the drilling contractors clients that all equipment is ready for use and offers the client an insight into the ‘Risk-Management’ of the drilling contractor in preparation for a project.
Slimdril has been asked what is the timeframe between inspections, in truth there is no hard and fast rule and it is up to the drilling contractor but it does make lots of sense financially and progressively to ensure regular intervals between inspections. The cost of the inspections can also be passed to client’s projects as equipment that is damaged on a project can be back charged because it was indeed damaged on that particular project, as a pre-job inspection certification would prove. So, advancing risk management, controlling downtime and maintaining the spine of operational tooling are vital ingredients in a successful project.

What else does an inspection look for? Several things including:

- Crack indications in threads
- Crack indication in box connections
- Crack indication in outside upsets
- Galled threads
- Pulled threads
- Over-torqued threads
- Galled seals
- Seal damage to shoulders
- Pitting/corrosion
- Washout in connection

Prevent that NPT!

As stated previously, thorough inspection is vital. The pipes need to be able to take the load capacity, the thread dimensions must be correct and fatigue needs to be eliminated. Failure to do so could result in the drill string coming apart and anything that is left would need to be fished out of the hole or (if you are unlucky) be left in the hole. All this results in a lot of NPT with very expensive consequences. Something no-one wants!

www.slimdril.com
Drainage is always a critical element when constructing a new housing development and the landowner must understand the water course under the land to plan the evacuation of excess water. The project managers of a new housing estate in Barnstaple, Devon, UK identified that the capacity of a 600 mm diameter concrete culvert on the site was not sufficient to prevent flooding.

The client commissioned OnSite Central Ltd, a specialist contractor for water and waste management, to plan and carry out all the works associated with a culvert expansion. The culvert runs under the only access road to the building site which had to remain operational at all times and a trenchless solution was therefore required. Nathan Hand, Project Manager, appointed Genseed Underground Services Ltd, a specialist contractor, to develop a solution.
Options

The existing concrete pipe was to be replaced by a new 750 mm diameter twin wall pipe. The usual method for upsizing pipes is pipe bursting, where an expander is pulled through the existing pipe, splitting it and forcing it open with the replacement pipe pulled in behind. On this occasion, however, the limited depth of cover and proximity of other services meant bursting the pipe outwards could cause damage and surface heave on the road.

What is believed to be a new, previously untried method was devised specifically to overcome this issue and that was to encapsulate the existing concrete pipe with a 930 mm diameter open ended steel pipe; breaking up the concrete pipe on the inside during the installation ready for the new pipe. This was achieved using a TRACTO GRUNDORAM pipe rammer from a launch pit constructed by OnSite. To complete the work Genseed designed and manufactured a multi-function custom built cutting, splitting and crushing head with internal blades that fractured the concrete pipe during the ram.

A total length of 21 m of culvert was upsized prior to the installation of 750 mm diameter twin wall pipe and grouting, which was completed by OnSite.

Accuracy in this particular application was essential particularly given the close proximity of high-pressure gas and water mains. Jamie Marshall undertook the precision installation saying: “The GRUNDORAM is exceptionally reliable and accurate which is important when there are other services to avoid underground. Our custom-made blades incorporated a guiding system to ensure the steel tube remained concentric to the concrete culvert and we set the pipe ramming guide rails to the line and grade of the culvert lowering the encapsulating head on to the them. We then butt-welded sections of steel tube to the back of the head and a winch cable was pulled through the culvert and attached to the head with the GRUNDORAM attached to the rear. After connecting an airline, the ram started and carefully progressed in sections until the encapsulating head was successfully exposed in the receiving pit where it was cut off and removed ready for the twin wall pipe.”

The whole job took just over two weeks from start to finish, with full rectification completed by the Onsite team. Nathan was impressed by the final result, commenting: “This was an example of great teamwork. From the initial call to TRACTO UK, that recommended Genseed to us, to the development of a bespoke solution for the culvert expansion and the works completed by all the teams, we completed the job with no interruption to site traffic, no damage to other services and no damage to the road surface. The client was very pleased with the speed and smooth delivery of the project.”

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A Crew from one of the UK’s leading trenchless specialists has earned praise after completing a lining job in testing conditions.

The Tyneside arm of Jet Aire Services, which also has a headquarters in Leeds as well as a depot in Darlington, was tasked with carrying out a lining job on behalf of Northumbrian Water.

The site was located just off the A19 in County Durham, in the North East of England and involved installing lining in a thick wooded area across three nights so as not to disrupt traffic on a key route between Tyneside and Teesside.

Before starting with the drainage side of the project, the team had to erect lighting structures to enable them to see where they were working before setting about their cutting, cleansing and lining tasks.

They installed 115 m of 375 mm diameter liner on the first night, followed by 68 m of 375 mm diameter liner 24 hours later and then 36 m of 375 mm diameter liner on the third night.

Jonny Pyle, Lining Supervisor at the KwikFlow/Jet Aire Tyneside operation, said: “The team spent four nights carrying out cutting, cleansing and lining works each night and the deeper into the woods they got, the more difficult the job became. I think every one of them deserves massive credit for battling the elements to achieve what they did in a week. I have had glowing reports coming back from the client about how the lads have conducted themselves and the client has said they have said they will be looking to use us again in the future.”

Jet Aire acquired KwikFlow in September 2021 to expand its reach across the north of England. The business was then subsequently taken over by environmental specialists Adler & Allan, but continues to operate under the Jet Aire Services banner. Website: www.jetaire.co.uk
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M Group Services recently announce that three of its operating businesses, Morrison Energy Services, PMP Utilities and IWJS have completed an industry leading CIPP installation on a live gas network.

Utilising the industry-leading expertise of Morrison Energy Services, IWJS, PMP Utilities, Cadent and WRc, this trail-blazing use of CIPP will provide a range of environmental and social benefits for customers. CIPP requires far less excavation than traditional techniques, therefore minimising disruption for road users and significantly cutting down on carbon output.

In the proposal of this solution, Cadent, supported by Morrison Energy Services, presented the vast benefits to the Transport for London (TfL) lane rental governance group, which approved the project, including a proportion of the funding. A cost and time effective solution, CIPP has a smaller carbon footprint, and reduces expenditure and time delays for customers, as lining avoids the need to excavate and replace the pipe using conventional methods. Therefore, CIPP provided all the necessary benefits, but the challenge lay in its adaptation for gas pipes, having usually been used on wastewater pipes before this point.

The solution to this challenge came from the collaboration of M Group Services’ operating businesses Morrison Energy Services, IWJS and PMP Utilities. Morrison Energy Services has an extensive history and expertise in the delivery of complex gas mains replacement and rehabilitation and this experience was crucial to the success of this CIPP lining project.
IWJS has proven experience and expertise in the delivery of CIPP lining in the water sector and were therefore able to adapt their technique for gas purposes. PMP Utilities supported this by designing and building a bespoke, technically complex pipe fitting, which connected the liner to the host pipe.

Ultimately, the collaboration between the businesses and the sharing of industry-leading knowledge and expertise was fundamental to the successful delivery of the first stage of this innovative project, the first of its kind in the UK gas industry as part of a connected gas network supplying customers and businesses alike.

Sean Kelly, Executive Director at Morrison Energy Services, commented: “We are incredibly proud to be driving our industry forward with this innovative technique; the knowledge and skills our people displayed in this project will help deliver positive results for our clients and customers for years to come. Working closely with IWJS, PMP Utilities and Cadent, we have been able to tap into expertise from different sectors and prove the strength of collaborative thought and working.

“This lining project is a significant development for the gas industry which has been years in the making. Morrison Energy Services, Cadent, IWJS and PMP Utilities have been meticulous in the research and development of this technique and have worked hard to demonstrate and prove the broad range of benefits it offers, ensuring total compliance with industry regulations. We look forward to maintaining the development and implementation of CIPP lining in the gas industry in order to bring its benefits to customers and clients throughout the UK.”

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NORTH-EAST SCOTLAND CONTRACTOR ADDS MTS DINO TO PLANT PORTFOLIO

Nicol of Skene, one of the leading civil engineering contractors in the North East of Scotland has recently added two MTS DINO suction excavation units to its fleet working out of Aberdeen. The DINO8 and 12 systems, supplied by MTS Suction System UK Ltd, are designed and manufactured by MTS GmbH based in Germersheim, Germany.
Nicol Of Skene, established in 1985, initially ventured into Suction Excavation in 2017 with the introduction of a class leading DINOCITY that enabled it to introduce its clients to the safe excavation methods that the systems offer. Benefits the use of the equipment bring include, reductions in buried plant damages and the associated costs of repairs, compensation and inconvenience to end users, and more importantly the risk of injury to operatives on site.

Following growth in demand for the equipment, especially for larger works and excavations, Nicol of Skene identified the need for larger capacity and more powerful equipment and committed to the purchase of two twin 900 mm diameter fan DINO units. The first a DINO8 on a 6x2 rear steer chassis with 8 m$^3$ capacity was chosen for its excellent manoeuvrability in rural and urban areas, and the second a DINO12 on a 32 t 8x4 Tridem chassis with 12 m$^3$ spoil capacity.

The two additional units allow Nicol of Skene to cover the full comprehensive range of its client requirements which not only includes safe excavation works but also more specialist applications including removals of various materials at depth and distance.

As well as using twin 900 mm diameter fans, both units also benefit from MTS patented Cyclonic Air Flow system providing UK market leading, maintainable suction performance and filter cleaning.

MTS Suction Systems UK is a leading provider of Suction Systems in the UK, providing market leading equipment to key utility and civils companies across the UK and Eire, with each MTS unit custom built to the client’s individual wants and needs.

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Add Atlas Winch and Hoist Services to your project. Give us a call today to discuss your requirements.
From A for assessment of condition to Z for zoom camera and everything in between; it is probably easy find terms related to tasks in sewer inspection and rehabilitation for nearly all the letters of the alphabet. At the Dutch company Induron B.V., all tasks are performed by the same team with the same vehicle. The owner and general manager Eduard Veenhuis and his team have given some insight into their day-to-day work with the multifunctional vehicle equipped with a MicroGator Air pneumatic cutter robot and an IBAK MainLite system.

Eduard Veenhuis and his brother Theo Veenhuis founded the company in 1999 with a focus on sewer inspection. At the time, their initial equipment consisted of a Mercedes-Benz Sprinter with an ARGUS pan and rotate camera. In terms of the amount of time required, 80% of the work performed by the small family-owned company is for acceptance tests for construction work. However, in terms of turnover, the amount reached with inspection work is decreasing more and more in favour of rehabilitation projects.

In many Dutch municipalities there is a high level of groundwater that seeps into the sewer system through defects in the sewer pipes. The increasing number of problems has led to a high demand for rehabilitation in the region and therefore to a rising number of tenders. Eduard Veenhuis finally increased the scope of services of Induron B.V. to include short length liner repairs and manhole rehabilitation.
For about 3 years now, the team of four has participated increasingly in tenders in the rehabilitation sector.

Independent of Partner Companies

To implement rehabilitation work, Eduard Veenhuis initially had to depend on his good network of partner companies. Whenever it was necessary, he cooperated with subcontractors. This worked well but required a great deal of coordination and planning, as he always had to depend on the capabilities of his partner companies. Nowadays the company operates the MicroGator Air pneumatic cutter robot which is a component of their latest IBAK cutter and TV vehicle. With the multifunctional vehicle, they now perform all work steps with their own equipment, independently of any external services. “The cutter is always available, regardless of whether my partners have to do an unexpected emergency job in the meantime or not.” explained Eduard Veenhuis.

Unlike big rehabilitation companies that employ separate teams for individual work steps, at Induron all the work to be done at the job site is performed by one and the same team. “With us, we do not have another team that we can pass on the baton to. This is why it would not have been of any use to us just to buy a cutter. What we needed was a fully-fledged inspection system with which you can also perform cutting jobs.” said Eduard. “The MicroGator Air is integrated into the IBAK MainLite system so the motor-driven KW 306 cable winch and the control system that are also used for IBAK inspection systems are fully compatible. “In our daily work, it is a big advantage that all jobs from inspection through to rehabilitation can be done with the new system. It covers all our applications. We operate the cutter and the camera with the same joysticks and buttons.” Eduard explained more closely the motives that led to the purchase of the system nearly a year ago: “The integration of the IKAS evolution software ensures smooth transfer of data from inspection to rehabilitation. So, defects are captured during the inspection, rehabilitation measures are planned and the elimination of defects is documented during cutting operations in the same work environment.” he said.

Engineering ‘in the Blood’

Even though the two Veenhuis brothers Eduard and Theo have opted for the sewer industry, their family background with over 70 years of experience in the construction of agricultural equipment is evident. The engineers have equipped the vehicle to fit their requirements with expert knowledge and professional competence. They integrated a diesel-driven VANAIR VIPER compressed air compressor into the van to provide compressed air to drive the cutter motor. In addition, they installed a motor-driven hose coiler made by the Italian company MECLUBE S.R.L. for the ¾ in (20 mm) diameter air hose for the cutter motor. Finally, they mounted the motor-driven KW 306 cable winch of the IBAK MainLite system in front of the hose coiler. They arranged all components according to function and installed them in a blue steel structure inside the vehicle. Last but not least, they equipped the steel framework with a swivel pull-out load arm with a load capacity of up to 800 kg.
Induron B.V. processes all materials found in sewers with various cutter heads on the MicroGator Air and covers a range of application from DN200 (lined) to DN800.

The robot tractor is electrically driven. Eduard Veenhuis produces power for the four-wheel drive sustainably by means of photovoltaic cells on the roof of the vehicle. However, the cutter motor of the MicroGator Air is pneumatically driven. Its efficient cutting performance is achieved using a ¾ in (20 mm) diameter air hose with an inside diameter of 19 mm.

Induron staff member Marcel Lozeman makes sure that the tension of the air hose, paid out by the MECLUBE hose coiler, is identical to that of the yellow camera cable, paid out by the KW 306.

Short Familiarisation Period

Team colleague Sandink has been with Induron for 22 years and came to appreciate the MicroGator Air as a reliable work tool in next to no time. The 65-year-old has been doing TV inspections for decades and did not hesitate to take over the new task. “It does not take long to learn how to operate it.” he said. He operates the Orpheus pan and rotate camera on the T66 camera tractor and now also the cutter robot in an expert manner. While he cuts back a protruding connection in a section, he is full of praise for the precise control of the potentiometer in the joysticks and the continuously adjustable moving speed.

“We cut for an hour when required, and then we go on to other work,” said Sandink in reply to a question about the working procedure. He said it is not like working with a team that does cutting work all day long, section after section, in preparation for the liner team. When necessary, he removes roots that interfere
with an inspection before or after the camera inspection. He also removes all other kinds of obstacles to the flow such as incrustations, protruding connections, joint displacements and deposits with the MicroGator Air. Cutting work is always a time-limited work step among many others. He also reinstates laterals with the cutter robot.

As the next section has a diameter of DN500, he mounts the tractor attachment with pneumatic tyres on the MicroGator Air in a few steps. To remove rubber linings protruding from joints near laterals, Sandink now also changes the tool on the cutter. He uses a conically shaped attachment with an extension and utilises the 4th axle of the robot to be able to work into the lateral.

Everything in View

At the same time, Sandink has an unrestricted view of the working area with the CutterCam colour pan and tilt camera. As the compressed air to drive the motor is also used for the air screen of the CutterCam surveillance camera, the compressed air is processed and then new oil is added. A further advantage is that the tried and tested lens cleaning function has been implemented without an additional hose so that the cutter robot can be operated via the standard camera cable.

The focus of the surveillance camera can be flexibly adjusted so that the working area is not only in sharp focus but the rehabilitation results can also be documented in detail. Thanks to the integrated gravity sensor, system operator Sandink can orientate himself correctly in the pipe.

With a further camera, Sandink can see behind the robot. The rear-view camera of the MicroGator Air ensures that the system reverses out of the sewer in a controlled manner.
The multifunctional system enables this small specialist company to perform orders for inspections through to rehabilitation work cost-effectively, efficiently and from end-to-end.”

For inspection work, Induron uses an IBAK Orpheus 2 pan and rotate camera with the MainLite system. With this camera, the team is not only able to carry out condition assessment of sewers with diameters of DN150 to DN2000 but can also provide further services. The specialist company can perform continuous laser-supported profile measurements with the laser integrated into the fully rotatable camera head. The calculated actual profile over the complete run of a section can be used as a basis for planning rehabilitation measures. In addition, the 3D sensor also integrated into the IBAK Orpheus camera enables the pipe run to be captured during the camera inspection. With the 3D-GeoSense pipe run measurement, Induron can provide its customers with a true-to-life site plan with width, length and height data. The insight gained with the two types of survey by far exceeds that of a purely optical inspection and can contribute to the reliable execution of rehabilitation measures.

Cost-effective and Practicable

Induron B.V. has found an optimum solution for its applications with the combination of a MicroGator Air pneumatic cutter robot and the fully compatible IBAK MainLite system. The multifunctional system enables this small specialist company to perform orders for inspections through to rehabilitation work cost-effectively, efficiently and from end-to-end. The team can reliably remove any obstacles blocking the flow of sewage, no matter whether it is a question of protruding connections, deposits or intruding roots, which are a frequent occurrence, without having recourse to subcontractors. The small specialist company would not have been able to operate a purely electric cutter system profitably for its requirements as it does not do cutting work around the clock every day. As Induron can operate both the Orpheus inspection camera and the pneumatic cutter robot with the built-in IBAK MainLite system, the equipment is used to full capacity and can be deployed profitably for end-to-end job execution.

www.ibak.de
Andy Guest Jetters recently introduced the TV35 push-rod camera system to its product range. The new system marks the manufacturer’s first venture into drainage inspection equipment, an area of growth across the sector.

Jon Woods, Sales Manager at Andy Guest, explained that feedback from customers was integral in deciding to expand into this area of the market saying: “A lot of customers have asked about camera systems as the demand for inspection equipment rises across the industry, and we could not ignore that. We have worked closely with our sister company Rioned to identify the right product, and with a starting price of just £1,180, we are pleased to be in a position to offer one of the most affordable, high-quality camera systems in the industry.”

The TV35 is a push-rod camera system for drain and sewer inspection and surveys of pipes with diameters from 25 mm to 200 mm. Compact and lightweight, this robust system is easily transportable and has the advantage of modular construction, which means parts can easily be replaced in the field at a low cost.

Waterproof to depths of 10 m, the IP68-rated camera head features a 120° wide-angle lens with a sapphire glass coating and 12 LED lights for high-definition picture and video quality. The open-reel system includes 35 m of 6.8 mm diameter durable and flexible fibreglass pushrod cable, comfortably capable of negotiating 90° bends in smaller diameter pipes. Images and video, captured at 800x480 resolution, can be accessed via playback on the 7 inch LCD monitor and saved to integrated SD cards.

Mounted on a compact frame, the TV3 can be moved efficiently from job to job and has a maximum weight of just 13 kg. A rugged and hard-wearing suitcase houses a control box and wireless keyboard, which can be easily removed to aid the operation of the inspection system in restricted access areas.

The system is powered by a rechargeable, high-capacity lithium-ion battery pack which can last up to five hours of continuous use. A user-friendly interface allows operators to fine-tune the camera’s settings, with information able to be displayed in nine different languages. Contractors can also customise their systems, with a 23 mm or 38 mm self-levelling camera head, and a built-in 512 Hz Sonde transmitter, which are available as optional upgrades.

www.rioned.co.uk
NO-DIG ROADSHOW BELFAST 2022
15 June 2022
Crowne Plaza, Belfast, Northern Ireland

NO-DIG LIVE 2022
16th Biennial Exhibition, Live Demonstrations and Technical Sessions
13-15 September 2022
East of England Arena and Events Centre, Peterborough, UK
www.nodiglive.co.uk

NO-DIG HELSINKI 2022
ISTT’s 38th International No-Dig Conference and Exhibition
3-5 October 2022
Messukeskus Helsinki Expo and Convention Centre, Helsinki, Finland
www.nodighelsinki.com

TRENCHLESS EGYPT 2023
Part of the Trenchless Middle East Portfolio
March 2023, Cairo

TRENCHLESS ASIA 2023
17-18 May 2023
Kuala Lumpur Convention Centre, Malaysia
www.trenchlessasia.com
API was recently contacted by a private customer regarding the loss of water supply to a newly built commercial coffee house property in the Bradford area of Yorkshire, UK.

The client had investigated outside the property however the pipe supply runs through a fully reinstated tarmac carpark and block paved area. The property had experienced very low water pressure which was an issue due to the nature of the business.

API offered a solution by using the brand new PIPA Hydrocam CS system. The camera entered the 32 mm diameter water pipe via a removed stop tap inside the building, and quickly identified the issue being a pipe blockage from pipe ingress.

A key hole excavation quickly exposed the blockage location and minimal damage was caused to the property and surrounding area.

PIPA developed a brand-new camera system in 2022 for small diameter services pipes called the Hydrocam CS. The unique system is supplied with a mini cable drum, 50 m of flexible trace cable, a 14 mm diameter pressure rated camera and battery powered control box.
The survey was undertaken within 30 minutes and pipe issues were identified. The camera was then used as a pipe trace system to identify the sensors exact location. The pipeline was also surveyed from outside the building to check the remaining pipe area, additional pipe ingress was identified along with a joint fitting.

PIPA Hydrocam Technology

API uses PIPA technology that includes a 14 mm diameter pressure rated camera (Hydrocam CS) tethered to a 50 m semi rigid rod to give the operator live video and recorded data during an inspection. The system enters a pipeline via a standard inline fitting or inline boundary box, and is fully chlorinated during its insertion. The system works on a live basis, with no interruptions to the client’s services and with several surveys undertaken this unique product can cover up to 8 surveys per day.

The technology is the latest live main inspection system on the market being fully battery powered and only requires a 1-person team for its implementation.

PIPA has also developed reporting software to quickly present the results in a detailed data report document.

The survey results included:
• API successfully inspected the 32 mm diameter pipe using Hydrocam CS camera system
• API located the pipe blockage below a kitchen WC washroom area within the building
• The survey was undertaken at night due to the silent operation of the camera system, the coffee house had no shutdown to its daily business operation
Pipe joint identified using Hydrocam CS.

- The contractor was able to resolve the issue with minimum property damage
- Tethered insertion technology system allowed for precise pipe assessment to give the client data including visual condition assessment, confirmation of material, lining and i.d. of pipes
- It offered a true no dig solution saving large excavation work and also saving time with guesswork
- The Hydrocam CS is a QC tool and commissioning solution on all pipe installations new and old

It would have been very difficult and expensive for the contractor to excavate. The plan was to start excavation outside the building and expose the entire pipe, and then remove floors and wall space areas on further pipe investigations within the building.

The Hydrocam CS camera is now commercially available globally offering a trenchless pipe assessment solution to the industry.

An API representative said: “The project was a great success, and also a great case study for our company. The contractor had exhausted all other pipeline inspection avenues, and was more than relieved when we offered a solution.”

API has also delivered successful projects with the majority of the UK water utility companies, and many other projects overseas.

Feedback from the client said: “I am very happy with API for solving our problem so quickly. I searched on the internet for other companies in the service pipe inspection area, but nobody could offer a camera survey on such a small pipe! The bonus was this is approved on drinking water pipes. Luckily the camera found the issue was close to its entry point within the building, we were previously discussing digging up the entire ground floor and car park around the property! We were also disappointed to see a pipe joint as this could easily have been a 1 pipe run section, however we know where it is if we have any future issues thanks to API. Many thanks API for a great professional service and you quickly found it!”

www.pipa-uk.com
Hi ISTT members! And Happy Chinese New Year!!

I have been in Lapland in Finland for two weeks for skiing which is my favourite hobby in sports. I have been on my skis here for almost 400 km happy skiing. On the ski track I have had a lot of time to think. I have thought a lot of my period as a chair. We have changed a lot in our society over the past years. I have thought where we would be if we have not started the process with Enrico. I am quite convinced that we have now a much more modern way of working than we would have had without changing anything. The new chairman elected in Helsinki in October this year has now a table ready to take to the next step of activities if the board sees that necessary. There is no need to remain where we are now. We are more flexible to changes than we have ever been.

We had a good meeting with Peter Smeallie two weeks ago for updating our plan of action from 2019. The Plan of Action is a document guiding our activities in the near future. The plan of action will be accepted in October when we have the next council meeting in Helsinki. Before that our board will give their opinion about the plan.

The programme for the International No Dig show in Helsinki is almost ready. The one missing item is the post conference tour on Thursday 6 October for which every affiliated society can vote from five different possibilities. The most popular programme will win and will be the one which will be arranged. The elected tour will really be worth taking part in.

The call for papers for the conference is now open on the conference webpage and to keep yourself updated about the arrangements please visit the show website: www.nodighelsinki.com and book the week out on your calendar and send your paper in.

We have received good news from Romania. The trenchless Romania club has been accepted by the Government and is now preparing its proposal to join the ISTT. We have received also some positive signals about ideas for a regional society in the Gulf region. All these signals show that our activities are on the right track.

The big show, NASTT’s annual conference will take place in Minneapolis in April and I will be present there. I am happy to have the possibility to meet many of my American colleagues at last after the lock down. I will invite all Americans who will be welcome in Helsinki in October as an exhibitor, delegate or researcher.

I wish all of you a nice springtime and many nice no dig projects!
WEBINAR - CIPP REHABILITATION, MATERIAL AND PERFORMANCE

Since its introduction in the early 1970s, CIPP has been one of the most frequently used trenchless technologies for rehabilitation of gravity pipe networks, and subsequently for pressurised pipes as well.

From the early years, synthetic fibres were the material used as a carrier to the resin, in the manufacturing stage, until the uncured liner was installed and cured. The technical performance of the cured liner was dependent, in large part on the resin used. During the 1980s, a number of companies started to use more advanced materials which led to the birth of reinforced CIPP. Material and design of CIPP liners in both gravity and pressure applications have progressed especially over the last 20 years. Today we see structural CIPP applications in a large range of diameters and pipe shapes in many countries across the globe.

This webinar will look retrospectively at the development of both gravity and pressure CIPP applications, to give the audience an informed view as to what technical degree the technology for CIPP has evolved, in terms of materials, design and application technology, to achieve final pipe performance in meeting today’s requirements and relevant standards.

www.istt.com/index/webapp-registrant-form/id.15
GSTT member and cooperation partner, EITEP (the Euro-Institute for Information and Technology Transfer in Environmental Protection GmbH) from Hanover, successfully organised and completed Europe’s leading pipeline event, the Pipeline Technology Conference (ptc) between 7 and 10 March 2022 at the Convention Center of the ESTREL Hotel in Berlin, Germany.

Given that it was understood that the Covid virus would remain in the population beyond 2021, ptc 2022 was organised and operated as a visitor-present and remote event.

It was pleasing that the number of participants at ptc 2022 far exceeded expectations. Some 659 participants from 49 different countries registered to participate as visitors. With the participation of 62 different pipeline operators, there was a wide range to see. >
Due to members of the Fandrich family being Corona positive, Dennis Fandrich, board member of the EITEP Institute and chairman of the Pipeline Technology Conference, held the opening speech online.

With regard to online participation, it is important to emphasise that 90% of all participants registered for personal participation in Berlin. In the accompanying trade exhibition, 53 exhibitors presented their products and services.

Dennis Fandrich, the board member of the EITEP Institute and chairman of the Pipeline Technology Conference, was unfortunately unable to attend in person because his family was coronavirus positive, fortunately only with mild symptoms. In his opening speech, Dennis Fandrich also pointed out the following: “You certainly know that ptc was never a political event, but the current situation leaves us no choice but to take a stand here as organiser of Europe’s largest pipeline conference and exhibition and to oppose Russia’s illegal attacks on Ukraine. As the organiser, we have decided to make use of our house rules and bar participants from Russian state-owned enterprises. We hope for a quick and peaceful end to the armed conflict in order to welcome these participants again in the future.”

ptc has always been a security-oriented event. The safe planning, construction, operation and maintenance of piping systems and distribution networks is a core goal of the ptc community. Technological innovations, continuous improvement, the discussion of outstanding case studies and the exchange of experiences have always been the focus of the Pipeline Technology Conference. After such a long time staying at home, attending online meetings and watching various webinars, it was great to see that this exchange of experience could finally be done face-to-face in Berlin. This is why ptc was originally created, as a central hub for the global pipeline community.
The three-day event was packed with many hot topics and central challenges for the future. In keeping with the current situation, there was a keynote speech on the topic ‘Energy security in times of crisis: short-term measures and long-term consequences’ before embarking on a cross-industry exchange on possible threats and countermeasures, in the context of securing IT/OT networks for operators of critical infrastructures. On the first afternoon, the focus was on a wide range of key topics on decarbonisation such as hydrogen, methane emissions, CCS and ammonia before moving on to the main part of ptc, the extensive technical session programme. ptc ended on Thursday with two further highlight panel discussions on the topic ‘The end of the flagpole: What is happening on the consumer side?’ where the perspectives for pipeline-based infrastructures were examined from the consumer’s point of view before ptc was concluded with an important discussion on ‘Public perception and labour shortage’.

In his opening speech Dennis Fandrich said: “Last but not least, we would like to take today’s International Women’s Day as an opportunity to briefly reflect on the proportion of female participants at ptc. I am certainly not revealing any secrets when I say that the percentage is not nearly 50%. But it has been a great pleasure for me lately to speak with women and men in a 50:50 ratio in my discussions with various young pipeline professional organisations. I think that is very encouraging when we think about the next generation of pipeline professionals. Keep up the good work at YPI and all local YPPs around the world.”

The opening ceremony also commemorated the former president of the EITEP Institute and the founder of the Pipeline Technology Conference, Dr. Klaus Ritter, who died far too early in December 2021. He was the restless driver and innovator of ptc, which under his leadership developed into Europe’s leading pipeline conference and exhibition. He has entrusted his son Marian Ritter and Dennis Fandrich with the leadership of the EITEP Institute, and both will do their best to continuously work on his vision of a global pipeline community meeting in the heart of Europe.

For the first time, the pipeline spectrum was expanded to include trenchless construction methods with NO DIG BERLIN as a partner event. Interesting topics were reported on over two days. Here, too, the internationality was forefront with speakers from Germany, USA, Finland, England and Italy.
In addition to an opening speech at ptc, our GSTT CEO Prof Jens Hölterhoff also opened NO DIG BERLIN 2022, which together with ptc was a ‘first’. Some 35 participants registered directly at NO DIG BERLIN. ptc delegates also had free access to NO DIG Berlin, both those present and online. In the course of the NO DIG event, 31 different people logged into the NO DIG Berlin Streaming Session. Among other things, a question from Petronas from Malaysia was asked online (and of course also answered).

On the 2\textsuperscript{nd} day of ptc (the 1\textsuperscript{st} day NO DIG BERLIN), the GSTT AWARD was presented as part of a Get Together as part of the accompanying trade exhibition. The Awards included:

- The bronze trophy was presented to Peter Lischewski, managing director of RÄDLINGER PRIMUS LINE GMBH for the Primus Line\textsuperscript{®} Overland Piping project in British Columbia, Canada. It is the perfect solution when a safe and reliable temporary above-ground bypass is installed when temporary diversion of liquids is required due to trenchless work.

- The silver trophy was accepted by Dr Marc Peters, Herrenknecht AG, for the E-Power Pipe\textsuperscript{®} project for XXL long-distance drives for underground cable and pipeline installations. These are XXL long-distance drives with modified microtunnelling machines for underground cable and pipeline installations. The world record length was reached in January 2022 in the Netherlands, where a cable sheath bundle installed with E-Power Pipe technology was laid over an outstanding length of 2 km.

- Francis Clauss from IMPREG GmbH received the Gold Cup for the installation of the world’s first UV light-curing GRP hose liner DN 2000. With the production and successful installation of the largest UV liner to date, which was delivered and installed in one piece with a total of 167 meters, a new milestone was set for the entire No-Dig community. Construction site near Parma Italy, rehabilitation of an irrigation pipe to ensure the flow of water to the agricultural fields of Reggio Emilia. >
The award ceremony took place in a dignified setting in the middle of the trade exhibition. There were cocktails for all, served by Nic Shanker, who is known from the television. Here, too, the GSTT participated in order to further improve the atmosphere.

There are plans to permanently link NO DIG BERLIN to ptc, with professional support from Westrade Group. It is hoped that this event in connection with ptc will establish itself as the leading international event of trenchless construction methods in Berlin, in the heart of Europe.

Everyone at ptc hopes that in the next few months there will be a gradual return to normality and finally remove almost all the new security measures that have accompanied this virus over the last two years and the current ptc.

It is very much hoped that the next ptc including NO DIG BERLIN will once again be able to operate in the usual visitor-present format, running from 8 to 11 May 2023 and that everyone can meet face-to-face again.
Trenchless Romania Conference & Exhibition is the international conference and exhibition focusing on no-dig technologies from Romania. Already at its 6th Edition, the event will take place on the 14th of June in Bucharest, capital of Romania where the use of trenchless technology has become a necessity as main the underground infrastructure need modern approach for the installation, replacement or renewal.

Supported by the ISTT (International Society for Trenchless Technologies) the event brings together manufacturers and distributors for trenchless products and equipments; contractors and network operators; engineering companies; public authorities and municipalities; representatives of embassies and consulates; chambers of commerce and associations in the field of construction equipment in Romania. Along with ISTT also GSTT, UKSTT and OGL joined efforts to support and enlarge the awareness for the trenchless technology in the region.

The previous editions of the event brought together more than 1000 participants from national and international companies in the field, from Europe (Germany, Austria, Belgium, Netherlands, Poland, Greece, Spain, Italy, Bulgaria) and from USA, such as manufacturers and distributors of equipment and technologies dedicated to the no-dig sector for horizontal guided drilling (HDD), pipejacking, pipe bursting, microtunnelling, pipe rehabilitation (CIPP) and other trenchless technologies that are ideal solutions for installing underground utilities in urban areas with heavy traffic.

The event will host the 6th Edition of TRENCHLESS ROMANIA AWARDS, the Gala ceremony for awarding the projects that use trenchless technologies and products in the trenchless industry. TRENCHLESS ROMANIA AWARDS is also dedicated to the people, the professionals that are behind the trenchless technologies and projects, therefore this year we will also have a special Award for Outstanding contribution for trenchless technology in Eastern Europe.

For detailed event information please contact: Maria Nae – Project Manager Trenchless Romania, Tel: +40724 550 830, maria.nae@trenchlessromania.ro

/www.trenchless-romania.com/
International Society for Trenchless Technology
istt.com

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Members £100 Non Members £125 per person (+VAT)
Hello everyone, I would like to start by thanking the Pipeline Industries Guild for a wonderful evening at their Annual Dinner on 8 March. I am happy to say that our 2022 Green Alliance webinar programme with P.I.G. has already gotten off to a great start, thanks to Charlotte Farmer of Hydrogen East, and we look forward to hosting a second online event very soon.

Thinking about the road to Net Zero also forms part of the UKSTT's new Social Corporate Responsibility Strategy, for which we have to thank Past Chair and current Treasurer of UKSTT, Colin Tickle. As a Society, we have a responsibility to work ethically, considering human rights as well as the social, economic, and environmental impacts of what we do. Our Strategy report will be published on our website in the near future, along with regular updates on progress. This is only possible due to the additional time that our Council Members have dedicated to UKSTT via newly formed working groups within our two sub-committees, Membership Services and Technical & Education. These smaller, focussed teams meet regularly to discuss all aspects of the UKSTT, finding new ways of working, for our members and patrons, with education and the promotion of trenchless technologies firmly at the forefront. I would like to offer my thanks to each and every one of them for their amazing continued support.

Continuing with the green theme, I am delighted to say that UKSTT has recently ditched paper business cards, opting for the more environmentally friendly digital option. This is in line with our new Social Corporate Responsibility Strategy, so if you see us out and about and we offer to keep in touch, please don't be worried when we get out our phones! There are also lots of useful links on the digital card, such as social media and the website so hopefully it will prove more useful for you too.

One last thing – I would like to remind you that the window is open to enter our coveted UKSTT Awards. We want to highlight your successes, so please visit ukstt.org.uk to enter, or contact myself or Lynn. Here are our new digital business card QR codes – scan and save, we look forward to hearing from you.

Stay safe – Dawn x
Each year the UKSTT makes annual awards to promote excellence in trenchless technology, and this year the awards will be made at the Society’s Gala Dinner that is being held in Peterborough on 14 of September 2022. Held during the biennial No-Dig Live conference and exhibition, the Awards recognise the outstanding contributions made by organisations and individuals to the promotion, use and development of Trenchless Technology in the previous calendar year.

The awards themselves are open to all aspects of Trenchless activity. Entries for overseas projects will be accepted provided they are submitted by UK companies who either did the work or supplied the equipment as well as entries submitted by overseas companies for work carried out in the UK.

Each project-based category is marked against the following five categories:
1) Innovation
2) Environmental Management
3) Community Impact and Customer Care
4) Project Management
5) Legislative Compliance/Health & Safety

New Categories for 2022:
- Innovative Technology
- Detection, Location and Inspection
- Pipe Rehabilitation – Cured in Place Pipe Lining (CIPP)
- Pipe Rehabilitation – Techniques other than CIPP
- New Installation – all techniques other than Horizontal Directional Drilling (HDD)
- New Installation – Horizontal Directional Drilling (HDD)
- Young Professional
- Environmental Award

For further category information and criteria or to access the online application form please visit the UKSTT website https://www.ukstt.org.uk/2022-award-categories-entry-forms/
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The UKSTT Awards
in association with Westrade

Wednesday 14 September

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www.nodiglive.co.uk
For several months now there has been much in the UK media (broadcast, online and print) about the workings of the UK water industry and its impact on the environment, not least the figures that some 400,000 individual pollution incidents occurred over the course of 2020.

Without going into the fine detail of these incidents there are those that put the blame for them squarely on the shoulders of the Water Companies for not doing enough to prevent these occurrences happening. However, there are arguments that this is not necessarily the case.

Over the past 30 years or so since privatisation of the Water Companies across the UK, many people have agreed that there has been an underspend on the wastewater infrastructure. Early on the European Clean Water Directives required that beaches be brought up to a minimum standard in a relatively short timeframe to minimise raw sewage dumping to sea, leading to major investments being made in new or upgrading of treatment plants around the coastline. This was closely followed by the focus on clean water delivery losses via leakage from the distribution network, investment that to this day continues to be required given that leakage still remains relatively high at around 25% (although this is down from the 35% at which these works first started).

Now we have the situation repeating itself of raw sewage being passed directly into the environment via river and coastal outlets. But why are we where we are? Put simply, redirection of available funds over the past 30 years or so has meant that much of what was already a deteriorating wastewater network has gotten worse. Therefore, it has become less able to handle increasing population (the UK population has risen by around 20% over the time since privatisation), major housing and industrial developments over the same time frame. The understanding now that climate change is affecting weather patterns adversely bringing higher rainfall events more frequently than before adds to this problem.
This situation is not helped by the fact that much of the UK wastewater system is a combined flow design of foul and surface water run-off, which means that treatment plants, even the newer ones, have difficulty in meeting the demands placed upon them.

There are those that say the simplest route is increase treatment plant capacity again, but this will not solve the underlying problems of the sewer network, which now need to be addressed.

Fixing the wastewater network so that it is fit for purpose across the country will not be an easy task, it will take high investment. The combined design does mean that any ‘fix’ may require that combined sewers are separated so that only foul flows arrive at the treatment plants thereby reducing the demands on them so reducing the need for raw sewage dumping, hopefully. However, such a fix would be very costly as run-off from roads, rail tracks etc. can be classed as contaminated due to hydrocarbon content and other detritus that would need to be removed before allowing flow to the environment which would mean new and perhaps different types of treatment plant, so adding significantly to the costs involved.

Furthermore, with the drive towards Net-Zero in industries across the country, technologies that may have been used in the past to meet these changing circumstances will not address many of the problems in a carbon-efficient way.

In an OFWAT Statement in October 2021, David Black, Interim Chief Executive of Ofwat, said: “The current levels of storm overflow discharges into rivers cannot continue, and the water sector must tackle this. Water companies have a critical role in protecting and preserving the natural environment.”
He went on to say: “As part of our recent price review, we required companies to reduce pollution incidents by 30% by 2025 and to improve 12,000 km of rivers. We also backed investment of around £1 billion every year for water companies to improve the natural environment by increasing the capacity of the wastewater system to meet growing demand. In July we approved almost £3 billion extra for green recovery plans to deliver lasting environmental improvements.”

**HOW CAN TRENCHLESS TECHNOLOGIES HELP?**

There will be a range of requirements to ensure that wastewater networks function efficiently. Some pipelines will need to be replaced completely, some will need to be replaced in part, some will need to be rehabilitated completely, some will need to be rehabilitated but again only in part and some will need nothing doing to them all except perhaps a good clean.

However, there is a side to this workload that has also come to the fore in recent years, the drive to Net Zero Carbon, which applies as much to Water Companies as to anyone else. Furthermore, increasingly the public has over the years become more aware of the utilities in general and the water companies specifically when they spend significant amounts of time with the roads open yet apparently little work being undertaken, impacting on the public’s lives and activities whilst leaving many questioning why?

So, the question now becomes what do the Water Companies need to enable them to achieve the rejuvenation of their wastewater networks whilst achieving several requirements in the face of public scrutiny, cost restraints, environmental concerns and climate change?

The answer to many of the Water Companies’ problems may, to a significant extent, lay in the remit of Trenchless Technologies. Whilst many in the water industry know of some of the trenchless ‘family’ of options, it is not very often that these people know them all. It is this that may currently be limiting the application of such technologies as not all are being considered when a project/problem arises, only those that are familiar to the engineers involved on the ground.
There are those that have expressed a degree of dissatisfaction that amongst the UK Water Companies in general there has been a measurable downturn in rehabilitation activity since 2010. There is some opinion that this has not been readily addressed and that there has been a paucity of genuine innovation adopted by some Water Companies. In some cases, this has changed, in others there is still a need for change.

CARBON MONITORING

There are however some Water Companies that seem to have adopted the new direction, for example Wessex Water. The company utilised the North American Society for Trenchless Technology (NASTT) O’Sullivan CO₂ carbon calculator in 2008. It measured carbon output of the main works apparently ‘from cradle to grave’. It also measured carbon produced by traffic waiting at traffic lights at site, which it appears had a considerable impact. What it did show however was that something around 90% reduction in CO₂ was achieved using CIPP lining and 80% reduction when using pipe bursting, as compared with traditional techniques, these figures being calculated over a number of schemes. Wessex Water has used the latest model of the O’Sullivan calculator from 2018/2019, which has been updated, and the results were almost the same.

Whilst looking at Net Zero now, Wessex Water is aware that there are other carbon models such as WRc and Arizona State University systems. Interflow is also active in this area and is one of the drivers of this concept in Australia.
Alongside the carbon reduction, Wessex Water’s CIPP lining activities each year, for both framework and in-house lining teams, avoids some 150,000 tonnes of excavated spoil needing to be transported away from site and therefore a similar quantity of imported backfill being required. That equates to some 15,000 to 20,000 lorry movements that do not now occur on customers’ roads.

With these carbon and environmental savings attributed to just one Water Company, what would these savings be if every UK Water Company operated similarly?

Of course, there is also potential for secondary carbon savings elsewhere. If low-carbon techniques like trenchless are used to improve sewer networks for example, less unwanted inflow and infiltration means less flow into treatment plants. This could ultimately mean less treatment product usage and less power consumption, all of which has its own carbon footprint. So, overall carbon efficiency of the whole operation can improve.

WHERE TO NOW?

These example figures highlight the potential for trenchless techniques to underpin a large part of the works that will be required over the next several years, if not decades, to meet the growing demands on the wastewater infrastructure. This not only applies in the area of rehabilitation but also to pipeline replacement, with techniques such as pipe bursting and pipe extraction. New-build also has a part to play with microtunnelling/guided auger boring, horizontal directional drilling, pipe ramming and moling.

Many engineers in the UK water sector know of some of the technologies available, some know just one or two, others know the whole gamut of technologies available. Wherever you as the reader of this description fit into the mould, there is always something new to learn as techniques evolve, new ones come to the fore and applications are extended into new areas of use. More recently however the Water Companies themselves have been looking at how they can share information and experience, having set up the Sewer Rehab Contact group. This is a practical demonstration of how the Water Companies are now showing a willingness to cooperate to achieve better results.
How do you as an existing or new practitioner keep up to date with all of this? Ongoing education, is how. At times where individuals often have difficulty achieving the levels of career development needed today and with some companies reluctant to send engineers off-site to learn the necessary skill and gain the necessary knowledge, it is difficult to know how these targets can be reached.

However, this information is available if one knows where to look. For example, the United Kingdom Society for Trenchless Technology (UKSTT) offers webinars and masterclasses in various aspects of trenchless technology. It also offers a wide-ranging Technical Enquiry service that brings together industry experts with those that potentially require project guidance and direction towards the right trenchless technology for the problem in hand.

UKSTT also works closely with one of the industry's leading Trenchless Trade event organisers, Westrade, which presents the world-renowned No-Dig Live events every two years. This type of event is open to existing and potential new trenchless participants and brings together all the various technologies available under one cover for three days, enabling those ‘in-the-know’ to update their knowledge and for those new to the sector to potentially have their eyes opened to new techniques that may help their projects now and for the future.

Many trenchless-focused companies now offer cost-effective, time-saving, environmentally-sound and minimal carbon footprint options to the buried service industries. Therefore, it is only by creating time and undertaking the effort to understand all these options that the water industry, and other utility sectors, can progress forward towards the forthcoming minimum carbon environment that will undoubtedly be required of everyone in the near future.

www.ukstt.org.uk
Using trenchless techniques, to install, replace or repair underground pipelines, is not only less disruptive but is also a cost effective and environmentally friendly way of doing so. Why dig when you can ‘Go Trenchless’!

There are so many reasons why choosing trenchless techniques can be the best option for everyone, including:
- Less CO₂ Emissions
- Cost effective
- Less disruptive to the general public and the local eco system
- Time saving
- Safer

UKSTT can help you decide if Trenchless methods are suitable for your project. Our website has a dedicated link for visitors to raise any technical enquiries they may have concerning trenchless technology and whether it may be applicable to any specific project: https://www.ukstt.org.uk/technical-enquiry/.

Any enquiries received are circulated to our Corporate Members and if more detailed advice is required UKSTT have a dedicated team who will advise separately. All technical enquiries are stored on the members only area of the UKSTT website. For all your trenchless solutions and latest news visit the UKSTT website https://www.ukstt.org.uk/ #ThinkTrenchlessFirst
SOCIETY NEWS

The UKSTT website has a dedicated link for visitors to raise any technical enquiries they may have concerning trenchless technology and whether it may be applicable to any specific project: https://www.ukstt.org.uk/technical-enquiry/.

We have had some interesting enquiries recently ranging from invitations to tender in various locations of the UK & Europe while others received are looking for advice and proposed solutions for projects currently on-going. All of these enquiries are circulated to our Corporate Members and if more detailed advice is required UKSTT have a dedicated team who will advise separately. All technical enquiries are stored on the members only area of the UKSTT website. For all your trenchless solutions and latest news visit the UKSTT website. https://www.ukstt.org.uk/
MEMBERSHIP BENEFITS

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- Research

To find out more please scan the QR code to go directly to the membership page of our website. Alternatively, please visit www.uksttt.org.uk.
You can call us on +44 (0)1926 513 773 or email us: admin@uksttt.org.uk
NOMINATIONS OPEN FOR ‘YOUNG PROFESSIONAL AWARD’

Do you know anyone who fits the following criteria?
1) Understanding of Trenchless Technology
2) Contribution to the Industry/Project
3) Vision for the Future

Every year, the UKSTT presents the winner of the ‘Young Professional’ category with a £2,000 bursary to help fund their travel and accommodation to any part of the world, allowing them to undertake further research into their chosen area of Trenchless Technology.

The Society recognises the need to encourage the work that young professionals are bringing to the industry and are keen to recognise this at the awards ceremony.

Young Professionals (<30 years) are asked to submit a 1,500-word entry that best demonstrates their contribution to the field of Trenchless Technology. UKSTT will be looking for evidence of an understanding of Trenchless Technology, the individual’s contribution made, the quality of the submission and the candidate’s vision for the future of Trenchless Technology.

Deadline date for entries is the 18 May 2022. The entry form and rules and guidelines can be found here: https://www.ukstt.org.uk/2022-award-categories-entry-forms/
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<td>2022</td>
<td>April: SAO Paulo No-Dig Show</td>
<td>Sao Paulo, Brazil</td>
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<td>April 10-13: NASTT 2022 No-Dig Show</td>
<td>Minneapolis, Minnesota</td>
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<td>May 16-17: 4th Trenchless Balkans Conference and Exhibition in conjunction with 4th Water Loss Forum Balkans</td>
<td>Grand Hotel Italia in Cluj-Napoca, Romania</td>
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<td>May 30-June 3: IFAT 2022</td>
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<td>June 15: No-Dig Roadshow Belfast 2022</td>
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<td>September 13-15: No-Dig Live 2022</td>
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<td>Details from: <a href="http://www.nodiglive.co.uk">www.nodiglive.co.uk</a> Includes the UKSTT Gala Dinner and Awards Ceremony</td>
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<td>October 3-5: ISTT’s 38th International No-Dig</td>
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<td>April 30-May 4: NASTT 2023 No-Dig Show</td>
<td>Portland, Oregon</td>
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<td>May 17-18: Trenchless Asia 2023</td>
<td>Kuala Lumpur Convention Centre, Malaysia</td>
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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