

2020 CAPABILITIES GUIDE

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APPLIED FELTS CUSTOM-MADE CIPP LINERS

Millions of Feet of Installations, Over 40 Years of Success

Applied Felts' custom-made CIPP **classic felt liners** are the industry's time-tested solution for the rehabilitation of gravity sewer pipes. Our proven, decades-long history of extending the life of sewer pipes using rigorously-tested Applied Felts CIPP felt liners has propelled the continued evolution of our cornerstone product.

Using the same process, Applied Felts reinforces **hybrid liners** with highly-engineered fiberglass to add significant strength for both internal and external load applications.

Using only the highest quality raw materials available, our AquaCure range of products offer **flame- or stitch-bonded, highly-durable PU and PP coated liners** that can handle your toughest impregnation and installation requirements while providing greater efficiencies in the field.

Understanding unique project requirements and cultural, geographic and installation challenges, the Applied Felts technical support team works with customers in the lab, throughout the manufacturing process and on the job site to ensure each and every Applied Felts product stands the test of time.

LATERAL LINER AND IN-BUILDING APPLICATIONS—Dependable, small diameter liner ranges for your every need

Applied Felts has taken its decades of experience in supporting successful CIPP applications in mainline pipelines to provide that same high-level quality in the manufacture of products for lining lateral and in-building vertical pipes specifically designed to accommodate multiple bends and diameter changes.

To address the rehabilitation of lateral lines, a major contributor to I/I in a sewer system, Applied Felts has taken its decades of experience in supporting



successful CIPP applications in mainline pipelines to provide that same high-level quality in the manufacture of products for lining lateral and in-house vertical pipes specially designed to accommodate multiple bends and diameter changes.

To us, the best CIPP lateral and mainline products we offer are the ones that we specifically design and build just for you.

Applied Felts' approach to delivering the world's leading classic all-felt and fiberglass reinforced liners includes:

- **Listening to your needs** to assess unique jobsite conditions and requirements
- **Selection** of exact coating materials from an array of PU, PP, PVC and PUXR polymer granules, felt fibers, scrims and PE tubes that best suit your job
- **100% vertically integrated, in-house manufacture** of our liners to your exact size and application specifications delivering superior quality control
- **Ongoing guidance** and highly-experienced technical support throughout the installation process

DURAFLEX LINERS—A wide range to accommodate varying bends, lengths and diameter changes

These single-layer felt liners with an **array of polymer choices** for your particular resin system, are best suited for on-site, vacuum impregnation in plumbing applications. Available in 2- to 12-inch diameters for pipes with 3 to 4.5 mm wall thickness requirements, these heat-, UV LED- or ambient-cured liners are highly flexible and available in custom lengths.

PVC FlexLiner®—Polyester fiber, flexible liner made with a styrenated resin resistant PVC coating to accommodate the requirement for liners of varying thicknesses and up to 45° bends.

SuperFlex®—Polyurethane (PU) coated fleece liner custom sized and manufactured in accordance with ISO 9001:2015. For use in pipes with up to 90° bends.

WovoLiner®—Circular-knitted PE fibers, uniquely bonded to a seamless, impermeable PU coating. This extremely flexible liner is ideal for use on multiple bends up to 90° with minimal wrinkling and a wide range of diameter transitions such as 4 to 6 inch.

CALIBRATION TUBES—Wide range for your lateral installation needs

Once pressurized inside of the liner, the flexible CalTube™ will press the liner tight against the host pipe during the curing process of single-access installations. Applied Felts' single-layer, PVC-coated, PE CalTubes are made in your choice of stitched, or our innovative High Frequency (HF) seamed options. Color coded for your particular needs, our 2- to 12-inch diameter CalTubes can be used in inversion, pull-in and "blind shot" installations.

HF-Tube—Ultra-flexible, light duty PE fabric with PVC coating and a HF welded overlap seam. For use in open-end liner (blind-shot) and pull-in-place applications.

DuraTube—Flexible stitched CalTube designed to provide excellent resistance against tearing and higher temperature resistance for heat-cured installation. For use in open-end liner (blind-shot) and pull-in-place applications.

LightTube—Flexible, stitched or HF welded, these clear CalTubes are designed to provide excellent resistance against tearing and higher temperature resistance for heat-cured and LED-cured installations. For use in open-end liner (blind-shot) and pull-in-place applications.

SUPPORT—From start to finish, every time

Applied Felts supports its customers through our stringent QA/QC, ISO-certified process that starts with the purchase of the finest raw materials and continual testing throughout the manufacturing phase of every liner.

Our most important support asset, however, is the on-site customer service and technical support we provide in the field. Our 50+ years of experience over hundreds of millions of feet of CIPP liners installed worldwide provides the confidence you need every time an Applied Felts liner is delivered to your jobsite.

For complete product listings and to download technical data sheets and more, visit appliedfelts.com. •

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NO MATTER WHAT
TYPE OF PIPE
YOU NEED TO LINE.



APPLIED FELTS

YOUR SUCCESS IS OUR SUCCESS™

AQUACURE PW®

Multi-layer polyester felt/fiberglass hybrid liner
optimized for potable water applications



Applied Felts manufactures custom CIPP liners and CalTubes™ for gravity sewer mains, pressure pipe, force mains, potable water, storm sewers and laterals, including vertical applications. We identify and match the finest **PE fibers; PU, PVC, PUXR or PP** coating polymers; fiberglass and other raw materials; and your choice of ambient, water, steam or UV cure. **Pre-impregnated** liners from our newly acquired regional wet-out facilities at **FerraTex Solutions** can make your job easier. No matter what your unique project demands, we've got you covered. Visit appliedfelts.com



AquaCure® polyester felt,
PU coated, flame-bonded
liner. Ideal for most gravity
sewer applications



Cambria Lift Station: Rehabilitation of a steel wet well

The Village of Lombard, Illinois was evaluating the maintenance and operational costs of their Cambria Lift Station, which was experiencing service issues due to poor operation of the check valves and inefficient pumps. Installed in 1989, the steel can lift station had exceeded its service life. During heavy rain events, the wet well would become filled with solids due to excess inflow and infiltration which were eventually pumped back to the lift station. Public Works staff estimated its maintenance at a yearly cost of \$30,000 to \$40,000. Rehabilitating the facility was the obvious solution for a reliable sewer collection system.

Located within gravity wastewater pipelines, a lift station moves wastewater from a lower elevation to a higher elevation. Within these lift stations is a storage container called a wet well. When the sewage meets a predetermined level within the well, a pump or series of pumps discharges the sewage into a force main which transports it to a higher elevation in the collection system.

Phase 2 of the Cambria Lift Station Rehabilitation was performed under two contracts with Christopher B. Burke Engineering, Ltd. of Rosemont, IL as the design consultant.

The first contract addressed a manhole modification, sewer televising and the installation of a permanent bypass line. The second contract consisted of the replacement of pumps, piping, control panel, flow meter, and air vacuum manholes, rehabilitation of the existing steel wet well, and site restoration.



Only technologies that allowed minimal reduction of I.D. (inner diameter) of the wet well were considered in order to allow sufficient maintenance and operational space for the three new pumps; therefore, coatings and spray-on linings were initially specified.

The Village of Lombard project manager began to research other potential rehabilitation technologies. Hobas centrifugally cast, fiberglass reinforced, polymer mortar (CCFRPM) pipe soon presented itself as an alternate option that would provide a long-term corrosion-free solution well within budget.

"The Village sought an alternate coating/lining process that would eliminate the need for cathodic protection and thus reduce maintenance costs. Through research related to linings/liners that stood up to H₂SO₄, CCFRPM came up as a potential fit. By using the Hobas liner, Public Works would have two benefits, the elimination of cathodic protection and a long-term service life structural liner," said Ray Schwab, Civil Engineer II, the engineering project manager for the Village of Lombard.

Cathodic protection is a technique of preventing corrosion of a metal surface by converting anodic properties of metal to cathodic (a passive state) through electrical DC currents. A cathodic protection system will transfer corrosion forming properties from the protected surface to a linked anode with more active properties, thus corrosion activity is limited to the anode rather than the protected surface.

Due to its prevalent use to rehab sewers, Hobas was added as an alternate per an addendum. The Village allotted the Hobas pipe alternative a \$30,000 deduction against the anticipated life cycle cost for cathodic protection, which would have been necessary for the two spray coating alternatives (Epoxy/Polyurethane and Structural Engineered Polyurethane). However, the deduction did not come into play, as the Hobas alternative was the low bid even without the deduction. John Neri Construction of Addison, IL was the low bidder utilizing the Hobas option. Construction began in April of 2019 and was completed in June of the same year.

"John Neri Construction has worked with the Village of Lombard on numerous successful projects over several years. The rehabilitation of the Cambria Lift Station was the first time JNC has worked with Hobas as well as their fiberglass liner product. The depth of the lift station required 33 feet of 110-inch inside diameter (I.D.) pipe to be inserted into the existing 120-inch I.D. steel wet well. Being that the outside diameter (O.D.) of the Hobas pipe was 114 inches, it was a very tight installation," said Nicholas Neri, assistant manager/estimator, John Neri Construction. "Once installed, JNC was able to core the Hobas pipe to accept the influent and effluent piping. We were very pleased with the integrity and quality of the Hobas material, as its assembly and installation couldn't have gone more smoothly."

"The station is performing great since the improvements. Pump failures due to clogs and faulty check valves have all been eliminated by the improvements at the station," said Lukas Sharp, water/sewer pumping supervisor, Village of Lombard.

Since 2010, Hobas has been providing pipe material for the rehabilitation of wet wells. Rehabilitation of these wet wells via sliplining is ideal due to lower labor cost, longer life than linings and the elimination of cathodic protection. •

Quality is Our Priority

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MCELROY DATALOGGER® BRINGS ADDED VALUE, EFFICIENCY TO FTI FUSION OPERATION

WHEN LES KLAUDT STARTED FUSION

Technologies, Inc. (FTI) 20 years ago, he knew he would have to run his business efficiently to be successful in the fusion industry.

“We wanted to use the most advanced technology because we felt it had the power to revolutionize our business and create a market advantage — and we looked to McElroy for that advantage,” Klautd said.

With an extensive background in building HDPE pipelines for a host of industries from energy to municipal to mining, this family-owned, Billings, Mont., company continues to embrace technologies that bring additional value to their operation.

DATALOGGER

One of the most transforming products has been the McElroy DataLogger, a device that records each step of the fusion process to validate that joints were fused to standard before pipelines are buried and put into service.

FTI data logs every joint on every job. They now have 84,000 joint reports uploaded to their online McElroy Vault™ account which is the equivalent of 800 miles of pipe!

If a fusion is ever in question, they can go to their Vault account and quickly pull up the report to see if the pipe was fused correctly. That documentation is priceless compared to the costs associated with a failed joint.

“It’s a huge risk management tool for us,” Klautd said. “We have assurance those joints were done correctly and it’s documented.”

But Klautd is not one to automatically go for upgrades; there has to be a return on investment. The DataLogger 6 tablet device became a must-have last year when they saw that it could operate multiple business applications. FTI Operations Manager Casey Britton said this is especially helpful because their fusion technicians work in remote locations, without direct supervision.

“Paperwork management and organization are essential due to the documentation requirements of not only the fusion process but also safety and health, equipment transportation, time keeping, equipment maintenance and repair, and reporting expenses such as parts, materials, fuel and lodging,” Britton said.

Now they do this all in one place. The DataLogger is not only a fusion validation tool, it is also a personal computer that helps centralize their business.

“That was absolutely the ‘McElroy Advantage’ that began to shift our thinking with what a DataLogger could be,” Klautd said. “I think people

need to understand that McElroy is in the problem-solving business. They genuinely hear and listen to their customers and I appreciate that!”

INTRODUCING THE DATALOGGER 7

This year, FTI had the opportunity to test the new DataLogger 7 android tablet before its launch this fall, and Klautd said it has streamlined and enhanced their training program.

“The Enhanced Guided Workflow with the DataLogger 7 is impressive. If you have somebody go into the field on more of an occasional basis, that guided workflow is fantastic as a reminder of how the process needs to work,” Klautd said.

For a company that is data-driven, the DataLogger 7 is ideal. Klautd said they track their productivity and have become even more productive because it’s so easy to use. Also, the real-time FusionGuide™ graph highlights crucial moments in the fusion process, empowering the technician to be able to catch errors and stop the fusion before having to cut out a joint.

FTI also had the opportunity to implement the McElroy Optimized Cooling™ algorithm which calculates the best cool times based on material properties, environmental conditions and heat soak time.

“We use it immensely and that has been a massive shift for us and has been highly profitable,” Klautd said. “It made our jobs much more efficient when we can reduce that cooling time per ASTM F2620.”

One of the most appreciated features on the DataLogger 7 is the 14+ hour battery life. They don’t have to worry about downtime or making it through the day.

The ability to communicate via the DataLogger 7 SIM card is another key piece for troubleshooting. Klautd said it has been a confidence booster for technicians when they’re out in the field by themselves.

“When you can tap the screen a few times and see the friendly face of our operations manager, there’s a sense of relief when that happens,” he said. “Having been a technician for a couple decades in my lifetime, it is great to know you have backup.”

With an SD card built into the device, their fusion records are automatically backed up as well. And as for durability, Klautd said the DataLogger 7 stood up to the scorching heat and dust of west Texas and the snow and rain in Montana.

For FTI, the future looks bright since integrating the tools that help them work more efficiently than ever before and they are enjoying the benefits.

“It’s created a tangible, measurable value for FTI,” he said.

The FUTURE OF FUSION



THE NEW DATALOGGER® 7

RECORD. DOCUMENT. DELIVER. ANALYZE.
NONSTOP.

The all new DataLogger 7's increased battery life and hot-swappable battery option allows your fusion job site to keep working no matter how long the workday. Get a comprehensive record of your entire jobsite. Record butt, miter, manual and sidewall fusion processes. Document job, operator and machine details including GPS locations. Deliver more joints in less time with McElroy Optimized Cooling™. Analyze each joint to ensure adherence to industry standards in real-time.

Melfred Borzall Online

According to a recent study, 85% of businesses to business buyers (such as a contractor buying from a supplier) prefer a self-service tool for reordering over talking to a salesperson. Rather than attempting to replace salespeople with technology, the focus in some areas has been to use technology to increase their efficacy. This technology comes

in the form of tools such as real-time recommendations based on buying trends, equipment training, even integrated chats that link an expert or customer service agent to the customer at the appropriate time all make the process shorter and more efficient. This concept also applies post-purchase as orders placed through some eCommerce sites can be automatically routed through the nearest stocked distributor location to reduce shipping costs and travel times. Having eCommerce support a distribution and sales network has made them more useful to contractors. The contractors are more efficient in their tooling orders, decreasing waiting or downtime, staying up on equipment maintenance, and troubleshooting better.

The \$8.3 million invested in 2010 in construction's technology worldwide leaped to a \$3.1 billion investment in 2018. The laggard HDD Industry has been starting to see some of this energy around it with contractors' job bids rising. The trend exposes itself to the supply chain as HDD tooling companies see a drastic uptick in specific tooling. Melfred Borzall, Inc. has experienced its best three months of sales volume in its 75-year history, even amidst a worldwide COVID-19 pandemic. The industry's lagging productivity and efficiency compared to other sectors have made it a prime opportunity for inves-

tors to pump much-needed capital and resources into...and it's coming by way of technology.

With new options that grow with the demand, small owner/operator contractors can use tools previously only available at an enterprise level. An HDD owner/operator contractor now has at his fingertips the ability to maintain databases of equipment, tooling preferences, and purchases. With the ability to save users in a single account and grant permissions to those users, the new HDD eCommerce account has become a business hub with enterprise-like power. Accessing invoices, receipts, shipments, custom product lists, and other data over time also gives contractors the ability to see trends or forecast costs for free. Once only more extensive operations had that ability through costly software to manage it all.

"In the current environment with how coronavirus is impacting large and small businesses, putting a focus on e-commerce is essential," says Gary Vaynerchuk.

Still, OEM distribution has been reluctant to institute and direct-to-buyer sales in fear of angering their distribution channels. Melfred Borzall's decision to sell directly to end-users via the website and fulfill through "smart routing" to the buyer's nearest distributor has enabled many HDD contractors to remain in operation despite many face-to-face restrictions and has disrupted how the HDD industry sells tooling through a distributor network to large and small contractors. The pandemic expedited user involvement due to necessity helping distribution channels to spend more time on support, relationships, rather than price-checking, research gathering, and other time-consuming non-value-add activities. This model is not an anomaly, but rather conforms to cross-industry B2B eCommerce trends as total U.S. sales grew 10% in the 2nd quarter of 2020 to a \$1.43 trillion industry. eCommerce is quickly becoming the new commerce of the mainstream. You are no longer an early adopter at this point, but further hesitation in embracing it, may soon turn your company into an antiquated laggard, but more importantly, losing out on production and efficiency gains that are there for the taking. •



United Parcel Service

- UPS Ground \$40.83
- UPS Three-Day Select \$63.95
- UPS Second Day Air \$91.84
- UPS Second Day Air A.M. \$85.55
- UPS Next Day Air \$145.94

Local Distributor

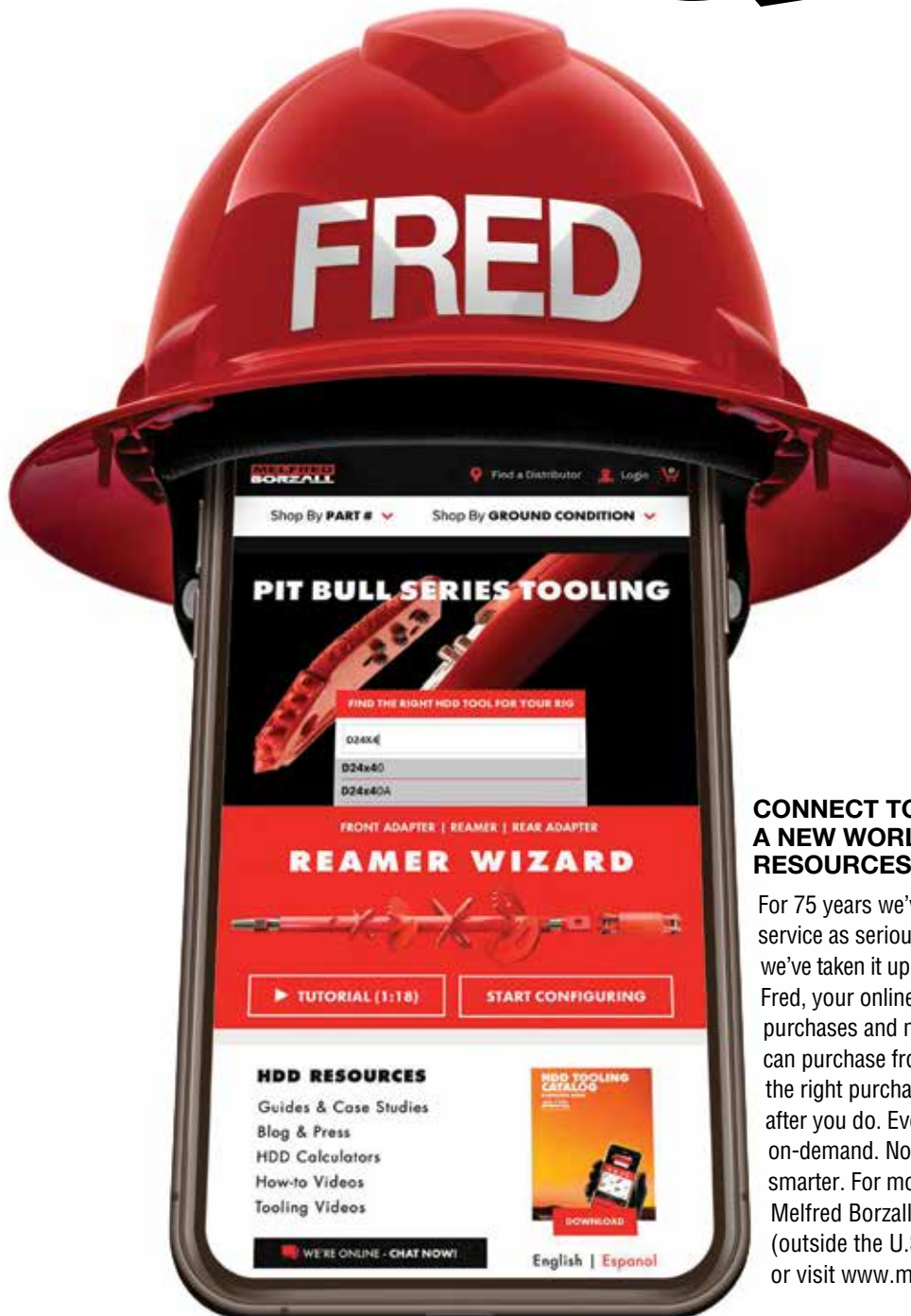
- Pick Up \$0.00

ORDER SUMMARY

Subtotal	\$1,857.00
Shipping (Local Distributor - Pick Up)	\$0.00
Tax	\$111.42
Total	\$1,968.42

PROCEED TO CHECKOUT

INCREASE JOB YOUR SITE IQ.



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Ring-O-Matic



Winter is coming and with colder weather means tougher digging conditions with hydro excavators. Digging in these cold conditions can bring cause a loss in digging power. Ring-O-Matic offers a water heater package with all of our vacuum excavation machines. This option gives the machine extra digging power in colder conditions. The water heater package from Ring-O-Matic is a very simple and user-friendly add-on to the machine. With quick connections on power, gas and water hook-ups the water heater can be taken on or off of the machine with ease and given the job conditions the water heater package allows the user the choice to have it equipped or leave it for a more demanding job. The water heater package also aids in the digging of harder soil types no matter the weather, when digging in clay, or any other compact material, the hot water can be found to be a very valuable aid when breaking up the soil. The water heater option and the water heater ready package are very useful and are very cost effective by saving time and water when digging while also giving the owner the versatility of a removeable heater it is not needed. For all other information regarding Ring-O-Matic machines contact our Sales Department by calling 800-544-2518 or visit Ring-O-Matic.com. •





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Preventing Damage To Underground Infrastructure

Constructing and repairing underground outside plant infrastructure are complex tasks that involve multiple factors. One of the most critical factors is how to safely avoid damaging existing buried pipes, conduits, and cables.

While the Common Ground Alliance (CGA) publishes a Best Practices Guide recognized as the most comprehensive guideline for preventing damage to underground facilities, and despite technological advancements made in preventing damage to buried infrastructure, accidental utility hits continue to happen on daily basis.

These incidents can cause significant issues resulting in the disruption of essential services, property damage, costly delays in construction, and serious injuries—even death. Their aftermath often includes litigation with costly legal fees and, sometimes, judgments that can force a contractor out of business.

Identifying the presence of utilities on job sites during the planning stages is an important first step in preventing utility hits. Utilizing the One-Call locating service is the first step in locating and marking buried pipe and cable prior to excavation or boring. However, the crew that arrives on a utility construction site has no role in the One-Call notification and marking process. It is all arranged and executed by others. Therefore, the foreman or supervisor of a project must not blindly assume that paint and flags marking buried infrastructure are, in fact, accurate.

Supervisors and crew members must have what we call “underground awareness”—making themselves aware of what is underground and out of sight.



Awareness of the underground means nothing can be taken for granted.

Locations of nearby utilities may be marked, but are the markings accurate? Are there utilities present that were not marked? Failure to consider these possibilities can have serious consequences. Inaccurate locates and markings continue to be a leading cause of accidental damage to utilities. There are times that the One-Call process fails, and marking is not done before a construction crew arrives.

Never begin excavating, trenching, boring, or drilling without knowing locations of existing utilities.

A careful visual inspection of the job site may reveal indications that other utilities are present. Gas meters, electrical boxes, and communications pedestals could mean there are buried lines.

Even when locations are confirmed, it often is necessary to pothole—physically digging a small hole to visibly confirm the exact location of a pipe or cable—when adjacent utilities parallel or cross the path of the new installation. Even if flag or paint markings are accurate, personnel must understand that all utility providers are not One-Call members and in many areas, water and sewer lines may not be marked.

Also, on-site personnel should be aware of tolerances required for depths of new installations and distances they should be away from existing facilities. Local codes and ordinances may be applicable. Depending on local requirements, new installations must be either 18 or 24 inches from a utility already in place. Locations of most utilities usually are measured from the outer edge, assuming the width is represented accurately by marks or the size of utility is provided and that single painted lines represent the center of the utility.

When a project is outside public right-of-way or the work location is on private property such as educational institutions, government complexes, or business parks, One-Call will not make locates and the responsibility falls on the property owner, primary contractor, and sometimes the utility contractor.

Regardless of who locates and marks buried facilities, many contractors have found it's worth the time and effort to confirm the locations with their own personnel and locating equipment. When locating responsibilities fall on them, they must have the equipment to do the job or hire a locating specialist.

Electromagnetic locators are the primary locating tool used by utilities, contract locators,

and underground construction contractors.

Electromagnetic locators are relatively easy to operate and when correctly used, are accurate. An electromagnetic system consists of a handheld receiver and small transmitter.

The operator walks above where utilities are expected to be, and the receiver locates underground pipe and cable by detecting magnetic fields created by electrical current passing through the lines. Information is displayed on a window at the top of the receiver.

For communications cable and metallic pipe, the small transmitter is connected to cable or pipe and sends current through the line to create a signal which is detected by the receiver. For plastic pipe with tracer wire, the wire is energized by the transmitter to provide a signal that the receiver can pick up.

Electromagnetic equipment has advanced significantly in the past several years. For example, the Subsite® UtiliGuard® 2 utilizes GPS positioning and has an Ambient Interference Measurement (AIM™) feature that scans the surrounding area for noise that could interfere with the locating signal and recommends the best frequencies to make the fastest, most accurate locate. The system provides both horizontal location and depth of the line being located.

The first step in preventing accidental underground strikes is education. Following the guidelines put forth in the CGS's Best Practices Guide (available online at commongroundalliance.com) is key. This will not only reduce the risk of damaging utility infrastructure, it will reduce the risk of injury to construction personnel and the general public. Avoiding shortcuts and reliance on others is the next step in ensuring a safer job site. There is no substitute for gaining accurate underground awareness for yourself.

ABOUT SUBSITE® ELECTRONICS

Subsite® Electronics is committed to providing underground construction professionals the most comprehensive suite of electronic products in the industry, including utility locators, Horizontal Directional Drilling (HDD) guidance equipment, utility inspection systems, and equipment machine controls. By utilizing innovative technologies, extensive market feedback and outstanding customer support, Subsite has established itself as the premier source of electronic technology to support the installation, maintenance and inspection of underground pipe and cable. For more information, visit subsite.com. •

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Subsite HDD Guidance systems can improve the accuracy and efficiency of your bores. Our exclusive Green Ops™ process leverages modern data-sharing technology to give you a clear plan, more control, and faster reporting for safer, more productive jobs.

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Takeuchi: TB250-2 Hydraulic Excavator

The TB250-2 provides Takeuchi with a true 5-ton excavator offering that is well suited for a wide range of applications including landscape, general contracting and rental. The TB250-2 comes equipped with a primary auxiliary circuit capable of 24.2 gpm of flow making it an outstanding platform for multiple attachments.

TB250-2 specs include:

- Operating weight of 10,957 pounds (canopy) or 11,288 pounds (cab)
- Bucket breakout force of 10,430 pounds
- Dig depth of 12 feet 4.8 inches
- U.S. EPA Final Tier IV engine rated at 39 HP and 106.9 ft-lb of torque. The engine uses a DOC and DPF exhaust after-treatment system
- Auxiliary hydraulics are plumbed to mid-arm, providing up to 24.2 GPM

The machine also features a four-pump hydraulic system, providing multifunction capability and precision pilot joystick controls that deliver smooth, metered performance.

"Equipment operators have come to expect comfort and multifunction performance from compact equipment in today's industry. The four-pump hydraulic system on the TB250-2 is engineered to increase productivity by providing faster cycle times and higher breakout forces" says Keith Kramlich, national product & training manager for Takeuchi.

Kramlich adds, "The TB250-2 is also equipped with a proportional primary auxiliary circuit capable of up to 24 GPM. This makes it an industry leader in auxiliary performance in this class of machine. With comfort and convenience in mind, Takeuchi's design allows the operator to adjust the auxiliary flow from the operator's seat using the display. The operator can also program and save presets for individual attachment's flow requirements which make the TB250-2 ideal for quick change applications."

The TB250-2 undercarriage features automatic step-down travel motors that provide torque on demand when climbing or turning in high speed mode. The triple flange track rollers increase roller to rail contact improving track retention during demanding tasks.

With an all steel construction frame, heavy-duty dozer blade with float function, and large wrap around counterweight the TB250-2 is a powerhouse that provides all day performance. These features come as standard equipment on the TB250-2, angle blades are available as a factory option.

Serviceability of the TB250-2 is easy to perform due to the large hoods, which open overhead providing access to key daily inspection points, pattern change valve, selector valve, control valve, battery, and toolbox. All grease points are clearly marked and easy to locate down one side of the machine. The fuel fill is located behind a lockable access panel and features a site gauge to simplify refueling.

Not only will the operator be more productive with this machine, but also more comfortable in the spacious cabin. The automotive-styled interior is equipped with a high capacity HVAC system for comfort throughout the year, as well as a Bluetooth AM/FM radio with MP3 auxiliary port, 12-volt outlet, cupholder and easy-to-use rocker switches that provide control of a wide range of functions.

A large multi-function color monitor that is easy to read in varying light conditions keeps the operator informed of machine health and performance. The deluxe high back suspension seat features multiple adjustments for height, weight, fore and aft positions and tilt for greater comfort and customization. Takeuchi believes that comfort while operating should be a top priority. Which is why, the TB250-2 includes a large floor, easy entry and exit, and adjustable arm rests.

As an added bonus, Takeuchi Fleet Management (TFM) telematics system comes standard for two years on the unit. This allows the owner to view machine vitals, location, utilization, performance, geofencing and maintenance data remotely, and can be instrumental in ensuring machine uptime and availability.

Takeuchi features excavators, track loaders, skid steer loaders and wheel loaders in its lineup. Call your local dealer to check out a TB250-2 today!



BUILT FOR PERFORMANCE

TAKEUCHI
From World First to World Leader



TB250-2

The TB250-2 has an operating weight of 10,957 lb, a dig depth of 12' 4.8" and max reach of over 20'. The TB250-2 comes equipped with a multifunction monitor, triple flange track rollers, heavy duty blade and a spacious automotive interior that provides all day operator comfort.

0%
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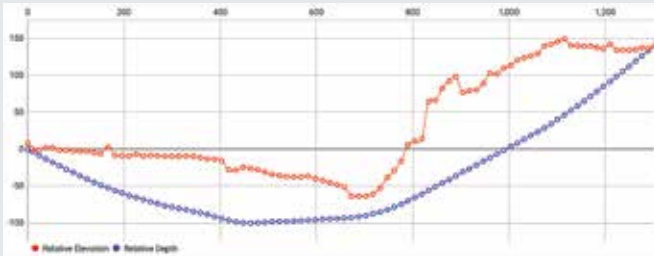
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Sensitive Hurricane Creek Crossing Solutions

Gregg Wilder, | HDD Division Manager, The ComTran Group

The ComTran Group has 15 drills, ranging from 9K class to 80K class. We specialize in drilling rock and utilize a mix of AT and Hammers. Our current project in the Southeastern United States requires us to drill in some of the most difficult terrain, both elevation and geology. When it comes to the tough bores, we rely on Underground Magnetics to get us through. We started with one unit, now have 4, and are planning on adding more as we retire other units from other manufacturers. The depth and front locates we are able to work with allow us to avoid wireline costs and be more productive.



Bore Profile 8/24 2020. Using UMmaps and UM's Precision GPS Navigation, we set our bore path from start to finish and were able to stay on line using preplanned GPS path.



The creek crossing and first climb!

Recently, on a 1350 ft solid rock bore in Alabama, we used our Mag 8 system and an Echo 90 transmitter. This bore was a challenge to say the least and because of the time restraints, I had a wire line crew on standby just in case. Using our 6" hammer we drilled at 70' deep to the bottom of the creek clearing the bottom by 30'. From there we needed to climb almost 200 feet as fast as possible. While drilling up the side of the cliffs, we were unable to locate directly over the head. We were still able to monitor pitch and roll 50 foot off to the side, while running 102 foot deep. We never lost the head, and picked up the front locate again at 80 foot deep to verify our bore path and come out on target. For us, this is not an abnormal bore. We encounter multiple bores like this every month. We started another bore 3 days later that had us running 140' deep with the Echo 90 and Mag 8, again we could monitor pitch and clock while we came up. All of this with no wires. The battery technology of Underground Magnetics allows us multiple working days without changing batteries and stands up to the vibration of our Air Hammers.

I absolutely recommend Underground Magnetics. Mike Young and his team have always been available. The Underground Magnetics products and team have delivered far above expectations. •



Hammer exit over 100' above entry



Underground Magnetics

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**MAG 8 HDD LOCATOR
PERFORMING WHERE OTHERS CAN'T**

- Sonde Range: 130 feet to 360 feet
- Battery Life: 30 - 120 Hours
- Frequency: 12 Frequencies 4kHz ~ 41kHz
- Single Ball Technology

“ With this system in place, the bore shot was completed with no issues on the first attempt. Our crews at Eris Underground are believers in the Underground Magnetics system and recommend it wholeheartedly. ”

**Chris Allen, General Manager
Eris Underground LLC**



Demo a system win a Harley

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 UMagHDD.com



Municipality puts Vacuum Excavator to Work

Vacuum excavators aren't just for utility contractors. Many city municipality departments are also discovering the versatility of these powerful soft digging machines for their own utility work, as well as many additional applications to help city crews work efficiently. For example, in Webster City, Iowa, a small rural community of just over 8,000 residents, their recently purchased McLaughlin VX50 trailer vacuum excavator is being used for everything from traditional potholing to digging holes at the city cemetery.

According to Webster City's electrical utility supervisor, Adam Dickinson, the city is working on a multiyear initiative to move all of the city's electrical lines below ground, and his crews are responsible for the bulk of the work. "To support these efforts, we added a horizontal directional drill (HDD) to our fleet as well as a vacuum excavator," Dickinson explained. "After a few years working with our original system, we determined it was an appropriate time to upgrade to the VX50 trailer vacuum excavator we have now. The first system we had was fine, but this one better supports our needs, helps our crews work safely, and is a bit more versatile than our previous one."

THE RIGHT CONFIGURATION

The municipality team's upgrades to their new trailer vacuum excavator included reducing the size of the spoil tank and adding a hydraulic boom to aid with the vacuum excavator hose. "We went with a 500-gallon (1892.7-L) spoil tank on our vac, which was smaller than what we had before, because transporting weight was becoming a bit of an issue for us," explained Dickinson.

The city's previous system also didn't have a hydraulic boom, and according to Dickinson, this addition has been a real game changer. "After owning a vacuum excavator with a hydraulic boom, I don't think there is any way we would go back to one without it," he said. "The hydraulic boom keeps our crew working efficiently throughout the day. Also, the boom helps the operator stay cleaner."

One accessory that Dickinson did not get but plans to add in the future is a hotbox that would allow his team to work with hot water to enhance digging

in frozen ground conditions. "When we got the vac, I didn't think we needed it, but after going through one winter and being surprised by how often our team or another city department used the system, it certainly would come in handy in the colder months. We'll be adding it soon," he said.

MULTIPLE USES

Webster City primarily uses its vacuum excavator to expose existing buried utilities before performing HDD work. It also supports the HDD crew as they're suctioning up used drilling fluids. However, in addition to these traditional applications, other municipality departments borrow the Vermeer vac from time to time. "The street department has used it for cleaning out intakes," said Dickinson. "When a water main breaks and there is an issue with a pump keeping up, they bring in the vacuum excavator to do the job."

In addition to lending it out to other departments, Webster City's electrical utility department enlists their vacuum excavator to aid with utility pole replacement work. "Whether it's poles snapping off because of weather or needing to be replaced at regular intervals, digging up a pole can be a cumbersome process," explained Dickinson. "And if there are buried utilities tying into a utility pole, it's even more challenging. With the vacuum excavator, we can dig around a pole so we can pull it out of the ground without affecting other buried lines, which is a real challenge with an excavator or backhoe."

The most unique application that Dickinson has seen the city's vacuum excavator used for is digging holes at the city-owned cemetery. "In recent years, cremation and then burying the ashes at the cemetery has become pretty common," he explained. "Since it gets pretty darn cold in Iowa, getting below the frost line isn't easy — especially when a hole only needs to be 18 inches to 20 inches (45.7 cm to 50.8 cm) in diameter. The vacuum excavator is designed to do that for potholing applications, so it made a lot of sense to use it at the cemetery since we already have it in our fleet."

Dickinson estimates that 80% of the time his Vermeer vacuum excavator is supporting the municipality's HDD efforts. The remaining 20% consists of performing odd jobs around the city. One thing is for sure, though: As the department has discovered new ways to use their vacuum excavator, there isn't much idle time for their little unit — and that's precisely what every municipality should hope for with their equipment fleet.

For more information about adding a vacuum excavator to your city or company's fleet, contact your local Vermeer dealer or visit vermeermvs.com. •



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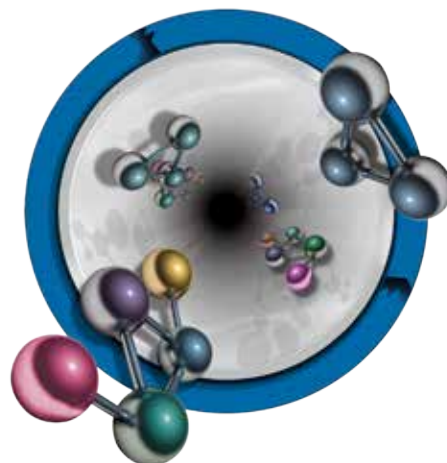
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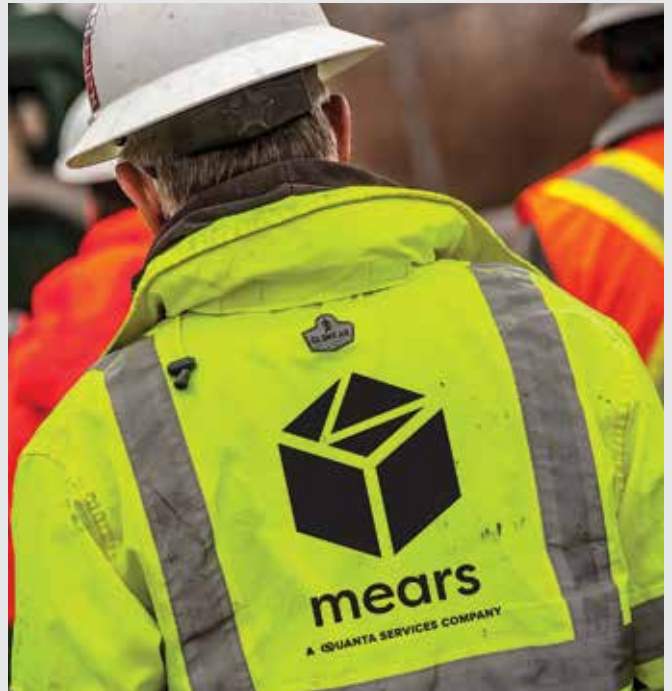
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Quick deployment to the border ends in a lasting solution

Numerous companies were recently contracted to work along the United States and Mexico border. While drilling into the ground, one of the contractors damaged the pipeline causing an 11-inch hole in a pipe that supplied water from the United States to Mexico. "This water supply was critical to agricultural communities that rely on it to grow food and raise livestock for their families," said WEKO-SEAL technician Ryan Cooper. The water that passes



from country to country is under international laws and treaties, which could have caused a delay in the project's progress. Knowing this project was of international importance, the contractors scoured the internet to find a company able to seal the hole quickly. Thanks to a solid reputation and the successful installation of over 300,000 seals under their belt, the experts at Miller Pipeline were called to install WEKO-SEALS, their proprietary internal joint seal.

WEKO-SEAL specialists are ready at a moment's notice to deploy virtually anywhere. Within days of getting the call, the team was able to come up with a solution and ship the necessary materials to the jobsite. Once on site, the team conducted their usual safety assessment of the area for precautions they would need to take. Since they were working in international jurisdiction, Miller employees had to provide government-issued documents to immigration and border patrol before they were able to get their hands dirty.

Together with the contractors, Miller worked to clear and clean the job site for a safe and prompt installment of two WEKO-SEAL internal joint seals. Cooper and another WEKO-SEAL technician, Jeremy Kieninger, made their way inside the 72-inch pipe where they were able to smooth the damaged inside wall to ensure the steel backing band would fit correctly. After fitting a rubber sleeve into place, Ryan and Jeremy secured two 72-inch seals, which they expanded to provide a bottle tight fit. Once the internal hole was secured, the team went to work on the damaged exterior surface. To repair this area, Ryan and Jeremy applied a concrete mortar around the pipe. Once the mortar had cured for about 16 hours, the team was able to verify their work with an air test.

After seeing no evidence of leakage, the job was officially complete. Within a week of getting the call, the WEKO-SEAL team at Miller Pipeline had sealed another pipeline, potentially saving many communities from suffering without water. •

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Vanair Air Excavation Advantages for Underground Construction

There are times when achieving the goals of an underground construction project is best achieved through air excavation. For example, municipal codes are major considerations regarding the material removed during the excavation. When using hydro-excavation, often what you dig out is not allowed to be dumped back in. You are required to bring in clean dirt.

However, with air excavation, many times whatever dry dirt you collect can be reused for compaction. This is a major advantage in a remote area where having clean dirt brought in or to dump 'contaminated' dirt is prohibitive because of the distance. Also, the issues of local water availability, water restrictions, and electrical lines when using hydroexcavation are not a problem with air excavation.

While water can dig faster because it is denser than air, the time difference using air excavation can be resolved using higher-pressure air excavation. Because air excavation can continue uninterrupted for bigger jobs and is not restricted by the availability of water or the removal of contaminated dirt, productivity and efficiency are actually increased.

Additionally, air excavation provides clean, dry digging when potholing. This advantage allows you to reuse the dry spoils for re-compaction, increasing your productivity, and decreasing your operating costs. Air is nonconductive with underground utilities and eliminates the muddy spoils of hydro excavation.

To help accomplish jobsite objectives and minimize downtime, air excavation retrofit systems for older hydro-excavators are available. These underdeck systems provide air power without claiming space above the truck frame or using the hitch. Many construction crews find dual pressure systems are useful in situations necessitating jackhammer use or breaking up frozen ground before air excavation.

Vanair's air compressor kits provide you with flexibility in the field to get the job done effectively

and efficiently, no matter the soil type. Vanair's durable, field-proven, space-saving systems are engineered and manufactured in the USA with a lifetime warranty. Our ready-to-go systems

are available up to 300 cfm and 250 psi and can be retrofitted on most existing hydro excavation systems.

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