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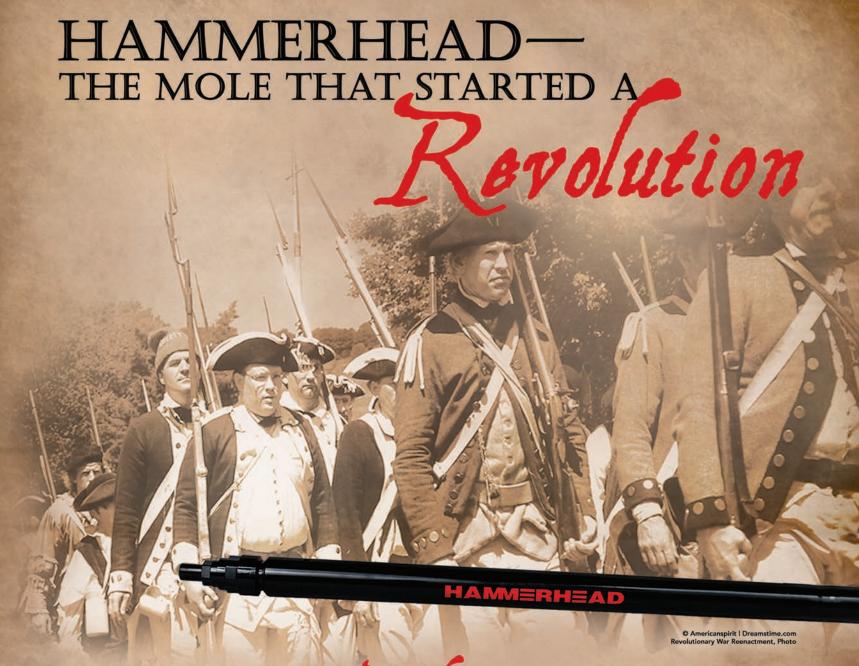


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Dig-It Excavating builds its business by catering to customers and curbing growth.

By Ken Wysocky

ON THE COVER:

Dervin Witmer, owner of Dig-It Excavating of Cassopolis, Michigan, uses a Vactor 2100 hydroexcavator to remove sand and stone at the Kenneth Smith Inc. Michigan Distribution Terminal in New Buffalo, Michigan. Besides typical excavation services, the company also offers hydroexcavation, which has helped in the growth of the company. (Photography by Amy Voigt)

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ONE THING I'VE NOTICED IS THAT ALONG WITH EVERY DIRECTIONAL DRILL OR HYDROEXCAVATOR,

A BACKHOE OR EXCAVATOR IS CLOSE BY PROVIDING SUPPORT.

Going With Traditional Equipment

EXCAVATORS, BACKHOES ARE STILL NECESSITIES EVEN WITH NONTRADITIONAL EXCAVATION MACHINES IN YOUR FLEET

BY CORY DELLENBACH, EDITOR

hile *Dig Different* focuses on the nontraditional forms of excavation, we're not blind to the fact that many contractors still need to use traditional equipment like backhoes, excavators, front-loaders and skid-steers.

Right now in our area of northern Wisconsin, there is a large project where many overhead power lines are being moved underground. We've seen several hydroexcavators, directional drills and trenchers in the area from many contractors.

However, one thing I've noticed is that along with every directional drill or hydroexcavator, a backhoe or excavator is close by providing support. These are still important pieces of equipment that assist with lifting and make it easier to haul material.

IN THE INVENTORY

Both contractors profiled this month have nontraditional excavation equipment like vacuum excavators and directional drills, but both also have excavators and skid-steers.

A mini-excavator used by Michigan-based Dig-It Excavating is equipped with a hydraulic progressive link "thumb" attachment that can pick things up more securely and easily than a bucket can. Owner Dervin Witmer says having the mini-excavator has helped on plenty of jobs: "It's large enough to handle repair work and septic installations and small enough that we can get in and out of small job sites without tearing up a lot of property to get there."

For Ohio's Panetta Excavating, business started by offering traditional excavation, but then the company seized an opportunity to expand into directional drilling. Many of the company's jobs today still use the excavators for site preparation and remediation work.

The company has two Komatsu excavators, a Caterpillar backhoe, bulldozers, skid-steers and a mini-excavator. Because of the various soil conditions the company can come across, all the equipment comes in handy.

"If the area is too flat, we would stay away from directional drilling because we need a little grade in order to

move the fluids," says owner John Panetta. "So then we would use our excavators, backhoe and other equipment."

KEEPING UP WITH MAINTENANCE

Having that support equipment probably means you have more machine maintenance, but it's important work that shouldn't be overlooked.

Our Machine Shop feature in this issue sticks with the traditional excavation equipment theme and talks about performance maintenance on tracked excavators. The feature touches on everything from maintaining bucket teeth to taking job site conditions into account when devising maintenance programs.

You can find an additional piece on excavator maintenance online at digdifferent.com/featured.

YOUR SUPPORT EQUIPMENT

What is your go-to traditional excavation equipment and how do you use it on a job site? Email me at editor@ digdifferent.com or call me at 800/257-7222 to share your story. I look forward to hearing from our readers.

Enjoy this issue! ▼



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LESS STRIKES ON UTILITIES

DIRT Report Estimates Damage to Buried Utilities Has Dropped

An annual report from the Common Ground Alliance shows that the number of damages to buried utilities in 2015 has dropped by 9 percent from 2014. The report also identified that educating professional excavators could prevent a large amount of damages.

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OVERHEARD ONLINE

"DRILLING IS NEVER EASY, BUT IT WAS **COMPLICATED IN THIS CASE BY THE FRACTURED ROCK** WE FOUND UNDER THE CREEK."

SafeBore Confidently Bores Through Ontario Fractured Rock digdifferent.com/featured



KEEPING IT IN GOOD REPAIR

Even Big, Tough Compact Equipment Needs TLC

Keeping up on the maintenance of tracked equipment will help contractors save on downtime and improve productivity. Manufacturers talk about what kind of maintenance can and should be performed by the contractor.

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HANDLING THE CASH

Why Have a Line of Credit for Your Small Business?

There are many reasons you should have a line of credit for your business rather than bringing on investors or borrowing money from your friends and family.

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SLOW AND STEADY

DIG-IT EXCAVATING BUILDS ITS BUSINESS BY CATERING TO CUSTOMERS AND CURBING GROWTH

STORY: KEN WYSOCKY PHOTOS: AMY VOIGT

With its funky, made-for-marketing name and emphasis on modern advertising strategies, diver-<mark>sified servi</mark>ces and clean equipment, Dig-It Excavating isn't a typical excavation company.

But the business, based in Cassopolis, Michigan, isn't all sizzle and no steak. Those progressive traits are buttressed by owner Dervin Witmer's old-school beliefs in a strong work ethic and professionalism, as well as providing top-notch customer service.

So far, the new/old formula appears to be working just fine. Since Witmer founded the company in 2005, the company's gross revenue has increased about 575 percent and its fleet of equipment has grown dramatically — including the addition of a Vactor combination vacuum truck equipped with a hydroexcavation package. Moreover, Dig-It has created additional revenue streams by branching out into complementary services such as hydroexcavation, drain cleaning and septic pumping.

> "Our revenue has increased every year since we started," says Witmer, 39. "I feel like we're getting established around here as the quality guys.

> "About 80 percent of our work

"YOU CAN'T BE TOO FOCUSED ON DOING EVERYTHING YOURSELF. WE'D RATHER FOCUS ON THE THINGS THAT WE DO WELL, THEN INCORPORATE OTHER SUBCONTRACTORS TO DO THE THINGS THEY DO WELL."

Dervin Witmer

comes from excavating and site prep-

aration for small commercial buildings and septic system installations," he adds. "But we're also getting more and more repair work, such as fixing incorrect installations of septic and sewer lines. We do a lot of work with local municipalities to keep their infrastructure running."

The value of offering customers multiple services was demonstrated recently when a water main broke in a nearby town during a weekend. While two of the company's vacuum trucks kept an upstream lift station pumped out, another crew exposed the break, Witmer notes. "Customers don't want to deal with multiple contractors to solve their problem," he says.



OWNER: Dervin Witmer

FOUNDED: 2005 EMPLOYEES: 4

SPECIALTIES: Excavating/site preparation, septic pumping/ system installations, hydroexcavating, drain cleaning SERVICE AREA: Southwestern Michigan and northern Indiana

WEBSITE: www.digrdone.com



Dervin Witmer, owner of Dig-It Excavating, at his company headquarters in Cassopolis, Michigan. He is flanked by employees James Sanders, left, and Lucian Witmer, right.

BUSINESS EDUCATION

Witmer learned the ropes of running a business early from his father, Dave, who still owns and operates Witmer Motor Service, an electric-motor repair company in Pennsylvania, where Witmer grew up. Witmer started working for his father after he graduated from high school; as such, he's been around machinery for most of his life.



"Looking back, working alongside my dad taught me how to run a business — things like how to deal with people, provide good customer service and cover the costs of doing business and still make a profit," he says. "You could say I earned a business degree by working with him. He also taught me the value of a strong work ethic and the enjoyment of find-

his father also developed a small res-

ing solutions to customers' problems." During that time, Witmer and idential subdivision, which exposed

him to — and fueled his enthusiasm for — excavation equipment. After working for his father for nine years, Witmer moved to Michigan and worked for a friend's construction company, framing out houses. After another year or so, he pursued his dream by buying a heavy-duty pickup truck and renting excavating equipment for projects, a move that eventually led him to establish Dig-It. "I always intended to get into excavating," he says. "I've always enjoyed operating equipment, so I wanted to get into that line of work."

The company's marketing-friendly name was born during a discussion on the front porch of Witmer's home with his brother-in-law, Ben Bredeweg, a graphic artist, and an uncle, Dave Hofstra. "Since we had just moved from Pennsylvania, I had no name recognition, so I didn't want to use my last name,"

James Sanders cleans out the Vactor 2100 at the home office.

(continued)

DAD TAUGHT ME

THINGS LIKE HOW

PEOPLE, PROVIDE

GOOD CUSTOMER

COVER THE COSTS

OF DOING BUSI-

NESS AND STILL

MAKE A PROFIT."

Dervin Witmer

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Witmer recalls. "As we were kicking around ideas, my uncle suggested 'Dig-It' and I thought, 'Yeah, that's it — something short and catchy that people will remember easily."

Witmer's first chunk of business stemmed from a local project to convert about 1,500 homes from septic systems to municipal sewer service. He rented a mini-excavator and knocked on doors, offering sewer hook-up and septic tank abandonment services. In turn, that prompted him to buy a used vacuum truck to pump out septic tanks before filling them with sand.

GROWING FLEET OF EQUIPMENT

When that project ran its course, Witmer started advertising his excavating services. But he also kept an eye out for complementary services that meshed well with excavating.

"Back during the economic downturn in 2008 and 2009, I saw too many companies that specialized in one thing — say, just digging basements for home construction — go belly up," he says, explaining his motives for diversification. "Along with safeguarding against economic downturns, we also needed diversity in order to stay busy and grow the business.

"I consider myself a visionary guy," he continues. "If I see an opportunity that complements what we already do, I'm on it. My only concern is that we have to be careful to not get into too many things to the point where we can't do them well. That's the dance that we do."

To service its customers, Dig-It now owns a 2015 Caterpillar 308E2 CR trackhoe; a 2015 CAT 299D track loader; a dump truck that's built on a 2015 Kenworth T880 chassis with a 26-cubic-yard dump body made by J&J Truck Bodies and Trailers; and another dump truck built on a 2005 International 7600 chassis with an 18-cubic-yard box made by Rowe Truck Equipment.

The company also owns a Vactor 2100 combination sewer vac truck with a hydroexcavation package, built on a 1997 GMC truck chassis. It features a 5-cubic-yard debris tank, two 600-gallon water tanks, a water jetter (40 gpm/2,500 psi), a 2,100 cfm blower and a 400-foot hose reel. For pumping out septic tanks, the company invested in a 2002 International



Mini-excavator yields big productivity gains

When asked to name the most productive machine in Dig-It Excavating's fleet, owner Dervin Witmer doesn't hesitate for a second: It's the Caterpillar 308E2 CR mini-excavator.

"It's large enough to handle repair work and septic installations and small enough that we can get in and out of small job sites without tearing up a lot of property to get there," says Witmer, who founded Dig-It in Cassopolis, Michigan, in 2005.

Witmer looked at several different mini-excavators before choosing the Caterpillar unit, which features a 36-inch bucket with 1.5-cubic-yard capacity, a 65 hp Caterpillar diesel engine, a bucket rotation of 180 degrees, a compact turning radius, ground pressure of 5.26 psi, rubber-covered steel tracks, a 553-pound optional counterweight, and a maximum digging depth of about 13 1/2 feet.

"In its size class, the 308E2 is one of heaviest machines with the longest stick (arm) and the farthest reach, so for a smaller machine, it provides good performance when digging," Witmer points out. "The longer stick gives us more reach, a deeper digging depth and a higher off-loading capacity, and we don't have to move the machine around as much while working."

The machine is also equipped with a hydraulic progressive link "thumb" attachment that can pick

up things more securely and easily than a bucket can, he says. "With the thumb, the operator can actually pinch awkward-shaped pieces that don't fit in the bucket," he explains. "It's a really handy attachment that saves us a lot of time, and time is money."

says the mini-excavator is the most

used equipment in his fleet.

Witmer also opted for rubber pads that get screwed onto the machine's two metal tracks to minimize damage to roads, driveways and other surfaces. Moreover, he says the machine is very easy to operate, with user-friendly dual-joystick controls, plus heating and air conditioning that keeps operators comfortable.

Another benefit is the unit's reliability, coupled with great support from a local Caterpillar dealer. "We make my money being productive, not fixing machines that keep breaking," says Witmer, who notes that he trades in machines every five years to keep up with the latest technology and avoid costly repairs that can occur as machines get older. Newer equipment also gives him the added benefit of being able to develop more accurate budgets because he doesn't have to factor in unexpected large repair expenditures. "It gives us a consistent cost factor — we can count on certain expenses," he says.

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7400 truck outfitted by Imperial Industries with a 3,200-gallon steel tank and a 357 cfm vacuum pump manufactured by National Vacuum Equipment.

Rounding out the fleet is a 2015 Kenworth vacuum truck with a 4,700-gallon tank built by Curry Supply Company, equipped with an NVE 4310 blower; a 2010 Ford F-450, equipped with a Cobra 3300 service crane (lifting capacity of 11,500 pounds) made by Maxilift/Next Hydraulics and a Knapheide Manufacturing box body; and a 2010 Ford Transit Connect that carries SeeSnake pipeline inspection cameras and locating equipment made by RIDGID. Other tools include a Crust Buster septic sludge agitator; a soil-decompacting, drainfield rejuvenation machine made by EarthBuster; a wheeled hot-water jetter made by Easy Kleen Pressure Systems; and a Root Rat root-cutting nozzle.



Dervin Witmer uses the hand controller to operate a Vactor 2100 hydroexcavator as the machine removes sand and stone from Kenneth Smith's Michigan Distribution Terminal.

Investing in a wide range of equipment has played a large role in the company's growth. Not only does it enable the company to garner more work from customers that prefer a one-stop-shop approach to hiring contractors, it also allows Witmer to gain market share by providing them with more cost-effective solutions to problems than competitors can offer.

A good example is the pipeline inspection cameras. The cameras not only opened up a new revenue stream via septic system inspections, they also allow technicians to pinpoint the exact cause of problems, which might well be much less expensive than a complete system replacement that other contractors might propose because they can't see what's wrong inside the system. "We might be able to replace a 30-foot section of pipe, for instance — do a pinpoint repair as opposed to a complete system replacement," Witmer says.

Witmer is a firm believer in investing in advanced technology that can improve productivity and profitability. "New technology allows us to be strategic about solving problems," he says. "We want to be known as a knowledgeable and strategic company, and new technology allows us to be that kind of company."

PROFESSIONALISM MATTERS

With more than a half-dozen local competitors, Witmer feels it's important to differentiate his company. To achieve that, he emphasizes professionalism, which is reflected in things such as uniformed workers; a robust, informative website; clean, well-maintained equipment; and top-notch customer service, which includes educating them and always taking time to answer all their questions.

"We get quite a few calls from customers who appreciate that our employees took time to explain what they were doing," Witmer says. "I know I would appreciate it if I hired someone and they came to the house and acted professionally. You just feel like you're getting a better value for the money and a

"I THINK GROWING THE HYDROEXCAVATING END OF THE BUSINESS DEFINITELY IS DOABLE BECAUSE MORE AND MORE CUSTOMERS ARE REQUIRING IT. THE DEMAND IS GOING TO BE THERE."

better finished product. I can't quantify how much more business our approach gets us — all I know is that it bothers me to present a poor image."

Witmer points out that his 17-year-old son, Lucian, details all the equipment — right down to polishing the wheels and waxing the trucks. "The cleaner we keep them, the easier they are to keep clean," he notes.

One of the most important things in site preparation and excavation work is meeting deadlines. That can be a challenge with just four employees and ever-increasing workloads, so Witmer says he strategically uses subcontractors when it makes sense. For example, some projects require more materials — things such as large quantities of sand or gravel — than he can cost-effectively haul with his two dump trucks. That's when he calls a local trucking company that can do the job more efficiently, which saves customers money and helps the company finish jobs on time.

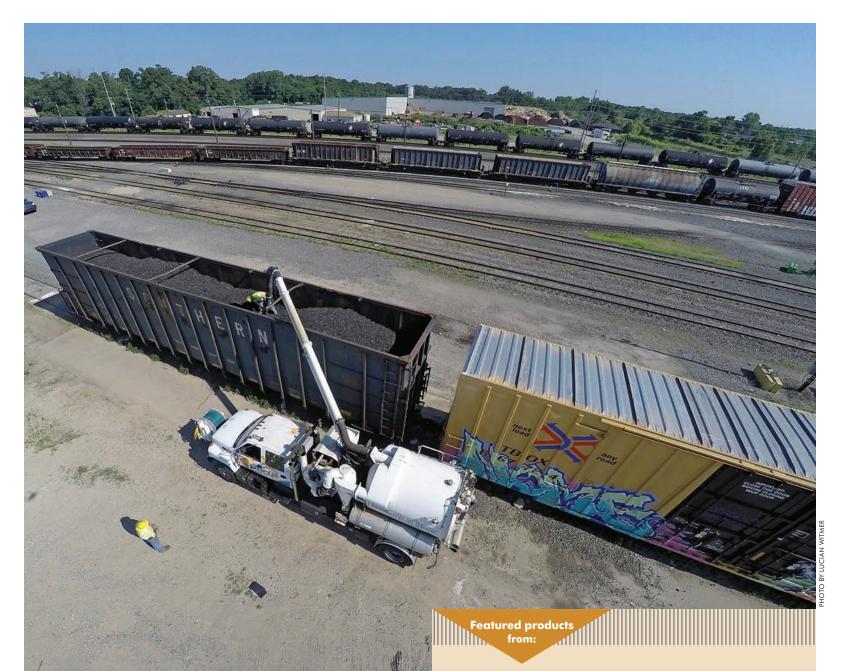
"You need to figure out who can do things better and cheaper, then develop relationships with local subcontractors who can do those things," he suggests. "You can't be too focused on doing everything yourself. We'd rather focus on the things that we do well, then incorporate other subcontractors to do the things they do well. Together, we can do a job efficiently and in a timely fashion."

The company invested in a used vacuum truck with hydroexcavating capability about three years ago when Witmer realized that hydroexcavating was a safer way to expose underground utilities. Moreover, as more customers were requiring hydroexcavation instead of conventional excavation, it complemented the company's existing core services, and it added to the company's list of services. A used truck made sense financially because it provided a lessexpensive way to enter a new and unknown market.

But the unit's vacuuming capability has proven valuable, too. Witmer says the company has used it to vacuum out everything from debris in lift stations to built-up sand in a gravel-pit transfer station to excess rubber chips in overfilled railroad cars. "It's a very versatile machine," he says. "We keep finding new ways to use it."

PLANNING FOR SLOW GROWTH

Five years ago, Witmer's goal was to enter the hydroexcavating market and hire one full-time employee. With those goals met, he is now aiming to buy



A crew works with the Vactor 2100 unit removing material from a train car. Dig-It Excavating often handles car clean-out jobs at the rail yard.

another hydroexcavating truck within the next five years — this time a new one with a larger, 15-cubic-yard debris tank — and build a dedicated hydroexcavating crew.

"I prefer slow but steady growth," he says, explaining his business philosophy. "I think growing the hydroexcavating end of the business definitely is doable because more and more customers are requiring it. The demand is going to be there. The hard part is just finding those opportunities and clients and meeting their needs."

In the long run, Witmer says he would love to see one or more of his four sons get more involved in the business; his 15-year-old daughter, Olivia, already handles paying bills. But no matter what happens, he hopes to always maintain the same principles his father taught him so many years ago and never forget what drew him to the business in first place: helping customers solve problems.

"It's fun to go to a job site and listen to customers' ideas and problems and then try to figure out the best solution to find and repair the problem and get them back on the road to functioning again," he says. "It's what we do best."

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Bursting With Flavor

PIPE BURSTING HELPS A CALIFORNIA CONTRACTOR REPLACE INDUSTRIAL WASTEWATER PIPES WITHOUT INTERRUPTING PRODUCTION

BY SCOTTIE DAYTON

ome industrial wastewater lines at a food processing plant in San Jose, California, were too small to handle the volume and others were deteriorating with age. Pipe bursting was the only way to rehabilitate them without disrupting the plant's nonstop operation. The facility's local mechanical contractor, Therma Corp., subcontracted TRIC Tools of Alameda to do the work.

The first pull would pass under a 4-foot-thick slab supporting multiple 50-foot-tall liquid storage tanks. "No one knew what lay outside that pipe," says John Rafferty, TRIC's director of marketing and technical support. "If we hit obstructions, damaged utilities, or the cable or bursting head broke while under the slab, it would be a miner's nightmare to tunnel to it." Excavating inside the plant would be equally disastrous and expensive.

Tight safety and cleanliness controls inside and outside the building quadrupled the work.

"Dealing with all the time-consuming extra requirements became the toughest part of the job," says Rafferty. "Any infractions could result in eviction." Careful planning and coordination kept the plant operating at full capacity throughout the demanding project.

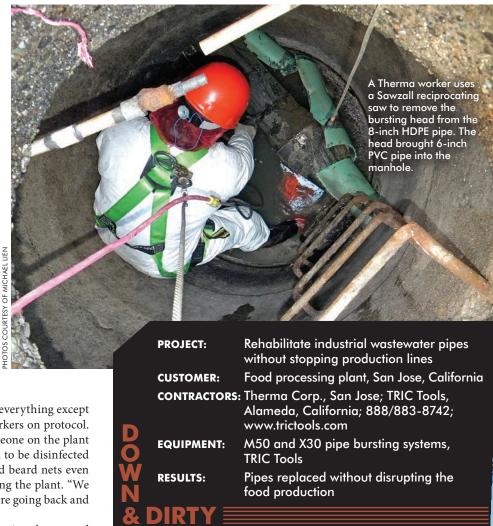
WINDOWS OF OPPORTUNITY

Therma site supervisor Dave McCall and his team did everything except fuse and pull the HDPE pipe. They also advised TRIC workers on protocol. Each procedure had to be logged and documented by someone on the plant safety team. Any equipment carried into the building had to be disinfected and wrapped in plastic. Workers had to wear hairnets and beard nets even outdoors, and disposable coveralls and boots when entering the plant. "We had to discard them every time we went outside, and we were going back and forth constantly for the second pull," says Rafferty.

The challenge of the first pull was stabilizing the cribbing against the external wall of a 48-inch concrete manhole. A 100-foot length of 6-inch PVC line ran from a clean-out in the driveway outside the plant to the manhole, passing under the concrete slab on its way. McCall's crew excavated and shored the launch pit at the clean-out and a 4- by 2- by 8-foot-deep pulling pit behind the manhole.

Semi-tractor trailers use the driveway to deliver ingredients, and they needed an unobstructed approach to the off-load site. A truck arrived every four hours and took at least 90 minutes to unload. "Everyone timed their work around the delivery schedule," says McCall. "That meant moving equipment out of the way and laying plating over the excavations while the vehicles were here."

Rafferty's team fused six 20-foot sticks of 8-inch HDPE pipe and the polyethylene end cap the day before the pull, then laid it alongside the perimeter access drive. "The client required a fire extinguisher by the fusing machine," says Rafferty. "We had to record when we began heating the iron, when we unplugged it, and the 45-minute cooldown before storing it on the premises."



TRICKY TIMBERS

The manhole's inlet and outlet didn't align, so the Therma team excavate behind the structure, restricting the pit's width to 2 feet to avoid encounte ing adjacent underground supply lines. They cut a hole in the manhole wa opposite the inlet pipe, enabling the cable to pass through the pulling pit, ar enlarged the inlet more than 12 inches to enable the bursting head to enter

"That gave us ample support for the cribbing on the right-hand side of t manhole, and no support on the left-hand side since our inlet path was at odd angle," says Rafferty. "The tricky part was making the resistance wall pe fectly perpendicular to the pulling force."

Rafferty used a Sharp Shooter drain spade to cut a crisp 90-degree corrand straight walls in which to situate 6-inch timbers and sand bags to fill the void behind the cribbing and 24-inch resistance plate. "The goal is to set up



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ABOVE: John Rafferty, director of marketing and technical support at TRIC Tools, attaches the pipe and head driver to the threaded cable end, LEFT: The backhoe bucket pushes down on the 8-inch HDPE pipe to assist the angle of entry.

once, then just push buttons," he says. The M50 ram, with 48 tons of pulling force, was set vertically in the pit. A trailer-mounted 14 hp/7 gpm/5,000 psi TRIC hydraulic pump powered the ram.

To accommodate the delivery

trucks, McCall's team waited until the last minute to cut a 2-foot-wide slot in the concrete at the entry pit, then sloped the soil toward it. That left the top half of the shoring wall in the way.

"Removing the 10-foot-long segment was an issue because of OSHA standards, but it had to go," says Rafferty. "Even then, we had to push down on the pipe with the backhoe bucket to assist the angle of entry." There were no surprises waiting under the slab and the pull was finished in time for the next delivery truck.

PART TWO

The second pull from the driveway clean-out pit to inside the plant replaced 185 feet of 4-inch cast iron pipe with 6-inch HDPE that tied into the new 8-inch pipe. No gasoline-powered equipment was allowed inside the building.

McCall's crew drilled and anchored steel poles to the facility's 6-inch reinforced concrete floor, then pitched Visqueen-walled 20-foot-square by 8-foottall tents over all excavations. The tents had 12-inch vacuum fans exhausting into 20-foot-long flex conduit venting through the plant's ceiling to remove dust.

After workers cut through the floor, they excavated a 14- by 10- by 4-footdeep pulling pit, then dug a reservoir at the head to collect the upstream drainage. They put a sump pump in a 30-gallon plastic tub, running the intake hose to the reservoir and the outlet hose to a bypass drain. Someone always monitored the tub during high-flow periods and occasionally moved the bypass hose to a larger drain to prevent spills.

McCall scheduled an electrician to direct-wire TRIC's 10 hp, three-phase, 480-volt, 2 gpm/10,000 psi PowerTeam hydraulic pump. "The unit had four thick contact wires and was the size of a washing machine," says Rafferty. It powered an X30 ram with 29.5 tons of force.

The pulling pit wasn't cribbed because wood was not allowed in the plant. "Fortunately, the dirt wall was firm enough to hold the resistance plate, yet not too compacted to allow for expansion of the pipe fragments," says Rafferty. To prepare for the pull, he slid a pre-burster up the 3/4-inch swaged cable and over the shackle (connects the bursting head and cable) to prevent it from doing the bursting work as it entered the small pipe.

As the greasy, dirty cable came out of the pulley during the burst, McCall's crew wrapped it in white plastic, taped it, and ran it outside along the bursting path to the entry pit. "We were advancing 3 to 4 feet per minute using an average 15 to 20 tons at 3,000 to 4,000 psi," says Rafferty. "Because of Therma's efficiency and preparedness, everything went according to schedule and we were done in 25 minutes."

TRIPLE PLAY

The third pull replaced 200 feet of 6-inch cast iron pipe with 6-inch HDPE. The line had multiple tie-ins of 2- to 3-inch cast iron pipe, requiring three excavations between the entry and pulling pits. "The challenge here was fusing pipe inside a small corner of the warehouse," says Rafferty. "We couldn't cross the loading threshold 90 feet away or we'd interfere with the nonstop forklift traffic. The pulling pit for the fourth pull was adjacent to the wall at the other end. Add the fusion machine and we were left with a 40-foot circle for the pipe."

To direct the pipe into the mechanical fusing jig and align the ends, McCall's crew drilled and screwed footings in the floor for temporary guideposts. Rafferty followed the same procedures indoors for fusing pipe as he did outdoors.

The host pipe lay in a trench backfilled with gravel. Although the 6-footdeep pulling pit was shored, the ground behind the 24-inch resistance plate kept caving in. "We had 18 inches of wall missing," says Rafferty. "If we were to complete the pull, we needed cribbing to stabilize the plate."

Therma workers dashed across the freeway to their shop and returned with 3-foot timbers wrapped in plastic. However, they weren't long enough to disperse the pulling force and the wall began compressing again, shifting the ram sideways. Technician Salvador Sainz and municipal sales director Bob Grenier stopped the pull and adjusted the timbers so one edge caught the foot of a shoring strut to extend the area of resistance.

With the cribbing stabilized, the pipe moved at 3 to 4 feet per minute. McCall's crew had disconnected the tie-in pipes so the bursting head wouldn't catch and drag them along. Rafferty monitored the intermediate pits, checking on the stretch of the pipe and stopping the pull twice to clear debris collecting in front of the head.



The manhole's cylindrical wall created a void to the left of the M50 ram that was filled with 6-inch timbers and two sandbags to make the resistance wall perpendicular to the pull force.

"If 200 feet of pipe stretches even half a percent, that's a foot," says Rafferty. "According to the manufacturer, the pipe needs eight to 12 hours to retract after stretching, but we didn't have that much time." To compensate, McCall's crew began connecting tie-ins at the entry pit, since stretch is minimal to none at the tail end. As soon as they cut the HDPE pipe to make connections in the intermediate pits, they relieved the tension and the pipe popped back.

The final pull, replacing 80 feet of 4-inch cast iron with 4-inch HDPE, ran perpendicular to the 6-inch pipe and tied into the entry pit of the previous job. It was uneventful. "Therma is probably the best primary contractor with whom we work," says Rafferty. "They made it possible for us to perform our job without a hitch."



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RIGHTOEXPAND

OHIO COMPANY STEPS OUT DURING ECONOMIC DOWNTURN TO BROADEN SERVICES AND EXPAND CUSTOMER BASE

STORY: MARIAN BOND PHOTOS: AMY VOIGT

John Panetta knew the time would come to add directional drilling to his company's many services, but it didn't happen overnight, as several other companies in the area already provided that service.

"In those first years of business we saw that the market was flooded with drilling companies," says Panetta, owner of Panetta Excavating of Blanchester, Ohio. "There was too much competition."

That changed with the economic woes of 2008 when Panetta started to see some of that competition shut down. Panetta decided then that it was time to add directional drilling to

his company's offerings. Directional drilling now accounts for 30 percent of the workload.

"It has been very good for us," Panetta says.
"The weather here in the Buckeye State is a big
factor on jobs and directional drilling is an
answer to dealing with the weather conditions
we experience."

BUILDING THE COMPANY

John and his wife, Sandie, launched Panetta Excavating in 1994, offering general excavation services to contractors, municipalities and agriculture customers. The company — with its five other employees — performs about 50 percent





the pipe

amongst competitors in the area, and one

way they've been able to do that is by offering steel casing pipe services.

Steel casing pipe is most commonly used in underground construction to protect utility lines of various types from getting damaged. The pipe is jacked into an augured hole in segments and then connected by welding or by threaded and coupled ends, or other pipe connectors.

"You set the machine up and you are pushing and drilling the casing pipe using an auger," Panetta says. "Casing pipe will carry the utilities you will pull through. Or it can be used as sewer pipe or water pipe."

Panetta says his company is one of a select few offering this service, so it is more of a specialty for them. Steel casing pipe is usually used for under highways, railroads, lakes and rivers.

To help with installation of the pipe, Panetta Excavating uses equipment from BOR-IT Mfg.

of its work with municipalities, 30 percent with commercial clients and the rest with mainly agricultural customers.

Sandie performs many of the office duties, while John and the five other employees are in the field most of the time. "It's pretty gratifying to see what you have done at the end of the day," Panetta says.

Panetta's biggest goal from the beginning has been service diversification. "When one slows down, there is another that can sustain the business," Panetta says, explaining why directional drilling was eventually added.

The team at Panetta Excavating includes, from left, John Panetta, owner; Justin Shoemaker; and John Burris.

"WE HAVE A VERY GOOD CREW AND

WE ENJOY THE ADVANTAGES OF A SMALL COMPANY

WHERE EMPLOYEES ARE MUCH LIKE A FAMILY."

John Panetta

ADDING DIRECTIONAL DRILLING

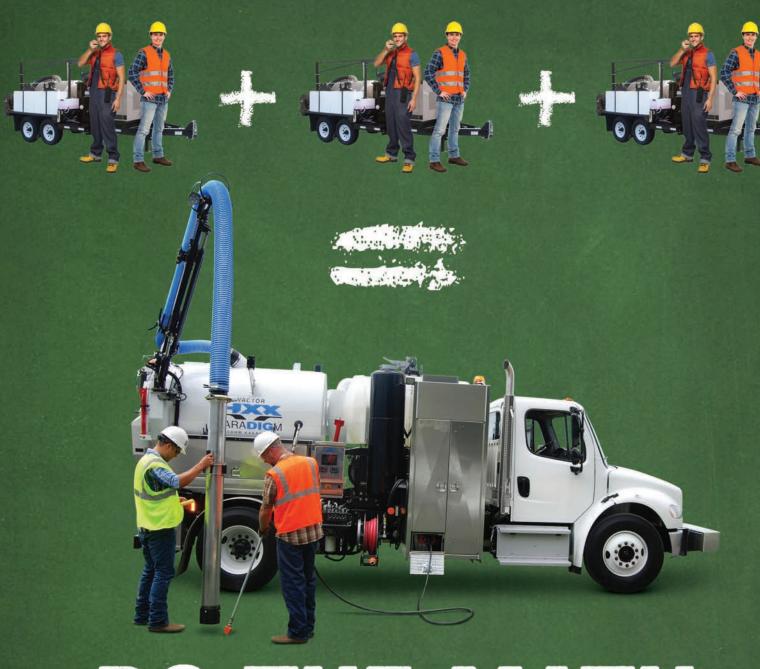
After about 14 years in business, Panetta decided it was time to buy a directional drill. He purchased a Vermeer D7x11. "Before we had directional drilling and that capability, we would have to shut down a street or cause disruption for a business on a job," Panetta says. "Now we have other options and more flexibility."

With the D7x11, the company can handle 400 feet of drilling and up to 6-inch-diameter pipe. Panetta says he prefers not to get into larger-size pipe and have to add more equipment and technicians.

An additional benefit of the drill is it allows the company to work in Ohio's varied weather and soil conditions. "There's a saying here in the Buckeye State that if you don't like Ohio weather, wait five minutes because it will change."

The soil in the company's service area is heavy clay and gets saturated in a rainstorm, making open dig unlikely for a day or two after a rain event. With the drill, however, the company can continue to work right after the rain ends. Panetta says his more experienced technicians operate the drill.

(continued)



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VACTOR

"There are hazards involved with directional drilling," Panetta says. "If you drill right into a charged electrical line or gas main, it can be a very bad day. That is where having an experienced crew and other equipment comes in handy."

Panetta says adding directional drilling gave the company the opportunity to add to its customer base. "We got into a more extensive list of clients including the smaller municipalities and water districts in our area of Ohio," he says.

SUPPORT EQUIPMENT

Vactor."

Two important pieces of equipment that go hand in hand with directional drilling are the company's Digitrak Mark III locator (Digital Control) and a rebuilt 1985 Vactor vacuum truck on a Mack chassis.

The Vactor has allowed Panetta Excavating to expand services to customers. "With the water districts we do all the maintenance, including manhole maintenance, putting in any new taps and line repair," Panetta says. "We can unclog sewer lines too with our

In one situation, crews were installing a sewer lateral that would be going under a gas main on one side of the street and above a water main on the other side. "We felt directional drilling was too risky to try," Panetta says. "In that situation we opened up the road and did the instal-

lation. We could then verify with the Vactor where the water main was and the gas main."

The rest of the company's fleet includes:

- Four Chevrolet service vans
- 1985 Mack DM dump truck for debris hauling
- 1993 Mack CH tractor for equipment hauling
- 1998 Mack RD dump truck for stone and sand hauling
- Two Komatsu excavators
- Caterpillar backhoe
- Two bulldozers, two skid-steers and a mini-excavator

All of the equipment comes in handy when the directional drill isn't available because of job site conditions. "If we are dealing with sewer or storm sewer lines and the area is too flat, we would stay away from directional drilling because we need a little grade in order to move the fluids," Panetta says.

"BEFORE WE HAD DIRECTIONAL DRILLING AND THAT CAPABILITY, WE WOULD HAVE TO SHUT DOWN A STREET OR CAUSE DISRUPTION FOR A BUSINESS ON A JOB. NOW WE HAVE OTHER OPTIONS AND MORE FLEXIBILITY."



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BRING ON MORE IN THE FUTURE

Panetta says although he is not eager to grow the company, he is always interested in new technology as it comes along. The company is looking at possibly moving into pipe bursting services or more hydroexcavation work.

"We have a very good crew and we enjoy the advantages of a small company where employees are much like a family," Panetta says. "If we got much bigger, I would be behind the desk, and that's not me." ▼



Year-Round Functionality

TERRA-VEX HYDROEXCAVATOR'S COMPONENTS, ENCLOSURE BUILT TO OPERATE IN COLD WEATHER CLIMATES

BY CRAIG MANDLI

ater main breaks are common in municipalities located in the northern half of the country. Aged infrastructure combined with subzero temperatures can often wreak havoc on water and wastewater systems.

Exposing those utilities to complete the work is also a challenge, as snow cover and frozen ground can make traditional excavation methods expensive and time-consuming, not to mention dangerous. That's why the Terra-Vex, an all-season hydroexcavator highlighted by Transway at the 2016 Water & Wastewater Equipment, Treatment & Transport Show, makes so much sense.

"The biggest feature on this unit is the diesel-fired burner that enables it to be used in subzero temperatures," says Transway general manager Gary Robinson. "It also has a full enclosure that not only reduces noise levels, but gives operators the opportunity to escape from the elements."

USABLE STORAGE SPACE

The Terra-Vex has a direct-drive Robuschi RB-DV145 6,400 cfm blower with OMSI transfer case, silencers and water system contained within that insulated, heated acoustical walk-in enclosure, including 23 square feet of usable storage space.

"WE'VE HAD A LOT OF MUNICIPALITIES AND CONTRACTORS TELL US THAT THEY ARE USING THEIR HYDROEXCAVATORS MORE AND MORE, BUT THAT COLD WEATHER CAN SOMETIMES GET IN THE WAY."

Gary Robinson

"We've had a lot of municipalities and contractors tell us that they are using their hydroexcavators more and more, but that cold weather can sometimes get in the way," he says. "With the Terra-Vex, that problem is solved."

The enclosure reduces sound levels by several decibels, enabling hasslefree residential work while ensuring operators and water components don't freeze. According to Robinson, it's a feature that makes the unit a solid fit for work in urban areas.

"That enclosure makes the unit much quieter than a typical hydroexcavator," says Robinson. "It is a good choice for performing work in larger residential areas where you want to disrupt the neighborhood as little as possible."



Travis Ouimet, right, parts manager with Transway, discusses the Terra-Vex hydroexcavator with 2016 WWETT Show attendees. The unit's direct-drive blower with transfer case, silencers and water system are contained within an insulated, heated acoustical walk-in enclosure, enabling the unit to be used in subzero temperatures.

OTHER COMPONENTS

The unit's hydraulically driven Pratissoli KT20 water pump delivers

 $10~\rm gpm$ at 6,000 psi, and the 1,200-gallon HDPE water tank and 420,000 Btu burner are protected from the elements. The 3,000-gallon debris tank comes with hydraulically operated hoist, full-open rear door and locks. There are dozens of customization options as well.

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"There are a lot of different chassis options to choose from, depending on the type of work you're going to be doing and the terrain it will be performed on," says Robinson. "We try to work with each individual customer to build a truck that fits what they need."

The unit's 26-foot-8-inch suction boom is hydraulically operated with a joystick and wireless remote control. It uses biodegradable hydraulic oil, minimizing environmental risks. All parts are painted or powder-coated off the unit, ensuring no metal-on-metal contact. A backup camera also makes the unit easier to maneuver in tight space.

"We don't spare any expense on these machines," says Robinson. "They are designed to serve a municipality or contractor for a long time with little maintenance."

AN IDEAL MARKET

Robinson says that the WWETT Show's location in Indianapolis provides an ideal market for the Terra-Vex. While the show attracts attendees from all over the world, a large number of them are from the Midwest, where winter work can pose problems.

"The people here are pretty happy to see that there are options out there for winter hydroexcavation work," he says. "It's still a relatively new technology in this field, and more applications are being found constantly. It's up to us to make machinery that adapts to those applications." 800/263-4508; www.transwaysystems.com.







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AT THE POINT OF USE AND ALL

THE EQUIPMENT NEEDED TO DO

THE TASK IS RIGHT THERE."

BY DOUG DAY

ow many safety glasses do you have in stock right now? Do you know how many you go through in a month or how much of your PPE and other equipment just walks out the door?

Industrial vending of such items is growing in popularity as companies try to save money and cut the amount of work that goes into the distribution and stocking of equipment, according to Russ Rubie, vice president of Fastenal Company. "People want to make sure those items are available and want to understand who is using them."

With only an electrical outlet and an internet connection, a vending machine is always available and automatically tracks and reports usage and inventory. Rubie says Fastenal has 40,000 machines across the U.S., and users

typically report a 30 percent reduction in consumption and spending. "You can put these machines at the point of use and all the equipment needed to do the task is right there."

Fastenal provides the vending machines and keeps them stocked through the machines' automated

ordering capabilities. "That takes away a lot of steps in procurement, which eliminates cost," says Rubie.

Russ Rubie

Management also receives that information in daily, weekly and monthly reports. "PPE likes to walk away," says Rubie. "Most of the time it's unintentional: It could be a pair of gloves in your back pocket or the safety glasses on top of your head and then you discover you have five pairs in your car."

By tracking use by department or even individuals, those people can be reminded of how much they are using to help them be more accountable for the equipment. Some companies set controls so that items can only be dispensed by certain groups or in limited amounts. But most find that the system's ability to track usage by individuals is enough to curb wasteful consumption. Vending also eliminates the incentive to hoard supplies, because employees know that more is readily available.

The vending machines can also send automatic email alerts when items such as first-aid supplies are dispensed to help a company follow up on safety incidents. There are also beverage machines that track how much employees are drinking to make sure they are staying hydrated.

MONITORING MACHINES

Vending can be monitored in a number of ways, including a keypad for entering a pin number, magnetic-strip cards or employee badges. Rubie says Fastenal has machines placed in a wide variety of industries including oil and natural gas, mining and drilling, aerospace, automotive, construction, power plants, machine and tool fabrication, shipping, railroads and many others. "They immediately notice the reduction in consumption and eliminating

inventory," he says of feedback he receives from customers. "The 24/7 service without an attendant and automated reordering is very important to them."

Rubie says it is important to do your homework before entering into a vending agreement. "When evaluating vending providers, be sure to ask the right questions. Do they have the safety products you need in vend-ready packaging? Who will be responsible for managing the inventory, restocking the machines, and making adjustments based on your changing product needs? And what can they bring to the table in terms of safety services like facility inspections, PPE fit-

tings and product selection support?" ▼



From office supplies to tools

Nearly anything can be included in a vending program. Popular items that Fastenal machines are used for include:

- Eye, hearing and hand protection
- Hard hats
- Batteries
- Respirators
- Tape
- Hand tools
- Drill bits
- Taps

- Lubricants, penetrants and corrosion inhibitors
- · Paints and accessories
- Cable ties
- Knives, razors and
- multi-tools
- Tape measures
- Coveralls
- Flashlights

There are also vended locker systems for larger items that can record how long equipment is checked out and track calibration and certifications:

- Hand and power tools
- Gauges

Laptops

• Radios



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Choosing a Pipe Bursting Machine

FUNCTION AND SIZE ARE TOP CONSIDERATIONS WHEN CONTRACTORS NEED TO CHOOSE A MACHINE THAT WORKS BEST FOR THEIR JOB SITES

BY MARYBETH MATZEK

hen it comes to replacing underground pipelines, contractors turn to pipe bursting machines to tackle the project without a massive excavation. Choosing the right machine can make the difference between a successful project and one that drags on too long and goes over budget, according to industry experts.

"You have to think carefully about the work you're doing and what kind of work it is," says Kent Westendorf of HammerHead Trenchless Equipment. "You also need to think about what kind of work you expect to do in the future."

There are two main types of pipe bursting machines — static and pneumatic. Pneumatic machines use a hammer in conjunction with a constant tension winch, while static machines use high-tonnage static pull.

THE TWO MACHINES

Static machines can be used for all types of jobs while pneumatic machines work more quickly, but cannot be used in potable water systems since the hammer exhausts liquefied petroleum products into the pipe being installed and would find its way into the water system, Westendorf says.



A HammerHead HB 125 static pipe bursting system offers contractors a machine that is versatile enough to replace a wide range of water, sewer and gas lines.



A HammerHead pipe bursting machine is lowered into a pit on a job site.

"A LOT OF CONTRACTORS LIKE THE ADVANTAGES OF THE PNEUMATIC MACHINES, BUT THEN FIND OUT IT MIGHT NOT WORK THE BEST FOR EVERY JOB THEY HAVE."

Kent Westendorf

Pneumatic systems also have a footprint 50 percent smaller than a static system, which means crews need to do less excavation — a plus for many contractors, he adds.

"You need to decide between the two which one will work better for your project," Westendorf says. "A lot of contractors like the advantages of the pneumatic machines, but then find out it might not work the best for every job they have."

SEVERAL OPTIONS TO CONSIDER

Brian Kelly, president of Pow-r Mole Sales in Lancaster, New York, says



A contractor uses a Pow-r Mole PD-4 on a job site. The PD-4 can operate in a pit only 50 inches long or bigger and has a thrust force of 37,714 pounds at 3,000 psi and a maximum push rate of 9 feet per minute.

service and support that can help if a problem comes up," he says. "Remember, time is money and you want someone who is reactive to what you need. If a job is taking longer, that means higher labor costs or more time that a utility line is down."

Productivity is another important concern for contractors since they want to get through a job as quickly as possible, Kelly says. The machine will say right on it how much pipe it can burst, he adds.

"Don't be afraid to ask questions about the machine and also take into account how much industry knowledge the people you are working with have," Kelly says. ▼

"DON'T BE AFRAID TO ASK **QUESTIONS** ABOUT THE MACHINE AND ALSO TAKE INTO ACCOUNT HOW MUCH INDUSTRY KNOWLEDGE THE PEOPLE YOU ARE WORKING WITH HAVE."

Brian Kelly

the pipe bursting machine's durability should play a vital role during the selection process. "You can search for information and talk to other people in the industry to get feedback on the equipment," he says, adding that size is an important aspect to keep in mind.

"Size is related to power and choosing the right power is related to the pipe size," Kelly continues. "The physical footprint can be especially important on certain jobs, especially if the site is crowded. You need to have enough room for the selected machine."

Westendorf says the type of pipe and length of the burst should also be considered. For example, static systems have the ability to be fitted with tooling that replaces ductile pipe or installs PVC.

Static and pneumatic pipe bursting machines come in a variety of sizes and can handle pipes ranging in size from 4 and 6 inches all the way up to 24 inches, Westendorf says.

The equipment should always be sized to install a pipe of the same size or one size larger, he says. "If the pipe needs to be increased even more than that, a larger hammer or a more powerful static machine will be needed," Westendorf says.

But if contractors go larger than necessary, there will be extra expenses for support equipment and workers, he added.

Contractors also need to look at the ground conditions. Pneumatic systems work better in harder soils since they use more force that can punch open the ground, while static systems work better in clay or sticky soils since they have a better chance of overcoming the friction caused by the soil moving in on the newly installed pipe as the burst progresses.

MORE THAN JUST THE SALE

Kelly says contractors also need to think past the initial sale. "Look for someone with good customer



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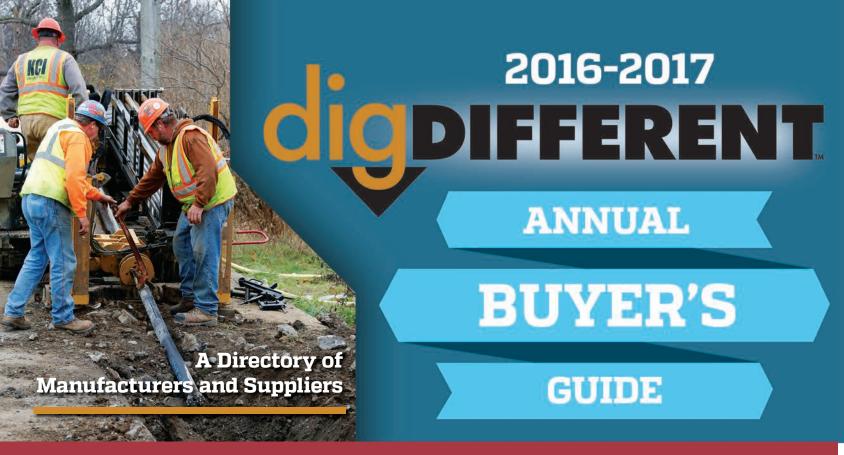


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Dixon, IL 888-477-7638

sales@sewerequipment.com

www.sewerequipment.com

Equipment Attachments

Ditch Witch

Perry, OK

800-654-6481 • 580-336-4402

info@ditchwitch.com

www.ditchwitch.com

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Melaughlin

Providing Solution McLaughlin

Greenville, SC

800-435-9340 • 864-277-5870 • Fax: 864-235-9661

mmole@mightymole.com

www.mclaughlinunderground.com

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Equipment Parts & Services

Fibergrate Composite Structures

Dallas, TX

800-527-4043 • 972-250-1633 • Fax: 972-250-1530

info@fibergrate.com

www.fibergrate.com

Milwaukee Rubber Products, Inc.

Menomonee Falls, WI

800-325-3730 • 262-781-7888 • Fax: 262-781-1742

dennis@milwaukeerubber.com

www milwaukeerubber com

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Erosion Control

Advanced Drainage Systems, Inc. - ADS

Hilliard OH

800-821-6710 • Fax: 614-658-0204

info@ads-pipe.com

www.ads-pipe.com

Water Cannon, Inc. - MWBE

Lake Marv. FL

800-333-9274 • 321-800-5763 • Fax: 888-928-9274

sales@watercannon.com

www.watercannon.com/catalogrequest.aspx

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Excavating Equipment

Ditch Witch

Perry, OK

800-654-6481 • 580-336-4402

info@ditchwitch.com

www.ditchwitch.com Ad on page 72

Fast-Vac/Multi-Vac

Union Grove, WI

800-558-2280 • 262-878-0756 • Fax: 262-878-4019

sales@fast-vac.com

www fast-vac com

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FS Solutions

Leeds. AL 800-822-8785 • Fax: 205-699-2253

info@fssolutionsgroup.com

www.fssolutionsgroup.com

Hall's Gradeblade

Fort Madison, IA

319-470-3033 • Fax: 319-372-5345

bhall@gradeblade.com

www.gradeblade.com

Ad on page 68 **HDD Broker**

Naples, FL

866-960-3331 • Fax: 250-474-6099

info@hddbroker.com

www.hddbroker.com Ad on page 29

Hydra-Flex, Inc.

Eagan, MN

952-808-3640

sales@hydraflexinc.com www.hydraflexinc.com

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Premier

Fort Morgan, CO

970-542-1975

sales@poequip.com www.poequipment.com

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Soil Surgeon, Inc.

Lagung Niguel, CA

949-363-1401 • Fax: 714-434-9998

bbain@calhaz.com

www.soilsurgeoninc.com

Ad on page 67 Super Products LLC

New Berlin, WI

800-837-9711 • 262-784-7100 • Fax: 262-784-9561

info@superproductsllc.com

www.superproductsllc.com

Vac-Tron Equipment

Okahumpka, FL

888-822-8766 • 352-728-2222

sales@vactron.com

www.vactron.com Ad on page 4

Vactor Manufacturing

Streator, IL

800-627-3171 • 815-672-3171 • Fax: 815-672-2779

sales@vactor.com

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Excavators

Ditch Witch

Perry, OK 800-654-6481 • 580-336-4402

info@ditchwitch.com www.ditchwitch.com

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ExcaVision, Inc.

Orlando, FL

800-344-4700 • 407-721-2416

info@ocalainstruments.com www.ExcaVision.com

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Naples, FL 866-960-3331 • Fax: 250-474-6099

info@hddbroker.com

www.hddbroker.com

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888-477-7638 sales@sewerequipment.com

www.sewerequipment.com Super Products LLC

New Berlin, WI

800-837-9711 • 262-784-7100 • Fax: 262-784-9561

info@superproductsllc.com

www.superproductsllc.com



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Fabricating & Refinishing

Curry Supply Company

Martinsburg, PA 800-345-2829 • 814-793-2829 sales@currysupply.com www.currysupply.com

Radius HDD Tools

Weatherford, TX 800-892-9114 • 817-594-7066 ccox@radiushdd.com www.radiushdd.com

Flags/Markers/Tape



Pro-Line Safety Products Co.

West Chicago, IL 800-554-3424 • 630-876-1050 • Fax: 630-876-1038 dan@prolinesafetv.com www.prolinesafetv.com



Tech Products, Inc.

Staten Island, NY 800-221-1311 • 718-442-4900 • Fax: 718-442-2124 thomas@techproducts.com www.techproducts.com

Generators/ **Air Compressors**

Generator-Parts.com

Three Lakes WI 715-546-2244 sales@generator-parts.com www.generator-parts.com Ad on page 59

John Brooks Company Limited (Dynablast)

Mississauga, ON 888-881-6667 • 905-867-4642 • Fax: 905-567-4330 ithomson@dynablast.ca www.dynablast.ca

Vanair Manufacturing

Michigan City, IN 800-526-8817 • 219-879-5000 • Fax: 219-879-5800 marketina@vanair.com www.vanair.com

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Water Cannon, Inc. - MWBE

Lake Mary, FL 800-333-9274 • 321-800-5763 • Fax: 888-928-9274 sales@watercannon.com www.watercannon.com/catalogrequest.aspx

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Ground Penetrating Radar

Subsite Electronics

Perry, OK 800-846-2713 • 580-572-3700 info@subsite.com www.subsite.com Ad on page 3

Hand Tools

ScreenCo Systems LLC

Genesee, ID 208-790-8770 sales@screencosystems.com www.screencosystems.com Ad on page 68

Hazardous Vacuum/ Cleaning

Economy Drilling Solutions, LLC

Edmond, OK 405-513-8295 sales@economydrillingsolutions.com www.economydrillingsolutions.com

Presvac Systems

Burlington, ON Canada 800-387-7763 • 905-637-2353 • Fax: 905-681-0411 sales@presvac.com www.presvac.com

Vac-Tron Equipment

Okahumpka, FL 888-822-8766 • 352-728-2222 sales@vactron.com www.vactron.com

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Horizontal Directional Drilling

Ditch Witch

Perry, OK 800-654-6481 • 580-336-4402 info@ditchwitch.com www.ditchwitch.com Ad on page 72

HDD Broker

Naples, FL 866-960-3331 • Fax: 250-474-6099 info@hddbroker.com www.hddbroker.com Ad on page 29

Hunting Trenchless Division

Broussard, LA 337-367-9296 • Fax: 337-364-6431 www.Hunting-Intl.com/trenchless Ad on page 15



Infinity Tool Mfg.

Benton, IL 888-838-6657 • 618-439-4042 • Fax: 618-439-4380 sales@infinitytoolmfa.com www.infinitytoolmfg.com

Melfred Borzall

Santa Maria, CA 800-558-7500 mail@melfredborzall.com www.melfredborzall.com

Miller Pipeline

Indianapolis, IN 800-428-3742 • 317-293-0278 • Fax: 317-293-8502 info@millerpipeline.com www.millerpipeline.com



Pow-r Mole Sales LLC

Lancaster NY 800-344-6653 • 716-683-2486 • Fax: 716-683-6372 brian@powrmole.com www.powrmole.com Ad on page 9



Radius HDD Tools Weatherford, TX

800-892-9114 • 817-594-7066 ccox@radiushdd.com www.radiushdd.com

Tulsa Ria Iron

Kiefer, OK 918-321-3330 • Fax: 918-321-3099 info@tulsarigiron.com www.tulsarigiron.com

Hose & Accessories

GapVax, Inc.

Johnstown, PA 888-442-7829 • 814-535-6766 • Fax: 814-539-3617 inquiry@gapvax.com www.qapvax.com

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Milwaukee Rubber Products, Inc.

Menomonee Falls, WI

800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com

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NozzTeg, Inc. Clearwater, FL

866-620-5915 • 727-223-4979 • Fax: 603-413-6744 info@nozztea.com www.nozztea.com

Presvac Systems

Burlington, ON Canada 800-387-7763 • 905-637-2353 • Fax: 905-681-0411 sales@presvac.com www.presvac.com

R.A. Ross & Associates NE. Inc.

Brecksville, OH 800-678-4581 • 440-546-1190 • Fax: 440-546-1188

jeremyw@rarossne.com www.rarossne.com

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ScreenCo Systems LLC

Genesee, ID 208-790-8770 sales@screencosystems.com www.screencosystems.com Ad on page 68

Transway Systems Inc.

Hamilton, ON Canada 800-263-4508 • 905-578-1000 • Fax: 905-561-9176 sales@transwaysystems.com

www.transwaysystems.com Ad on page 23

VARCo Manassas, VA 866-872-1224 • 703-334-5980 • Fax: 703-334-5979 ron@varcopumper.com www.varcopumper.com Ad on page 70

Hose - High Pressure

Water Cannon, Inc. - MWBE

800-333-9274 • 321-800-5763 • Fax: 888-928-9274 sales@watercannon.com www.watercannon.com/catalogrequest.aspx Ad on page 21

Water Cannon, Inc. - MWBE

Hose - Vacuum

Lake Marv. FL 800-333-9274 • 321-800-5763 • Fax: 888-928-9274 sales@watercannon.com www.watercannon.com/catalogrequest.aspx Ad on page 21

Hose Reels

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Johnstown, PA 888-442-7829 • 814-535-6766 • Fax: 814-539-3617 inquiry@aapvax.com www.qapvax.com

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John Brooks Company Limited (Dynablast) Mississauga, ON 888-881-6667 • 905-867-4642 • Fax: 905-567-4330 jthomson@dynablast.ca www.dynablast.ca

Milwaukee Rubber Products, Inc.

Menomonee Falls, WI 800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com Ad on page 69

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Lake Mary, FL 800-333-9274 • 321-800-5763 • Fax: 888-928-9274 sales@watercannon.com www.watercannon.com/catalogrequest.aspx

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Hot Water Boilers

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Mississauga, ON Canada 888-881-6667 • 905-867-4642 • Fax: 905-567-4330 ithomson@dvnablast.ca www.dynablast.ca

Hydraulic Parts & Components

R.A. Ross & Associates NE, Inc.

Brecksville, OH 800-678-4581 • 440-546-1190 • Fax: 440-546-1188 jeremyw@rarossne.com

www.rarossne.com Ad on page 53

Hydroexcavation Equipment



Custom Vac Services Ltd.

Nisku, AB Canada

780-955-9344 • Fax: 780-955-9343

brentnichols@customvac.com

www.customvac.com Ad on page 57

Ditch Witch

Perry, OK

800-654-6481 • 580-336-4402 info@ditchwitch.com

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Economy Drilling Solutions, LLC

Edmond, OK

405-513-8295

sales@economydrillingsolutions.com

www.economydrillingsolutions.com

Fast-Vac/Multi-Vac

Union Grove, WI

800-558-2280 • 262-878-0756 • Fax: 262-878-4019

sales@fast-vac.com

www.fast-vac.com

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FS Solutions

Leeds, AL

800-822-8785 • Fax: 205-699-2253

info@fssolutionsgroup.com www.fssolutionsgroup.com



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888-442-7829 • 814-535-6766 • Fax: 814-539-3617

inquiry@gapvax.com

www.gapvax.com

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Naples, FL

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info@hddbroker.com

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Riverton, UT

800-624-8186 • 801-545-0777

sales@hotjetusa.com

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Hydra-Flex, Inc.

Eagan, MN

952-808-3640

sales@hydraflexinc.com

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Mississauga, ON

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mmole@mightymole.com

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Premier

Fort Morgan, CO 970-542-1975 sales@poequip.com www.poequipment.com

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Presvac Systems

Burlington, ON Canada 800-387-7763 • 905-637-2353 • Fax: 905-681-0411 sales@presvac.com www.presvac.com

Sewer Equipment

Dixon, IL 888-477-7638 sales@sewerequipment.com www.sewerequipment.com

Soil Surgeon, Inc.

Laguna Niguel, CA 949-363-1401 • Fax: 714-434-9998 bbain@calhaz.com www.soilsurgeoninc.com

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Sonetics

Portland, OR 877-958-2282 • 503-684-7080 • Fax: 503-620-2943 sales@soneticscorp.com www2.soneticscorp.com/dig-different

Super Products LLC

New Berlin, WI 800-837-9711 • 262-784-7100 • Fax: 262-784-9561 info@superproductsllc.com www.superproductsllc.com

Transway Systems Inc.

Hamilton, ON Canada 800-263-4508 • 905-578-1000 • Fax: 905-561-9176 sales@transwaysystems.com www.transwaysystems.com Ad on page 23

VAC-CON Vac-Con, Inc. Green Cove Springs, FL 904-284-4200 • Fax: 904-284-3305 vns@vac-con com www.vac-con.com

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Vac-Tron Equipment Okahumpka, FL 888-822-8766 • 352-728-2222 sales@vactron.com www.vactron.com Ad on page 4

VACMASTERS

Arvada, CO 800-466-7825 • Fax: 303-420-3971 www.vacmasters.com Ad on page 11

Vactor Manufacturina

800-627-3171 • 815-672-3171 • Fax: 815-672-2779 sales@vactor.com www.vactor.com

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Vector Technologies Ltd.

Milwaukee, WI 800-832-4010 • 414-247-7100 • Fax: 414-354-4314 inquiry@vector-vacuums.com www.vector-vacuums.com

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Water Cannon, Inc. - MWBE

800-333-9274 • 321-800-5763 • Fax: 888-928-9274 sales@watercannon.com www.watercannon.com/catalogrequest.aspx

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Tet/Vac Combination Machines

Economy Drilling Solutions, LLC

Edmond, OK 405-513-8295 sales@economydrillingsolutions.com www.economydrillingsolutions.com

Fast-Vac/Multi-Vac

Union Grove, WI 800-558-2280 • 262-878-0756 • Fax: 262-878-4019 sales@fast-vac.com www.fast-vac.com

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FS Solutions

Leeds Al 800-822-8785 • Fax: 205-699-2253 info@fssolutionsgroup.com www.fssolutionsgroup.com

GapVax, Inc.

Johnstown, PA 888-442-7829 • 814-535-6766 • Fax: 814-539-3617 inquiry@gapvax.com www.gapvax.com

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Hot Jet USA

Riverton, UT 800-624-8186 • 801-545-0777 sales@hotjetusa.com www.hotietusa.com Ad on page 68

Melaughlin

McLaughlin Greenville, SC

800-435-9340 • 864-277-5870 • Fax: 864-235-9661 mmole@miahtvmole.com

www.mclaughlinunderground.com

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Presvac Systems Burlington, ON

Canada

800-387-7763 • 905-637-2353 • Fax: 905-681-0411 sales@presvac.com

www.presvac.com

Sewer Equipment

Dixon, IL 888-477-7638 sales@sewerequipment.com www.sewerequipment.com

Super Products LLC

New Berlin, WI 800-837-9711 • 262-784-7100 • Fax: 262-784-9561 info@superproductsllc.com www.superproductsllc.com

VAC-CON

Vac-Con, Inc.

Green Cove Springs, FL 904-284-4200 • Fax: 904-284-3305 vns@vac-con.com www.vac-con.com Ad on page 17

Vac-Tron Equipment

Okahumaka FI 888-822-8766 • 352-728-2222 sales@vactron.com www.vactron.com

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Vactor Manufacturing

Streator, IL 800-627-3171 • 815-672-3171 • Fax: 815-672-2779 sales@vactor.com www.vactor.com

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Vector Technologies Ltd.

Milwaukee, WI 800-832-4010 • 414-247-7100 • Fax: 414-354-4314 inquiry@vector-vacuums.com www.vector-vacuums.com Ad on page 55

Jetters - Portable



Hot Jet USA

Riverton, UT 800-624-8186 • 801-545-0777 sales@hotjetusa.com www.hotjetusa.com Ad on page 68

NozzTeg, Inc.

Clearwater, FL

866-620-5915 • 727-223-4979 • Fax: 603-413-6744 info@nozzteg.com

www.nozzteg.com

Super Products LLC

New Berlin. WI 800-837-9711 • 262-784-7100 • Fax: 262-784-9561 info@superproductsllc.com www.superproductsllc.com

Water Cannon, Inc. - MWBE

Lake Mary, FL 800-333-9274 • 321-800-5763 • Fax: 888-928-9274 sales@watercannon.com www.watercannon.com/catalogrequest.aspx Ad on page 21

Jetters - Truck & Trailer

Economy Drilling Solutions, LLC

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Leeds, AL 800-822-8785 • Fax: 205-699-2253 info@fssolutionsgroup.com www.fssolutionsgroup.com

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sales@hotietusa.com www.hotjetusa.com Ad on page 68

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Super Products LLC

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Transway Systems Inc.

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Vac-Con, Inc.

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904-284-4200 • Fax: 904-284-3305

vns@vac-con.com

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Vac-Tron Equipment

Okahumpka, FL

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sales@vactron.com

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Vactor Manufacturing

Streator, IL

800-627-3171 • 815-672-3171 • Fax: 815-672-2779

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Vector Technologies Ltd.

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inquiry@vector-vacuums.com www.vector-vacuums.com

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Water Cannon, Inc. - MWBE

Lake Marv. FL

800-333-9274 • 321-800-5763 • Fax: 888-928-9274

sales@watercannon.com

www.watercannon.com/catalogrequest.aspx

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Laser Equipment



ExcaVision, Inc. Orlando, FL

800-344-4700 • 407-721-2416

info@ocalainstruments.com

www.ExcaVision.com

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Leasing/Financing

Curry Supply Company

Martinsbura, PA

800-345-2829 • 814-793-2829

sales@currysupply.com

www.currysupply.com

Loader & Skid Steer Equipment

Ditch Witch

Perry, OK

800-654-6481 • 580-336-4402

info@ditchwitch.com

www.ditchwitch.com Ad on page 72

Felling Trailers, Inc.

Sauk Centre MN

866-213-2949 • 320-352-5239 • Fax: 320-352-5230

trailers@felling.com www.felling.com

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Locators - Electronic

HDD Broker

Naples, FL

866-960-3331 • Fax: 250-474-6099

info@hddbroker.com

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Ad on page 29

Melaughlin

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Greenville, SC

800-435-9340 • 864-277-5870 • Fax: 864-235-9661

mmole@mightymole.com

www.mclaughlinunderground.com

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Melfred Borzall

Santa Maria, CA

800-558-7500

mail@melfredborzall.com

www.melfredborzall.com

Pow-r Mole Sales LLC

Lancaster, NY

800-344-6653 • 716-683-2486 • Fax: 716-683-6372

brian@powrmole.com

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Subsite Electronics

Perry, OK

800-846-2713 • 580-572-3700

info@subsite.com

www.subsite.com

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VIVAX

METROTECH

Vivax-Metrotech Corp.

Santa Clara, CA

800-446-3392 • 408-734-1400

info@vxmt.com

www.vivax-metrotech.com

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Locators - Pipe/ Leak/Valve/Sewer

Subsite Electronics

Perry, OK

800-846-2713 • 580-572-3700

info@subsite.com

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Lubricants

Radius HDD Tools

Weatherford, TX

800-892-9114 • 817-594-7066

ccox@radiushdd.com

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Mud Recyclers

Ditch Witch

Perry, OK

800-654-6481 • 580-336-4402

info@ditchwitch.com

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GapVax, Inc.

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HDD Broker

Naples, FL 866-960-3331 • Fax: 250-474-6099

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Tulsa Rig Iron

Kiefer, OK 918-321-3330 • Fax: 918-321-3099

info@tulsariairon.com

www.tulsarigiron.com



Vector Technologies Ltd.

Milwaukee, WI 800-832-4010 • 414-247-7100 • Fax: 414-354-4314

inquiry@vector-vacuums.com

www.vector-vacuums.com

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Non-Hazardous Vacuum/Cleaning

Economy Drilling Solutions, LLC

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sales@economydrillingsolutions.com www.economydrillingsolutions.com

Providing Solution McLaughlin

Greenville, SC

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Presvac Systems

Burlington, ON

Canada

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www.presvac.com

Vac-Tron Equipment

Okahumpka, FL

888-822-8766 • 352-728-2222

sales@vactron.com

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Nozzles - High

Ditch Witch

Pressure

Perry, OK

800-654-6481 • 580-336-4402

info@ditchwitch.com

www.ditchwitch.com

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Johnstown, PA

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inquiry@gapvax.com

www.gapvax.com

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Hydra-Flex, Inc.

Eggan, MN

952-808-3640 sales@hydraflexinc.com

www.hvdraflexinc.com

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John Brooks Company Limited (Dynablast)

Mississauga, ON

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www.dvnablast.ca

info@nozzteg.com

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Clearwater FI 866-620-5915 • 727-223-4979 • Fax: 603-413-6744

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Renewal Pipeline Renewal Technologies

Pipeline

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16-17 BUYER'S GUIDE

Sewer Equipment

Dixon, IL 888-477-7638 sales@sewerequipment.com www.sewerequipment.com

Manassas, VA 866-872-1224 • 703-334-5980 • Fax: 703-334-5979 ron@varcopumper.com www.varcopumper.com

Ad on page 70

Water Cannon, Inc. - MWBE

Lake Mary, FL 800-333-9274 • 321-800-5763 • Fax: 888-928-9274 sales@watercannon.com www.watercannon.com/catalogrequest.aspx Ad on page 21

Pipe



Advanced Drainage Systems, Inc. - ADS

Hilliard, OH 800-821-6710 • Fax: 614-658-0204 info@ads-pipe.com www.ads-pipe.com

Ditch Witch

Perry, OK 800-654-6481 • 580-336-4402 info@ditchwitch.com www.ditchwitch.com

Ad on page 72

Hunting Trenchless Division Broussard, LA 337-367-9296 • Fax: 337-364-6431 www.Hunting-Intl.com/trenchless

Ad on page 15

Lee Supply Company

Charleroi, PA 800-353-3747 • 724-483-3543 • Fax: 724-483-0577 info@leesupply.com www.leesupply.com Ad on page 57

Pipe - Couplings/ **Fittings**

Advanced Drainage Systems, Inc. - ADS

Hilliard, OH 800-821-6710 • Fax: 614-658-0204 info@ads-pipe.com www.ads-pipe.com

Lee Supply Company

Charleroi, PA

800-353-3747 • 724-483-3543 • Fax: 724-483-0577 info@leesupply.com www.leesupply.com

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Milwaukee Rubber Products, Inc.

Menomonee Falls, WI

800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com

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Pipe - Polyethylene

Advanced Drainage Systems, Inc. - ADS

Hilliard OH 800-821-6710 • Fax: 614-658-0204 info@ads-pipe.com www.ads-pipe.com

Lee Supply Company

Charleroi, PA 800-353-3747 • 724-483-3543 • Fax: 724-483-0577 info@leesupply.com www.leesupply.com Ad on page 57

Pipe - Polypropylene

Advanced Drainage Systems, Inc. - ADS

Hilliard, OH 800-821-6710 • Fax: 614-658-0204 info@ads-pipe.com www.ads-pipe.com

Lee Supply Company

Charleroi. PA 800-353-3747 • 724-483-3543 • Fax: 724-483-0577 info@leesupply.com www.leesupply.com Ad on page 57

Pipe - PVC

Lee Supply Company

Charleroi, PA 800-353-3747 • 724-483-3543 • Fax: 724-483-0577 info@leesupply.com www.leesupply.com Ad on page 57

Pipe Bursting

HammerHead Trenchless Equipment

Lake Mills, WI 800-331-6653 • 920-648-4848 jhaas@hammerheadmole.com www.hammerheadtrenchless.com

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Miller Pipeline

Indianapolis, IN 800-428-3742 • 317-293-0278 • Fax: 317-293-8502 info@millerpipeline.com www.millerpipeline.com



Pow-r Mole Sales LLC

Lancaster, NY 800-344-6653 • 716-683-2486 • Fax: 716-683-6372 brian@powrmole.com www.powrmole.com Ad on page 9

Sonetics

Portland, OR 877-958-2282 • 503-684-7080 • Fax: 503-620-2943 sales@soneticscorp.com www2.soneticscorp.com/dig-different

Pipe Fusion

Pow-r Mole Sales LLC

Lancaster NY 800-344-6653 • 716-683-2486 • Fax: 716-683-6372 brian@powrmole.com www.powrmole.com Ad on page 9

Pipe Jacking

Akkerman Inc.

Brownsdale, MN 800-533-0386 sales@akkerman.com www.akkerman.com

Pipe Parts - Fittings & Components

Advanced Drainage Systems, Inc. - ADS

800-821-6710 • Fax: 614-658-0204 info@ads-pipe.com www.ads-pipe.com

Hunting Trenchless Division

Broussard, LA 337-367-9296 • Fax: 337-364-6431 www.Hunting-Intl.com/trenchless Ad on page 15

Lee Supply Company

Charleroi, PA 800-353-3747 • 724-483-3543 • Fax: 724-483-0577 info@leesupply.com www.leesupply.com Ad on page 57

Milwaukee Rubber Products, Inc.

Menomonee Falls, WI 800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com Ad on page 69

R.A. Ross & Associates NE, Inc.

800-678-4581 • 440-546-1190 • Fax: 440-546-1188 ieremyw@rarossne.com www.rgrossne.com Ad on page 53

VARCo

Manassas, VA 866-872-1224 • 703-334-5980 • Fax: 703-334-5979 ron@varcopumper.com www.varcopumper.com

Pipe Plugs

NozzTeq, Inc.

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Clearwater, FL 866-620-5915 • 727-223-4979 • Fax: 603-413-6744 info@nozzteg.com www.nozzteg.com

Pipeline Rehabilitation/Lining



CIIFS

Orlando, FL 800-327-7791 • 407-849-0190 • Fax: 407-425-1569 salesinfo@cuesinc.com www.cuesinc.com

HammerHead Trenchless Equipment

Lake Mills, WI 800-331-6653 • 920-648-4848 jhaas@hammerheadmole.com www.hammerheadtrenchless.com Ad on page 5

Miller Pipeline

Indianapolis, IN 800-428-3742 • 317-293-0278 • Fax: 317-293-8502 info@millerpipeline.com www.millerpipeline.com



Pipeline Renewal Technologies

Randolph, NJ 866-936-8476 • 973-252-6700 • Fax: 973-252-1176 mail@pipelinert.com www.pipelinert.com

Pipeline Surveying & Mapping (GPS/GIS)

VIVAX

METROTECH

Vivax-Metrotech Corp. Santa Clara, CA 800-446-3392 • 408-734-1400 info@vxmt.com www.vivax-metrotech.com Ad on page 53

Pressure Washers and Spravers



Hot Jet USA

Riverton, UT 800-624-8186 • 801-545-0777 sales@hotietusa.com www.hotjetusa.com Ad on page 68

John Brooks Company Limited (Dynablast)

Mississauga, ON 888-881-6667 • 905-867-4642 • Fax: 905-567-4330 ithomson@dvnablast.ca www.dynablast.ca

Milwaukee Rubber Products, Inc.

Menomonee Falls, WI 800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com

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Pulling Swivels

Melfred Borzall

Santa Maria, CA 800-558-7500 mail@melfredborzall.com www.melfredborzall.com

Pow-r Mole Sales LLC

Lancaster, NY

800-344-6653 • 716-683-2486 • Fax: 716-683-6372 brian@powrmole.com www.powrmole.com

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Radius HDD Tools

Weatherford, TX 800-892-9114 • 817-594-7066 ccox@radiushdd.com www.radiushdd.com

Pump Parts/Components

Cat Pumps

Minneapolis, MN 763-780-5440 • Fax: 763-780-2958 info@catpumps.com

www.catpumps.com Ad on page 2

Gorman-Rupp Company

Mansfield, OH 419-755-1011 • Fax: 419-755-1251 grsales@gormanrupp.com www.GRpumps.com

John Brooks Company Limited (Dynablast)

Mississauaa, ON Canada 888-881-6667 • 905-867-4642 • Fax: 905-567-4330 ithomson@dynablast.ca www.dynablast.ca

Lee Supply Company

Charleroi, PA 800-353-3747 • 724-483-3543 • Fax: 724-483-0577 info@leesupply.com www.leesupply.com

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Milwaukee Rubber Products, Inc.

Menomonee Falls, WI 800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com

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Transway Systems Inc.

Hamilton, ON 800-263-4508 • 905-578-1000 • Fax: 905-561-9176 sales@transwaysystems.com www.transwaysystems.com

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Tulsa Ria Iron

Kiefer, OK 918-321-3330 • Fax: 918-321-3099 info@tulsarigiron.com www.tulsarigiron.com

Pumps - Dewatering/ **Bypass**



Gorman-Rupp Company

Mansfield, OH 419-755-1011 • Fax: 419-755-1251 arsales@aormanrupp.com www.GRpumps.com

John Brooks Company Limited (Dynablast)

Mississauga, ON Canada 888-881-6667 • 905-867-4642 • Fax: 905-567-4330 ithomson@dvnablast.ca www.dynablast.ca

Lee Supply Company

Charleroi, PA 800-353-3747 • 724-483-3543 • Fax: 724-483-0577 info@leesupply.com www.leesupply.com

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Milwaukee Rubber Products, Inc.

Menomonee Falls, WI 800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com

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Pumps - Mud/Slurry

Gorman-Rupp Company

Mansfield, OH 419-755-1011 • Fax: 419-755-1251 grsales@gormanrupp.com www.GRpumps.com

Tulsa Rig Iron

Kiefer, OK 918-321-3330 • Fax: 918-321-3099 info@tulsarigiron.com www.tulsarigiron.com

Pumps - Vacuum

GapVax, Inc.

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Johnstown, PA 888-442-7829 • 814-535-6766 • Fax: 814-539-3617 inquiry@aapyax.com www.aapvax.com

Milwaukee Rubber Products, Inc.

Menomonee Falls, WI 800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com

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Presvac Systems

Burlington, ON Canada 800-387-7763 • 905-637-2353 • Fax: 905-681-0411

sales@presvac.com www.presvac.com

R.A. Ross N.E. No.

R.A. Ross & Associates NE, Inc.

Brecksville, OH 800-678-4581 • 440-546-1190 • Fax: 440-546-1188 ieremvw@rarossne.com

www.rarossne.com Ad on page 53

Sonetics

Portland, OR 877-958-2282 • 503-684-7080 • Fax: 503-620-2943 sales@soneticscorp.com www2.soneticscorp.com/dig-different

Transway Systems Inc.

www.transwavsvstems.com

Hamilton, ON

Canada 800-263-4508 • 905-578-1000 • Fax: 905-561-9176 sales@transwaysystems.com

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VARCo

Manassas, VA 866-872-1224 • 703-334-5980 • Fax: 703-334-5979 ron@varcopumper.com www.varcopumper.com Ad on page 70

Pumps - Water



Cat Pumps

Minneapolis, MN 763-780-5440 • Fax: 763-780-2958 info@catpumps.com

www.catpumps.com Ad on page 2

GapVax, Inc.

Johnstown, PA 888-442-7829 • 814-535-6766 • Fax: 814-539-3617 inquiry@gapvax.com www.qapvax.com

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Gorman-Rupp Company

Mansfield, OH 419-755-1011 • Fax: 419-755-1251 grsales@gormanrupp.com www.GRpumps.com

John Brooks Company Limited (Dynablast)

Mississauga, ON Canada 888-881-6667 • 905-867-4642 • Fax: 905-567-4330 jthomson@dynablast.ca www.dynablast.ca

Milwaukee Rubber Products, Inc.

Menomonee Falls, WI 800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com

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Transway Systems Inc.

Hamilton, ON Canada 800-263-4508 • 905-578-1000 • Fax: 905-561-9176 sales@transwavsvstems.com www.transwaysystems.com

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Water Cannon, Inc. - MWBE

Lake Mary, FL 800-333-9274 • 321-800-5763 • Fax: 888-928-9274 sales@watercannon.com www.watercannon.com/catalogrequest.aspx Ad on page 21

Reamers

Ditch Witch

Perry, OK 800-654-6481 • 580-336-4402 info@ditchwitch.com www.ditchwitch.com Ad on page 72



Infinity Tool Mfg.

Renton II

888-838-6657 • 618-439-4042 • Fax: 618-439-4380 sales@infinitytoolmfg.com www.infinitytoolmfa.com

Melfred Borzall

Santa Maria, CA 800-558-7500 mail@melfredborzall.com www.melfredborzall.com

Pow-r Mole Sales LLC

Lancaster, NY 800-344-6653 • 716-683-2486 • Fax: 716-683-6372 brian@powrmole.com www.powrmole.com

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Radius HDD Tools Weatherford, TX 800-892-9114 • 817-594-7066

ccox@radiushdd com www.radiushdd.com

Rental Equipment



Custom Vac Services Ltd.

Nisku, AB Canada 780-955-9344 • Fax: 780-955-9343 brentnichols@customvac.com www.customvac.com Ad on page 57



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FS Solutions

Leeds. AL 800-822-8785 • Fax: 205-699-2253 info@fssolutionsgroup.com www.fssolutionsgroup.com

NozzTeq, Inc.

Clearwater, FL 866-620-5915 • 727-223-4979 • Fax: 603-413-6744 info@nozztea.com www.nozzteg.com

Sewer Equipment

Dixon. IL 888-477-7638 sales@sewerequipment.com www.sewerequipment.com

Super Products LLC

New Berlin, WI 800-837-9711 • 262-784-7100 • Fax: 262-784-9561 info@superproductsllc.com www.superproductsllc.com



Vac-Con, Inc.

Green Cove Springs, FL 904-284-4200 • Fax: 904-284-3305 vns@vnc-con com Ad on page 17

Vactor Manufacturing

Streator, IL 800-627-3171 • 815-672-3171 • Fax: 815-672-2779 sales@vactor.com www.vactor.com

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Rock Drills/Saws



Infinity Tool Mfg.

888-838-6657 • 618-439-4042 • Fax: 618-439-4380 sales@infinitytoolmfq.com www.infinitytoolmfq.com

Radius HDD Tools

Weatherford, TX 800-892-9114 • 817-594-7066 ccox@radiushdd.com

Safety Equipment/ **Personal Protection Products**

Fibergrate Composite Structures

Dallas, TX 800-527-4043 • 972-250-1633 • Fax: 972-250-1530 info@fiberarate.com www.fibergrate.com

Milwaukee Rubber Products, Inc.

Menomonee Falls, WI 800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com

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Pro-Line Safety Products Co.

West Chicago, IL 800-554-3424 • 630-876-1050 • Fax: 630-876-1038 dan@prolinesafety.com www.prolinesafety.com

Radius HDD Direct, LLC

Weatherford, TX 800-892-9114 • Fax: 175-999-3024 rwriaht@radiushdd.com www.radiushdd.com

ScreenCo Systems LLC

Genesee, ID 208-790-8770 sales@screencosystems.com www.screencosystems.com Ad on page 68

Sonetics.

Portland, OR 877-958-2282 • 503-684-7080 • Fax: 503-620-2943 sales@soneticscorp.com www2.soneticscorp.com/dig-different

Ultra Shore

Atlanta. GA 800-746-7464 • 404-505-0510 • Fax: 404-505-0506 info@shoring.com www.shoring.com Ad on page 63

Shoring Equipment

Ultra Shore

Atlanta, GA 800-746-7464 • 404-505-0510 • Fax: 404-505-0506 info@shoring.com www.shoring.com

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Skid Steers

Ditch Witch

Perry, OK 800-654-6481 • 580-336-4402 info@ditchwitch.com www.ditchwitch.com Ad on page 72

Software - Inspection/ Mapping



CUES

3600 Rio Vista Ave. Orlando, FL 32805 800-327-7791 • 407-849-0190 • Fax: 407-425-1569 salesinfo@cuesinc.com www.cuesinc.com

Spill Control -Equipment/Products/ **Services**

Fibergrate Composite Structures

800-527-4043 • 972-250-1633 • Fax: 972-250-1530 info@fibergrate.com www.fibergrate.com

Milwaukee Rubber Products, Inc.

Menomonee Falls, WI 800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com

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Stormwater Collection Systems

Advanced Drainage Systems, Inc. - ADS

Hilliard, OH 800-821-6710 • Fax: 614-658-0204 info@ads-pipe.com www.ads-pipe.com

Lee Supply Company

Charleroi, PA 800-353-3747 • 724-483-3543 • Fax: 724-483-0577 info@leesupply.com www.leesupply.com Ad on page 57



Tech Products. Inc.

Staten Island, NY 800-221-1311 • 718-442-4900 • Fax: 718-442-2124 thomas@techproducts.com www.techproducts.com

Subsurface Equipment

Melaughlin

Providing Solution McLauahlin

Greenville, SC

800-435-9340 • 864-277-5870 • Fax: 864-235-9661 mmole@mightymole.com www.mclaughlinunderground.com

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Surveying/Mapping



Orlando, FL 800-344-4700 • 407-721-2416 info@ocalainstruments.com www.ExcaVision.com

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VIVAX

METROTECH

Vivax-Metrotech Corp. Santa Clara, CA 800-446-3392 • 408-734-1400 info@vxmt.com www.vivax-metrotech.com Ad on page 53

Trade Show

CONEXPO-CON/AGG

Milwaukee, WI 800-867-6060 sales@conexpoconaga.com conexpoconagg.com

Ad on page 33

Informa Exhibitions Irving, TX 972-536-6477 wwett.info@informa.com www.informaexhibitions.com Ad on page 51

Trailers

Economy Drilling Solutions, LLC

Edmond, OK 405-513-8295 sales@economydrillingsolutions.com www.economydrillingsolutions.com

Felling Trailers, Inc.

Sauk Centre, MN 866-213-2949 • 320-352-5239 • Fax: 320-352-5230 trailers@felling.com www.felling.com

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Trailers - Dump

Felling Trailers, Inc.

Sauk Centre, MN 866-213-2949 • 320-352-5239 • Fax: 320-352-5230 trailers@fellina.com www.felling.com Ad on page 43

Trailers - Lowboy/ Equipment

Felling Trailers, Inc.

Sauk Centre, MN 866-213-2949 • 320-352-5239 • Fax: 320-352-5230 trailers@felling.com www.felling.com Ad on page 43

Trailers - Side Dump

Felling Trailers, Inc.

Sauk Centre, MN 866-213-2949 • 320-352-5239 • Fax: 320-352-5230 trailers@felling.com www.felling.com Ad on page 43

Trailers - Transport

Felling Trailers, Inc.

Sauk Centre MN 866-213-2949 • 320-352-5239 • Fax: 320-352-5230 trailers@felling.com www.felling.com

Ad on page 43

Trenching Equipment

Ditch Witch

Perry, OK 800-654-6481 • 580-336-4402 info@ditchwitch.com www.ditchwitch.com

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HDD Broker

Naples, FL 866-960-3331 • Fax: 250-474-6099 info@hddbroker.com www.hddbroker.com

Ad on page 29

Sonetics

Portland, OR 877-958-2282 • 503-684-7080 • Fax: 503-620-2943 sales@soneticscorp.com www2.soneticscorp.com/dig-different

Trenchless Pipe Jacking/ **New Installation**

Akkerman Inc.

Brownsdale, MN 800-533-0386 sales@akkerman.com www.akkerman.com

Trenchless Pipe Replacement

Advanced Drainage Systems, Inc. - ADS

Hilliard, OH 800-821-6710 • Fax: 614-658-0204 info@ads-pipe.com www.ads-pipe.com

HammerHead Trenchless Equipment

Lake Mills, WI 800-331-6653 • 920-648-4848 ihaas@hammerheadmole.com www.hammerheadtrenchless.com

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HDD Broker

Naples, FL 866-960-3331 • Fax: 250-474-6099 info@hddbroker.com www.hddbroker.com

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Hunting Trenchless Division

Broussard, LA 337-367-9296 • Fax: 337-364-6431 www.Hunting-Intl.com/trenchless Ad on page 15

Miller Pipeline

Indianapolis, IN 800-428-3742 • 317-293-0278 • Fax: 317-293-8502 info@millerpipeline.com www.millerpipeline.com



Pow-r Mole Sales LLC

Lancaster, NY 800-344-6653 • 716-683-2486 • Fax: 716-683-6372 brian@powrmole.com www.powrmole.com

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Sonetics

Portland, OR 877-958-2282 • 503-684-7080 • Fax: 503-620-2943 sales@soneticscorp.com www2.soneticscorp.com/dig-different

Truck Parts/ **Accessories**

Milwaukee Rubber Products, Inc.

Menomonee Falls, WI 800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com

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Super Products LLC

New Berlin, WI 800-837-9711 • 262-784-7100 • Fax: 262-784-9561 info@superproductsllc.com www.superproductsllc.com

Trucks - Bucket/ Boom/Crane

Curry Supply Company

Martinsbura, PA 800-345-2829 • 814-793-2829 sales@currysupply.com www.currysupply.com

Trucks - Dump

Curry Supply Company

Martinsburg, PA 800-345-2829 • 814-793-2829 sales@currysupply.com www.currysupply.com

Tunneling

Akkerman Inc.

Brownsdale, MN 800-533-0386 sales@akkerman.com www.akkerman.com

Utility Plows

Ditch Witch

Perry OK 800-654-6481 • 580-336-4402 info@ditchwitch.com www.ditchwitch.com Ad on page 72

Vacuum Trucks -Water Recycling/Reuse

Curry Supply Company

Martinsburg, PA 800-345-2829 • 814-793-2829 sales@currysupply.com www.currysupply.com



Custom Vac Services Ltd.

Nisku, AB Canada 780-955-9344 • Fax: 780-955-9343 brentnichols@customvac.com www.customvac.com Ad on page 57

Ditch Witch

Perry, OK 800-654-6481 • 580-336-4402 info@ditchwitch.com www.ditchwitch.com Ad on page 72

Economy Drilling Solutions, LLC

Edmond, OK 405-513-8295 sales@economydrillingsolutions.com www.economydrillingsolutions.com



GapVax, Inc.

Johnstown, PA 888-442-7829 • 814-535-6766 • Fax: 814-539-3617 inquiry@gapvax.com www.gapvax.com

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Melaughlin

McLaughlin

Greenville, SC

800-435-9340 • 864-277-5870 • Fax: 864-235-9661 mmole@mightymole.com

www.mclaughlinunderground.com

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Super Products LLC

800-837-9711 • 262-784-7100 • Fax: 262-784-9561 info@superproductsllc.com www.superproductsllc.com

Vac-Tron Equipment

Okahumpka, FL 888-822-8766 • 352-728-2222 sales@vactron.com www.vactron.com Ad on page 4

Valves - Unloader

Cat Pumps

Minneapolis, MN 763-780-5440 • Fax: 763-780-2958 info@catpumps.com www.catpumps.com Ad on page 2

John Brooks Company Limited (Dynablast)

Mississauga, ON Canada 888-881-6667 • 905-867-4642 • Fax: 905-567-4330 ithomson@dvnablast.ca www.dynablast.ca

Milwaukee Rubber Products, Inc.

Menomonee Falls, WI

800-325-3730 • 262-781-7888 • Fax: 262-781-1742 dennis@milwaukeerubber.com www.milwaukeerubber.com

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Vehicles - Rubber **Track Crawler Carriers**



CUES

Orlando, FL 800-327-7791 • 407-849-0190 • Fax: 407-425-1569 salesinfo@cuesinc.com www.cuesinc.com

Welders

Vanair Manufacturing

Michigan City, IN 800-526-8817 • 219-879-5000 • Fax: 219-879-5800 marketing@vanair.com www.vanair.com Ad on page 35

Wire/Cable



Pro-Line Safety Products Co. West Chicago, IL

800-554-3424 • 630-876-1050 • Fax: 630-876-1038 dan@prolinesafetv.com www.prolinesafetv.com

8 Tips on Caring for a Tracked Excavator

FROM ADJUSTING TRACK TENSION TO PROBLEM WARNING SIGNS, HERE'S WHAT YOU NEED TO KNOW TO KEEP YOUR MACHINE IN GOOD SHAPE

BY KYLE ROGERS

here are many trenchless technologies that allow you to dig differently these days. But sometimes a more traditional excavation approach is still needed. Tracked excavators may be a familiar sight out in the field, but that doesn't mean maintenance is any less important. Here are some tips to help keep your excavator running and productive.

BUCKET TEETH, PINS AND BUSHINGS AMONG THE HIGH-WEAR ITEMS TO WATCH

"Bucket teeth are an important item to keep an eye on because worn teeth make it hard to fill the bucket, which affects productivity," says Michael Boyle, product consultant manager for John Deere.

He says when bucket teeth come off or become worn through to the tooth adaptor, they should be replaced by cutting off the adaptor and welding a new one back onto the bucket.

Pins and bushings also experience high wear.

"Pins and bushings get a workout because excavators constantly move," says Adam Kolacki, senior service engineer for Caterpillar. "If you don't grease, you get an unpleasant noise. More importantly, you will get pin galling, which can lead to expensive repairs."

MAKE SURE YOU HAVE THE PROPER TRACK SAG/TENSION

"Increased wear occurs to the undercarriage if the tension is too loose or too tight," says Boyle.

He says to adjust track sag, lift the tracks off the ground about 3 or 4 inches with the hydraulics of the boom and arm. Then rotate the tracks while the machine is off the ground — three times forward and three times in reverse to get the material out of the track rails. Go to the center of the undercarriage and measure the distance between the bottom of the roller mainframe and the top of the grouser.

"The specification is different for each excavator, so you have to check the operator's manual for the correct distance," Boyle says.

If the tracks are too loose, the operator will likely complain about the machine rocking and you'll be able to see extra wear as the pin moves in the sprocket. When turning, the tracks may crack and pop or come off if the machine is on a slope. If the tracks are too tight, the excavator loses track power and extra wear occurs.

"It is better to have tracks too loose than too tight," Boyle says.

WHEN TACKLING SCHEDULED MAINTENANCE, FIGURE IN THE JOB'S TIME CONSTRAINTS

"If the job is on a time schedule, it would be best to check and see if the engine oil and filter is due for a change or the hydraulic oil and filter," Boyle says. "It might be better to complete a required service prior to starting the project versus causing downtime during it to complete the service."







Hydraulic maintenance, engine maintenance, and filter checks are critical to proper care of excavators. Oil and grease checks should be completed on a regular routine.

He also recommends regularly checking for leaks, frayed hoses, broken parts, or cracks in components and replacing or repairing as needed.

"And always measure the undercarriage to see if the amount of wear will last the length of the job," adds Boyle. "Remember that the application will determine many of the maintenance practices."

TAKE INTO ACCOUNT JOB SITE CONDITIONS

Maintenance practices will have to be changed up depending on the conditions of the job site. For example, says Boyle, in a sandy environment, a contractor might want to keep the tracks looser

ontinued



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than usual to prevent sand buildup in the rails. In a high-debris environment, extra cleaning will be required to keep the cooling cores debris-free. John Deere offers reversing fans on most of its excavators to help with this.

"The operator can set the reversing fan on automatic where it will reverse once an hour for 25 seconds or the operator can manually reverse the fan by pushing a button or switch," Boyle says. "This feature keeps debris and dust off the radiator/coolers, reducing the need to shut the machine down and clean cooling cores."

BEFORE MAKING REPAIRS, CONSIDER THE ENVIRONMENT

"Leaks or simple component changes can be done in the field," says Kolacki. "Anything that requires extreme cleanliness for disassembly such as pumps, valves, engines or fuel systems ought to be done in the shop."

DON'T BE STINGY WITH THE GREASE

Among items that often get overlooked by operators is applying an adequate amount of grease to the linkage, Kolacki says.

"It's typically missed, particularly in more extreme applications," he says. "I can't stress enough how important it is to keep the machine greased daily and even hourly in certain applications."

PROBLEM WARNING SIGNS

A few top indicators of a problem include abnormal noises, bad oil samples and overheated components.

"For the do-it-yourselfer, refer to the owner's manual for guidance," Kolacki says. "If you like to have it done by a professional, contact your local dealer. Their service techs are trained to do the work right."

OPERATING TIPS

Damage or premature wear can also be avoided by regularly practicing certain operating procedures. For example, the machine's arm and boom joints can potentially be damaged by sweeping large piles of material too quickly with the bucket.

"Many times an operator will swing into large piles at full swing speed and cause extra stress on the joints," Boyle says.

He also recommends using a pivot turn when moving the machine to

reduce track wear. "To make a pivot turn, the operator lifts the front of the tracks off the ground about 3 to 4 inches and uses swing torque to turn," Boyle says.

Kolacki adds that operators should be sure to use the appropriate tool attachment for the application.

Read more about tracked excavator maintenance at digdifferent.com

"Don't use a bucket as a hammer. Pick the correct tool for the application and the machine," he says. "At Caterpillar, we have matching guides to help operators do just that and maximize the machine's performance."

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PROJECT SNAPSHOT

Extending the System

OKLAHOMA CONTRACTOR USES TRENCHER AND TRACK LOADER TO EXPAND WATER SYSTEM

rews from Igo, based in Weatherford, Oklahoma, installed an extension on a water system in May. The company installed the complete water system a few years ago. On this project, the three-man crew used a Vermeer V120 trencher, along with a CAT 299D2 compact track loader to backfill and for remediation. The project, taking place on a ranch in Camargo, Oklahoma, was done to connect the 4GH Ranch to the water system because the ranch's water system dried up. Igo installed the complete water system, which included 27 miles of 2-, 3-, 4- and 6-inch lines, for the ranch's cattle and wildlife water in 2012.



Let us show off your project!

Send photos of a current project (hydroexcavation, trenching, tunneling, directional drilling, utility locating, pipe bursting or similar nontraditional excavation)

showing your equipment and crew on site.

Include name, company name, mailing address, phone number and details (what you are doing, equipment used, time expected on the project and anything difficult or unique about it). Email to editor@digdifferent.com or mail to Editor, Dig Different, P.O. Box 220, Three Lakes, WI 54562. We look forward to hearing from you.

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Reliable excavators enable company to finish job ahead of schedule

PROBLEM

The Titletown District development is a destination area to be created on approximately 34 acres of land immediately west of Lambeau Field in Green Bay, Wisconsin. Joe DeNoble Sewer & Water needed reliable and productive equipment to successfully complete its part of the work. The company is involved in Phase 1, estimated to be completed in fall 2017. Phase 1 consists of 21 acres, including 6 acres of a planned 10-acre public park and plaza.

SOLUTION

Working with equipment dealer Brooks Tractor, the company purchased a **Hitachi ZX380LC-6** and a **ZX470LC-6** to help tackle the job. The excavators have moved about 75,000 cubic yards of material to install over 4 miles of pipe — 36-inch-, 6-foot- and 8-foot-diameter pipe — for sewer, water and a stormwater underground storage system, all backfilled with granular material.

RESULT The efficient, reliable and durable Final Tier 4 (FT4)/EPA Stage IV excavators have proven efficient. Joe DeNoble Sewer & Water's part of Phase 1 was projected to take 4 1/2 months, and the company completed it in 2 1/2 months. 866/973-0394; www.hitachiconstruction.com.



Excavator enables construction company to install slide rail

PROBLEM

Glenn Korner, owner of Midstate Site Development in Bloomfield, Connecticut, bid a school job where his team would be required to pour a foundation wall 26 feet deep into virgin ground. Instead of recommending driving sheet pile, they proposed using a slide rail system.

SOLUTION

The team won the bid, and put their Volvo EC340 crawler excavator to work. Korner said the machine easily lifted the 30-foot slide rail beams before pushing them into the ground, and kept the job moving efficiently. "When the other contractors saw the power of that excavator," Korner says, "their jaws dropped to the floor."

RESULT The approach saved the customer \$250,000, and allowed Midstate Site Development to complete the job in just two months. 828/650-2000; www.volvo.com/constructionequipment.

What's trending in alternative excavation?

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Company turns bedrock waste into on-site fill

PROBLEM

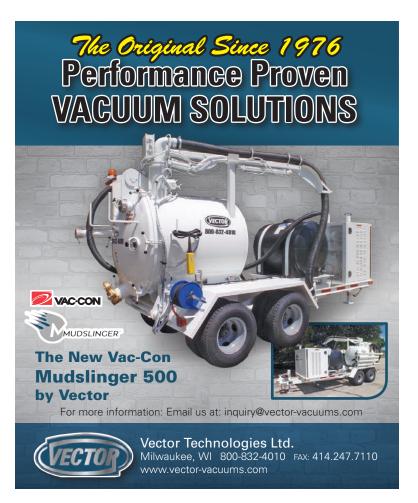
Brauer Construction of Sturgeon Bay, Wisconsin, had piles of bedrock laying around its facility. In most cases, they would fit it into a hole that was large enough to accommodate the size. Sometimes, when there were no holes, the company would place them in a quarry. That was when owner Jason Brauer searched the internet for a machine that would help him get rid of his bedrock.

SOLUTION

Brauer found the MB Crusher BF80.3 crusher bucket. Now, the company crushes more than just bedrock, including concrete and asphalt, into fill and reusable material for roads and other projects. Brauer uses the BF80.3 on his Komatsu PC210 LC. The crusher attachments are designed for a range of excavators, skid-loaders, loaders and backhoes regardless of brand.

RESULT "I bet you I've used it a quarter of the time I've had it, so that's twice a week," Brauer says. "We get more jobs because we're doing things competitors can't do." 855/622-7874; www.mbcrusher.com. ▼







By the Job, or by the Hour?

FLAT-RATE AND HOURLY BILLING EACH HAVE THEIR PROPONENTS, BUT ONLY YOU CAN DECIDE WHAT'S RIGHT FOR YOUR BUSINESS

BY ERIK GUNN

ant to see a fight between fellow contractors in the utility installation businesses? Start a rhetorical cage match that pits flat-rate billing against charging by the hour.

Some contractors swear by flat-rate pricing: It's predictable, it lets you tell the customer up front what the job will cost, and it gives you and your crews an incentive to work efficiently.

Others insist that by the hour — or some other time increment — is the only way to bill. It fairly recoups your real costs and ensures consistent profits (assuming a rationally structured rate, of course).

And each approach has fans only too happy to tell you why their method is fairer to everyone. "Flat-rate pricing is better for the company and for the customer," says Brandon Simpson, owner of Simpson Plumbing in Tracy, California.

Jeff Paquet, a contractor in Ottawa, Canada, disagrees: "While flat-fee pricing seems ideal on the surface, it can actually lead to sloppy work from the contractor to get the job done as quickly as possible," he says.

HOURLY BILLING BOOSTERS

"In the service business, pricing comes from years of experience and hard lessons learned," says Mark Vice, co-owner of Fayette Drain and Sewer in Fay-

Customers billed by the job "believe that they have done you a favor by giving you some work," he finds — so they'll push for return favors in the form of free add-ons: "While you are here could you please fix this pipe as well?"

FLAT-RATE FANS

Bill Sanders has some pretty strong words on the other side of the debate. "Hourly billing is fundamentally unethical," argues Sanders, a San Francisco business consultant. "It puts the customer and the contractor at odds



"IN THE SERVICE BUSINESS, PRICING COMES FROM YEARS OF EXPERIENCE AND HARD LESSONS LEARNED."

Mark Vice

ette, Alabama. "From my experience, 80 to 90 percent of people want to know, 'What is this going to cost me when you are finished?""

That doesn't automatically dictate flat-rate pricing, though. "I like to quote jobs by the day or half a day, and if equipment is needed or not," Vice says — in short, an hourly system, although in four- or eight-hour increments.

That's the best way to capture fixed costs, he contends, especially for labor. "At the end of the day, my employees need eight hours, and I have to pay them."

Adds Paquet: "As long as you have confidence in the ethics of the contractor, the hourly rate is generally the best option to ensure the work is done properly with attention to detail."

Jason Roberts represents My Handyman Services, a broker for home improvement trades, in London, England. It bills all its work by the half-hour — a one-hour minimum and then half-hour increments after that, and posts its rates on its website. "The issue with charging per job is that sometimes even if the job is complicated, the handyman may complete the task, let's say, in one hour," says Roberts. "Some clients might say, 'He charged me so much and he was here only one hour!"

before the job even starts," he says, because an hourly paid contractor "is incentivized to stay longer." Flat rates allow customers to decide on their investment up front and "realigns the interest of both parties."

One Sanders client scored higher profitability and market penetration after implementing flat-rate pricing (before Sanders began working with the firm).

Flat-rate billers contend customers like it. "It helps them control their costs," says Simpson. Prices can't balloon, "especially if you've got an experienced contractor who can spot the potential stumbling blocks before the job starts." If the job runs longer than expected, "customers won't be watching the clock because they know their own costs won't rise."

Strategically deploying your personnel can boost profits. "If the book gives a contractor four hours to complete a job, but a more experienced contractor can get it done in half the time, it essentially packages a higher hourly rate into



the flat price," Simpson continues. Of course, he points out, that means you want to be sure your employees are well-trained.

Of course, flat-rate service jobs can turn into larger hourly projects. "My service guys bring in a lot of bigger jobs for my other crews," Vice points out. "A simple sewer line cleaning could turn into a complete replacement. At that point, for the most part, we quote the replacement" as a time-based job.

RATIONALES

Simpson acknowledges that a flat-rate job finished quickly can translate into a steep hourly rate and trigger customer complaints. But he contends that's

"AS A SERVICE COMPANY, I DO NOT LIKE TO BID JOBS, **BECAUSE IF YOU ARE** JUST LOOKING FOR

THE CHEAPEST PRICE, THAT IS NOT **GOING TO BE ME."**

Mike Vice

rare. "On the other hand, if you bill by the hour and the job takes longer than expected, your chances of receiving complaints increase quickly."

Sanders points out that contractors are often there to fix a problem - bringing a "head," not simply a set of "hands," to the job. Besides the simple labor and parts put into the job, the flat-rate bill should appropriately reflect the expertise and the investment in continued training.

For Vice, the question of flat vs.

hourly really leads to deeper considerations. "I spend a lot of time doing quotes and looking at jobs," he says. "I have learned that you don't get every job you quote, so you don't need to cut yourself short just to be cheapest." He also wants to avoid race-to-the-bottom competitive bidding.

"As a service company, I do not like to bid jobs, because if you are just looking for the cheapest price, that is not going to be me," he says. He prefers to sell reliability and local presence. "I look at potential problems in the future, because I will be the one who services it years to come."



YOUR BEST OPTION

Vice has clearly poured time and energy into figuring out what system works best, which is why he's opted for a hybrid. "I wish I had a flat-rate system that worked for all situations," he admits. "It would make my life easier, but figuring that system out and implementing it, I think would be a miracle within itself."

Regardless of how you feel about pricing structure, study it closely. Then, whichever direction you go, you'll go there with more confidence in your choice.

ABOUT THE AUTHOR

Erik Gunn is a magazine writer and editor in Racine, Wisconsin.



THE LATEST:





Mike Wolff

Warren Weber

Felling names sales coordinator and production manager

Felling Trailers hired Mike Wolff as a trailer parts sales coordinator and for online parts store management. The company also hired Warren Weber as production manager, overseeing manufacturing at its Sauk Centre and Litchfield facilities.

Continental ContiTech expands partnerships

ContiTech will supply industrial hoses, hydraulics and power transmission belts to Applied Mexico and subsidiary RODENSA Mexico. Applied Mexico is one of the largest industrial distribution networks in Mexico with 22 facilities.

John Deere awarded contract

John Deere was awarded a threeyear construction equipment contract from the National Purchasing Partners Government Division. The NPPGov contract allows public and nonprofit entities access to John Deere's products through simplified cooperative purchasing.

The Toro Company elects CEO

The Toro Company elected Richard M. Olson CEO. He is a 30-year veteran of the company, beginning as a manufacturing process engineer in 1986.

JCB North America recognizes dealer achievements

JCB North America presented annual dealer awards to outstanding JCB dealerships in recognition of their efforts and achievements in 2015. The awards were presented at regional JCB dealer meetings held in Savannah, Georgia; Chicago; Las Vegas; and Toronto. In all, 18 dealers were recognized.

Jetstream of Houston celebrates 40th anniversary

Jetstream of Houston celebrates 40 years in the industry this year. Since its founding in 1976, the company has focused on providing customers worldwide with a range of high-pressure waterblasting equipment, trailermounted pumps and accessories.

Wabash National names director of sales and sales manager

Wabash Aviation and Truck Equipment named Doug Twyford director of sales. He will lead strategic growth for Wabash's Garsite and Process Tank brands. Neal Ropp was named sales manager for parts and service. He will focus on improving distribution reach and responsiveness.



Stihl celebrates 90th anniversary

In July, Stihl recognized 90 years in the gasoline-powered hand-held equipment industry. The company celebrated by inviting employees and their families to a banquet in Waiblingen, Germany.

Mustang-Gehl Company adds K&H Tool Rental to dealer network

Mustang-Gehl Company added K&H Tool Rental to its dealer network. K&H provides sales, service and parts support to Plainfield, Connecticut, and the surrounding area for Gehl skid loaders, compact track loaders, compact excavators, articulated loaders and telescopic handlers.

SAK Construction hires VP of human resources

SAK Construction named Melva

Pete vice president of human resources. She has years of experience in human resources and a diverse corporate background.



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Federal Signal expands service center

Federal Signal Environmental Solutions Group completed the expansion of its FS Solutions service center in Leeds, Alabama. The facility houses all operations related to parts, Jetstream support, blower rebuild and shipping. The expansion includes a truck loading dock and improves efficiency of inventory handling, shipping and parts pulling by 25 percent.

COLE Publishing editor Ed Wodalski passes away

Ed Wodalski, longtime contributor and editor with COLE Publishing, passed away suddenly on Sept. 21. He was 64. In addition to his writing contributions, Ed held many roles at COLE, including primary proofreading and coordinating national photo shoots and assignments. Most recently, he was the print and digital editor for Plumber magazine, and also oversaw the product and industry news for nine COLE publications. "Ed was not only a loyal contributor to the COLE team, but a mentor, family man and friend. He will be deeply missed," said Jeff Bruss, president of COLE Publishing. Ed is survived by his wife, Dawn; son, Michael; daughter, Nicole; and three grandchildren.

Wastequip adds McNeilus to dealer network

Go To Parts, Wastequip's OEM parts division, added as a Galbreath parts dealer in Texas, California, Arizona, Nevada, Colorado and Oregon.

Hydra-Flex finalist in Minnesota Manufacturina Awards

Hydra-Flex was a best-in-class finalist for the Minnesota Manufacturing Awards. Hydra-Flex is part of the Small Company class for businesses with less than 50 employees.



BY CRAIG MANDLI

Backhoes



John Deere 710L

The 710L backhoe loader from John Deere offers a 17-foot-3-inch dig depth, and is ideal for loading trucks, placing pipe, digging trenches, breaking up concrete or asphalt and moving materials. It meets today's emission regulations through an EPA Final Tier 4/EU Stage IV-certified 4.5L Deere PowerTech Plus engine, providing 13 percent more net peak horsepower than the previous K-Series model. Its PowerShift transmission enables operators to travel up to 23 mph between job sites. Utilizing the sealed-switch module, operators can get an additional 10 percent craning boost through the lift mode feature. When selected, engine rpm is automatically set at 1,400, and the machine maximizes hydraulic pressure for increased craning

capability. Pressure-compensated load-sensing hydraulics ensure multifunction operation. Standard ride control enables front loader hydraulic cylinders to act as shock absorbers, smoothing travel over rough terrain, helping full loads reach their destination and reducing operator fatigue.

800/503-3373; www.johndeere.com

Compacting

Felco Industries Mini-Excavator Roller Compaction Bucket

Mini-Excavator Roller Compaction Buckets from Felco Industries combine the compaction

performance of the company's wheel compactor with a digging bucket shell. The specially designed wheel ensures optimal compaction. It has greaseable flange bearings instead of a sealed journal bearing to



reduce weight for use with compact excavators. Contractors have the choice of segmented to tamping pad-style wheels. Just lay out the lift, curl the bucket, and compact.

800/221-5427; www.felco-ind.com

Excavators

Case Construction Equipment CX350D

The CX350D excavator from Case Construction Equipment weighs 82,400 pounds with 268 hp. It has a combination of cooled exhaust gas recirculation, selective catalytic reduction and diesel oxidation catalyst technologies, which helps maximize uptime and performance while providing up to 8 percent greater fuel efficiency. The excavator has an electrically controlled hydraulic pump that controls flow based on working conditions and boosts cycle times, making them up to 12 percent faster. It has ideal cab space that provides ample

legroom, a climate control system that responds to sunlight, Blue-



tooth radio and a fully adjustable operator's station with a heated air-ride seat.

866/542-2736; www.casece.com

Hyundai Construction Equipment Americas HX220L

The 51,500-pound HX220L hydraulic excavator from Hyundai Construction Equipment Americas delivers 173 net hp through a Tier 4 Final-compliant Cummins engine. It achieves up to 13 percent faster cycle speeds than the 9A Series

model it replaced. An All-Around View Monitoring system for 360-degree virtual operating view is available on all HX Series models. It displays on an 8-inch cluster monitor in the operator's cab. Included in the virtual



operating view is the Intelligent Moving Object Detection system that senses and warns the operator when objects come within 16.5 feet of the machine. Options include a boom float mode for improved grading control, fine swing mode for improved load control when swinging, intelligent power control for computer-aided power optimization based on load demand, and eco breaker mode for selectable pump flow and improved fuel consumption when working with hydraulic attachments.

877/509-2254; www.hceamericas.com

IHI/Compact Excavator Sales 9VX

The 9VX electric mini-excavator from IHI/Compact Excavator Sales weighs 2,000 pounds, with a digging depth of 5 feet 2 inches. The unit can be powered by a single-phase 208/230-



volt engine, or a three-phase 480-volt 5 hp Baldor engine. This versatile unit comes standard with an expandable undercarriage that has a width of 37.5 inches expanded and 27.5 inches retracted, allowing it to easily maneuver through a standard doorway. The unit is also available in the 17VX, which is a 3,500-pound unit with a digging depth of 7 feet, powered by a three-phase 480-volt 15 hp Rueland engine. It comes with an expandable undercarriage with a width of 50 inches expanded and 37.7 inches retracted.

800/538-1447; www.ihices.com

JCB North America 100C-1

The 100C-1 compact excavator from JCB North America has an H-design undercarriage, steel body panels, a spacious operator environment and a 74 hp Tier 4 Final engine. With an operating weight of 21,458 pounds, it

has a maximum bucket tear-out force of 16,231 ft-lbs and a dipper arm tearout force of 9,510 ft-lbs. It



has a maximum dig depth of 15 feet, a dump height of 18 feet 6 inches, and a reach at ground level of 24 feet 4 inches. A reduced-loss hydraulic system operates with reduced back pressure, eliminating parasitic losses, and the hydraulic system puts less demand on the engine, reducing fuel consumption. A graphite-based pin-and-bush design delivers 500-hour greasing intervals for reduced daily maintenance and lower operating costs. Two digging modes, including an ECO mode for maximum efficiency and a HEAVY mode for increased productivity, make it possible to tailor performance to the application.

912/447-2000; www.jcbna.com

Kobelco Construction Machinery USA SK210

The 49,400pound SK210 excavator from Kobelco Construction Machinery USA is powered by a 160 hp Tier 4 Final Hino engine that enables it to remain



fuel-efficient while tackling heavy-duty applications. It delivers a digging force of 29,330 ft-lbs to achieve work volume while minimizing fuel consumption. In H-mode, it has a 7 percent increase in work volume, while providing up to a 10 percent increase in fuel economy in S-mode and a further 6 percent increase in ECO-mode. This boost in efficiency comes from a new hydraulic regeneration system, which aids the arm by reusing force generated by the boom, further minimizing energy loss. A higher boom-foot cross section, thicker arm-foot base plate and stronger foot bases provide ample power to lift heavy loads and the construction to stay safe.

281/888-8430; www.kobelco-usa.com

Komatsu America Corp. PC210LC-11

The PC210LC-11 hydraulic excavator from Komatsu America Corp. is powered by a 165 hp Tier 4 Final SAA6D107E-3 engine.



It comes with a viscous fan clutch for improved cooling, three travel speeds, and heavy standard counterweight (9,634 pounds) for improved overthe-front and over-the-side lift capacity.

847/437-5800; www.komatsuamerica.com

Manitou Gehl Z55



tle. Eco mode and auto

deceleration reduce engine speed by 10 percent without sacrificing power and decrease the engine speed to idle after four seconds without hydraulic movement. Controls include a proportional auxiliary hydraulic rocker switch that enhances attachment options by enabling the operator to adjust the hydraulic flow. The operator can select standard ISO or an optional backhoe control pattern with a turn of a mechanical lever. A boom offset swing of 68 degrees in both directions allows for digging a square hole without repositioning the machine.

262/334-9333; www.manitou.com

Grading

Geith tilt bucket

Geith tilt buckets pivot up to 45-90 degrees in either direction, enabling operators to complete slope finishing, land clearing and grading with greater ease. Designed for use with exca-



vators ranging in size from 3 to 30 tons, they increase the productivity of the excavator by allowing operators to reach every angle for efficient grading, leveling, light material handling and backfilling. Available in various sizes, they weigh between 388 and 2,039 pounds, with the largest model boasting a heaped capacity of 1 3/4 cubic yards. They include a reversible bolt-on cutting edge, heavy-duty side cutters and wear pads. Corrosion-resistant hightensile pivot pins help safeguard tilt buckets against harmful wear patterns, extending the life of the buckets.

866/472-4373; www.geith.com

Virnia Manufacturing **Power Rake**

The Power Rake from Virnig Manufacturing helps users grade, rake, level and remove debris all



with one attachment. A direct-drive Eaton motor reduces downtime and is guarded from damage. Its floating design keeps the rake level for a smooth, even finish. A bidirectional drum works the soil in both directions for quick seedbed preparation. Users can manually angle the rake 25 degrees in either direction, or a hydraulic angle option is available. It includes carbide-tip teeth for long life in many soil conditions. Standard removable end plates help contain raked debris. Solid urethanefilled tires eliminate interruptions from flats.

320/393-7080; www.virnigmfg.com

Loaders

Morbark Boxer 525DX

The Boxer 525DX compact utility loader from Morbark has a redesigned hydraulic package providing



smoother drive controls and improved simultaneous functionality. Improved protection of the radiator and hydraulic oil cooler components is provided by a push-button pressure relief valve to couple hydraulic-powered attachments to high-flow auxiliary remote couplers and increased track adjustment length to extend usable track life. The variable track-widening system allows it to narrow to fit through a 36-inch gate or expand for additional stability with the simple push or pull of a hydraulic lever. Dual remote auxiliary outlets allow for the operation of complex attachments that both rotate and swing, such as a hydraulic angling broom or power box rake, dozer blades and stump grinders. 800/831-0042; www.boxerequipment.com

Toro Dingo

TX 1000 The Toro Dingo TX 1000 has a rated operating capacity exceeding 1,000 pounds. When the loader arms are fully extended, the hinge pin measures 81 inches from the ground to allow it to easily reach over the side of dumpsters and 1-ton trucks to maximize job site productivity. Its vertical lift loader arm keeps the load closer to the machine to allow operators to lift more weight with greater confidence, and increase the reach at full height to make dump-

ing more efficient. The vertical path of the lift arms

is exceptional in vertical applications with the auger or concrete breaker. The narrow-track model is 2,610 pounds, and wide-track is 2,790 pounds.

855/493-0088; www.toro.com

Rental Equipment

Jarraff Industries Geo-Boy Brush Cutter Tractor

The Geo-Boy Brush Cutter Tractor from Jar-

raff Industries is a mainstay for maintaining a wide range of transportation and utility right-of-ways, but the unit's capabilities have helped it become effective in a variety of other applications, including



land clearing and site prep, invasive vegetation species management, storm damage removal and cleanup, wildfire management and seismic mapping operations. It is available in wheeled and track configurations. Both models are ROPS and FOPS certified. With two Tier 3 engine options, 220 hp and 260 hp, it is powerful, maneuverable and fuel-efficient.

800/767-7112; www.jarraff.com

Kenco Dual Lift

The Kenco Dual Lift can grab two walls at a time, or can also be used to handle single wall sections. It has a fully automatic action to allow handsfree operation. It grips when it is set down, and will not release until the wall has been placed into posi-

tion. It is ready for immediate operation on any type or model of machine with lifting capabilities. There is no need to attach additional hydraulics. It hooks up with a typical sling and



shackle assembly (not included). Alignment legs extrude from one side of the lifter so the operator can guide it onto the wall. The pad angles swivel to match the slope of the wall being lifted, and elastomer pads ensure a secure grip, even in wet weather.

800/653-6069; www.kenco.com

Sewer Equipment JAJ-600 Easement Machine

The IAI-600 Easement Machine from Sewer Equipment allows operators to easily pull hose across easements without causing damage to yards, golf courses or other environmentally sensitive areas that are not serviceable by a sewer truck or trailer due to lack of space for

maneuverability. It is offered with extendable tracks or skid-mounted. Both units extend the reach of a jetting truck or trailer by 500 feet and reduce sewer overflows by easing maintenance tasks. Standard features include skid-steering with dual-joystick controls, safety pressure relief valve, 180-degree rotation safety reel and a 5 gpm/10 gpm hydraulic tool circuit for powering bypass pumps and hydraulic saws. The design eliminates drive chains and sprockets and provides clean and quiet operations.

888/477-7611; www.sewerequipment.com

Safety Equipment

Brass Knuckle Protection Vader Combo

Vader Combo vented splash goggles from Brass Knuckle Protection help fight fog, impact and spray-back. Their integral face shield offers full-face protection with antifog properties. They combine a D3-rated dust and splash protection goggle with an ANSI Z87.1+

impact-rated, hard-coated polycarbonate face shield. The

goggle has N-FOG antifog coating, ensuring anti-fog protection that exceeds by 15 times the only existing antifog standard (European EN 166/168).



770/674-8930; www.brassknuckleprotection.com

Checkers Safety Group TuffTrak AlturnaMAT

The TuffTrak AlturnaMAT from Checkers Safety Group is a polyethylene ground protection mat designed to provide traction and safety

to vehicles and people working on muddy or rugged terrain. They have optional connectors that can transform them into a temporary roadway or working platform. They have a diamond tread pattern for maximum traction in muddy areas, as well as a low-profile tread for pedestrian applications. By dispersing the weight of the vehicle over a larger area, they keep tires from bogging down in swampy areas, saving time and making jobs safer and more efficient. With a load capacity up to 120 tons, they are capable of supporting heavy equipment as well as smaller utility vehicles. Their polyethylene construction keeps them light and easy to handle, making setup and teardown easy.

800/438-9336; www.checkers-safety.com

Keen Utility Tacoma XT CSA

The Tacoma XT CSA heavy-duty, nonmetallic safety boot from Keen Utility has asymmetrical compos-



ite toes, metal-free eyelets and an undetectable and lightweight puncture-resistant midsole plate. It is crafted from barnyard-proof leather that resists the damaging effects of oleic acid, urea, sodium chloride and ammonium hydroxide, extending the life of the boot and boosting performance. It is built with heavy-duty Para-Aramid fibers that are stronger than steel and is crafted with Goodyear welt construction. With a KEEN.Dry breathable membrane and an oil- and slip-resistant non-marking rubber outsole, this boot also handles wet conditions with ease.

866/676-5336; www.keenutility.com

ScreenCo Systems **Folding Tripod** Lifter

The Folding Tripod Lifter from ScreenCo Systems helps prevent painful and costly back injuries, easily lifting stubborn and heavy septic and pump chamber



lids. The all-aluminum unit has a lifting capacity of 600 pounds, with an 800-pound winch and autobrake. It includes 20 feet of 3/16-inch galvanized cable, or is available with a 1,200-pound winch that holds 50 feet of cable. A stainless steel cable option is also available. Three versions of the unit are available, with 4-, 5- or 6-foot legs. The 4-foot model weighs 28 pounds and can be stored upright in service vans. The 5-foot model fits on the hose deck of most trucks, while the 6-foot model can be used to lift heavy pumps from pump chambers. All models have aluminum footpads with cleats for solid footing on soft soils.

208/790-8770; www.screencosystems.com

Ultra Shore

Ultra Shore is made of a specially corrugated lightweight aluminum. It is easy to use and lightweight enough for one person to lower a single pair

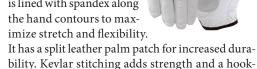


of assembled panels into an excavation. All panels can be used horizontally or vertically and are stackable. This allows them to be safe for bury depths up to 12 feet, even in Class C soils. Spring-loaded end panels allow for three- and four-wall applications. Leg kits and wheel kits add the versatility many plumbers, municipalities and utility companies require to meet OSHA regulations.

800/746-7464; www.shoring.com

Wells Lamont Industrial Y1000

The Y1000 goatskin leather driver glove from Wells Lamont Industrial is lined with spandex along



800/247-3295; www.wellslamontindustrial.com

and-loop wrist closure secures its fit.

Skid-Steers

Ditch Witch SK752

The Ditch Witch SK752 mini skid-steer has an improved operator station with customerdriven control placement and exceptional ground



clearance for better visibility. It has an efficient, low-maintenance Kubota diesel engine, providing power to the attachment for a wide range of utility, landscaping, plumbing and other underground construction tasks. For simple, secure connections, the machine is equipped with an advanced attachment latching system. It has an 860-pound-rated operating capacity and an 83-inch hinge-pin height. A high-drive track system has bolt-on sprockets and wide-track rollers for longer track life, easier maintenance and greater stability.

800/654-6481; www.ditchwitch.com

Wacker Neuson **SW28**

The SW28 from Wacker Neuson is a vertical lift skid-steer offering 2,800 pounds of



rated operating capacity at 50 percent of tip load, and a lift height of 11 feet 2 inches. It comes with a 74.3 hp turbocharged Perkins Tier 4 Final engine with maintenance-free particulate matter catalyst after treatments.

800/770-0957; www.wackerneuson.com ▼



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1. Worksaver adapters for Kubota loaders

Worksaver adapters allow the use of skid-steer-type attachments on Kubota loaders with pin-style buckets. One adapter is designed for Kubota models LA504 and 534, while the other fits the LA524 and 525. Both adapters are built to the universal skid-steer standard. 217/324-5973; www.worksaver.com.

2. Stihl cutoff machine

The TSA 230 Cutquik cutoff machine from Stihl can cut stone, pipes, rebar and tile. Powered by a 36-volt lithium-ion battery, the machine features zero-exhaust emissions, which allows users to cut indoors and on other job sites where traditional gasoline-powered cutoff machines are not permitted or ideal. The onboard water connection and control helps suppress dust when wet cutting concrete, and an available depth guide with vacuum adapter enables dry cutting in dust-sensitive areas when water cannot be used. 800/467-8445; www.stihlusa.com.

3. Milwaukee Electric Tool Corp. job site work gloves

Job site work gloves from Milwaukee Electric Tool Corp. feature touch-screen-compatible material on the fingertips, palms and knuckles. The gloves are available in Free-Flex and Performance models as well as Performance Fingerless gloves for added dexterity when handling small objects. The palms of the fingerless gloves are padded and reinforced. All three gloves have a reinforced thumb seam and hook-and-loop closures for a secure fit, breathable lining and mesh backing to wick away moisture. A terry cloth wipe on the backside provides a place to remove sweat. Sizes range from small to XXL. 800/729-3878; www.milwaukeetool.com.

4. Water Cannon electric pressure washer package

The electric-powered Jetter Package pressure washer from Water Cannon delivers 2 gpm and 1,500 psi. The low profile and compact hand-carry version includes a 150-foot by 1/4-inch Piranha jetter hose, a 50-foot by 1/8-inch trap hose, ball valve, pulsation valve on demand and four stainless steel jetter nozzles. The pressure regulator can be adjusted from 150 to 1,500 psi. 800/333-9274; www.watercannon.com/catalogrequest.aspx.

5. Vermeer horizontal directional drill

The D10x15 S3 Navigator horizontal directional drill from Vermeer is designed for utility installations. The drill is 12.5 feet long and is equipped with a 60 hp Deutz TD2.9 Tier 4 Final engine. It is capable of thrust/pull-back to 10,000 pounds with a maximum torque to 1,500 ft-lbs, maximum spindle speed to 220 rpm and maximum carriage speed to 208 feet per minute. The drill's reduced sound levels help reduce noise and disturbance on residential job sites and enables easier communication between crew members. 641/628-3141; www.vermeer.com.

6. Baldwin Filters PF9924 fuel filter kit

The PF9924 fuel filter kit from Baldwin Filters is designed to prevent loss of fuel prime from improper venting in filter systems. The air vent tube system in the filter kit evacuates trapped air from fuel systems, reducing cranking time. Filters meet or exceed factory specifications for efficiency and contaminant removal. 800/822-5394; www.baldwinfilter.com.

7. Ranger Design seat covers

Stain-, tear- and wear-resistant seat covers from Ranger Design are designed to fit popular commercial vans. Made from heavy-duty COR-DURA fabric for puncture and tear resistance, the seat covers are ure-thane coated for additional protection against fluid spillage and stains. The seat covers are machine washable and can be installed in less than 30 minutes. 800/565-5321; www.rangerdesign.com.

8. Komatsu America Corp wheel loader

The WA320-8 wheel loader from Komatsu America Corp is designed

for any application from pallet handling to hard digging. The wheel loader features an easy-to-control hydrostatic transmission and a 165 hp Tier 4 Final engine, which lowers fuel consumption by up to 3 percent in V-cycle loading and 2 percent in load and carry applications. **847/437-5800**; www.komatsuamerica.com.

9. Ditch Witch backreamer

The Sandhog HD backreamer from Ditch Witch is compatible with the JT9, JT20, JT25 and JT30 horizontal directional drills and is designed for soft and sandy soils. Aggressive cutting, mixing and packing combine for more efficient pullback on the job. Carbide cutting teeth and spiral plates further improve pullback efficiency and lower torque while maximizing the capacity for fluid flow. A barrel-shaped body is designed to better sculpt a true-to-size bore path. Replaceable, hardened steel nozzles increase fluid flow flexibility. The backreamer is available in 2 3/4-inch shaft size with 2.0 IF threads and 3 1/4-inch shaft with 2 3/8 API threads ranging in diameter from 8 to 18 inches. 800/654-6481; www.ditchwitch.com.

10. McLaughlin Vermeer Eco Truck Series

The Vermeer Eco Truck Series by McLaughlin is a compact vacuum excavation system with a focus on improved fuel efficiency. Trucks feature 49, 85 or 99 hp auxiliary engines, 500- to 1,200-gallon spoil tanks and the ability to be mounted on new or used truck chassis.

800/435-9340; www.mclaughlinunderground.com. ▼

This Issue's Feature:

John Deere G-Series combines simplicity and durability

BY ED WODALSKI

Designed for simplicity and durability, the Final 4 G-Series 317G compact track loader and skid-steer models (312Gr, 314G, 316Gr, 318G) from John Deere are available with vertical lifts for greater loading heights and radial lifts for greater breakout force. The G-Series also provides 11 percent additional fuel capacity over previous models for daylong productivity and uptime — all at a lower price point.

"We made a conscious effort to keep electronics off some of the models, for example," says Gregg Zupancic, John Deere product marketing manager for skid-steers and compact track loaders. "We took one frame size in terms of width and length and created five new models at the bottom of the lineup and differentiated them by offering two different lift systems."

Powered by a Yanmar Final 4 engine, the vertical-lift design on models 314G~(51~hp), 318G~(65~hp) and 317G~(65~hp) provides all-around visibility with clear sight lines both above and below the boom for easier grading in tight spaces. The low-profile rear hood also expands rear views.

The radial-lift option on models 312Gr (51 hp) and 316Gr (61 hp) has a one-person boom lockout safety system that can be activated from the cab. The lift system is designed for lower maintenance and optimal digging performance, especially when more reach is needed at midrange lift heights — such as dumping over a foundation wall, backfilling or loading a flatbed trailer — as well as tight locations and indoor operation.

"When digging below grade and digging underground, you want good visibility and you don't want a lot of linkage to interfere with the sides of the

UPPER PHOTO: 312Gr skid-steer model and (LOWER PHOTO) Final 4 G-Series 317G compact track loader from John Deere.





wall," Zupancic says. "A radial lift is more compact and provides better visibility in tight spaces. That's not to say a vertical lift can't also do the job, it's just specifically matching the machine for the things you do most often."

The swing-out cab door provides a wide-open entryway, while flat floors allow easier entry and exit, along with greater legroom. Cabs and floors are sealed and pressurized to keep dust and excess noise out for safer and healthier operation.

"A comfortable operator will be more productive if he's not fatigued or has to contort his body to look under boom links, and obviously less prone to injury," Zupancic says.

Flexible control options on the higher-performance 316G and 318G enable contractors to choose between standard foot and hand controls, optional hands-only or enhanced electrohydraulic joystick controls, switchable between ISO and H patterns. Other features include two-speed air conditioning, enhanced lighting package and shock-absorbing boom cylinders that cushion bumps. All G-Series models are compatible with over 100 Worksite Pro attachments.

"We ask questions.

We have a protocol form. If [the customer] can answer all questions and we have Carity as to what the project is and what they expect of us, that is helpful. We like to walk it with the client —

We are often working with volatile utilities we need to work around. That is our job."

> Richard Young, President Hydro Spy, LLC Houston, Texas

to understand all hazards.



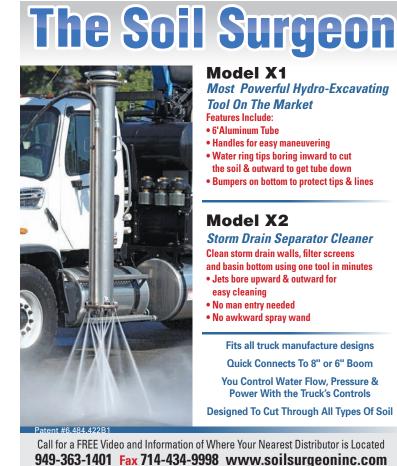


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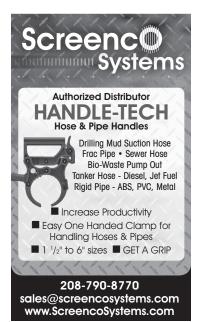


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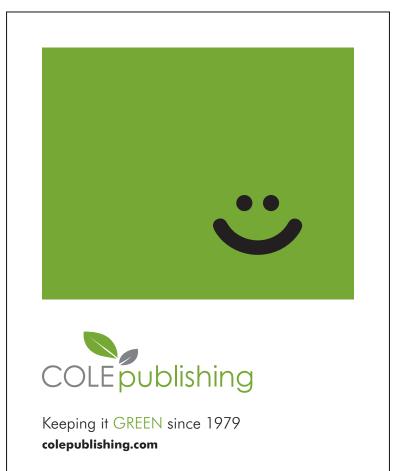


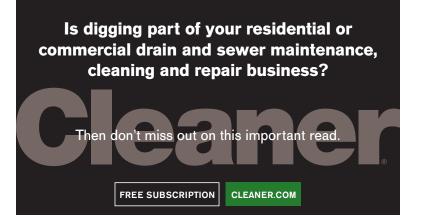




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Happenings





CALENDAR

Nov. 2-3

WJTA-IMCA Conference & Expo, Ernest N. Morial Convention Center, New Orleans, www.wjta.org

Nov. 6-9

Cutting Edge: Advances in Tunneling Technology, The Concourse Hotel at Los Angeles Airport, Los Angeles, www.ucaofsmecuttingedge.com

Nov. 10

Minnesota Utility Contractors Association Annual Meeting, Mystic Lake Hotel, Prior Lake, www.muca.org

Jan. 22-27, 2017

Underground Contractors Association of Illinois Annual Convention, Fiesta Americana Grand Los Cabos Resort, Cabo San Lucas, Mexico; www.uca.org

Jan. 31-Feb. 2, 2017

Underground Construction Technology International Conference & Exhibition, Fort Worth, Texas, www.uctonline.com

Feb. 22-25, 2017

Water & Wastewater Equipment, Treatment & Transport (WWETT) Show, Indiana Convention Center, Indianapolis, Indiana, www.wwettshow.com

March 4-6, 2017

AEMP 34th Annual Conference, Tuscany Suites & Casino, Las Vegas, www.aemp.org

March 7-11, 2017

CONEXPO-CON/AGG, Las Vegas Convention Center, Las Vegas, www.conexpoconagg.com

March 14-16, 2017

Common Ground Alliance (CGA) Excavation Safety Conference & Expo, Rosen Shingle Creek, Orlando, www.cgaconference.com

March 23-25, 2017

Mid-America Trucking Show, Kentucky Expo Center, Louisville, Kentucky, www.truckingshow.com

April 9-13, 2017

NASTT's No-Dig Show, Gaylord National Hotel & Convention Center, Washington DC, www.nastt.org

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<u>2"</u>	\$46.45	\$82.95	\$101.20	\$119.45	\$130.40	\$137.70	\$155.95	\$3.45
<u>3"</u>	\$78.35	\$140.95	\$172.25	\$203.55	\$222.33	\$234.85	\$266.15	\$5.95
<u>4"</u>	\$127.55	\$230.15	\$281.45	\$332.75	\$363.53	\$384.05	\$435.35	\$9.75
<u>6"</u>	\$264.65	\$459.35	\$556.70	\$654.05	\$712.46	\$751.40	\$848.75	\$18.50
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EP25 BULK	2 ½"	\$2.99 ft	
EP30BULK	<u>3"</u>	\$2.85 ft	
EP40 BULK	<u>4"</u>	\$5.25ft	
EP60 BULK	<u>6"</u>	\$11.49ft	



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