

Think outside the bucket

DOWN & DIRTY:

**PIPE BURSTING TRICK
SAVES WILDLIFE
AND HABITAT**

28

PROFILE:

**CONTRACTOR STARTS FRESH
WITH LOCATION SERVICES**

18

5 TIPS:

**INSPECTION CAMERA
USE & MAINTENANCE**

26

BUILDING FOR FUTURE GENERATIONS

**Illinois company continues
to expand while keeping
focus on family**

12

Dane Thompson
Technician
B&T Drainage



Nope.

Oil well?... Nope. Structural pier?... Nope. Journey to the center of the earth?... Cool, but also nope. This Radius PDC bit is specially built for HDD.

Yep!

Now you're going in the right direction! The Radius PDC Bit is specifically designed for horizontal directional drilling. Radius elongated the flutes to efficiently remove spoils, used extra gauge protection to decrease drag, and optimized cutter placement for bit stability and longevity.



Cha-ching.

As any HDD pro knows, to get the job done "what goes down, must come up." And that is something that most PDC bits aren't designed to do. HDD professionals also know they can turn to Radius HDD for the highest quality parts and best service in the industry.

radiushdd.com
888-770-7601


radius
TOOLS FOR HDD PROFESSIONALS



VACMASTERS

has been the leader in air-vacuum excavation for more than three decades. No matter what size your jobs, from potholing to trenching, we have a system that is right for your business.



Call or email to discuss how a VACMASTERS system can make your operation safer, more efficient, and profitable. See an online demo and all of our systems at www.vacmasters.com.

1-800-466-7825 • sales@vacmasters.com • www.vacmasters.com

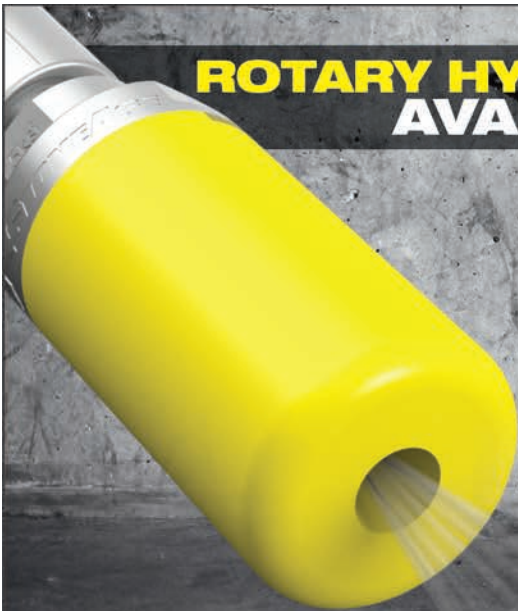
ROTARY HYDRO-X NOZZLE AVAILABLE NOW!

ANGLED ROTATING JET PATTERN

Removes more material and safely cleans around utilities.

FIXED NOZZLES ALSO AVAILABLE

Single, double, and triple head options.



HX-101
Single Head Assembly
(1) OC1H Carbide

HX-102
Double Head Assembly
(2) AP2 Attack Tips

HX-103S
Triple Head Assembly
(3) AP2 Attack Tips



Advertiser Index May/June 2017

Fatboy Outdoors	42	 Ultra Shore	27
GapVax, Inc.	43	Vac-Con, Inc.	9
 HammerHead Trenchless Equipment	25	VACMASTERS	3
 Hi-Vac Corporation	17	Vector Manufacturing	7
Milwaukee Rubber Products, Inc.	35	 VARCO	11
Premier Premier	23	 Vector Technologies Ltd.	31
Radius HDD Tools	2	Vivax-Metrotech Corp.	27
Schonstedt Instrument Company	23	 Water Cannon, Inc. – MWBE	44
 StoneAge, Inc.	4	Classifieds	41
 Subsite Electronics	5	Marketplace	41

digDIFFERENT

Think outside the bucket

Published nine times yearly by COLE Publishing, Inc.
1720 Maple Lake Dam Rd., PO Box 220, Three Lakes, WI 54562

Call toll free 800-257-7222
Outside of U.S. or Canada call 715-546-3346
Mon.-Fri., 7:30 a.m.-5 p.m. CST

Website: digdifferent.com / Email: info@digdifferent.com / Fax: 715-546-3786

SUBSCRIPTION INFORMATION: A one year (9 issues) subscription to Dig Different™ in the United States, Canada and Mexico is FREE to qualified subscribers. A qualified subscriber is any individual or company in the United States or Canada that partakes in excavation, tunneling, boring, trenching, pipeline rehabilitation, relining or bursting — including manufacturers, dealers, and service companies. Non-qualified subscriptions are available at a cost of \$60 per year in the United States and Canada/Mexico and \$80 per year/\$150 for two years to all other foreign countries. To subscribe, visit digdifferent.com or call 800-257-7222.

ADDRESS CHANGES: Submit to Dig Different, P.O. Box 220, Three Lakes, WI, 54562; call 800-257-7222 (715-546-3346); fax to 715-546-3786; or email nicole.labeau@colepublishing.com. Include both old and new addresses.

Our subscriber list is occasionally made available to carefully selected companies whose products or services may be of interest to you. Your privacy is important to us. If you prefer not to be a part of these lists, please contact nicole.labeau@colepublishing.com.

ADVERTISING RATES: Call Tim Krueger at 715-550-4402 or email tim.krueger@colepublishing.com. Publisher reserves the right to reject advertising which it considers misleading, unfair or incompatible with the character of the publication.



Tim Krueger

EDITORIAL CORRESPONDENCE: Address to Editor, Dig Different, P.O. Box 220, Three Lakes, WI, 54562 or email editor@digdifferent.com.

REPRINTS AND BACK ISSUES: Visit digdifferent.com for options and pricing. To order reprints, call Jeff Lane at 800-257-7222 (715-546-3346) or email jeff.lane@colepublishing.com. To order back issues, call Nicole at 800-257-7222 (715-546-3346) or email nicole.labeau@colepublishing.com.

CIRCULATION: 26,892 copies, nine times yearly.

© 2017 COLE PUBLISHING INC.
No part may be reproduced without permission of publisher.

PRODUCTIVE FROM DAY ONE.



Switching to the superior performance of a UtiliGuard® locator?
Don't expect a lot of downtime learning how to use it. Our intuitive user interface
allows for quick training so you can get to work, fast.

Visit subsite.com to see our complete line
of **Underground Awareness™** products.

Available at your **Ditch Witch®** dealer.



Contents

MAY/JUNE 2017

Think outside
the bucket

digDIFFERENT

FOCUS: Utility Locating and Surveying



COVER STORY

12 **PROFILE: DIRECTIONAL DRILLING** **Building for Future Generations**

B&T Drainage evolves from agricultural work to municipal work and continues to keep a focus on family.

By Cory Dellenbach

ON THE COVER:

B&T Drainage technician Dane Thompson locates a bore head for pulling in a water transmission main with a DigiTrak Falcon F5 (Digital Control) while working a job near Marshall, Illinois. The team is installing an approximately 16-mile-long line from Marshall to Casey, Illinois. The company, which won the Vermeer Ultimate Crew Contest in 2015, specializes in directional drilling and underground utility construction. (Photography by Bradley Leeb)

FEATURES

18 **PROFILE: UTILITY LOCATING** **A Map to New Markets**

Investments in advanced utility locating and mapping technology steered excavation-centric company toward a fresh start.

By Ken Wysocky

26 **MACHINE SHOP:** **5 Tips for Caring for and** **Using Inspection Cameras**

Proper care, usage keeps inspection cameras in good use.

By MaryBeth Matzek

32 **PRODUCT FOCUS:** **Utility Locating and Surveying**

By Craig Mandli

COLUMNS

8 **BELOW THE SURFACE:** **Don't Be Lax**

Certification and safety are two items that should never fall through the cracks at any company.

By Cory Dellenbach, Editor

24 **TECH PERSPECTIVE:** **Natural Advantage**

Consider this burgeoning domestic fuel option as you weigh the decision to upgrade parts of your fleet.

By Jim Kneiszel

28 **DOWN & DIRTY:** **Crown of the Continent**

Pipe bursting project enables Park Service to replace aged infrastructure without affecting wildlife or damaging the environment.

By Scottie Dayton

36 **IN THE TRENCHES:** **Time Share**

Finding a mentor or being one are ways to grow your career and help improve the company overall.

By Matt Timberlake

37 **SAFETY FIRST:** **When Is It an Emergency?**

Be aware of when something seemingly minor could pose a more significant threat.

By Doug Day

38 **MONEY MANAGER:** **Secure the Cash for When** **You Need It**

Follow these tips to qualify for a line of credit that will help with pressing financial challenges or allow you to buy equipment to grow your business.

By Erik Gunn

IN EVERY ISSUE

10 **@digdifferent.com**

Visit daily for new and exclusive content.

30 **The Latest: Products**

This Issue's Feature: Simplicity achieved with compressor-powered industrial vacuum system

By Jared Raney

40 **The Latest: News**

41 **Happenings**

NEXT ISSUE: July 2017

FOCUS: Hydroexcavation and Air Excavation

- Profile: Hydro Ex (Corpus Christi, Texas)
- Money Manager: 9 ways to cut costs and raise your bottom line



DO THE MATH

The New Vactor HXX ParaDIGM™ can outperform up to 3 vacuum trailers.

NOW THAT'S PRODUCTIVITY.

Designed for Park-N-Dig™ ease, the HXX ParaDIGM simplifies the visible verification process by reducing the time associated with setup and teardown. This compact, multi-use truck also cuts down on machinery and crew costs, providing towing, compressed air supply, and drill mud disposal in addition to both air and hydroexcavation. Add it up - it pays to choose the HXX ParaDIGM.

ADD THE PARADIGM TO YOUR FLEET TODAY.

SCHEDULE A DEMO TODAY! Visit Vactor.com or call 815.672.3171

VACTOR
Subsidiary of Federal Signal Corporation

©2016 Vactor Manufacturing. Performance data is based upon published data from a variety of manufactures of competitive products between 1/2016 - 8/2016



IF YOU OWN A FLEET OF VEHICLES THAT REQUIRE A CDL OR ANY SPECIAL LICENSES, IT'S YOUR RESPONSIBILITY TO MAKE SURE YOUR EMPLOYEES ARE PROPERLY CERTIFIED.

Don't Be Lax

CERTIFICATION AND SAFETY ARE TWO ITEMS THAT SHOULD NEVER FALL THROUGH THE CRACKS AT ANY COMPANY

BY CORY DELLENBACH

You have an employee who drives a vehicle in which a CDL is required. A surprise Department of Transportation check finds he doesn't have one.

You later learn that the employee was boasting on social media, proud and laughing that he had gone for years without a CDL and didn't plan to get one.

This scenario may seem far-fetched, but it did play out recently on a social media page for hydroexcavation professionals. The worker knew he was breaking the law. He could have seriously injured or even killed someone, but he didn't think about that and didn't care.

Rather quickly, the driver was kicked out of the social media group and his post was deleted — after numerous harsh comments from industry professionals.

As a company owner, how can you make sure this doesn't happen with one of your drivers? Here are some simple steps:

Conduct yearly checks on employees. If you own a fleet of vehicles that require a CDL or any special licenses, it's your responsibility to make sure your employees are properly certified. Check once a year to make sure they are up to date. If they aren't, then tell them. Maybe they forgot to renew and would appreciate the reminder.

Pay for those certifications. Does your company pay for drivers to get their certifications? A 2016 study from the staffing firm Robert Half revealed that 33 percent of employers paid for all their employees' professional certification costs, while 39 percent paid for at least some of the expenses. Just 29 percent provided no assistance.

By helping with the cost, you'll know your employees are certified and you could benefit in other ways, too. For example, your people would see that you care about them and their safety and want to stick with your company.

LOOKING AT SAFETY

We've always taken safety seriously in *Dig Different* and this issue is no different. The theme of utility locating is an important piece of the safety puzzle.

You need to know where utilities are before you start digging. Whether you call a basic digging hotline or go straight to a private locating firm, it's something that must be taken seriously.

Both contractors featured in this issue know the importance of utility locates. AEI Subsurface, of Warren, Rhode Island, prides itself as a utility locator in the Northeast U.S. and uses many tools to get that job done safely.

B&T Drainage of Marshall, Illinois, focuses on directional drilling and other earth-moving and underground utility operations. With underground fiber optic lines proliferating, owners John, Scott and Steve Boyer know what would happen if they didn't locate before digging. The company has even invested in vacuum excavators to help expose utilities before using directional drills.

LET'S HEAR FROM YOU

Does your company have a safety program in place? I'd like to hear about it. You can email me at editor@digdifferent.com. I look forward to hearing from you.

Enjoy this issue! ▼

Are you ingenious?

Have you solved a tough excavation problem with a creative solution?

Share your story with 27,000 other professionals.

Send a note to editor@digdifferent.com or call 800-257-7222



TERRY: 35,000 FANS, 19 YEARS, LEGENDARY STATUS ACHIEVED.

Because building tough reliable trucks takes tough reliable people.

Terry builds these critical components on a fixture he helped design and build. Terry lives out “more power to you” every day. It’s not just our tagline, it’s in everything we do: our technology, our culture, and our leadership. Yes, our trucks are engineered to be powerful, but they’re also built by smart people who keep the end-users in mind. They give you a machine that gets the job done. [GO ON-LINE TO LEARN MORE.](#)

VAC-CON.COM

VAC-CON IS A SUBSIDIARY OF HOLDEN INDUSTRIES, INC., A 100% EMPLOYEE-OWNED COMPANY

 **VAC-CON**
MORE POWER TO YOU

A HOLDEN INDUSTRIES Company



OVERHEARD ONLINE

“SAYING THERE IS A RULE AND THEN NOT FOLLOWING IT YOURSELF IS **EFFECTIVELY COMMUNICATING THAT THE RULE IS ACTUALLY A SUGGESTION.** BY DEFINITION, IT’S NO LONGER A RULE.”

Are You Your Most Toxic Employee?
digdifferent.com/featured

MAKING THE WORK EASIER

Micro-Tunneling in San Francisco

A San Francisco city supervisor has introduced a bill that would allow the city’s Department of Public Works to begin issuing micro-trenching city permits for internet providers as soon as January 2018 to allow for faster and easier installation work to take place.
digdifferent.com/featured



RISING TO THE TOP

From Years of Experience Come Innovative Solutions

Just about any contractor can learn how to run machines effectively and efficiently. But figuring out how to use equipment to solve customers’ problems with innovative solutions is what separates good companies from the rest. Find out how Bill Heinselman, owner of Express Sewer & Drain in Rancho Cordova, California, stays ahead of the pack.
digdifferent.com/featured

Connect with us!

 facebook.com/digdiffernt

 twitter.com/digdiffernt

 linkedin.com/company/dig-different-magazine

DON'T ADD INSULT TO INJURY

8 Critical Questions If You're Injured on the Job

You've been injured on the job. Now what? Do you hire an attorney? Do you notify somebody? Is your injury compensable, and if so, what benefits are you entitled to? If you're unsure, these eight questions will help you understand your rights.
digdifferent.com/featured



CALL FOR
FREE
CATALOG!



VARCO TUFF SUCTION Abrasion Resistant SBR Rubber



	10'	20'	25'	30'	33'	35'	40'	100 FT. BULK
2"	\$46.45	\$82.95	\$101.20	\$119.45	\$130.40	\$137.70	\$155.95	\$3.45
3"	\$78.35	\$140.95	\$172.25	\$203.55	\$222.33	\$234.85	\$266.15	\$5.95
4"	\$127.55	\$230.15	\$281.45	\$332.75	\$363.53	\$384.05	\$435.35	\$9.75
6"	\$264.65	\$459.35	\$556.70	\$654.05	\$712.46	\$751.40	\$848.75	\$18.50
8"	-	-	-	-	-	-	-	\$31.95



VACTOR/VACCON FLANGE FITTINGS AVAILABLE



AMPHIBIAN SERIES HEAVY DUTY POLYURETHANE LINED MATERIAL HANDLING HOSE

Superior Abrasive Resistant Polyurethane Tube and Cover

- Static Dissipative Cover
- "Cold-Flex" Materials - Hose remains flexible in sub-zero temperatures.
- Flexible Convoluted Cover Design
- Oil Resistant Polyurethane Liner

	PRICE	STD. LENGTHS
4"	\$13.52 ft.	100'
5"	\$20.90 ft.	20', 100'
6"	\$26.71 ft.	20', 100'
8"	\$44.05 ft.	21', 60'



CAM & GROOVE FITTINGS & REDUCERS

Available in Aluminum, Stainless Steel or Polypropylene



REAL TIGERFLEX® EPDM SUCTION HOSE

The Industry Standard! FULL 6 MONTH WARRANTY

4 COLORS - SAME LOW PRICE!

Actual Colors May Not Match Photo



COUPLED HOSE PRICE INCLUDES
M X F QUICK CONNECTS

	20'	25'	33'
2"	\$51.12	\$61.30	\$77.59
3"	\$72.96	\$87.99	\$112.03
4"	\$147.21	\$177.50	\$225.97

100 FT. BULK		
ITEM#	SIZE	YOUR PRICE
EP15 BULK	1 1/2"	\$1.49 ft
EP20 BULK	2"	\$1.79 ft
EP25 BULK	2 1/2"	\$2.99 ft
EP30 BULK	3"	\$2.85 ft
EP40 BULK	4"	\$5.25 ft
EP60 BULK	6"	\$11.49 ft



BANDLOCK FITTINGS



4 PK. NOZZLES
\$12⁹¹

HIGH PRESSURE LANCE & GUN COMBO

#6273 4000psi rated with built in trigger safety. 36" insulated lance w/ quick connect socket at end.

\$29.95 each

PRESSURE WASHER HOSE

Strength and flexibility for pressure washer machines with working pressures up to 5800 PSI.

- 250°F Temp
- Coupled M x M

4000 PSI 1 Wire Braid Reinforcement		
ITEM#	SIZE	YOUR PRICE
PW4000	3/8" x 50'	\$59.95
PW4000	3/8" x 100'	\$115.95
5800 PSI 2 Wire Braid Reinforcement		
PW5800	3/8" x 100'	\$129.95

Quick Connect Socket and Plugs Available



ELECTRIC VALVE
HEATERS
AVAILABLE

BRASS LEVER VALVE

Solid brass with a quick opening lever. Full port allows for easy flow. Female NPT threaded.

	2"	3"	4"	6"
RIV	\$65.00	\$108.00	\$152.00	\$299.00

DOUBLE JACKETED MILL HOSE

Working Pressure: 300 psi. COUPLED OR BULK

FROM
\$1⁰⁰ ft.



CUSTOM LENGTH MUNICIPAL VACUUM HOSE

Made to Vac Con / Vactor / OEM Standards!



	PRICE
8" ID x 60" OAL	\$325.71
8" ID x 62" OAL	\$325.71
8" ID x 66" OAL	\$342.86
8" ID x 77" OAL	\$354.29

CALL FOR OPTIONS
& PRICING FOR
DIFFERENT SIZES



COMPLETE LINE OF GLOVES & PROTECTIVE GEAR



"I THINK WHAT SEPARATES US FROM OTHER COMPANIES ARE THE OWNERS. THEY'RE ALSO OPERATORS ... [AND] OUT WITH THE CREWS RUNNING EQUIPMENT. THAT'S HOW WE KEEP THE BALL ROLLING."

Chase Boyer



Colby Boyer, left, B&T Drainage excavator operator, and John Boyer, co-owner, work on breaking a rod free from a cutter head on a Vermeer directional drill.

BUILDING FOR FUTURE GENERATIONS

B&T DRAINAGE EVOLVES FROM AGRICULTURAL WORK TO MUNICIPAL WORK AND CONTINUES TO KEEP A FOCUS ON FAMILY

STORY: CORY DELLENBACH PHOTOS: BRADLEY LEEB

Farming and underground utility construction have several similarities: heavy equipment, long hours, dirty work and dedicated people.

B&T Drainage owners John, Steve and Scott Boyer know that all too well. With their dad, Allen, and John's sons Chase and Colby, they operate a business that specializes in directional drilling, trenching and other earth-moving and underground utility operations. After work, the family members are in tractors tending to field crops.

"It's all we know," says Chase. "Even on the weekends we're doing something involving work."

When the company started nearly 37 years ago, it focused on laying farm drainage tile. Over time, that transitioned into putting pipe into the ground for municipalities near the

company's home base of Marshall, Illinois. The company is now 30 employees strong and takes on jobs year-round.

BUILDING THE COMPANY

Allen Boyer started the company in 1980, when he and another farmer started laying drainage tiles. "After a while, the other guy decided he wanted to put all his money into farming," says John. "So we bought him out."

The three sons eventually took over B&T Drainage, and now Chase and Colby are getting involved. Chase runs the directional drills, while Colby operates a hydroexcavator and is learning to work the drills. "It's good to see that everyone is still heavily involved and striving to keep the company growing," John says.



B&T Drainage Marshall, Illinois



OWNERS: John, Scott and Steve Boyer

EMPLOYEES: 30

SERVICES OFFERED: Directional drilling, trenching, hydroexcavation and excavation

SERVICE AREA: Within an hour of Marshall, Illinois, but will travel for directional drilling work

WEBSITE: w

The leadership team at family-owned B&T Drainage includes (from left) Steve, John, Scott, Allen, Colby, and Chase Boyer. The crew stands in front of its John Deere excavator.



Technician Alan Lee guides a section of 12-inch PVC pipe in place.

Several employees have been with the company for 15-plus years. Most can operate the excavators, but the Boyers prefer that workers specialize. Only a handful run the drills and vacuum excavators. “If guys get on those and don’t know what they’re doing, they’ll tear stuff up,” John says. “They don’t mean to, but they don’t know any different.”

John still gets out to job sites, but stays at the office at least once a week to handle paperwork on current and upcoming projects.

“I think what separates us from other companies are the owners,” Chase says. “They’re also operators. They are out with the crews running equipment. Dad and I run the drills. Steve and Scott install sewer and water. That’s how we keep the ball rolling.”

The second and third generations of the Boyer family have already made an impact on the business. “As us kids grew older, we just kept expanding and kept getting tougher jobs and kept going,” John says.

The move into municipal work was one big change. “We were limited to three or four months out of the year where we could really do drainage tiles,” John says. “Municipality work can be year-round if you can find it. That’s what drove us to do that.”

KEEPING UP WITH TECHNOLOGY

While growing, B&T Drainage has had to keep up with technology. The

Chase Boyer of B&T Drainage stands next to a 40x55 Vermeer directional drill. Chase’s dad, John, and his uncles Scott and Steve own the company based in Marshall, Illinois, after taking it over from their dad, Allen. Chase and his brother, Colby, are now heavily involved in the company.



From the drills to the tractors

After working a 10-hour day installing underground utilities, you might expect the crews to go home and relax. For the Boyer family in Marshall, Illinois, though, there is no time for relaxing.

The family, which owns and operates B&T Drainage, simply moves from directional drills and trenchers to farm tractors. The Boyers farm about 2,000 acres of corn and soybeans.

“It’s a lot of late nights and little sleep,” says Chase Boyer, son of John, one of the owners. “We’ll do the B&T work during the day and then we’ll show up and get in the tractors. All of us have our high-visibility shirts on and it’s dark out and you just see everyone reflecting through the glass. It’s kind of funny.”

The Boyers keep the equipment for both jobs on their property.

“We have all of our farm equipment down at our shed, but we also have a shop down there,” Chase says. “That’s where we keep our semis and other pieces of equipment that we aren’t using for B&T.”

The family members try to take some time off on the weekends, but that doesn’t always happen. “We’ll spend time getting prepared for the coming week and move some equipment around, do some maintenance work,” Chase says. “It takes a lot of time just getting things where they need to be.”

company maintains three directional drills and four trenchers. “We run a lot of Vermeer equipment,” John says. “We rent quite a bit of specialized equipment from them also.”

The drills include a 9x13, 40x55 and 60x90. B&T Drainage won the use of the 40x55 drill in 2015 after competing in Vermeer’s Ultimate Crew contest that summer. Four teams competed at the International Construction & Utility Equipment Exposition in Louisville, Kentucky. B&T won by completing a directional bore in four minutes, 47.8 seconds, a minute faster than the next team.

“It was quite the experience,” Chase says. “We had a 36x50 drill that was getting some age on it, so we ended up trading that in. We got the free lease for the year on that 40x55 and just combined that into a deal to keep it.”

While the old drill was a 2013 Series 2 and the 40x55 is a 2015 Series 3, the



From left, technicians Abel English and Colby Boyer perform hydroexcavation work as part of the services offered by B&T Drainage (Vactor and Super Products).

technology was a big change. “It’s just night and day,” Chase says. “It’s amazing how they keep advancing. Now it’s all electronically controlled. It’s getting to the point where you’re pretty much running a computer.”

Also changing is the amount of utility infrastructure being moved underground. John says it’s getting tougher to install the pipes: “It just keeps getting worse as far as room to work and all the fiber being installed in the ground. It’s continuously changing.”

Because of that constant change and the proliferation of utilities to work around, the Boyer family decided a few years ago to invest in vacuum excavators. “We now run two vacuum excavators in front of the work crews just to spot everything before the drilling crews show up,” John says. “Usually you’ll find plenty of utilities in your way, so your path has to be relocated. It’s better to do that before you start working instead of when you have a full crew on site.”

B&T Drainage bought its first vacuum excavator, a Vermeer E900, 10 years ago. As the Boyers saw a need for more potholing to complete jobs faster, the company added a Vactor unit, and then a Mud Dog from Super Products two years ago. “The drilling crews just love seeing those big trucks pull up,” John says. “It makes their day.”

“AS LONG AS YOU TRY TO GIVE THEM A GOOD PRODUCT AND WORK WITH THEM, THEY’RE USUALLY VERY RECEPTIVE TO THAT AND THEY’LL REMEMBER THAT.”

John Boyer

WORKING WITH MUNICIPALITIES

Keeping those crews busy hasn’t been a problem, especially now with a big push to upgrade pipe and put in fiber throughout the U.S. “Right now there seems to be a decent amount of work out there, so it’s not too tough,” John says.

The hard part is getting hired. Municipal jobs are typically bid, and most of the time the lowest bid wins. B&T Drainage bids on about 90 percent of its work. Quality is key: “As long as you try to give them a good product and work with them, they’re usually very receptive to that and they’ll remember that,” John says.

The company has been replacing many inadequate utilities lately where municipal sewer systems are nearing 50 and 60 years old. “Communities are getting grants to replace some of the older utilities,” John says. “The utilities’ age limit has been reached and before they lose it, they’re trying to replace it.



Abel English (left) and John Utz work on installing a pull head for a bore pipe onto a section of 12-inch PVC pipe.

It’s getting so tough to install with all the fibers underground now that a lot of people are scared to do it. That’s what is helping us.”

Chase sees his family’s company expanding more into city work in the future: “It seems like all these little towns around here are finding that their infrastructure is outdated and they need to upgrade. Especially the waterlines.” ▼

Featured products from:

Digital Control, Inc.
800/288-3610
www.digitrak.com

Super Products LLC
800/837-9711
www.superproductsllc.com

Vactor Manufacturing
800/627-3171
www.vactor.com
(See ad page 7)

Vermeer
641/628-3141
www.vermeer.com

YOUR WEIGHT IS OVER



Are you desperately seeking ways to avoid overweight tickets? Look no further than the X-Vac X-8 Hydro Excavator. Designed with a legally loaded 8-cubic-yard debris body, the X-8 is the most scalable and weight-carrying hydro excavator in the industry. Offering an 8" high-capacity vacuum system and a top-loading 360° boom, the X-8 truly fulfills everything you could want in a hydro excavator. That's why...

 **MARKS THE SPOT**

800.752.2400 | 740.374.2306
x-vac.com/digdifferent



The X-8 also features:

- ✘ Triplex Water Pump: 10 GPM @ 2,500 PSI
- ✘ Super tough poly graphite rust-free water tanks (lifetime warranty)
- ✘ Effective power transfer with OMSI heavy-duty transfer case design
- ✘ Noise-deadening, heat-retaining enclosure
- ✘ High-performance 27" Hg blower options

 **X-VAC**
HYDRO EXCAVATOR
A Product of Hi-Vac® Corporation

A MAP TO NEW MARKETS

INVESTMENTS IN ADVANCED UTILITY LOCATING AND MAPPING TECHNOLOGY STEERED EXCAVATION-CENTRIC COMPANY TOWARD A FRESH START

STORY: KEN WYSOCKY PHOTOS COURTESY OF AEI SUBSURFACE

When Pat Aubin founded AEI Subsurface more than four decades ago, the company's primary focus was site preparation for residential construction projects. But today, AEI (which stands for Aubin Excavating Incorporated) mostly focuses on technologically advanced utility locating and mapping.

How AEI evolved from force to finesse, heavy machinery to sophisticated high-tech equipment, underscores the importance of spotting and capitalizing on changing business conditions and underserved markets. It also shows how the older generation in family-run businesses can benefit from embracing ideas proposed by the next generation — in this case, Aubin's son, Nick, now a co-owner of the company.

"I knew we had to do something different, but Nick had the knowledge to figure out exactly what that was," says Pat, 65. "The take-away is you need to listen to your kids. You

spend such a large part of your life teaching your children, but then at some point, the student becomes the teacher."

For AEI, that point came in 2003, after Nick graduated from the New England Institute of Technology with a degree in electrical engineering. He had worked as a laborer and equipment operator for his father as a teenager, but never planned on working in the family business. But he was intrigued by a dilemma confronting his father: Excavating had become such a high-cost and high-liability industry that he wanted to drive the company in a new direction.

Utility locating seemed like a good candidate. Pat frequently encountered instances of inaccurate utility locating, so an underserved market niche existed. Moreover, Pat had compiled years of utility line installation experience, so he knew how underground utilities are laid out — an important market differentiator and competitive advantage.





“THE TAKE-AWAY IS YOU NEED TO LISTEN TO YOUR KIDS. YOU SPEND SUCH A LARGE PART OF YOUR LIFE TEACHING YOUR CHILDREN, BUT THEN AT SOME POINT, THE STUDENT BECOMES THE TEACHER.”

Pat Aubin

After Nick did some research, the company invested in an electromagnetic utility locating system made by Vivax-Metrotech, and a ground-penetrating radar system manufactured by Geophysical Survey Systems.

HIGH-TECH DETECTION

Electromagnetic technology relies on a transmitter, which emits a frequency selected by the operator, and a receiver, which is set to detect those frequencies. The transmitter sends an electromagnetic current in the form of a specific radio frequency through pipes or cables, typically via a connection to an above-ground access point. As such, a receiver tuned to the same frequency enables the operator to follow the pipe. As long as the line being traced is metallic and continuous, an operator should theoretically be able to trace its path, Nick notes.

GPR is an entirely different animal. It operates like a

fish-finding device, except that it transmits electromagnetic energy into the ground. These signals reflect back to the receiver, where a processor and software interpret what it’s “seeing.” Different materials possess contrasting electrical properties. The greater the contrast between two materials, the stronger the reflections that show up on the GPR’s monitor. It takes intensive training and field experience to learn how to interpret the images, he says.

“It’s a great tool for determining possible anomalies and other conductive and nonconductive utilities that may not exist on facility plans,” Nick explains. “But it’s not infallible technology. For example, GPR signals transmit well in resistive materials such as sand and gravel, but soils containing clay-, ash- or cinder-laden fill — or fill saturated with brackish or otherwise electrically conductive groundwater — can cause GPR signal attenuation and loss of target resolution.

“But overall, it’s another tool in our toolbox,” he adds. “It’s useful for finding (nonmetallic) water pipes that aren’t conductive.”

AEI typically uses these two main technologies to develop a complete underground “picture.” GPR comple-

AEI Subsurface technician Kevin Conlon conducts a utility survey for a new electrical tower crossing at a site in Warren, Rhode Island. Conlon is using one of the company’s Geophysical Survey Systems GPS locators.

ments EM locating because it can detect nonmetallic lines — think plastic, clay or reinforced concrete, for instance — that the EM technology can't detect. In addition, researching utility records prior to locating and mapping is a must, Nick says.

"You have to know what utilities you're dealing with in order to apply each technology," Nick points out. "We first use the EM system and mark the utilities, then use GPR to survey the area and find unknown objects and anomalies."

There's also a physical aspect to utility locating. AEI also does leg-work, performing visual inspections that might include examining man-holes and catch basins, for example. Because the technology isn't completely foolproof, physical inspections are essential, Nick says.

"Sometimes we open a manhole and find 10 different lines running through it, all different heights and (diameter) sizes," he says. "Some of them might be abandoned and some still in use. All this research goes into the mapping. It's another piece of the puzzle."



AEI Subsurface owners Pat Aubin, left, and his son, Nick, stand in front of the company's utility locating van at their shop in Warren, Rhode Island.

BUILDING A BUSINESS BASE

To establish a customer base, AEI concentrated primarily on locating utilities on private property, usually military and industrial complexes as well as

"SOMETIMES WE OPEN A MANHOLE AND FIND 10 DIFFERENT LINES RUNNING THROUGH IT, ALL DIFFERENT HEIGHTS AND (DIAMETER) SIZES. SOME OF THEM MIGHT BE ABANDONED AND SOME STILL IN USE. ALL THIS RESEARCH GOES INTO THE MAPPING. IT'S ANOTHER PIECE OF THE PUZZLE." Nick Aubin

Utility-line location systems steered firm into new market

When AEI Subsurface decided to ease away from excavation services in favor of utility line locating and mapping, co-owner Nick Aubin knew the company had to invest in reliable and precise systems in order to gain a foothold in this new market.

After doing in-depth research, Aubin concluded that two different kinds of technology would position the company for success: a ground-penetrating radar system made by Geophysical Survey Systems Inc. (GSSI) and an electromagnetic detection system developed by Vivax-Metrotech.

Aubin says that the GSSI system is not only reliable and accurate, but also offers different antenna configurations that make it more versatile. "You can use it for different target applications," he explains. "We can combine traditional structural scanning with higher-frequency antennas to produce targets inside concrete, such as cables, rebar and conduits. We can even find voids in bridge decks. The versatility is exceptional."

Another antenna does geophysical investigations, which can provide contractors with critical

information such as how deep a bedrock ledge might lie underground. Without that knowledge, a contractor usually has to excavate, find the ledge, then remove it with dynamite before digging further. "Knowing the location of bedrock prior to excavation is critical," Aubin says. "It can cut the cost of an excavation project in half because of all the time that's saved."

The EM system from Vivax-Metrotech provides a wide range of electromagnetic frequencies, which makes it very versatile. "Its antennas and displays, which include current direction and bleed-over detection, are very well put together," he says. "You can use it on any kind of conductive utility."

Aubin also likes the unit's ergonomic design, which makes it easier to use for long periods of time. "It's not crazy heavy and its very comfortable to use," he explains. "That's important because when you're waving a receiver around all day, fatigue definitely can be a factor." He says the unit also is very reliable, noting that it's 10 years old and still provides accurate results.

state- and federal-owned facilities. Because many state and federal jobs specify GPR technology, the investment in a GPR system "opened a lot of doors for us," Nick says.

As the company built a reputation for accurate locating and mapping, business slowly grew, largely through word-of-mouth referrals. "As it grew, it just kind of took over our business," Nick notes. "The more we did that kind of work, the more clients realized a need for it."

Pat's knowledge of underground utility installation provided a competitive advantage because he understood nuances of utility lines that contractors without installation backgrounds might overlook. For example, when contractors install 18- or 20-foot-long sections of water pipe, they're supposed to include bronze wedges — small metal devices that bridge the nonmetallic connection joints between pipe sections and, in effect, provide a continuous metal connection from pipe section to pipe section.

Wherever the conductive wedges aren't installed, the EM receiver loses the pipe's signal, which often results

in the receiver tracing a nearby pipe instead — an occurrence known as signal bleed. “If the receiver doesn’t have a conductive line to follow, it’ll jump to something else,” Pat says. “So if someone doesn’t know how water pipes are installed, they can’t locate it as accurately.”

Correctly analyzing the data from EM and GPR technology is as much art as it is science, and Kevin Conlon, the company’s only employee aside from the owners, is an expert operator, Pat says. “He’s very essential to our operation,” he notes.

Experienced operators like Conlon are just as important as the technology itself. “You’re looking at a blank slate and then using research and the technology to develop a full picture of what’s down there,” Nick explains. “It’s more involved than just throwing equipment at it and getting the job done. On the other hand, we couldn’t do as much without the technology. Using witching sticks (divining rods) is not a viable method of utility locating.”

FOLLOW THE MONEY

When Pat started his business in 1973, he hardly could’ve imagined doing anything except operating heavy equipment. Upon graduating from high school, the heavy equipment-crazy teen bought an International 500 bulldozer and started doing site-prep work for new-house construction. Prompted by a road-construction and utility-installation boom, he transitioned into road construction in the 1980s.

“We’d be working on residential construction and contractors would ask me what I’d charge to build roads,” Pat says. “That, in turn, led to installing water and gas lines and other underground utilities. What I did was follow the market, followed the money.”

In the 1990s, AEI focused almost exclusively on providing excavation-related services for residential ocean-front estates in Rhode Island, doing everything from site prep, utility installation and foundation excavations to drainage and septic systems and driveway installations. “We did everything,” he notes. “When we were done, all the builder had to do was drop lumber and start building.”

AEI even did vacuum excavating for a while using smaller units. But Pat said it eventually became more economical to subcontract the air-excavation work, so the company sold the machines. “By subcontracting this service, we get professionals (operators) and we only get them when we need them,” he says, noting that subcontracting significantly reduces the company’s labor, equipment and insurance costs.



AEI Subsurface Warren, Rhode Island

OWNER: Pat and Nick Aubin
FOUNDED: 1973
EMPLOYEES: 3
SPECIALTIES: Utility locating and mapping, utility exposing
SERVICE AREA: Rhode Island, Massachusetts and eastern Connecticut
WEBSITE: www.aeisubsurface.com

Kevin Conlon, far left, uses a Geophysical Survey Systems GPS locator to locate utilities on a parking garage project site in Providence, Rhode Island. Standing with Conlon are two employees from project contractor National Grid.

The company still does some heavy-equipment excavation. To support that service, AEI owns two excavators, one backhoe and one bulldozer, all manufactured by John Deere. The company also owns an acoustic leak-detection system made by Sewerin.

SAFETY DRIVES GROWTH

A high demand for accurate utility locating and mapping, the need to replace aging infrastructure and do it safely, without hitting a cluster of adjacent lines, is driving the company’s growth. “There’s so much stuff in the ground now. Things I never gave any thought about in the 1970s,” Pat explains.



"IF CONTRACTORS KNOW THEY CAN DIG SAFELY, THERE'S VALUE THERE. THERE'S A LOT OF LIABILITY IF THEY DON'T DO THEIR DUE DILIGENCE."

Pat Aubin

Kevin Conlon performs a utility investigation at Rhode Island Police Barracks Headquarters in North Scituate.

"Back then, when you saw a fire hydrant, you knew there was a waterline there. But now there's so much other stuff underground that there's a high level of concern that you'll hit something that could kill someone."

Just how complicated is it underground? To get an idea, Nick suggests envisioning a layered circuit board. "That's what this is like, in a sense,"

he notes. "And it's not only existing utility lines for water, sewer, natural gas, fiber-optic communications and electric service. It's abandoned lines, too. It's one big maze."

It would make sense that old utility records would show the locations of utility lines, but that's usually not the case. Most records show utility lines only as they were designed, not as they actually were installed, and there's usually big differences between the two, because contractors deviate from the design when necessary. "The differences between the two can be shocking," Nick says.

Military bases are particularly complicated. In addition to the typical utility lines, bases might also have steam, oil, communications and compressed-air lines. "It's usually everything you can imagine, times two," Nick says. The stakes are high at such facilities, adds Pat, because they also include things like secure communication lines. "If you hit a fiber-optic cable on a naval base, you've got a problem," he says. "There's a huge cost involved if something goes wrong." Moreover, at least three days ahead of a job, AEI has to submit the radio frequencies it plans to use so that military officials can ensure none of the frequencies will detonate ordnance on the bases.

Looking ahead, the Aubins expect to see continued growth as demand intensifies for replacing aging underground infrastructure. Excavation safety will also continue to play a role in driving growth. "If contractors know they can dig safely, there's value there," Pat says. "There's a lot of liability if they don't do their due diligence."

"I see nothing but growth for the next three to five years," he continues. "But we need to keep controlling the quality of our work. I have no intention of running a three-ring circus, just to make money. We like to do things right." ▼



Pat Aubin, left, and Kevin Conlon locate utilities at Faneuil Hall in Boston using RIDGID locators.

Featured products from:

Geophysical Survey Systems, Inc.
800/524-3011
www.geophysical.com

Hermann Sewerin GmbH
888/592-9916
www.sewerin.com

RIDGID
800/769-7743
www.RIDGID.com

Vivax-Metrotech Corp.
800/446-3392
www.vivax-metrotech.com
(See ad page 27)

NOW BUILDING ON ALL CHASSIS

STOCK UNITS OR BUILD TO SUIT

URBAN X - DIG WITH
WATER, AIR OR BOTH

SHOWN WITH A
PETERBILT CHASSIS



Premier

HYDROVACS

WWW.POEQUIPMENT.COM • 970-542-1975 • SALES@POEQUIP.COM



Pinpoint **ACCURACY** Locating **SIMPLIFIED**

Three Frequencies
One Locator
All Utilities



"Dig Season" Special
up to \$300 off

Discount not applicable
with other offers
(trades accepted)
Through 6/30/2017



Signal Clamp shown is optional

SCHONSTEDT 
INSTRUMENT COMPANY

Making Locating Easier Since 1953

800-999-8280 • Find your local Schonstedt Dealer at schonstedt.com/dealers

Natural Advantage

CONSIDER THIS BURGEONING DOMESTIC FUEL OPTION AS YOU WEIGH THE DECISION TO UPGRADE PARTS OF YOUR FLEET

BY JIM KNEISZEL

The next time you buy a dump truck or medium-duty flatbed or semi tractor-trailer, will you be sticking with tried-and-true diesel engine technology or looking toward an emerging natural gas-powered rig?

A lot of factors should go into your choice of a familiar diesel system — which comes with the drawbacks of more pain at the pump and high-maintenance emissions components — or to become an early adopter of a technology using a now-abundant North American fuel source.

A significant number of small-business fleet owners are sitting on a parking lot of aging on-the-road vehicles. Conservative company owners who run work trucks hard and use them every day may have put off new truck purchases after the 2007 and 2010 changes to emissions systems. And they may have stayed out of showrooms as the economy has started its recovery.

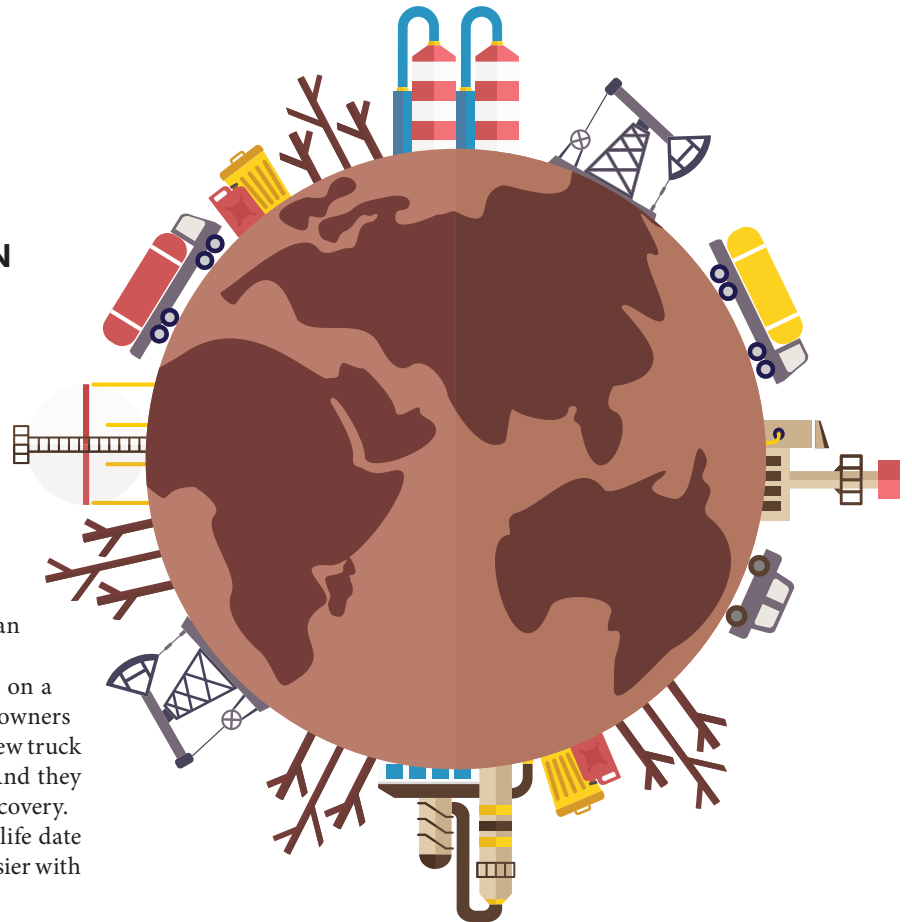
But now, many of those work trucks are at or past their end-of-life date and need to be replaced. And as contractor companies are getting busier with infrastructure work and the economic upswing, the last thing they want is to have crews idled by breakdowns involving older trucks.

NO FOREIGN OIL

Many American business owners like the idea of using domestic energy supplies to power their fleets and reducing the nation's reliance on foreign oil. And if those same business owners could save on fuel bills while eliminating the problematic maintenance of emissions equipment on their diesel trucks, they'll start to take notice of natural gas.

Oklahoma-based Seaboard Foods and its subsidiary, High Plains Bioenergy, invested in a natural gas fleet of Kenworth trucks to transport its B99 biodiesel product and live hogs to its food processing plant. The company purchased two Kenworth T660 trucks with Cummins Westport ISX12 G heavy-duty natural gas engines for the biodiesel transport and 43 T800 short hood day cabs using the same powerplant for hauling animals.

"We see adding CNG-powered Kenworth trucks as a great opportunity to further our commitment to sustainability and environmental stewardship," says Terry Holton, president and CEO of Seaboard Foods. "The availability of a 12 L natural gas engine really makes it possible for our operation to run CNG-powered trucks because it provides the right amount of power and torque for the loads our trucks carry."



"YOU DON'T HAVE THE DIESEL EMISSIONS SYSTEM TO MAINTAIN, AND CLEANING THE FILTERS AND REPLACEMENT. WHEN YOU TELL [TRUCK BUYERS] THAT, THEIR EYES GET HUGE. YOU'VE GOT THEIR ATTENTION WHEN YOU START TALKING ABOUT DIESEL EMISSIONS."

Terry Holton

According to the U.S. Department of Energy, 112,000 vehicles are powered by natural gas in this country, and 14.8 million worldwide. According to the department's Alternative Fuels Data Center, CNG is best for high-mileage vehicles that operate in a limited territory. The LNG options are better for vehicles that have longer hauls, according to the department.

In the LNG technology, gas is cooled to a cryogenic state, at -260 degrees F, changing it from a gas to a liquid. The fuel is kept in liquid state in big, dual-walled stainless steel tanks until it's conveyed to the engine for burning. In CNG technology, natural gas is kept at 3,500 psi in storage tanks until it's fed into the engine. Storing either fuel on the truck requires expensive tankage.

There is also, however, the advantage of less maintenance.

"You don't have the diesel emissions system to maintain, and cleaning the filters and replacement. When you tell [truck buyers] that, their eyes get huge," Holton says. "You've got their attention when you start talking about diesel emissions."

Here are a few questions to help you determine if your business is a good candidate for using a natural gas-fueled truck:

Do you have established fueling stations in your area?

The infrastructure of fast-fill natural gas fueling stations necessary for these trucks is in its infancy, but there are areas of the country where it's better established. Check around your shop location and the areas where you drive most to see if you'd have access to enough fuel stations to make the conversion practical. Keep in mind that if natural gas trucks grow in popularity, fueling stations should proliferate as well. So even if natural gas doesn't seem to be the best option for you today, it might make more sense down the road.

Do you put on enough miles to maximize fuel savings?

If diesel prices hover around \$4 per gallon, you could expect to save about 25 percent or more on fuel costs going with natural gas. While 80 percent of the diesel and natural gas engine componentry is identical, the fuel storage and delivery systems in natural gas trucks drive up the cost of the trucks. Holton was hesitant to give examples because every truck specification will be different, but you'll have to consider whether you'll be dollars ahead going with the more expensive new technology offset by lower fuel costs. Another thing to consider is whether you think the price of diesel fuel will continue to rise, and if natural gas will continue to be a cheaper alternative.

Will your truck have enough room for the expanded tankage?

Fuel tankage takes up significantly more space on natural gas-powered rigs. According to Holton, tanks for LNG engines take up twice the amount of space as diesel fuel tanks, and tanks for CNG engines take up four times as much space as traditional diesel tanks. Like diesel trucks, these tanks can be mounted on the frame rail, but they can also be installed behind the cab. So there is some flexibility on installation depending on how you use your trucks.

Does your state offer incentives for conversion?

The federal government at one time offered attractive incentives for truck buyers to switch to natural gas, but that went away a few years ago, according to Holton. But he says a number of states, including California, Oklahoma, Pennsylvania and Texas, continue to offer grants and rebates for upgrading to natural gas trucks. To search the incentives offered in each state, check out the U.S. Department of Energy website: www.afdc.energy.gov.

Are you more comfortable with the old reliable diesel?

Many truck buyers will want to stick with the technology they know best, and that's OK. Holton says manufacturers continue to improve diesel technology to make the engines more efficient and reduce pollution. "Diesel is not going anywhere," he says. "But for certain segments of our industry and applications, natural gas may be an alternative that people will be considering."

Another option is hybrid technology, combining a diesel engine and electric motor to save fuel. This option makes sense for trucks working in a lot of stop-and-go traffic. For example, Coca-Cola uses 700 medium-duty delivery trucks using hybrid Kenworth

engines. Some companies weigh the potential benefits of being early adopters to technology and make the jump.

NATURAL GAS OUTLOOK

Holton says the impact of natural gas on heavy-duty trucks is going to be profound.

"Natural gas today is such a huge game-changer for North America," he says. "This resource, for the most part, is something that wasn't fully realized until the last few years. The magnitude is significant and the price associated with it is very good, too. It's a cheap and abundant fuel source that works well in heavy trucks." ▼

Visit digdifferent.com daily for exclusive news, features and blogs.



PIPE BURSTING PROS DEPEND ON HAMMERHEAD®

“ We worked very closely with HammerHead Trenchless Equipment in the development of their new 100XT static pipe bursting system, and we couldn't be happier with the final result. It's fast, reliable, and backed by customer support that has always been quick to respond when we have a question. Municipalities are catching on to the advantages of pipe bursting, and our 100XT positions us to take advantage of pipe bursting's growing popularity.”

MARK DIMICHELE,
Owner, D & D Water & Sewer, Canton MI

EQUIPMENT. EXPERTISE. SUPPORT.

HammerHead Equipment products and expertise take the guesswork out of pipe bursting. And legendary factory support puts even the toughest pipe bursting jobs within your reach.

Find your local dealer at hammerheadtrenchless.com or call 800-331-6653

HAMMERHEAD
TRENCHLESS EQUIPMENT

MOLING | RAMMING | BURSTING | HDD ASSIST | WINCHES | CIPP

©2017 Earth Tool Company, LLC A Charles Machine Works Company

5 Tips for Caring for and Using Inspection Cameras

PROPER CARE, USAGE KEEPS INSPECTION CAMERAS IN GOOD USE

BY MARYBETH MATZEK

Adam Teets can sympathize with contractors using an inspection camera to discover a problem in the line.

“You see the object causing the obstruction right there and there’s a temptation to just start using the camera to push at it and move it out of the way,” says Teets, a service manager with RIDGID. “But you need to fight the urge, since doing something like that will only damage the equipment.”

Contractors use inspection cameras to spot what may be causing any blockages inside pipes. The waterproof cameras have a flexible rod and can be maneuvered around corners as needed. But while they are a valuable tool, they can wear out or break if not used properly.

Dave Dunbar, assistant sales manager for General Pipe Cleaners, says reels with kinks or damaged camera heads are the most common repairs that land equipment in repair shops.

To prevent that from happening to you and to get the most use out of your equipment, industry experts shared these tips:

1 DO A SIMPLE CHECK OF THE EQUIPMENT FIRST

Taking care of your equipment protects your investment and avoids many headaches down the road. Be sure to follow all of the recommended maintenance specific to your equipment. Here are some general maintenance items to check with your equipment each day: check for damaged power cords, pulled out strain reliefs, damaged switches and missing ground prongs. Inspect the cable for any kinds or damage. Repair or replace as needed.

You should also expose, clean and lubricate all bushings, bearings and moving parts at least twice a year. A well-lubricated machine will last longer and is less likely to break down in the middle of a job.

2 KEEP HANDS NEAR THE DRAIN OPENING WHEN OPERATING

When a contractor’s hands are near the opening, they are able to provide greater control over the reeling. Without proper control, the reeling can kink up or move too quickly and potentially cause damage to the camera, Teets says.

3 DON’T USE CAMERA AS A TOOL

Dunbar says the camera being used to inspect clogged pipes is similar in design to cameras used to record family events.

“Most of the damaged camera heads that arrive at repair centers have a cracked lens cover or light ring,” he says. “The LED lights are hidden behind bullet-proof Plexiglas and the whole thing is either pipe threaded or epoxied to the end of the pushrod, so it’s sealed up like an Egyptian tomb. That sounds impressive, but it’s really no defense against an overly enthusiastic drain cleaner.”

As Teets mentioned, it can be tempting for a contractor to use the equipment to push the obstruction out of the way, but “that’s asking for trouble. You need to remember the camera is a diagnostic tool. You are trying to find out what’s wrong.”

KEEP IT CLEAN

4 Keeping the camera and reeling clean will improve the equipment’s longevity. “I always keep rags in my truck and wipe it all off after I pull it out,” Teets says. “Some people pour clean water over the cable as they pull it out, but if there’s a back-up, adding more water is not always the best move.”



An Envirosight RX130 crawler sits on a job site in San Jose, California, where a crew from Therma Corp. prepares to use it on a sewer inspection.

VIVAX METROTECH

Vivax-Metrotech Corporation
3251 Olcott Street
Santa Clara, CA 95054, USA

Toll Free: +1-800-446-3392
Fax: +1-408-734-1415

Email: sales@vxmt.com
www.vivax-metrotech.com



The preferred cameras for cross bore projects

vCam-5 Inspection Camera

- LACP/PACP ready
- Five hour battery life
- 8" daylight viewable display

vCamMX Mini Camera

- Six hour battery life
- Portable all-in-one system
- Interchangeable camera heads

Call us for your no obligation on-site demonstration!

"YOU SEE THE OBJECT CAUSING THE OBSTRUCTION RIGHT THERE AND **THERE'S A TEMPTATION TO JUST START USING THE CAMERA TO PUSH AT IT** AND MOVE IT OUT OF THE WAY. BUT YOU NEED TO FIGHT THE URGE, SINCE DOING SOMETHING LIKE THAT WILL ONLY DAMAGE THE EQUIPMENT."

Adam Teets

The lens of the camera will need to be cleaned after each use. Cleaning the camera will also keep oil, grease and grit from building up, which would damage the camera if left.

When cleaning, do not use an oil cleanser, as this could impair the camera lens. Instead, use a dry cloth and gently wipe the camera head to remove any dirt or debris.



GO SLOW

When starting on a project, the key is to move slowly and carefully as you put the pushrod into the pipe. If a worker moves too quickly or applies too much force, Dunbar says the pushrod will bow out and kink up.

"Once you are in, use short, fast motions to get around a bend and watch where you're going," he says. "Just pay attention."

A kink in the reeling can be expensive to fix, with Dunbar estimating it can cost up to \$600.

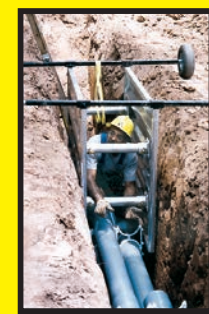
As part of the repair, technicians usually cut the reel above the kink, which also creates a shorter reel, Teets says. "You have less flexibility with the camera and may not be able to see as far into the pipe," he says. ▼

ultra *ultra* *ultra*
LIGHT – VERSATILE – SAFE

ultraSHORE P R O D U C T S



Quick to Install.
As light as 130lbs.



Roll Your Own.
Optional wheel kit.



Stacks easily with
2' & 4' high panels.

This is What Aluminum Shoring Was Meant to be!



1-800-683-8837

1-800-SHORING

CALL TOLL-FREE NATIONWIDE • 1-800-746-7464

www.shoring.com

Crown of the Continent

PIPE BURSTING PROJECT ENABLES PARK SERVICE TO REPLACE AGED INFRASTRUCTURE WITHOUT AFFECTING WILDLIFE OR DAMAGING THE ENVIRONMENT

BY SCOTTIE DAYTON

The National Park Service was modernizing cabins and rehabilitating the wastewater infrastructure in Glacier National Park in Columbia Falls, Montana. HK Contractors in Idaho Falls, Idaho, won the bid for general contractor. HK hired only subcontractors with extensive experience working in sensitive areas.

“We were selected to pipe burst 2,000 feet of 6-inch mains,” says John Galligan, co-owner of Pipeshark in Elverson, Pennsylvania. “The contractor who cleaned and inspected them reported mostly terra-cotta with some cast iron pipe.”

Galligan, brother David and partner Steve Helms planned to transport their TRIC pipe bursting system 2,300 miles to Montana, but delays pushed the project into October. “Heavy snows had already closed the highway through the park,” says Galligan. “We had to get there fast, then rent equipment.”

Another trenchless company’s cooperation enabled Galligan to meet the tightened work schedule despite inclement weather, undocumented obstructions and stringent park environmental rules. “This was the company’s Super Bowl — our chance to put all our skills on the line to meet the challenges,” Galligan says.

PRELIMINARY PLANNING

Galligan planned to rent TRIC equipment from a local contractor or distributor, but found none in Montana. He turned to Rod Herrick, owner



A 10- by 10-foot canopy tent keeps Pipeshark workers and the 6-inch DR11 HDPE pipe dry, as they fuse the sticks using a RODDIE portable fusion welder with a Makita-powered facing tool.



Dave Galligan of Pipeshark watches the 6-inch articulating bursting head turn toward the host pipe. It will immediately seat correctly in the host pipe, enabling the HDPE pipe to enter at the proper elevation with a shorter approach.

PHOTOS COURTESY OF JOHN GALLIGAN

PROJECT: Replace backed-up and leaking sewer mains
CUSTOMER: National Park Service, Columbia Falls, Montana
CONTRACTOR: Pipeshark, Elverson, Pennsylvania
EQUIPMENT: R2 pipe bursting system
 RODDIE, Columbia Falls, Montana
 406/863-7777
 www.roddieunderground.com
RESULTS: Mains replaced, environment undamaged, wildlife undisturbed

DOWN & DIRTY

of Montana Trenchless, whose company was on the other side of the park. Herrick loaned him a RODDIE system — an R2 pipe bursting machine, portable hydraulic power pack, compact fusion welder and a John Deere D50 compact excavator.

Galligan also wanted the 6-inch DR11 HDPE pipe fused before their arrival, but found no one with enough experience to meet Park Service requirements. He had plotted the pulls and fusing areas using aerial photos from Google Earth, and planned eight pulls in five days, provided the pipe was fused beforehand. Doing it themselves added two days to the project and four more pulls as Galligan split longer runs.

The sewer fell 30 feet in elevation from the Swiftcurrent Motor Inn and cabins to the Many Glacier Campground and Hotel. Laterals from cabin blocks teed to dedicated 48-inch manholes. “Another contractor had removed the structures,” says Galligan. “The excavations were adequate for pulling pits

once we cut crisp 90-degree corners and a straight wall for the cribbing using a Sharp Shooter drain spade.”

The Park Service stipulated no trees be harmed, but the fused pipe often ran a slalom course between them. “We normally rest a 2- by 12-inch-long board against trees and let the pipe rub against it, but the rangers said no,” says Galligan. The men sank metal fence posts on either side of a path through the trees, then used digging bars at key points to direct the pipe as it snaked past them.

UNDER THE GUN

The mountains surrounding the Swiftcurrent Valley are high enough (elevation 8,000 to 9,296 feet) to create their own weather pattern, which cycled from misty rain to sleet to snow and back again for the first two days. The team fused pipe under a 10- by 10-foot canopy tent at the first five pull sites. “The 0.6-inch wall thickness of DR11 is twice that of DR17, so it isn’t as flexible,” says Galligan. “The cold made it even stiffer, giving us the worst of both worlds.”

Being forbidden to use large spotlights because they might affect wildlife exacerbated their difficulties. The men retreated to the parking lot where the pipe was stockpiled, and wore headlamps to work after dark. In the morning, they moved the fused pipe to pull locations.

“THIS WAS THE COMPANY’S SUPER BOWL — OUR CHANCE TO PUT ALL OUR SKILLS ON THE LINE TO MEET THE CHALLENGES.”

John Galligan

the material was,” says Galligan. “The sleek, lightweight R2 ram seemed like a sports car when we needed a Ford 350.”

The 19- by 12- by 15-inch-high bursting machine has 50 tons of pulling force at 4,700 psi, and a 22 mm cable rated at more than 50 tons. The 6-inch articulating bursting head immediately seats correctly in the host pipe, enabling the HDPE pipe to enter at the proper elevation with a shorter approach. A magnetic-assisted locking device connects the head to the welded end of the cable.

WICKED NO. 6

The team’s reservations proved unfounded. The system cruised through the first five bursts in cobblestone soil at 8 feet per minute. The next downstream pull through 250 feet of cast iron pipe passed under trees, a road and into a manhole between two cabins with 18 inches of clearance per side.

“We never saw it coming,” says Galligan. “Suddenly, the ram began plowing through the soil toward a cabin. Full stop!”

The crew released the tension on the cable, then extended the side cribbing to better distribute the force of the pull. Their first attempt to break through the obstruction produced identical results. Using the SR-60 locator on a RIDGID SeeSnake, they found the bursting head in a gravel service area where excavation was allowed. The head was stuck in 15 feet of steel well casing.

“Freeing the head took some encouragement,” says Galligan. “We put a strap around the HDPE pipe behind the head and pulled back on it with the excavator arm, while we nudged the head with a sledge hammer.”

Once the pull resumed, the head traveled 20 feet and jammed in ductile iron pipe as it passed under a large pine tree in the middle of the service area. Any further excavation would damage its roots. With no cellphone service, Galligan emailed Herrick that night and requested a slitting blade to fracture ductile iron and steel pipes. Herrick said he’d fabricate one.

BATTING A THOUSAND

As the team set up the next morning’s 220-foot pull to a manhole, they looked up the cast iron line and saw it transitioned to a 4-foot length of steel



The custom-made 13- by 8.5-inch-wide slitting blade slips over the 22 mm cable, then seats against the nose of the 6-inch articulating bursting head.



Adam Shappell (left) disconnects the 6-inch articulating bursting head while Jeff Hanson uses a wrench to remove the magnetic-assisted locking device connecting the head to the welded end of the 22 mm cable. Both workers are from Montana Trenchless.

pipe directly under a white birch tree surrounded by cabins. “By switching pits and pulling upstream, we had 215 feet of clear sailing before the head contacted the steel,” says Galligan.

When it did, the men removed the resistance plate, then built a 12-inch-wide space with 6- by 6-inch timbers to receive the steel pipe. With the plate against the new cribbing, Galligan started the ram and pulled in the last 6 feet. “The head locked into the steel pipe and out it popped,” he says.

The crew finished the remaining pulls while waiting for the slitting blade to arrive. Adam Shappell and Jeff Hanson from Montana Trenchless delivered the 13- by 8.5-inch-wide tool and helped with the pull. “We were surprised how well it cut through the ductile iron pipe,” Galligan says. “We liked the R2 system. It packs a lot of power and has many clever magnetic features.” ▼



The 6-inch articulating bursting head jammed in a section of ductile iron pipe.

THE LATEST: Products



1. Hi-Vac F Series combination jet/vac unit

The new F Series front-mounted reel design from Hi-Vac Corp. includes an improved 360-degree articulating vacuum boom to help facilitate loading operations. It is designed with a 27-inch Hg blower and also includes poly-graphite water tanks. The F Series has a triplex reciprocating water pump that provides up to 150 gpm at 2,500 psi and a 10- to 15-cubic-yard debris tank. 800/752-2400; www.aquatechinc.com

2. McElroy TracStar Series 2 machines

McElroy TracStar Series 2 machines can fuse long polyethylene pipelines installed with sliplining, pipe bursting and directional drilling technologies. They are easy to maneuver on the job site, and have a generator onboard to provide electricity and hydraulic power. The machines are self-propelled on a dual-track system, which offers freedom of movement across rugged terrain. They are offered in a wide range of pipe sizes from 2-inch IPS to 48-inch O.D. pipe. 918/836-8611; www.mcelroy.com

3. Vactor emergency-stop wrist strap for excavators

The wireless emergency shut-off wrist strap from Vactor Manufacturing is a new safety feature for all Vactor HXX vacuum excavators manufactured after January 2017, including the mid- and full-sized HXX Hydroexcavator, HXX Prodigy and HXX Paradigm trucks. The device communicates with the wireless remote control on the truck via Bluetooth technology. A locking ring on the strap connects to the digging lance, and also features a magnetic connection tethered to the ring. When the digging lance is dropped, the magnetic connection is broken. 800/627-3171; www.vactor.com

This Issue's Feature:

Simplicity achieved with compressor-powered industrial vacuum system

BY JARED RANEY

The **Ferret vacuum system**, unlike typical engine- or PTO-powered systems, is a lightweight, inexpensive and reliable alternative for contractors and utilities in industrial vacuuming.

To achieve this low-maintenance pump option, **Vulcan Pumps** strays from traditional vacuum machines with an air compression-powered system.

"The Ferret vacuum system is designed for general use, and can perform in all types of applications where an industrial vacuum system would be required," says Bill Reeves, vacuum process specialist with Vulcan Pumps.

With no moving parts, the Ferret vacuum system has both lower up-front and operating costs, yet still provides 16 inches Hg using 100 psig compressed air.

"I monitored compressed air flow from various-size air compressors with industrial test equipment to size and construct the optimum nozzles for the ejector vacuum pump," Reeves says.

The Ferret system can be used anywhere vacuuming is required, especially in excavations.

Reeves brought experience in the coal mining industry to design the Ferret system. "I designed, engineered, fabricated, installed and operated vacuum mining systems for the coal industry," Reeves says. "With the collapse of the coal mining industry, I decided to use these ejector compressed air systems to market to contractors and the utility industry."

The Ferret vacuum system comes with flexible 2-, 3- or 4-inch material-pickup hose, Ferret Cyclone container where conveyed material is dropped to

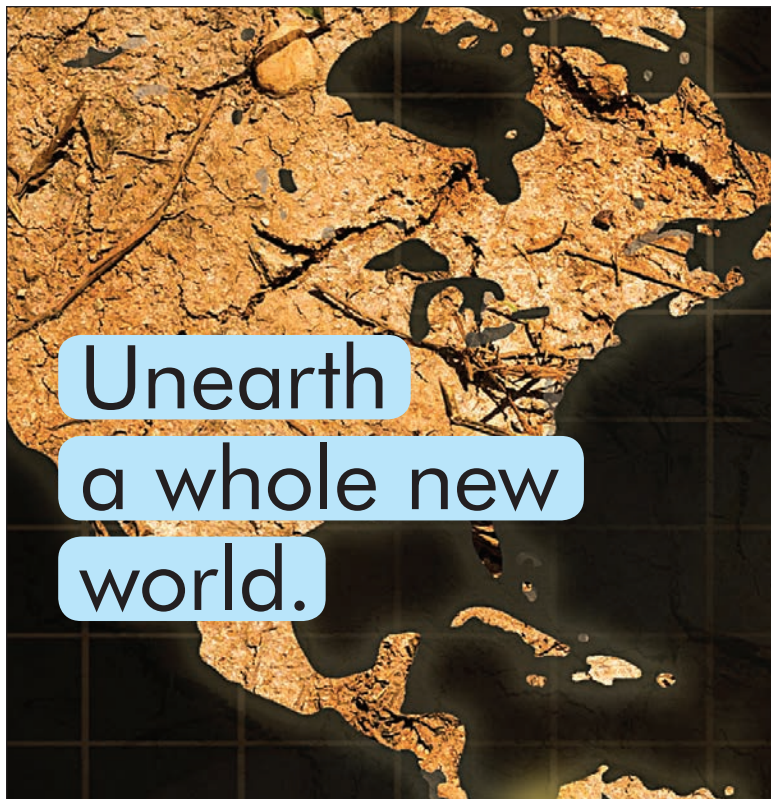


the bottom of the cyclone and the conveying air is directed to the ejector and universal vacuum ejector, with compressed air discharged through a silencer or muffler.

"There is no economical vacuum system available to contractors and utilities. Electric-powered-fan vacuum systems will only produce 2 to 3 inches Hg. The air-powered ejectors will produce 16 inches Hg, and are an ideal tool for excavating where a backhoe cannot operate," Reeves says. "Material can be dug with high-pressure water, compressed air-operated air knives, jack hammers, etc."

According to Reeves, typical industrial vacuum systems cost anywhere from \$50,000 to \$300,000, and most require an operator. The simplified vacuum systems from Vulcan Pumps cost between \$10,000 and \$30,000.

205/991-7222; www.vulcanpumps.com



Unearth
a whole new
world.

digDIFFERENT

FREE subscription at digdifferent.com

VAC-CON
MORE POWER TO YOU

VECJET

The New
Vac-Con
VecJet
manufactured
by
Vector

700 or 350 gallon
25GPM @ 4000 PSI to 40GPM @ 3000 PSI
99HP Kubota diesel

VAC-CON
VAC-CON.COM
855.336.2962
e-mail: vns@vac-con.com
HOLDEN INDUSTRIES Companies

VECTOR

Vector Technologies Ltd.
VECTOR-VACUUMS.COM
800.832.4010
e-mail: inquiry@vector-vacuums.com

4. Vac-Tron Equipment's debris tank filter

The LP high-cfm unit from Vac-Tron Equipment uses a specialized in-tank filter inside the vacuum excavation unit's debris tank that in most cases eliminates the need to add water to the microtrenching process. This filter eliminates excessive material from reaching the cyclone separator. The filter reduces cleanup time during the trench run because there's no need to stop and clean out the cyclone or unclog the exit hose from the debris tank due to caked material. Advantages of microtrenching include a minimal cutting width that boosts installation production; reduced costs of backfill; shallow depth placement, which avoids encounters with existing utilities; and job site cleanliness. 352/728-2222; www.vactron.com

5. A.R.E. commercial truck caps

Deluxe Commercial Unit truck caps from A.R.E. Accessories fit a wide selection of pickups and have a fully welded aluminum frame. There are more than 200 options available, including door and window configurations, toolboxes, ladder racks, interior lighting and power box options, side panels and cap heights from 23 to 36 inches. Custom paint finishes are also available in any OEM or fleet color code formula. All caps feature BOLT one-key lock technology in folding T-handles on the doors for added security. 800/649-4273; www.4are.com

6. Felling Trailers I Series

The I Series from Felling Trailers incorporates additional standard features, structural strength and ease of operator use. The design of the hitch plate area has been simplified to reduce the number of welds needed in production, adding strength in final construction. The tailboard incorporates a four taillight LED system and a new design that offers a level transition onto rear deck boards when loading, extending deck life. An additional 2 inches added to the ramp width provides an 18-inch center gap between ramps. 800/245-2809; www.felling.com



7. Ditch Witch JT40 directional drill

The JT40 horizontal directional drill from Ditch Witch is equipped with two 7-inch LED displays for a direct, transparent view into the machine functions and diagnostics. The tracker information is integrated into advanced displays for enhanced visibility into all job site functions beyond drill operation. The drill is powered by a 160 gross hp Tier 4 Cummins diesel engine and has a two-speed rotational drive system that produces 5,000 ft-lbs of torque. It holds up to 600 feet of drill pipe on board. 800/654-6481; www.ditchwitch.com ▼

BY CRAIG MANDLI

Air Excavation Equipment

VACMASTERS System 4000

The VACMASTERS System 4000 air excavator has the brute force to dig deep down with air, exposing utilities in even the hardest soils without harming them. It allows technicians to dig faster and safer in soil that is hard, wet, sun-baked or compact, including ground frost. This unit provides operators with seven to eight minutes average potholing time and efficiency in backfilling with no mud hauling or disposal costs. It offers remote operation, a low-maintenance design, hydraulic-powered dumping, a supervisory control panel, self-purging filtration system and a fast-acting interceptor canister.



800/466-7825; www.vacmasters.com

Vanair Manufacturing Viper Series

Viper Series gas and diesel rotary screw air compressors from Vanair Manufacturing have been engineered and field-tested to be dependable and versatile. With up to 80 cfm of air capability output and up to 100 psi, they are powerful enough to operate a 3.5-inch pier-



cing tool, a 90-pound jackhammer or blow-out irrigation systems. Powerful and compact enough to fit into even the smallest pickup truck bed, the units can be mounted permanently on a truck, or are available with running gear for the flexibility to take on or off the vehicle to meet specific needs.

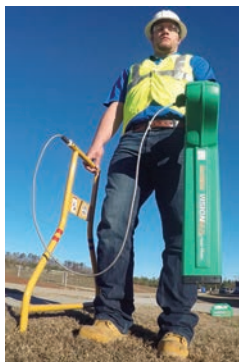
800/526-8817; www.vanair.com

Electronic Utility Locators

McLaughlin Vision FLX2

The fault-finding Vision FLX2 utility locator from McLaughlin allows contractors to quickly find the locations of ground faults in power and telecommunication cables to within inches. It combines precision with a simple, user-friendly interface. The receiver has manual and semi-auto gain adjustment and displays auto depth and current simultaneously. Contractors face congested underground conditions, unmarked utilities and increasingly strict regulations, making accurate, timely locating important. It has a durable design with antennas mounted in rubber isolators to stand up to tough job site conditions.

800/435-9340; www.mclaughlinunderground.com



RIDGID MR-10 Magnetic Locator

The RIDGID MR-10 Magnetic Locator is designed to make finding buried iron and steel objects faster and easier. It accurately locates objects at great depths, isolating only iron-containing objects, and ignoring non-magnetic metals such as aluminum and copper. It quickly finds buried property-marking pins, paved-over manhole covers, turf-covered valve boxes, septic tanks, cast iron pipe and drainage grates, as well as hidden pipes and studs in buildings. The sensitivity level can be adjusted to identify the precise location of ferrous metal objects at depths



of up to 10 feet, depending on the iron content. Its sleek form and ergonomic design also make it easy to handle for surveying, facility maintenance, construction, excavation, general plumbing and public works.

800/769-7743; www.ridgid.com

Schonstedt Instrument Company XTpc+

The XTpc+ underground locator from Schonstedt Instrument Company serves all utilities, including electric, telecomm, water, sewer and gas. It's a multifrequency locator with a receiver/transmitter combination that is part of the "XT" line. The receiver extends for greater sensitivity and retracts for easier carrying and storage. The pistol-grip receiver weighs less than 3 pounds, providing true one-hand operation.

800/999-8280; www.schonstedt.com



Ground Penetrating Radar

Subsite Electronics 2550GR

The 2550GR ground-penetrating radar system from Subsite Electronics has a user-friendly Windows-based interface that provides operators with a number of productivity enhancing benefits. Improved software features include easier integration of GPS data and wireless connectivity that enables users to download web-based maps such as Google Earth. It can be used to locate any type of metallic or nonmetallic utility conduit or piping, including PVC, beneath soil, rock, pavement and other surfaces.

800/846-2713; subsite.com



Hydroexcavation Equipment

Ditch Witch Prospector Nozzle

To help keep operators safe and productive on the job site, the Ditch Witch Prospector Nozzle boosts performance on hydroexcavation jobs. Operating at 3,000 psi, the nozzle efficiently cuts through a variety of soils while using less water for operation. Its rotating, 18-degree conical design provides optimal coverage and a cone-shaped cut, reducing damage to underground utility lines. Constructed with durable stainless steel housings and tungsten carbide wear surfaces, the nozzle is able to withstand harsh excavating environments while providing a long life. It is compatible with all Ditch Witch vacuum excavators and others on the market.

800/654-6481; www.ditchwitch.com



Foremost 1600 Hydrovac

The Foremost 1600 Hydrovac has a heated 42-inch van body and is recommended for both urban and industrial applications. It allows for water capacities of 1,600 gallons and a 13-yard debris body. The Robuschi RBDV125 blower provides vacuum power. The Cat 3560 wash pump and 740,000 Btu boiler are also used on this model. The boom is rear-mounted, 8 inches in diameter, fully rotational and controlled by an Omnex wireless controller, which also controls the vehicle rpm, wash and vacuum functions. All off-loading functions can be performed via the remote, and are performed via a sloped debris floor design and



washout system. The dump door is 48 by 58 inches, providing a large area to allow for tank cleaning. Optional 4-inch Hydratech off-loading pump systems are available, which allow for pumping off in a contained manner when discharging liquid loads. Complete winterization is standard.

403/295-5800; www.foremost.ca

GapVax HV56

Constructed of 1/4-inch ASTM A572-Grade 50 steel, the HV56 hydro-excavator from GapVax has a 15-cubic-yard debris body and water tank options ranging from 350 to 1,200 gallons. Its positive displacement blower is rated 5,250 cfm at 28 inches Hg. The tailgate is fully opening with a field-adjustable hinge and dual cylinders, and also has four individually adjustable locks to ensure a complete seal. Options include a cold weather recirculation package, sludge pump, auger unloading system, body pressurization system, remote pendants and wireless remotes. It can be used for excavating, locating utilities, tunneling, slot trenching, conveying dry gravel and sand, or general cleanup.

888/442-7829; www.gapvax.com



Hydra-Flex Switchblade

The Switchblade static, 0-degree nozzle from Hydra-Flex has the impingement and stream quality to allow operators to dig fast and use less water, providing greater efficiency on the job site. Designed for durability, this heavy-duty, high-impact nozzle operates at up to 3,200 psi and is constructed with stainless steel housings and tungsten carbide wear surfaces. The nonconductive urethane coating on the nozzle body works to extend the life of the nozzle while protecting the safety of the user and sensitive underground assets. A range of flow rates and spray patterns are available for different applications such as potholing and trenching.

952/808-3640; www.hydrflexinc.com



NozzTeq MONRO-JET

The MONRO-JET hydroexcavation nozzle from NozzTeq combines the power of a solid-stream pencil jet with the large coverage of a fan jet. Its circular water jet motion generates tremendous power at modest gpm rates, allowing the operator to move faster whether hydroexcavating, surface cleaning or cleaning sewer lines. It can be used for other types of surface cleaning such as concrete, steel, castings and large surface areas including line removal from runways. It can be modified for internal pipe cleaning of sewers and pipes of all types. An orbital design increases performance at a lower gpm rate and pressures as high as 36,250 psi.

866/620-5915; www.nozzteq.com



Presvac Systems Hydrovac

The Hydrovac from Presvac Systems is a versatile hydroexcavator designed for cold weather operation and offered as an option to be in full compliance with DOT collection and transportation of hazardous materials. The high-vacuum blower allows extraction of all types of soils, gravel, rock, clay, water and silt material, with knockout features in the debris tank to minimize carryover. Modular filtration configured to blower size provides blower protection and minimal maintenance. A heavy-duty 8-inch boom (up to 25 feet long) with six-way



hydraulic power and wireless controls for all boom functions, soft-start water pump, vacuum breaker and truck engine speed gives the operator complete control.

800/387-7763; www.presvac.com

Soil Surgeon

The Soil Surgeon hydroexcavating tool fits any sewer combination truck equipped with a telescoping 6- or 8-inch boom. The tool has a 1-inch water connection. The operator controls water pressure and power through truck controls. It has a 6-foot Tuff Tube with handles to guide the unit down for potholing or side to side for trenching. Six jets boring inward cut the soil, while six boring outward bring the tube down.

949/363-1401; www.soilsurgeoninc.com



StoneAge Hydro-X hydroexcavation tools

The Hydro-X line of hydroexcavation tools from StoneAge offers four options for accessing utilities and precisely excavating an area with high-pressure water. Tool configurations include a single hard-hitting jet head for accurate digging, a dual-jet head that divides a pump's power into a wider jet path, and a triple-jet pattern that delivers a wide swath for fastest material removal. The 60-inch single-jet lance provides extra reach for digging deep, focused holes. The tools use high-quality, long-lasting carbide nozzles and are capable of up to 5,000 psi and 12 gpm.

866/795-1586; www.stoneagetools.com



Super Products Mud Dog 1200

The Mud Dog 1200 12-yard debris capacity hydroexcavator from Super Products has a rear-mounted boom that is capable of a 19- to 27-foot reach, 335-degree rotation, 45-degree upward and 25-degree downward pivot. This range of boom motion allows crews to achieve greater work area access and deeper digging without the need to halt production to reposition the trunk. For fast, thorough and safe debris removal, it uses easy-to-use ejector plate unloading technology. The unit's tilt-unloading feature ensures that liquids in the debris tank are cleared quickly and efficiently even when unloading in an up-slope/nose-down position. Options include the Acculevel load sensor system for precise debris tank level measurement.

800/837-9711; www.superproductsllc.com



Tornado Global Hydrovacs F3 ECO

The F3 ECO from Tornado Global Hydrovacs has a lighter, stronger tank design that shifts weight forward, resulting in more road-legal weight capacity. This enables a driver to carry 10,000 pounds more debris than existing models. All of the critical components are housed in an insulated and heated aluminum van body. Because of its curved, sloped floor design, operators do not hoist the tank to empty it.

877/340-8141; www.tghl.ca



Transway Systems Terra-Vex

The Terra-Vex all-season hydroexcavator from Transway Systems has a Robuschi RB-DV145 6,400 cfm blower with OMSI transfer case and insulated acoustical enclosure with walk-in storage. Water pressure is achieved with a hydraulically driven Pratissoli KT20 water pump, delivering 10 gpm at 6,000

psi. The 3,000-gallon debris tank has a hydraulically operated hoist, and door locks with full-open door. The 1,200-gallon HDPE water tank supplies a 420,000 Btu diesel-fired burner permitting operation in subzero temperatures. The water pump and water tank compartments are heated by a diesel-fired heater and 12-volt engine coolant heater. The 26-foot hydraulically operated 8-inch suction boom is equipped with joystick control and wireless remote control. All parts are painted/powder-coated off the unit, and it includes marine-grade plywood floor enclosure, three-camera back-up system and digital water level display.

800/263-4508; www.transwaysystems.com



Vac-Con X-Cavator

The X-Cavator from Vac-Con is powerful, durable and easy to operate. It comes fully loaded and features a hydrostatic drive that uses the chassis engine for the vacuum, creating a more efficient system that eliminates the need for PTO, clutch and gearbox operation. It is available with water systems up to 4,000 psi, and a mobile wireless remote control system that enables the operator to work the chassis engine rpm, boom, automatic vacuum breaker, dump controls and hydraulic door locks from remote areas up to a 1/2 mile. The boom rotates up to 270 degrees.

904/284-4200; www.vac-con.com



Vacall AllExcavate

Vacall AllExcavate hydroexcavators include AllSmartFlow smart controls that help to conserve water during high-performance jet/vac digging around utilities and waterlines, or cleaning frac tanks and vessels. Single-engine efficiency helps conserve fuel and reduce emissions. It has a high-pressure water system with rheostat control to vary water volume and capacity output. A heated compartment enclosing the water system protects components against freezing. Its water tanks are made of high-quality aluminum for extra strength. Large, galvanized steel debris tanks are also available. A single control is used to open, close and lock the tailgate. It has double-cyclone filtration with a simplified design to reduce maintenance, extend performance and increase working life. Its rear-mounted boom front-loads debris. It is available with a cold weather package.

800/382-8302; www.vacall.com



Vector HXX HydroExcavator

The Vector HXX HydroExcavator provides up to seven hours of continuous operation with onboard water. The standard variable-flow water system allows lower water flow, resulting in less operator fatigue and a cleaner, more precise digging process. The system allows for up to 25 gpm for projects requiring higher water flow capabilities. Using the DigRight Technology, operators



select the maximum desired working water pressure for their application based on vacuum excavation best practices. This selection will limit the water pump from exceeding site, industry or customer maximum pressures to ensure a safe and nondestructive method of excavation. DigRight Technology also reduces wear and tear on the water system, extending product life. Its boom turret provides increased vertical range of motion for improved operator performance and productivity, enabling the operator to complete most applications with only one dig tube.

800/627-3171; www.vactor.com

Westech Vac Systems Hydrovac Code TC407

The Hydrovac Code TC407 excavation truck from Westech Vac Systems is specified with a TC407 rating (hazardous goods transport capable). The truck allows quick access to buried water mains and natural gas and petroleum pipelines, cutting through hardened scale and frozen ground with reduced risk of damage. It is designed to handle unpredictable off-road applications and unknown hazardous materials, in every type of weather, from -40 to 95 degrees F. It is quick and easy to set up so work can begin immediately, maximizing efficiency and productivity. Debris body capacities range from 11.8 to 13 cubic yards. It has heated rear door valves, a heated hose reel cabinet, and glycol and air purge winterization systems.

780/955-3030; www.westechvac.com



X-Vac, A Product of Hi-Vac Corporation, X-6 Hydro Excavator

The truck-mounted X-6 Hydro Excavator from X-Vac, A Product of Hi-Vac Corporation, has a 6-cubic-yard debris tank and can store 570 gallons of freshwater, with an optional 1,000-gallon tank. The adjustable triplex water pump exerts up to 3,000 psi and is set independently of the blower speed. Vacuum systems range in size from 2,600 cfm at 27 inches Hg vacuum to 3,400 cfm at 16 inches Hg of vacuum. Its 6-inch vacuum hose exposes any type or size of underground utility, especially in residential areas where space is tight and crews want to avoid blocking residential streets.

740/374-2306; www.x-vac.com



Leak/Gas Detection Equipment

General Pipe Cleaners Gen-Ear LE

The Gen-Ear LE from General Pipe Cleaners allows users to pinpoint water leaks in residential and commercial waterlines, whether they are under concrete slabs, in walls, swimming pools and hot tubs. The compact amplifier fits easily in the palm of the user's hand, and provides noise-free amplification with built-in preset audio filters. High-performance headphones with noise cancellation help block out interference from surrounding ambient noise. The advanced acoustic ground sensor listens for the gurgling or hammering of water escaping from a cracked pipe under concrete, asphalt or tile. For soft surfaces like grass or carpet, use the probe rods. For above-ground pipes or hydrants, use the magnetic attachment. A safety button in the amplifier mutes sudden loud noises when the button is released. Two AA batteries power it for 20 or more hours.

800/245-6200; www.drainbrain.com



RKI Instruments GX-6000

The GX-6000 from RKI Instruments allows the user to monitor up to six gases. Two smart sensor slots auto-recognize PID, IR and super toxic sensors. It has five operating modes, including normal, leak check, inert, snap log and bar hole. It comes with a library of over 600 VOCs, PPM Leak Check Mode, man-down and panic alarms, and an auto display rotation. It has an LED light source, internal sample pump and glove-friendly glow-in-the-dark buttons. The unit is lightweight, with a small, rugged IP-67 design. Battery packs are interchangeable and are available in lithium-ion or alkaline. It operates up to 14 hours on the lithium-ion battery pack, and fully recharges in three hours. It has field-replaceable sensors, batteries and filters.



800/754-5165; www.rkiinstruments.com

SubSurface Instruments LD-18

The LD-18 digital water leak detector from SubSurface Instruments offers automatic noise reduction from intermittent interfering noises, like passing vehicles, people talking and pedestrian footsteps. It can be used to find leaks quickly and easily, as it uses an amplifier to easily identify leak sounds. The all-digital amplifier has automatic noise reduction of environmental sounds, high and low filters, storage and graphing of leak noises at different locations on pipe. It uses a bar graph and numeric display of sound loudness, and has a USB connection and backlight. It includes five high-frequency filters, three low-frequency filters (plus low filter OFF), and two notch filters (plus notch filter OFF) to remove continuous interfering noises.



855/422-6346; www.ssilocators.com

Surveying

Vivax-Metrotech Spar 300

The Spar 300 from Vivax-Metrotech is a precise utility surveying system that collects positions in site coordinates, in a package that adapts to a range pole, ATV, riverboat or push cart. It continuously logs the utility depth and offset with statistical confidence and automatic offset calculations. Using a Bluetooth or USB link, the instrument outputs the 3-D positions to a Trimble TSC3 or tablet for real-time display on the Trimble Access map, independent of its own perspective with respect to the utility or the GNSS antenna. When a complex locate scenario is encountered, it applies automatic tolerance masks to the position data, flagging these areas on the map.

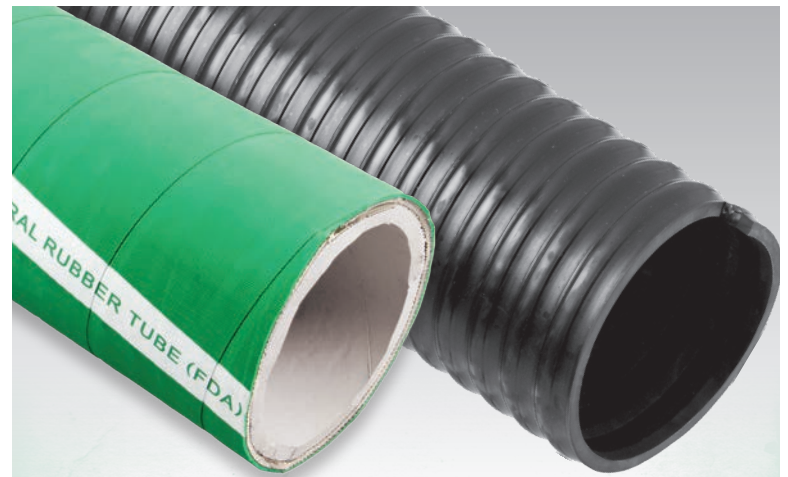


800/446-3392; www.vxmt.com

**COLE publishing**

Keeping it GREEN since 1979

colepublishing.com



Tex-Comm

- (THE GREEN MONSTER)
- > Heavy Duty Abrasion Resistant Suction Hose
 - > Sizes: 2" - 12"
 - > Available in bulk rolls or custom cut lengths

Kanaflex®

180AR

- > Heavy Duty Abrasion Resistant Suction Hose
- > Sizes: 2" - 12"
- > Available in bulk rolls or custom cut lengths

Mention this ad for an exclusive discount!

MRP
MILWAUKEE RUBBER PRODUCTS

1.800.325.3730

www.MilwaukeeRubber.com

WHAT'S
TRENDING IN
ALTERNATIVE
EXCAVATION?

FIND OUT.

Visit digdifferent.com

Also:

- FREE Subscriptions
- Online Exclusives
- Email Alerts
- E-Newsletters
- Blogs and Videos

Time Share

FINDING A MENTOR OR BEING ONE ARE WAYS TO GROW YOUR CAREER AND HELP IMPROVE THE COMPANY OVERALL

BY MATT TIMBERLAKE

One of the most valuable assets your career can have is a good mentor. A mentor is defined as an individual who helps and guides another individual's development by sharing his or her experience. This guidance is not done for personal gain.

At the Ted Berry Company, we have a long history of mentorship. In the early 1970s, Ted Berry mentored a young Jim Timberlake, teaching him about general industry best business practices and practical skills. That set Jim up for a career of success and accomplishment. Jim later mentored me as I came into the business in the early 1990s, and once again set me up for an accomplished and successful career.

Many of us at the Ted Berry Company have relied on a single mentor or a series of mentors over the years, and we must continue this tradition, as it is one of the best ways to educate and promote from within our co-workers.

FINDING A MENTOR

Here are a few tips for finding a mentor:

- The best place to look for a mentor is right in front of you. Look around at work. Is there an individual who you admire and respect? Someone who has always impressed you with insight and perspective?
- Maybe your boss or your boss's boss. Maybe it's a manager in another service group or work team. It could even be an individual who doesn't currently work for the company, but has lots of experience.
- Approach that individual and ask if they would consider being your mentor. Depending on the individual, and your current relationship, your proposal will vary in the amount of detail and how it is delivered. At the very least, let them know why you selected them and what you hope to learn from the association. If appropriate for the specific individual, you can also discuss amounts of time to be committed and what you will contribute.
- Don't put it off. What can you lose? Even if they decline to be your mentor, and few will, they will be flattered that you asked.

BEING A MENTOR

How about if you are asked to mentor an employee? What does it take? It takes the same level of interest, commitment and confidence in your own abilities that it takes to mentor a student. It requires that you be sincerely interested in someone else's growth. You won't win any awards, but you will have the satisfaction of having done an important job.

Who becomes a mentor? Why do they do it? The answers are as varied as the people involved. Some of us were lucky enough to have had a mentor and want to repay that. Others just want to help out, be a positive influence, and help to continuously improve the company from within.

Whatever your reason for being a mentor, you will find it a special experience. Nothing can quite match the self-satisfaction you get from sharing your experience to help others.

The way I see it, you learn your life experiences from a number of people as you grow up and as you mature through your professional career. From family to co-workers and even friends, we learn our habits and develop our values as we grow.

A dedicated mentor can teach you the correct way to do things and



Matt Timberlake

A DEDICATED MENTOR CAN TEACH YOU THE CORRECT WAY TO DO THINGS AND THE SAFEST PRACTICES FOR ACCOMPLISHING YOUR WORK.

the safest practices for accomplishing your work. Remember the high school shop teacher who had one finger and always said: "Do as I say not as I do." Most of us will remember these small moments in life when someone took the time to share life lessons with us.

Work safe everyone!

ABOUT THE AUTHOR

Matt Timberlake is the president of Ted Berry Company, located in Livermore, Maine. ▼



Seeing Red?

Do you have a question about maintenance on a piece of equipment? *Dig Different* can track down the answer for you in our **Machine Shop** feature. Send us your question and it could be a future column.

editor@digdifferent.com | 800-257-7222

When Is It an Emergency?

BE AWARE OF WHEN SOMETHING SEEMINGLY MINOR COULD POSE A MORE SIGNIFICANT THREAT

BY DOUG DAY

Rub some dirt on it and walk it off was probably good enough health advice for the playground when we were kids. While it might still work for some routine workplace injuries, there are times when it's wise to take a few minutes to make sure that normal boo-boo isn't something more serious.

How would you handle the situation if one of your employees or co-workers slipped and hit his head when you were almost done with a cleaning job? Or felt sick after being exposed to chemical vapors as you were setting up for a job? Would you tell him to take a break? How would you determine if it warranted a higher level of concern? Making the right call, and taking extra precaution when required, could make the difference between a bad day and someone's last day.

The American College of Emergency Physicians (ACEP) says a medical emergency is an event that includes "severe pain, bad injury, a serious illness, or a medical condition that is quickly getting much worse." Some examples:

- Loss of consciousness
- Severe shortness of breath
- Facial drooping or weakness in an arm or leg
- Chest pain
- Bleeding that does not stop after 10 minutes
- Head trauma
- Seizures
- Severe reaction to insect bites
- Major broken bones
- Coughing or vomiting blood

URGENT CARE CENTER

Despite the name, urgent care centers are intended to treat common medical problems when you can't see your normal doctor or after regular office hours. As ACEP describes them, "They treat minor illnesses and injuries, such as flu, fever, earaches, nausea, rashes, animal and insect bites, minor bone fractures and minor cuts requiring stitches. Many centers also do physical exams, vision and hearing screening, and lab tests and X-rays." So they may be appropriate for follow-up care after a minor injury, but an urgent care center is not the place to go for a serious injury or medical condition.

WHEN TO CALL AN AMBULANCE

Whether it's the cost, the bother, or just not wanting to tie up emergency personnel, people do hesitate to call an ambulance and decide to transport the victim, or themselves, to a hospital. ACEP says these questions will help you decide if you should pick up the phone and call 9-1-1.

- Is the condition life- or limb-threatening?
- Could the condition worsen quickly on the way to the hospital?
- If you move the victim, will it cause further injury?



THE AMERICAN COLLEGE OF EMERGENCY PHYSICIANS (ACEP) SAYS A MEDICAL EMERGENCY IS AN EVENT THAT INCLUDES **"SEVERE PAIN, BAD INJURY, A SERIOUS ILLNESS, OR A MEDICAL CONDITION THAT IS QUICKLY GETTING MUCH WORSE."**

- Does the person need skills or equipment that paramedics or EMTs carry right away?
- Would distance or traffic cause a delay in getting the person to the hospital? And then there are times when it is necessary to call 9-1-1 and get professional medical assistance on scene as soon as possible. These include:
 - Severe difficulty breathing, especially that does not improve with rest
 - Chest pain
 - A fast heartbeat (more than 120-150) at rest especially if associated with shortness of breath or feeling faint
 - You witness someone faint/pass out or someone is unresponsive (comatose)
 - Difficulty speaking, numbness, or weakness of any part of the body
 - Sudden dizziness, weakness or mental changes (confusion, very odd behavior, difficulty walking)
 - Sudden blindness or vision changes
 - Heavy bleeding
 - Broken bones visible through an open wound, or a broken leg
 - Severe burns
 - Allergic reaction, especially if there is any difficulty breathing
 - Extremely hot or cold
 - New severe headache
 - Sudden intense severe pain ▼



facebook.com/DigDifferent
 twitter.com/DigDifferent
 linkedin.com/company/dig-different-magazine

Secure the Cash for When You Need It

FOLLOW THESE TIPS TO QUALIFY FOR A LINE OF CREDIT THAT WILL HELP WITH PRESSING FINANCIAL CHALLENGES OR ALLOW YOU TO BUY EQUIPMENT TO GROW YOUR BUSINESS

BY ERIK GUNN

You have good cash flow, minimal debt and no upcoming major purchases in the works.

But you know just how unpredictable the future can be. “Chance favors the prepared,” the old saying goes, but how do you realistically prepare for every eventuality? You can’t, of course. But anything you can do to provide more flexibility when fortune changes, for better or worse, can put you on the right side of those wise words.

One way to prepare is to establish a line of credit even when you don’t need it. Strengthening your position now to borrow in the future can pay off handsomely. And along the way, it lets you forge a stronger relationship with your bank.

WHY NOW?

Mills Snell owns Pendleton Street Advisors in Columbia, South Carolina, a business financial planner. He says setting up a line of credit when you don’t need it helps in three ways: timing, sentiment, cash flow.

Timing. Getting a line of credit takes several weeks if not longer, Snell points out — even if you have already organized all the information your banker needs. When opportunity knocks, why risk losing out to a better-prepared rival ready to open the door immediately?

Sentiment. If the emergency that sends you to the bank puts your company in a fiscal bind, “lenders will either avoid perceived risks or make the borrower pay more in order to make it worth their exposure,” he notes. A credit line already in place helps avoid that.

Cash flow. Even present-day good times and a healthy savings account might not insulate you from future business ups and downs. “The ability to be flexible and tap into a line of credit could be a make-or-break moment for a business owner,” Snell says.

“Cash flow is different than cash,” he continues. It can be shortsighted to evaluate a decision simply by looking at whether you have enough money now.

Suppose you see an opportunity to add another service truck and hire two more people. You crunch the numbers and find that it will take two years to break even on the added cost — but once you get there, your profits can take off.

Still, short-term strains on your immediate savings and on your cash flow could reasonably scare you off. A credit line gives you freedom to look at the idea’s long-term sustainability, Snell explains: “It also creates a margin of safety where things have time to play themselves out rather than something having to work out perfectly right away.”

BE PREPARED

OK, so you’re sold on the concept. Now what? Analyst Ian Atkins, at Fit Small Business (FitSmallBusiness.com), offers this prescription:

- Always have an accurate, current profit-and-loss statement and balance sheet.
- Always have an accurate, current personal asset/liability list.
- Keep your personal and business credit scores as high as possible.
- Make sure taxes are filed on time, with no tax debts.

“Small-business owners should also ask themselves on a regular basis, ‘Will I need financing six months from now?’” Atkins counsels.

“Getting the best terms on financing means impressing your lender. If there are any blemishes on your credit, you have time to improve them. If your books are disorderly, you have time to straighten things up. It’s all about accurately presenting yourself in the best possible light.”

It gives a whole new twist on the adage *time is money*: “If you don’t give yourself plenty of time to get spruced up, you can’t address issues before working with a lender,” Atkins explains, because suddenly, you’re looking like a riskier borrower. That could cost you in a smaller line, shorter pay-back terms or higher fees.

Once you have the credit line in place, Snell suggests that before drawing on it you ask yourself, “Is this an expense for consumption or investment?”

You might need to tap the line once in a while to make payroll or buy supplies in tight

times — “but you will certainly get in trouble if you make it a habit.”

Instead, Snell suggests, use your credit line to build long-term income. “Buying a new piece of equipment could expand your business’ service offerings and generate revenue that you would not have access to otherwise,” he says. “By financing the purchase with a line of credit, you allow the investment to begin paying for itself before you have to part with your hard-earned cash.”

TRADITIONAL VS. GUIDANCE

There’s more than one approach, however. Dominic Karaba, executive vice president for business banking with UMB Bank, points out that some businesses routinely use a traditional credit line to cover “working capital needs like paying salaries or expenses while you are waiting for receivables to be paid or collected.”



Think outside the bucket

digDIFFERENT

Sign up to learn about alternative excavation techniques and the people and products that power them.

It's FREE.

SEND A FREE* SUBSCRIPTION OF DIG DIFFERENT TO:

Contact Person _____

Company Name (optional) _____

Job Title (optional) _____

Address _____

City _____

State/Province _____

Zip/Postal Code _____

Phone _____

Phone Extension (optional) _____

Fax _____

Cell Phone (optional) _____

Email _____

*U.S., Canada and Mexico only

FAX this form to 715-546-3786

MAIL this form to COLE Publishing, P.O. Box 220,
Three Lakes, WI 54562

SUBSCRIBE ONLINE at digdifferent.com

Please indicate your primary service: (optional)

Excavation/Grading Hydroexcavation Other _____

Do you pass *Dig Different* magazine along to others to read?

Yes No

When it comes to equipment and other purchasing decisions, what is your role?

Not at all involved Somewhat involved Heavily involved Final decision maker

How many pieces of excavation equipment do you have in service?

0 1-3 4-5 6-7 8-9 10+

What is your annual equipment budget?

0-50K 51K-75K 76K-150K 151K-250K 251K-350K 350K+

What services do you perform on a regular basis?

Excavating Hydroexcavating Trenching Horizontal Directional Drilling/Boring
 Vertical Drilling/Boring Pipe Relining/Rehabilitation Utility Location/Leak Detection

Other _____

What is your company's primary service?

Excavation Contracting Utility Contracting Government/Municipal

Industrial/Commercial Vacuum/Cleaning Services Dealer/Distributor/Manufacturer

Other _____

D0517

For bigger capital expenses, though, Karaba suggests a different animal: a "guidance line of credit."

A guidance line is "primarily for equipment needs this year, but the needs might not be known yet," he explains. You don't actually draw on it until you give the bank an invoice for the new equipment. At that point, the borrowed amount is converted into a term loan, typically with a three- to five-year pay-back schedule.

For a guidance line, your banker will want a clear picture of your expected needs for capital expenditures and equipment in the coming year. (Of course, you also need the other usual documents — tax returns, balance sheets, P & Ls and so on.)

Banks apply different standards to guidance lines and conventional credit lines, Karaba notes. The traditional line will rise and fall over the annual expense and revenue collection cycle, and it typically must have a yearly "resting period" when the line has a zero balance owed.

What you don't want to do, cautions Snell, is treat it as an infinite safety net. Better to suffer the short-term pain of watching cash go out the door than the long-term disaster of your balance owed creeping up month after month with no end in sight.

Meanwhile, the guidance line is specifically designed for major expenses, as is the term loan that takes its place once the purchase is made.

"Always think about how long it will take to pay off the loan through operating profits," says Karaba. "If you can pay it off in less than a year, then a line of credit could be OK. If it will take more than a year to fully repay the

amount borrowed, then a term loan or a guidance line with a term-out feature is more appropriate."

AVOID SURPRISES

Setting up a line of credit also means a closer relationship with your bank — and that demands better communication. That will help when things get sticky. Atkins, of Fit Small Business, notes that a bank line of credit "can be slowed or reduced at the lender's discretion." Keeping in touch — and alerting your bankers to sudden changes, like a ding on your credit report or a shift in your normal borrowing pattern — means they won't be caught off guard, he adds: "Lenders hate surprises."

UMB's Karaba agrees. Meet every three months or even every month with your banker "to talk about needs and plans for the next six to 12 months," Karaba says. "The business owner should not wait until the last minute to tell the banker any new business needs. Instead, be open and honest with your banker so you both can plan."

A strong banker relationship is good in every respect, and failing to forge one is "the first mistake," he adds. Don't hold back information about how you're doing or your potential future needs. "Being proactive makes the entire business a lot easier."

ABOUT THE AUTHOR

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



Drop by.

[Facebook.com/DigDifferent](https://www.facebook.com/DigDifferent)

THE LATEST: News

JLG plans operational changes; plan to close 3 facilities

JLG Industries announced it has submitted plans for closure to the works council in Belgium for its manufacturing and predelivery inspection facilities and to employee representatives in the U.K. for its engineering center there. Manufacturing lines at the company's Orrville, Ohio, plant will also be shut down. The proposed changes may affect up to 525 employees.

Kenworth names 2017 Dealer Council

Kenworth Truck Company has named its 2017 Kenworth Dealer Council members. The council features eight executives representing the more than 380 Kenworth dealerships in the U.S. and Canada. The members are: chairman, Will Bruser, Truckworx Kenworth, Birmingham, Alabama; Mike Clark, Wisconsin Kenworth, Madison, Wisconsin; Boyd McConnachie, Inland Kenworth, Burnaby, British Columbia; Mike Nagle, Bayview Kenworth, St. John, New Brunswick, Canada; Scott Oliphant, Kenworth of Louisiana, Gray, Louisiana; Dan Penksa, Kenworth Northeast Group, Buffalo, New York; and Tim Spurgeon, MHC Kenworth, Leawood, Kansas. In addition, Tom Bertolino of NorCal Kenworth in Sacramento, California, serves as the Kenworth line representative for the American Truck Dealers.

Pettibone names Raffaelli VP and GM

Scott Raffaelli has been named the new vice president and general manager of Pettibone/Traverse Lift. In his new position, Raffaelli will oversee all company activities, including engineering, operations, sales and aftermarket.

FS Solutions enters distribution partnership

FS Solutions announced a distribution partnership with Gerotto Federico S.r.l. of Italy. Under terms of the agreement, the Gerotto Lombrico remote-controlled mini-excavator will be sold and supported by FS Solutions in the U.S., and by Joe Johnson Equipment in Canada.

Komatsu CEO Rod Schrader named to AEM board of directors

Komatsu America announced that CEO Rod Schrader has been elected to the board of directors of the Association of Equipment Manufacturers, the North American-based international trade group for the off-road equipment manufacturing industry.

John Deere employees increase volunteer hours

In 2016, Deere & Co. employees increased by more than 50 percent the number of volunteer hours they recorded in service to community organizations worldwide, totaling nearly 158,000 hours in the year. During the year, Deere launches its Serving Our Communities initiative, where employees organize volunteer projects to benefit local cities and towns.

McElroy partners with Netafim on HDPE

McElroy and Netafim have joined forces to meet the demand for HDPE pipeline solutions in the irrigation, potable water and natural gas industries.

Top 10 Ditch Witch dealerships of 2016 honored

Ditch Witch recently awarded its top 2016 dealerships with its highest honor, the Crescent Club. The winners included: Ditch Witch of Alabama; Ditch Witch Bay Area, Central and Southern California; Ditch Witch of Central Texas; Ditch Witch of Florida; Ditch Witch of Minnesota and Iowa; Ditch Witch of North Carolina; Ditch Witch of North Dakota; Ditch Witch of Oklahoma and Arkansas; Ditch Witch Sales of Michigan; and Witch Equipment Co. in Texas. ▼

**“There are different ways
to excavate soil.**

**Most people think you’re just
spraying water on the ground,**

but it’s a science —

there’s a right way to do it.

“We’re here to stay. We’ve got a good

reputation,

and that makes me want to work

even harder. The guys and I all have

something to prove.”

Mike Morehouse, Owner
Davids Hydro Vac
White Bear Lake, Minn.

Read what **matters**
to contractors
in every issue
of *Dig Different*.



Subscribe for **FREE** at
digdifferent.com

Happenings

CALENDAR

May 16-18

National Utility Contractors Association (NUCA) Washington Summit, Embassy Suites, Washington, D.C. Visit www.nuca.com/summit

June 4-7

Electric Utility Fleet Managers Conference (EUFMC), Williamsburg Lodge and Conference Center, Williamsburg, Virginia. Visit www.eufmc.com

June 4-7

Rapid Excavation and Tunneling Conference (RETC), Hyatt Grand Manchester, San Diego. Visit www.retc.org

June 9-15

World Tunnel Congress (WTC), Grieghallen, Bergen, Norway. Visit wtc2017.com

June 19-22

ASSE Professional Development Conference & Exposition, Colorado Convention Center, Denver. Visit www.asse.org

August 14-16

10th annual Breakthroughs in Tunneling Short Course, Embassy Suites, Chicago. Visit tunnelingshortcourse.com

Sept. 30 - Oct. 4

90th Technical Exhibition and Conference (WEFTEC), McCormick Place North & South, Chicago. Visit www.weftec.org

Oct. 3-5

International Construction & Utility Equipment Exposition (ICUEE), Kentucky Exposition Center, Louisville, Kentucky. Visit www.icuee.com

Oct. 25-27

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

Nov. 28-29

Risk Management in Underground Construction Conference, Residence Inn Arlington Capital View, Washington, D.C. Visit undergroundriskmanagement.com

Dig Different welcomes your contributions to our Happenings column. To recognize members of your team, please send notices of new hires, promotions, service milestones, certifications or achievements. We also invite your national, state or local associations to post notices, news items and learning opportunities. Send contributions to editor@digdifferent.com. ▼

Connect with us!



[facebook.com/DigDifferent](https://www.facebook.com/DigDifferent)



twitter.com/DigDifferent



[linkedin.com/company/dig-different-magazine](https://www.linkedin.com/company/dig-different-magazine)

digDIFFERENT

Dig into our pages.

- Each issue shows you:
 - > New tools to help you win jobs and earn more profit.
 - > Ways to save on office expenses, supplies, advertising, taxes.
 - > Money-saving deals on equipment.
 - > And much more.

Plus, you'll learn from other successful business owners — how they do it, and how you can, too.

Don't miss an issue — subscribe today!

800.257.7222

www.digdifferent.com





Switch Blade Static Hydro Excavation Nozzle



Ace Nozzle
SKU 1002036



Deuce Nozzle
SKU 1002035



3200 PSI Quad Nozzle
SKU 1001928

- Max Water Temperature: 180° F
- Housing Material: Stainless Steel

FREE SHIPPING* TAX FREE Except FL
*Some delivery restrictions may apply. Call for details.

WaterCannon.com
1.800.333.WASH
(9274)

CLASSIFIEDS

EQUIPMENT & TOOLS



VACMASTER Vac-n-Digs. BOUGHT & SOLD. 2-3 in stock at most times. Opdyke Inc. 3123 Bethlehem Pike, Hatfield PA 19440.

215-721-4444

D05

Industrial Pressure Washer - New w/warranty \$9,500. 2,000psi, 18gpm. 999cc Kohler & AR pump. Will deliver. 321-800-5763 (DBM)

Honda horizontal GX engines, new in-the-box w/warranty. GX200QX - \$399; GX-270QAG - \$579; GX390QA - \$599 delivered price. 800-363-9855 or GXParts.com (DBM)

GapVax HV55 Wet-Dry Hydroexcavator, 2015 Peterbilt: Automatic, 12.5 cubic-yard debris body, 1,200-gallon water tank. Heated box, burner, recirc & glycol. 3,000psi, 25' HX boom. HV55-0967. 888-442-7829 (D07)

GapVax HV55-0663, 2010 Volvo cold-weather hydroexcavator: 1,200-gallon water tank, 12.5 cubic-yard debris. 4,000psi water system, heated box and burner, glycol & recirc. 888-442-7829 (D07)

2003 Vactor 2100 Hydroexcavator, 10-yard debris body, 500-gallon water tanks, 10gpm at 3,000psi CAT pump, 824 Roots blower. 50' of 1/2" hose on retractable reel, high-pressure hand gun. International chassis, auto. trans., low miles - 6,900, and hours - 3,228. Municipal-owned and maintained. Good truck, ready to go to work. \$50,000. Call Brian for pictures 303-898-9475 (C05)

Vac-Con industrial machine mounted on a pre-owned 2006 Sterling cab and chassis. (Stock #8593C) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (CBM)

2007 Sterling Vactor 2100PD tandem-axle combination cleaning truck. Ex-city owned, well maintained, and equipped with California Carb Compliant DPF System. See details of this unit and other cleaning and CCTV inspection units at www.empire-equip.com. Contact Craig at 714-639-8352. (CBM)

Sell your equipment in DIG DIFFERENT classifieds!
www.digdifferent.com/classifieds/place_ad

FATBOY

Keep stuff cold. Keep stuff dry. Keep stuff safe.



DOUBLE DRAIN PLUG



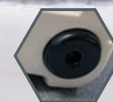
DUAL STAINLESS LOCKING CORNERS



FAST-DRAIN BUTTON



ALL STAINLESS OR ALUMINUM HARDWARE



FRICTION FEET

Order yours at FatboyCoolers.com. Use promo code **COLE17 to save 10% on your order and get free shipping**



24 CANS + ICE



FLOATS



WATERPROOF



RUGGED



PADDED



INSULATED



REFLECTIVE

DO YOU WANT A QUICK FIX OR A GAME CHANGER?

GapVax® Custom-built

VERSATILITY

Buy this
Cold-Weather
Unit today!
Specs on
our website



The #1 Choice Manufacturer of the easiest to operate and maintain Combination JetVacs, HydroVacs, Air Movers, Skid-mounted vac units, and now Recycle JetVacs and Jetters . . .
all CUSTOM-Built for YOU!



CALL TODAY FOR A DEMO!



The GapVax HV33 HydroVax Built upon the GapVax's proven wet / dry filtration system, this unit offers a new 4000 CFM high vac blower for quieter operation, 600 gallon water tank, 6-cubic yard debris body, new HX boom design, and has been redesigned for optimum weight distribution. Call today for more info!

281-884-8658
Gulf Coast
Deer Park, TX

888-442-7829
Headquarters
Johnstown, PA



35
CELEBRATING YEARS OF SERVICE

UNDERCARRIAGE CLEANERS



7 POSITION ADJUSTMENT

21" or 30"
4000 PSI
250° F



Starting At **\$985**

TIRE CLEANER APPLICATOR

16" or 18.5"
4000 PSI



Starting At **\$419**

UNDER CAR-WATER BROOM

16" - 4 Nozzle
4000 PSI
250° F



\$45.99

UNDERCARRIAGE CLEANER

24"
4000 PSI
250° F



Starting At **\$499**

WaterCannon.com | **1.800.333.WASH (9274)**



Industry Trained Staff available from 8:30 a.m. to 6:30 p.m. weekdays E.S.T.

Water Cannon, Un contacto en Espanol: llama al: 1.800.917.9274

Orlando | Phoenix | Minneapolis | Hattiesburg | Melbourne | Toronto | Bogota
International: 1-321-800-5763

Water Cannon
is proud to be a
MWBE