

May 2021

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Onsite dream p. 6

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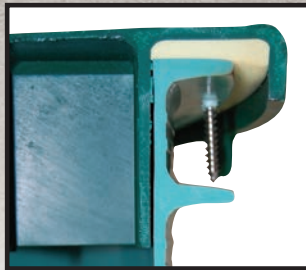
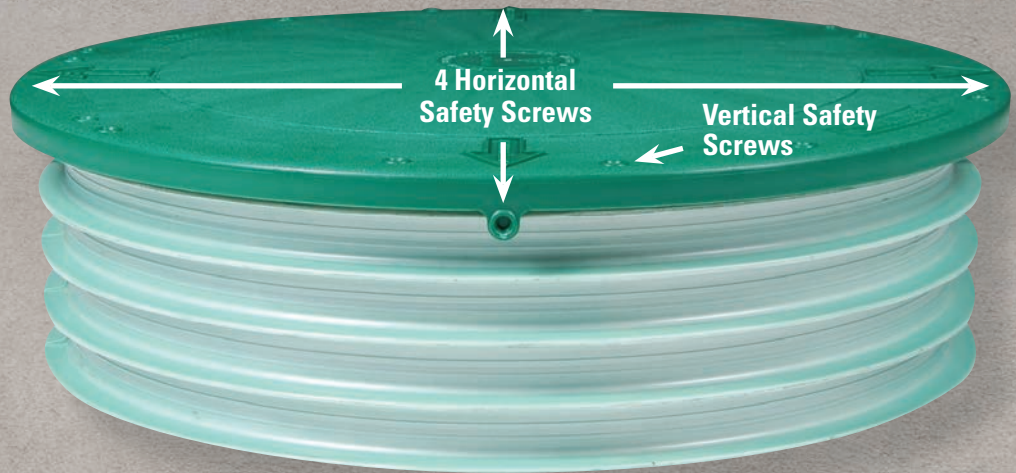
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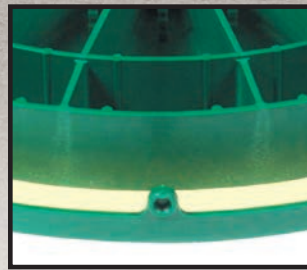
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### INSTALLER PROFILE:

#### Boots on the Ground

By David Steinkraus

### ON THE COVER:

Joe Rubenzer wanted to spend more time in the great outdoors, so the engineer bought a small onsite installing business, Stolt Excavating and Trucking, and got to work. Rubenzer is shown holding a Topcon laser level with his Cat 312 excavator in the background. (Photo by Brad Stauffer)

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Be sure to check out our exclusive online content.

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Winnie May

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## Coming Next Month

**ISSUE FOCUS:** Septic Tanks and Components

System Profile: Drainfield goes under the driveway

Profile: A Michigan installer digs in



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**Jim Kneiszel**



Send your comments, questions or opinions to Jim Kneiszel at [editor@onsiteinstaller.com](mailto:editor@onsiteinstaller.com).

# Living His Onsite Dream Requires Working Seven Days a Week

Idaho's Skylar Hunsaker launches an installing business on the weekends to "succeed or fail on my own and the way I see fit."

A common concern in the wastewater industry — and for installers specifically — is the graying of the workforce and the nagging question of who is going to step up and fill in the ranks of aging company owners and crew members. Not a month goes by when I don't hear a contractor wonder, A. Where am I going to find young workers to get through a growing backlog of projects, and B. Who's going to take over my business when I'm ready to retire?

The cynical among these industry veterans will mutter about how "young people just don't want to work anymore." Or that newly minted graduates are being hoodwinked into thinking that wearing a tie and working in an office is more attractive and profitable than wearing overalls and working with their hands.

It's true that for one reason or another, the message that a wastewater trade can provide good family-supporting wages and a solid career path is not getting through to enough younger people. My daily view of the industry bears this out. Many of our hardworking contractors are slowing down at the same time the existing septic system infrastructure is getting older and new construction is on the rise. The opportunity for the onsite profession seems boundless right now.

So when I hear about younger people stepping into the onsite trade and anxious to make the most of it, I like to share these stories. Hopefully they will inspire others to do the same and provide a shot of new blood at a time when it is most needed in this industry.

Skylar Hunsaker, owner of fledgling John Rae Excavation in Malad City, Idaho, is just one of these young contractors filled with energy and enthusiasm for this work. At 33, he works full time during the week for a



Skylar Hunsaker

"My goal for this business is to provide quality excavation and, more important, educate the septic system owners to the level that they need to be to make informed decisions about their systems."

**Skylar Hunsaker**

to the startup on Saturday and Sunday. He informed his employer of his plan to get his OK, and then started spreading the word that John Rae was open for business.

local excavation company, and then on the weekends toils to build his own business, one septic system at a time.

## LEARNING BY DOING

I met Skylar recently when following up with new subscribers to *Onsite Installer*. It's a valuable exercise to reach out to *Installer* subscribers to learn what topics they would like us to write about in the magazine. I do this regularly to make sure we continue to tailor our content to meet the needs of our readers. It was refreshing to talk to Skylar and learn about his laser focus on building his business and educating residential customers about their septic systems.

Skylar started in the industry after graduating high school and has worked for the same excavation company for 15 years. Along the way he has learned to operate a wide variety of machines the company runs, obtained his CDL to operate the big rigs, and he's risen in the ranks to be a foreman for a crew that specializes in septic system installing. His career so far has provided many fulfilling learning experiences and fueled his interest in onsite work.

But he's wanted something more; to scratch an entrepreneurial itch. But building his independent business is coming with some big challenges. It's taking a seven-day-a-week commitment and there are financial hurdles to overcome.

In 2019, Skylar decided he wanted to continue working full-time for the excavation company, Monday through Friday, and then dedicate himself



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### RENTING EQUIPMENT

The company name combines Skylar's middle name and his grandfather's name (John) with a shortened version of his wife's middle name (Raelene). While the name doesn't speak to specific services he provides, it is a conversation starter, as it's the first question most people ask him.

Skylar started with a variety of small excavation jobs, sewer hookups and a handful of system installs, conventional gravity systems. Skylar holds installing licenses for both Utah and Idaho as his home and job straddle the state line. He has a pickup truck and equipment trailer, and also bought a used Chevy dump truck to haul materials.

He started in August 2019 and completed six jobs and in 2020, upped that to 36. He tries to schedule jobs for most weekends. Some of them can be completed on Saturday, while others stretch into Sunday, or even Monday evening if he has to wait for an inspection before backfilling.

Rather than go heavily into debt, Skylar rents all of his digging equipment. He says equipment is the biggest barrier to entry for most people looking to start their own installing businesses. He has his eyes on an \$80,000 Bobcat E42 mini-excavator but wants to build the business enough to pay at least 50% of the cost upfront.

Skylar would eventually like to take the business full time, but that depends on building the company and his wife taking a full-time job when their young child goes to school. He's learning the ropes of marketing the company, starting with gaining lists of homeowners as they take out construction permits and sending out targeted promotional letters. He is also encouraging customer testimonials and now has nine five-star reviews online.

### OPPORTUNITY KNOCKS

"My goal for this business is to provide quality excavation and, more important, educate the septic system owners to the level that they need to be

to make informed decisions about their systems," he says.

Skylar sees a lot of opportunity in the onsite industry. He says several installers in his area are in their 60s and young people will need to step up. He advocates for installing companies to approach two-year trade schools and recruit students who want to learn. He's heard some say younger people are lazy and don't want to work. But he doesn't buy that.

"When I was young, I wanted to work. I busted my butt and there are some young people who want to work," he says.

He suggests society needs to recognize the importance of the trades and alter the attitude that everyone should aspire to go to a four-year college. Many people "see family members working construction, and they come home dirty and tired and are always broke," he says. But that doesn't have to be the image.

"If you have the right company, one that's more professional, one that charges more so you can pay employees more and make it attractive, that's a start," he says. The key is raising the bar on professionalism, he continues. "If you train (workers) to be more professional, that proves a lot with your customers. The average contractor who doesn't communicate well and comes to the house and flicks a cigarette butt on your lawn, you don't want to pay them high-dollar."

Skylar's can-do attitude gives me hope for the future of the onsite industry. Even though many challenges lie ahead, I want to dwell on this his entrepreneurial outlook.

"My goal is to be on my own and have the freedom to succeed or fail on my own and the way I see fit," he says. "That way, the harder I work and the smarter I am about it, the more it pays off for me." ❑

### Drop Us a Line

Have a comment about an article you've seen in *Onsite Installer*? An experience from a job that you'd like to share? *Onsite Installer* would love to hear from you. Email comments and photos to editor@onsiteinstaller.com

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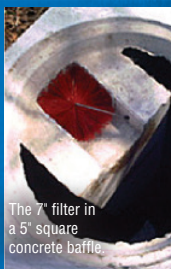
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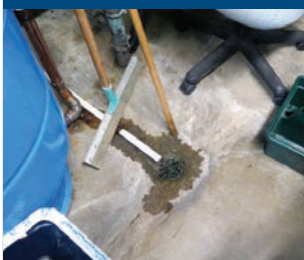
### CATCH OF THE DAY What to Do With Fish Cleaning Waste

When anglers want to fry up their catch, fish cleaning creates a unique waste stream that needs special attention when the facility is served by a septic system. If you are designing or maintaining a system on a property where fish cleaning will take place, here are some considerations to help create and maintain a successful system. [onsiteinstaller.com/featured](http://onsiteinstaller.com/featured)



### FINDING THE CAUSE Suss Out Septic Odor

Occasionally property owners complain about odors from their onsite sewage treatment system. Multiple plumbing issues can result in septic odors in buildings but the fix is usually straightforward. There are several locations within an onsite system where odor can be an issue. This online article lays out a helpful checklist for indoor odor troubleshooting. [onsiteinstaller.com/featured](http://onsiteinstaller.com/featured)



### Overheard Online "Talented

candidates, who are willing to not only work hard and learn but also are open to learning new techniques and ways of doing things, are an ideal choice."

— *Recruit the Best Talent in a Small Talent Pool*  
[onsiteinstaller.com/featured](http://onsiteinstaller.com/featured)

### CONTROL THE COST Strategies to Curb Health Care Expenses

For small-business owners, there are obvious advantages to providing decent employee health benefits, like improved employee morale, potentially fewer sick days, and more attractive perks to entice new employees. The problem, of course, is that group health care costs can be sizable. The tips in this article can help keep this significant expense in check while also satisfying your employees' health needs. [onsiteinstaller.com/featured](http://onsiteinstaller.com/featured)



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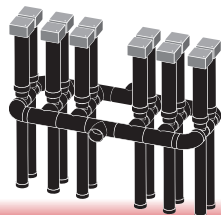
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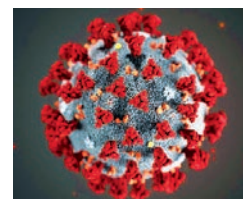


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# BOOTS ON THE GROUND

A Wisconsin engineer wanted to avoid desk duty, so he retooled his skill set and enjoys his new career as an onsite installer

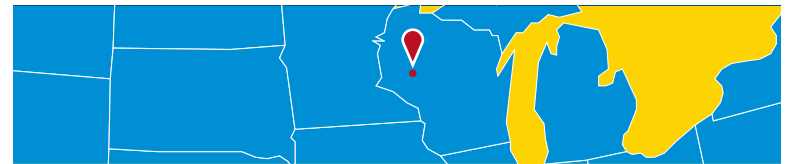
By David Steinkraus

**F**or several years, while he was working for engineering and construction companies in northern Wisconsin, Joe Rubenzer held the idea of self-employment in the back of his mind. He knew he couldn't afford to buy a company like the ones he worked for, some worth millions of dollars.

Instead he kept an eye out for smaller companies. He found one, made the switch to onsite wastewater, and now has a business in a thriving area.

The rural counties to the east of Rubenzer's base are not showing much population growth, but his county and those to the west are growing strongly. Chippewa County, where Rubenzer's shop and home are located, grew by about 3.4% from 2010 to 2019. Neighboring Eau Claire County had a population increase of 5.8%, and St. Croix County, farther west and on the edge of the Minneapolis-St. Paul metro area, grew by 7.5%.

It's all happening for a guy who didn't have to move around the country or travel a lot to find a rewarding career.



## Stolt Excavating & Trucking Bloomer, Wisconsin

- Owner:** Joe Rubenzer
- Founded:** 1976
- Employees:** 3 full time, 2 part time and Joe's son
- Service area:** five counties, 60-mile radius from Bloomer
- Services:** onsite system installations and excavating, system maintenance and repairs
- Website:** [www.stoltexcavating.com](http://www.stoltexcavating.com)



◀◀ Joe Rubenzer confers with property owner Kathy Franklin during the construction of a mound system. A Topcon laser level is shown in the foreground. (Photos by Brad Stauffer)



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"I thought about changing it to Rubenzer Excavating when I first bought. I said, 'No, I'm going to keep (the Stolt Excavating name). I don't care if my name's on it. I'm here to make money, not to boost my ego.'"

**Joe Rubenzer**

▲ Dan Stolt uses a Cat excavator for site preparation during a mound system installation.



◀◀ Joe Rubenzer, left, and Mark Yohnk prepare a concrete tank from Skaw Pre-Cast for concrete risers.

▼ Joe Rubenzer uses a Bobcat compact track loader to move topsoil during the construction of a mound system.



## CLOSE TO HOME

Rubenzer grew up in Bloomer, Wisconsin, population about 3,500, where his shop is still located. He earned a degree in civil engineering from the University of Wisconsin-Platteville just three hours south, and went on to earn a P.E. license.

After college he worked for an area excavating company as a project manager and estimator. He thought he would prefer using his design skills and changed jobs, but in the course of a year he learned that he preferred being out in the field to working at a desk all day. So he refocused his career and worked for construction firms.

"In '08 my company downsized, and I lost my job," he says. He found a job with a blacktop company, and that's where he was when a small business opportunity came along.

"There are a lot of lakes around Bloomer, and a lot of these lakes have very small lots. I enjoy going to those projects where you have to think outside the box."

**Joe Rubenzer**

For several years he had a friendship with Dan Stolt, who owned Stolt Excavating & Trucking. "We were kind of family friends, and I said to him at one point, 'Hey, if you are ever interested in selling, let me know.' It was a year or two later he brought it up, so we started to talk."

Rubenzer bought the company in 2015. Stolt agreed to stay on and help Rubenzer learn the business and earn the licenses he needed, then cut back on his hours. Stolt still works part time, Rubenzer says. "He said, 'I want to keep working a couple days a week until I can't.' And he is very helpful. I mean, he knows exactly what to do."

During his engineering career, Rubenzer never did private onsite work. The engineering firms he worked for did municipal water and sewer projects. Switching to onsite wasn't a big change in some ways, he says.

"Pipes run downhill, and I understood pumps from my engineering background," he says. "Learning how the private systems work was new. That was really interesting and fun. The design and paperwork part of it was pretty easy for me to pick up on."

"I had run equipment for fun, but never for a profession," Rubenzer says. "That was my biggest learning curve." Stolt did most of the operating at first, and Rubenzer did more as he became more comfortable with the machines.

## UP FOR A CHALLENGE

New onsite installations comprise 60% to 70% of the work, with residential systems about 25% of that. Onsite system maintenance and repairs are about 10%. Smaller jobs, such as replacing hydrants and culverts, fill out the work schedule.

Most of the installations, and especially during his first three years, were basic septic systems. But Rubenzer wants to stretch his abilities. About two years ago, he and his technicians installed a system for a

commercial campground. For a humane society, they installed a system that used Eljen GSF components for the drainfield and a White Knight aeration unit as part of the treatment chain. In 2018 he used GeoMat from Geomatrix Systems at another job.

“There are a lot of lakes around Bloomer, and a lot of these lakes have very small lots. I enjoy going to those projects where you have to think outside the box,” he says.

When winter closes in on northern Wisconsin, Rubenzer and his crew work on keeping their knowledge current.

“Every winter they offer different septic training classes around here that all of my guys go to — me and the full-time guys, and Dan still goes,” he says.

He’s attended the local soil-testing class every year because there is so much to learn, and to maintain his professional engineer’s license he must take continuing education classes.

continued >>



Currently he’s looking at a potential job that would involve building a mound system inside a box. “They don’t have the room for a typical mound,” he says.

A soil test suggested a conventional system would work. “And when I got up there, I just said, no way,” he says. It was a lot near the water with a gently sloping bank. Rubenzer could see the soil sample had not been taken in the right location and suspected he would see signs of groundwater if he dug the hole for a conventional drainfield.

“I said to the homeowner, I will not put it in without doing a soil verification. And when I did, we found mottling,” he says.

Rubenzer’s proposal was to install the mound system inside an insulated box with Eljen GSF components to reduce the overall system footprint.

### LEARNING EVERY DAY

The people who help Rubenzer serve customers are full-timers Forest Clements and Mark Younk, and part-timers Dan Stolt, Tony Stoik and Brady Rubenzer, Rubenzer’s oldest son.

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## UNDERSTANDING BRAND VALUE

Stolt Excavating & Trucking doesn't operate in a vacuum. It's based in small town Bloomer, Wisconsin, in a county of about 65,000. Next door is Eau Claire County with 104,000 people, and the company's radius of operations takes it to the edge of the Minneapolis-St. Paul metro area.

So yes, there is work available, and there is competition for Joe Rubenzer, the owner of the company. Yet marketing is not something he's had to worry about.

"We do some advertising in phone books, newspapers and we have a website," he says. There's a water-ski team in a nearby tourist area, and Rubenzer buys an ad in the group's program. And the company vehicles are like rolling billboards.

The company has been steadily busy since he purchased it in 2015, and in late 2020 he hired his second full-time employee. Looking back, he can see what made the difference.

"It was good to keep Stolt Excavating & Trucking instead of changing the name," he says. "I thought about changing it to Rubenzer Excavating when I first bought. I said, 'No, I'm going to keep it. I don't care if my name's on it. I'm here to make money, not to boost my ego.'"

His decision gave him the advantage of customer goodwill built up over the years by previous owner Dan Stolt. The company was already known for good work, and in the beginning that was especially helpful because Rubenzer didn't have to hunt for business; people called because they knew the name. Now, after five years, probably 90% of the people who call know the company has changed hands, he says. But they're still calling, which says something about how Rubenzer has carried on the reputation that Dan Stolt built.

"I've been trying to merge the two, so I go down to Madison." That's the state capital, about 190 miles away. "I've been down there the last couple of years for a septic class that also counts toward my P.E. credits. I guess every year I personally will take four or five different training classes, and I would say my guys go to two to three. And I enjoy learning; plain and simple, I love it."

"Every year I personally will take four or five different training classes, and I would say my guys go to two to three. **And I enjoy learning; plain and simple, I love it.**"

**Joe Rubenzer**

At first it seemed he was picking up only part of the knowledge in onsite classes, he says, but now he can see how pieces of knowledge fit together so he understands the fine points that weren't clear initially when he was trying to grasp the large concepts.

### THE RIGHT STUFF

To do his work, Rubenzer depends on:

- Cat 312 excavator
- John Deere 35C mini-excavator
- John Deere 130 excavator
- Bobcat T595 skid-steer
- John Deere 544E loader

"When I first bought the company, all we had was a tractor backhoe and the mini-excavator," he says. After his first year, he sold the backhoe and bought the excavator and skid-steer. "Our production went up a lot."

The problem with the backhoe, Rubenzer says, was the limited swing of its arm





compared to the 360-degree spin of an excavator. As a result, the mini-excavator was used to dig in tanks and spread topsoil, jobs it wasn't really built for. The excavator and skid-steer changed that. "Now the mini is truly used for what a mini is built for: small, tight areas," he says.

Last winter, Rubenzer was shopping for a large excavator, about 30,000 pounds, or about the size of the Cat he already has. He decided on the John Deere 130.

### A SECOND CREW?

Rubenzer is 40, which gives him many years to build his business. By 2023 he hopes to have a second full crew in the field. The questions he asks himself are what services should he offer, and how fast should he expand?

He hired his first full-time employee, Younk, in 2018. And he says Younk is eager and willing to learn and was ready to test for his journeyman plumber restricted license this year. The second full-timer Clements, Rubenzer's brother-in-law, came on in late 2020. Rubenzer's plan is to train Younk so he is comfortable leading a separate crew.

"I don't want to micromanage, but I also want experienced people I can trust out there doing the right thing," he says. "I say to both these guys, I don't

care if it takes us an extra hour or two. When you leave there, I want that job looking like you'd want to come home to that job."

Both of his full-timers support expanding the company. At the same time, Rubenzer doesn't want to hire people he doesn't know and can't spend time with so they learn what he expects.

"I've only been doing this for five years, but in those five years, I've seen where people can cut corners and have cut corners," he says. He's seen repairs that don't make sense and wouldn't have become problems if someone had used the proper pipe or spent a little more time doing the work. "I don't want someone else going to one of our jobs and saying, Oh, boy, look at that.

"In general, I'm looking to expand, not explode," he says. ▣

▲ The crew of Stolt Excavating and Trucking includes, from left, Forest Clements, Mark Yohnk, Dan Stolt, Joe Rubenzer and Tony Stoik.



◀◀ Delivery driver/mechanic, Jesse Fedie of Skaw Pre-Cast, uses a Fassi Gru crane to lower a 1,250-gallon tank into an excavation for a new septic system being constructed by Stolt Excavating and Trucking.

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# Massachusetts Test Center Looks for Practical Wastewater Reuse Solutions

Hydroponics could provide an efficient way to take advantage of nutrients from decentralized wastewater systems

By David Steinkraus

In the summer of 2019, the Massachusetts Alternative Septic System Test Center on Cape Cod started a campaign called Waste No Water. In 2020, the center took the idea a step further by experimenting with recycled water for hydroponics. The intent is to get people thinking about how to care for a resource that may not seem important to Massachusetts residents.

“Around here in the Northeast, we have so much water it’s not something people think a lot about,” says Brian Baumgaertel, director of the center, which is part of the Barnstable County Health Department. “We pump water out of the ground – freshwater – clean it up, send it to a house. A lot of times we spray it on our yard or on our plants, and put it back into the ground. It seems awfully wasteful to waste our wastewater after it’s been treated.”

For a nitrogen removal project, the center staff had built a 36-foot-by-24-foot greenhouse. Inside the greenhouse were sand columns in 55-gallon drums.

## PLANTS THRIVE ON EFFLUENT

“Simple sand columns are really great at treating wastewater,” Baumgaertel says. Most pathogens are removed by the columns, but there is residual nitrogen and phosphorus. Combined with the greenhouse, it was a natural combination for trying some hydroponics, he says.

“We found that sunflowers love treated wastewater,” he says. Tomatoes, peas, cosmos and marigolds also liked feeding on effluent. “Zinias grow amazingly well.”

Outside the greenhouse are some small gardens fed by water from the

continued >>



▲ In hydroponics, plant roots are immersed in a nutrient solution. For the project, plants are fed directly on wastewater treated in a set of sand columns built by center workers.



▲ To treat wastewater, the Massachusetts Alternative Septic System Test Center built several sand columns using these large plastic drums. Brian Baumgaertel, the center’s director, is a fan of sand columns because they do a good job of treatment at low cost. Plants were set on top of the columns so their roots could feed directly on the water inside.





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“We pump water out of the ground — freshwater — clean it up, send it to a house. A lot of times we spray it on our yard or on our plants, and put it back into the ground.

**It seems awfully wasteful to waste our wastewater after it’s been treated.”**

**Brian Baumgaertel >>**

center’s “layer cake” treatment system. This is a non-proprietary technology that typically consists of layers of soil and wood chips. The chips act as a carbon source for bacteria that transform nitrate into nitrogen gas.

For his “cake,” Baumgaertel used a tank bottom that he turned upside down and made into a sand filter. Water from that flowed through a 30-gallon barrel of wood chips for denitrification. The principle is the same for the larger denitrifying systems running at the center, but it’s still amazing to connect a series of odds and ends and see the process work, he says.

The garden may also eventually become a test system to measure whether its plants will remove more nitrogen from effluent.

“This was all done with spare parts laying around and no money,” Baumgaertel says.

Testing was done only for fecal coliform to ensure the center’s workers were not at risk, he says. (Coliform was less than 10 cfu per liter, and the threshold for swimming is much higher, he says.)

## **A VINEGAR FEED?**

In typical hydroponics, plant roots are immersed in a solution of water and various nutrients. In the center’s experiment, no chemicals were added to the treated wastewater; plants fed only on effluent.

“In the beginning I messed around a little bit with the pH,” he says. Initially water from the sand columns was at a pH of 8 or 9, sometimes as high as 10. Baumgaertel experimented with a vinegar feed to correct that, but ultimately it wasn’t necessary because the sand columns rebalanced themselves and began producing effluent at pH 6 to 7.

“Sand filters are pretty amazing things,” he says.

There was a very small amount of nitrogen removal in the garden, only 5% to 10% of what came in with the effluent, he says. But his system was on a very small scale, so you wouldn’t expect a major effect, he adds. And there was no consistent sampling; Baumgaertel measured the water with the center’s YSI (a Xylem brand) meter only a few times when he had a spare moment.

“We’d really need to do laboratory analyses to actually do a serious study of the removal rates,” he says.

Baumgaertel’s hope is to turn the garden and greenhouse into a demonstration project to show people alternative water uses. And the garden



and greenhouse systems were built so water moving through them can be sampled for formal studies.

## **PROMOTING THE IDEA**

How quickly the project matures will depend on the county’s budget, and that is being affected by the COVID-19 pandemic. Baumgaertel says his next step would be to add a subsurface irrigation system.

Although produce from the gardens was not intended for human consumption, that doesn’t mean it won’t happen.

“If you look at biosolids application, some states allow it for agricultural purposes,” Baumgaertel says. Using recycled water in that way will be a matter of getting the public and regulators comfortable with the idea, he says, but if that comes about, it would open a whole new chapter in water use. □

This is the second in a two-part series about research projects being conducted by the Massachusetts Alternative Septic System Test Center in Sandwich, Massachusetts.

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# We Remain Bullish on Sequential Distribution in Gravity Systems

If you're looking to avoid uneven flows between trenches or overloading of a single drainfield line, use this layout to your advantage

By Jim Anderson and Dave Gustafson

A few months ago, we discussed the importance of managing the biomat so systems are able to accept the amount of effluent delivered and provide treatment before release into the environment. As a part of the discussion, we indicated one way to effectively manage biomat formation in systems with gravity distribution was to use drop boxes and sequential distribution. We have had a few comments and questions about this so, we thought we should revisit gravity distribution methods and look at some of the advantages and disadvantages.

There are three types of gravity distribution between trenches: parallel, sequential and serial. Parallel is probably the most common and the one many people think of when looking at gravity system layouts. It consists of a distribution box with multiple outlets, one solid pipe to the head of each trench. Sequential has a series of drop boxes, one at the head of each trench and connected by solid piping between boxes. Serial distribution can be done using distribution or drop boxes, or by simply piping and elbows or even overflow lines without pipes.

In (serial distribution), every drop of effluent ever delivered passes through the first trench with no opportunity for resting or reduction in suspended solids applied to the first trench. **This overloads the trench hydraulically and organically.**

## SERIAL

Serial distribution operates just as the name implies; the trenches and piping are connected continually so effluent flows into the first trench and as the first trench fills up, flows move without interruption to the next trench. Most permitting authorities no longer allow this type of distribution. This is due to a couple of major disadvantages with this method.

In this configuration every drop of effluent ever delivered passes through the first trench with no opportunity for resting or reduction in suspended solids applied to the first trench. This overloads the trench hydraulically and organically, resulting in a thicker and more resistant biomat, which reduces acceptance of effluent. Over time this results in system failure.

There is little to opportunity to manage the system flow, especially if it set up using piping and elbows or simply rock overflow areas to deliver effluent between trenches. Finally, adding additional necessary trenches due to higher flows from the residence is difficult and involves excavating at least part of the system.

## PARALLEL

Parallel distribution is designed for use on level sites with each trench being the same length and receiving equal amounts of effluent. A distribution box is set level and as indicated above piping is generally laid from the box to the head of each trench. Theoretically on a level site, effluent is delivered by gravity somewhat equally to each trench. So every trench is receiving effluent every time sewage is delivered from the tank to the distribution box.

There are a couple of problems with this theory. It only operates this way if the distribution box is absolutely level and it stays that way through time. In actual practice, a slight difference in elevation due to the box settling or being knocked out of position during backfill will result in all the effluent flowing out the line in the box that has the outlet at the lowest level.

After initial start-up, effluent is just flowing to one trench. To reach the other trenches once that trench is accepting all the effluent it can, effluent must back up into the distribution box. This creates two potential problems: In cold weather areas, water standing in a pipe can be subject to freezing if it is not insulated properly or installed below frost line. Thawing lines and distribution boxes in winter can be daunting and expensive for the homeowner.

When a system is installed on a sloping site — so the trenches are not all at the same elevation — if all the effluent flows to the trench with the lowest elevation, it may not be able to backup into the box. This means the rest of the system does not receive any effluent and effluent eventually comes to the surface, indicating failure. Flow to trenches in sequence can be accomplished using levelers in the distribution box and there are some boxes manufactured to deliver equal amounts of effluent. But they require additional monitoring to ensure they are functioning.

From our perspective, the thought that all trenches will be able to accept equal amounts of effluent is also flawed. Except in the most uniform of soil conditions, trenches will most likely not accept the same amounts over time. We have recognized that working with a site that is

not level leads to some less-than-favorable decisions during installation, such as grading a site or cutting and filling. These activities violate one of our important installation principles, KIN, or keep it natural. This means using natural soil, which will generally be able to accept more effluent than disturbed or manipulated soil.

## SEQUENTIAL

In sequential distribution, effluent is delivered to the trenches through a series of drop boxes. No effluent flows out of the first trench to the next until it is being used to its maximum capacity. Effluent then passes on to the next trench in sequence until it is used to capacity and so on. This is ideal for sloping sites, as it ensures each trench is used in sequence and the piping between boxes does not have standing effluent, avoiding potential freezing problems in cold climates.

Use of the trenches can be easily managed. If only one or two trenches are being used on a regular basis, they can be rested by diverting flow to the other trenches in sequence by closing off outlets in the boxes. With a drop box for each trench, this can easily be done when the boxes are installed with inspection ports and accessible to the surface.

Trenches do not have to be same length; each trench will use what it can and then flow moves on to the next. While with parallel distribution each trench is expected to be the same length, this can be varied as the necessary area is provided based on the long-term acceptance rate (LTAR).

Lastly, if the soils downslope from the last trench in sequence are suitable, adding additional capacity is easily accomplished by connecting into the last drop box.

It is for these reasons that we are so positive about using sequential distribution. □



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## SYSTEM PROFILE



# A Huge Layout and Sketchy Weather Made an RV Campground a Logistical Challenge

This North Carolina park project was the largest installation ever for Creech's Plumbing

By Scottie Dayton

**E**xpanding Raven Rock State Park in Lillington, North Carolina, included building nine campsites, each with five or six RV hookups, and a bathhouse with showers and restrooms.

Park officials hired Allen Grading Co. with Taylor Carr, the general contractor's project manager; Robert Graham, P.E., principal engineer at George Finch/Boney and Associates; and Stacy Creech, proprietor of Creech's Plumbing in Wilson, North Carolina.

To stay within funding limits, park officials requested a conventional system with stone-and-pipe drainfields. "We avoided pretreatment and nitrification due to the level of maintenance, operator training and licensing required," Grahams says.

The size and complexity of the project intimidated local installers. "Even I wasn't interested at first, but the challenge of the logistics was intriguing," Creech says. "Although the installation was straightforward, it was our largest system to date."

## SITE CONDITIONS

Soils are sandy loam to gravelly sandy loam with a loading rate of 0.30 gpd per square foot.

➤ Stacy Creech (right) explains to Hunter Creech, his son, what he is reading with the Topcon GPS tool, while performing an as-built. The system designer, Robert Graham, P.E., observes.

⚡ While teammates prepare the trench using a Bobcat tracked excavator, a worker off-loads Infiltrator chambers from a Ditch Witch SK 1550 mini skid-steer transport.



## SYSTEM COMPONENTS

Graham sized the system to handle 2,655 gpd. Major components are:

- 6,000-gallon dual-compartment septic tank with a 6-inch PL-625 effluent filter (Polylok). Tanks from Shoaf Precast
- 8,000-gallon dose tank with dual dedicated 2 hp Hydromatic SKHS-150 sewage pumps (Pentair)
- 840 Quick4 Plus Standard chambers (Infiltrator Water Technologies)
- DPC-4F control panel with Panel Link controller (SJE Rhombus)

## SYSTEM OPERATION

All piping is Schedule 40 PVC unless indicated otherwise.

Wastewater from the camper hookups connects to a 6-inch sewer pipe running 693 feet downgradient to the septic tank. Water from the bathhouse gravity-flows 799 feet through a 4-inch pipe to the septic tank, then effluent flows to the dose tank.

When activated, alternating on-demand 110 gpm pumps in the dose tank send 690 gallons in 6.25 minutes through a valve vault, then to a dedicated 14-tap manifold. If one pump fails, the five 3-inch gate valves in the vault allow the second pump to service either field.

To balance output to the fields, the 3-inch SDR-21 piping at the dose tank changes to 4-inch before reaching the manifolds. The distance to the manifold for Drainfield 1 is 1,292 feet; the line to Field 2 is 1,250 feet. Fields are 100 yards apart and both are dosed twice daily at full campground capacity. A 3% slope on the fields enables effluent to gravity-flow to the chambers. Both fields have 14 trenches 120 feet long on 9-foot centers and a reserved repair area.

## System Profile

- Location:** Lillington, North Carolina
- Facility served:** Raven Rock State Park
- Designer:** Robert Graham, P.E., George Finch/Boney and Associates
- Installer:** Stacy Creech, Creech's Plumbing
- Type of system:** Conventional
- Site conditions:** Sandy loam to gravelly sandy loam, loading rate 0.30 gpd per square foot
- Hydraulic capacity:** 2,655 gpd

## INSTALLATION

The park was a one-hour and 45-minute drive from Creech's shop, so he chartered a helicopter and was on-site in 30 minutes for his first visit. He saw a road of volcanic rock, soil and clay leading to the park entrance, but only a park ranger road wound through a forest of pines and hardwoods to the job sites.

## SYSTEM PROFILE



▲ Workers apply butyl rubber sealant tape to the bottom half of the 6,000-gallon septic tank.

▼ Hunter Creech checks the level of the PL-625 effluent filter (Polylok).



“After importing a DWG file of the drainfields into the data collection, we laid out 28 precise lines — or both drainfields — in one day. It was phenomenal.”

**Stacy Creech**

“One park entrance was fine, but the other didn’t have a bridge over a creek and it had a huge rock in the middle,” Creech says. “Allen Grading had cleared the trees and flagged the drainfield perimeters. Everything beyond them was off limits. The logistics of where to stockpile the massive amount of stone, then truck it to the fields without penetrating the perimeter was daunting.”

Creech requested substituting Infiltrator chambers and the change was accepted. However, Graham and the park officials rejected the 25% footprint reduction allowed for chambers over gravel, preferring to err on the side of caution.

The chambers arrived on one truck and the pipes on a second vehicle. Materials were stacked in a condensed, deforested area, then carried by hand or moved with Ditch Witch SK 1550 mini skid-steer transports.

Since as-builts were part of the contract, Creech purchased the Hybrid Positioning System with FC5000 data collector, LN100 laser, and Sokkia GPS antenna (Topcon Positioning Systems) from Benchmark Tool & Supply. Thomas Ethridge, company representative, arrived the first day to train everyone: the GC and Creech’s crews, the state inspector, Graham, Carr and Jonathan Godfrey, Infiltrator sales representative.

Creech’s team, which included laborers and equipment from his brother’s company, Travis Creech Plumbing and Septic, began measuring with the laser and laying the trenches on contour. Before long, the measurements extended 35 feet beyond the perimeter. “After importing a DWG file of the drainfields into the data collector, we laid out 28 precise lines — or both drainfields — in one day. It was phenomenal.”

## EYE ON THE SKY

Weather was a constant concern. Work began in early September 2019 as the state entered the rainy season and its potential for hurricanes. By agreement with the inspector and Graham, work was done in stages, inspected, and covered before the GPS equipment recorded the daily as-builts.

“I don’t know what a survey company would have charged for 8 to 10 days of work, or even if one would have been available for what was considered a small job,” Creech says. “By eliminating another contractor, the as-built tool brought us closer to being a turnkey service and increased our productivity.”

Creech pushed the crews hard to complete a day’s work. Each stage — the drainfield, the supply lines from the manifold to the trenches, and the force main — took two days to install, then they returned home to catch up on local projects.

Temperatures hit 100 degrees while installing Field 1. As Bobcat E42, E63, and E85 compact excavators dug trenches simultaneously, Godfrey offered supervision and helped install chambers. After the trenches were

continued >>



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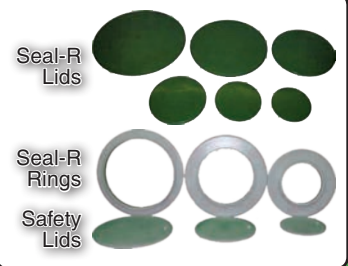
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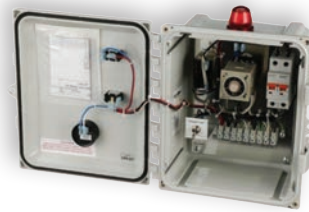
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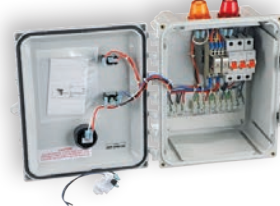
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▲ A 14-tap manifold with supply lines.

inspected, they were covered and marked with the as-built tool. Installing Field 2 followed the same sequence.

Allen Grading's work on the campsites and rain stretched Creech's total of 14 workdays over three months. By late December, the crew had vacuum-tested the tanks and were ready to pressure-test the system using a generator for power.

"We filled the tanks, turned on the system, and left with everything on automatic," Creech says. "Sometime later, I received an alert at home that a pump had activated three times." An investigation revealed that someone

thought the tanks were leaking because they weren't filling, so he let the hose run. The episode proved to park officials why the system needed remote monitoring.

The day after the install concluded, rain fell for the next four weeks. "Had I not pushed everyone, we wouldn't have finished until the middle of next spring," Creech says.

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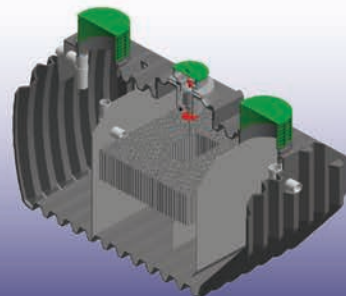
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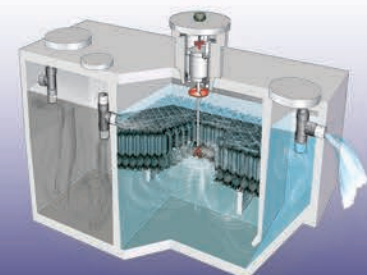


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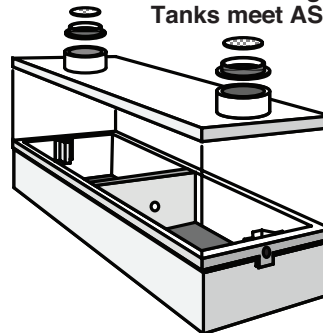


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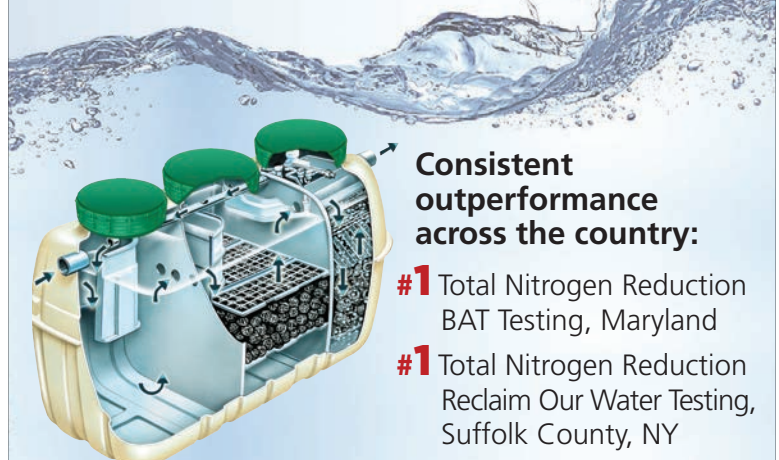
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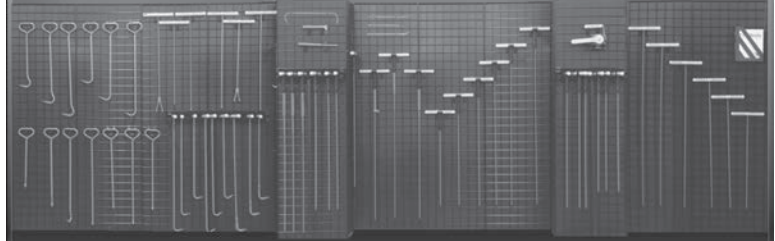
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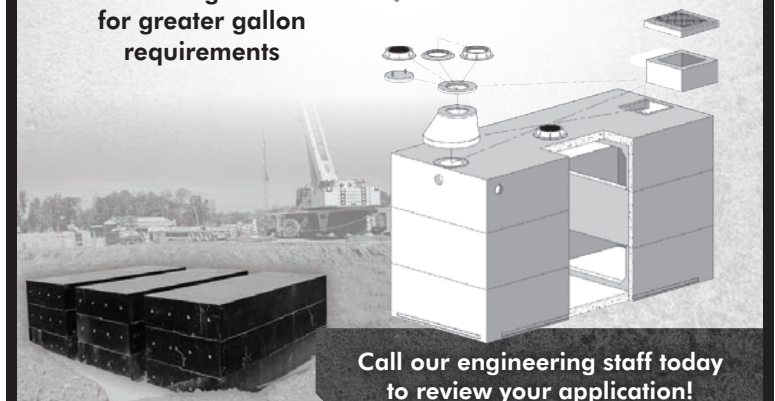
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British Columbia onsite rules should consider unique site conditions to come up with practical and sometimes lower-cost treatment solutions, says Joe Karthein

Compiled by Betty Dageforde

*In Snapshot, we talk to a member of a state, provincial or national trade association in the decentralized wastewater industry. This time we visit a member of WCOWMA Onsite Wastewater Management of B.C. (WCOWMA-BC).*



## Joe Karthein

owner

**Business:** Sentinel Excavating, Balfour, British Columbia

**Age:** 46

**Services we offer:** We are primarily focused on installation but will occasionally do septic system design.

**Years in the industry:** 6

### Association involvement:

I am a member of WCOWMA Onsite Wastewater Management of B.C. (WCOWMA-BC).

### Benefits of belonging to the association:

WCOWMA advocates on behalf of wastewater industry professionals in British Columbia. It is crucial for wastewater professionals to know someone has their back. I always learn so much at their annual trade show and am grateful for this always well-run event.

### Biggest issue facing your association right now:

Interior Health, the provincial government's health protection branch, puts 100% of accountability on septic system planners/designers, whether they are engineers or registered onsite wastewater practitioners (ROWPs) like myself. The consequence has been little to no oversight from Interior Health or anyone else. There are few, if any, employees at Interior Health who really know our 367-page, Sewerage System Standard Practices Manual (SPM) and that leads to inadequate checks and balances for dealing with rogue engineers and ROWPs who are not following SPM standards and/or doing shoddy work, which could create health hazards. If an engineer's work is in question, the only recourse is to go to the engineers' professional organization, Engineers and Geoscientists British Columbia (EGBC) — a classic example of putting the fox in charge of the hen house. My experience is that case reviewers at EGBC are not familiar with the intricacies of the SPM. We need better accountability systems.

### Our crew includes:

For the last five years it has just been myself and the indispensable Shane Kratz. I'd like to keep it that way — a small tight ship, 100% accountability. If Shane is going to meet me at a given time and he's not there (which is very rare) I know I mixed something up.

### Typical day on the job:

There is no typical day for me. While I plan things carefully and take pride in honoring all my commitments, I have no problem changing gears in an instant provided it doesn't negatively impact Shane or my clients. Prioritization and communication are the keys to success in this business. I keep on top of the computer work as much as I can, whether it is invoicing, emailing clients or paying bills. I use a computer with an actual keyboard versus my phone wherever possible as the phone inevitably results in miscommunications and errors. Also, I work plenty of really long days whenever required. Up here, most of the installers only work about nine months of the year, so if I wasn't doing plenty of 12-hour (or even 15 or 16) days during the 'on' season, I'd think of myself as pretty lazy.

### The job I'll never forget:

My first septic job, which was only six years ago. I installed four rows of Infiltrator (Water Technologies) chambers in beautiful sunny weather on an absolutely beautiful rural property. I remember so well thinking that I just love this work. The trench digging went fast and it was so

- About 70% of installs are gravity systems using Premier Plastics and Canwest tanks
- ▼ A Premier Plastics tanks fits across the fabricated aluminum boxes on the 2016 Ram 3500 pickup.



rewarding to finish all those nice level trenches in a single day. Since this install, I've done well over 100 septic systems and I still love the work.

### **My favorite piece of equipment:**

It is a toss-up between my Stihl 440 chainsaw and my truck and the way I've customized it. The saw is an older carbureted model that still runs like a champ. We do a lot of rural work so that means dealing with a lot of trees. My saw is always with me stored in my truck and I seem to use it constantly. My truck is a 2016 Ram 3500, bought new. I was able to order exactly what I wanted with all the heaviest-duty options like automatic air bag suspension. I mounted big aluminum side boxes in the truck bed that still allow me to haul gooseneck trailers but they give me two long storage compartments for everything from saws and rakes to shovels and digging bars. The beauty of the system is that it locks with my key fob via the tailgate. Also, almost every day I am standing on that checker-plate surface of the compartments and I can even load all sizes of 8-foot wide Premier Plastics septic tanks width-wise on top.

### **Most challenging site I've worked on:**

Another toss up. Was it that steep rocky scree slope of pipe-puncturing fractured rock? That job seemed endless even though it was only a tank and pump chamber install that dosed to a common dispersal field. I used something like seven dump trucks of bedding sand to bury the tanks and 200 feet of pipe. That job beat the heck out of my excavators. Or was it that nasty, high groundwater site where digging to depth for the concrete pump chamber required my water pump running continuously for hours? When it came time to place the pump chamber on that one, the swimming pool sized hole came close to consuming my 8-ton excavator.

### **Oops, I wish I could take this one back:**

One of my bigger mistakes was when I misinterpreted a very poorly done 'septic approval for the purposes of subdivision plan.' Its content made me think it was an approved and filed septic design plan that was ready for installation. When I went to install the septic tank in the exact location specified, I hit bedrock at two feet. I poked around elsewhere and there was poor quality thin soil with drainage issues throughout the property. After further exploration, I turned up the two test holes used by the engineer to grant the subdivision approval. The deeper of the two holes was only 28 inches. Here in British Columbia, these test holes need to be a minimum of 60 to 84 inches depending on soils and intended dispersal field. I bailed on the job thinking my further involvement in doing things correctly from that point on would only cause more difficulty for the property owner who I felt very badly for. The whole thing cost me many days of wasted time, a ridiculous amount of driving and I lost a week of revenue.

### **The craziest question I've been asked by a customer:**

It's more of a genre of questioning — people grinding me on price. It is crazy for the client to do this because it will result in me wanting to round up numbers on their invoice rather than my more typical rounding down in their favor.

### **If I could change one industry regulation, it would be:**

I wish our SPM had specific exclusions for large rural properties (like, say, five acres or more). For example, under our current standards, a modest home in the middle of a 20-acre property with fast-draining gravelly sand soils and a 300-foot deep water well located 500 feet from the proposed septic field would require a dosed/pumped system. Exclusion examples

## SNAPSHOT

» Shane Kratz and Joe Karthein are shown with a Kubota SSV64 skid loader (replaced with tracked SVL75).

could be things like doubled horizontal setback distances for water wells and property lines to permit the use of simple gravity-based systems in faster draining soils. It just doesn't seem right to install a \$20,000 system here when with an \$8,000 system would have no chance of creating a health hazard and it would eliminate all the complications a pump brings into the equation. This kind of stuff brings a bad name to our industry.



### Best piece of small business advice I've heard:

"When starting out on a new business or new aspect of your business, ask the right questions to the right people and, just as importantly, be open to their answers even if it is not what you want to hear." I used to be a small business counselor, mentoring people starting small businesses. The successful startups fast-tracked their way to having viable businesses by asking hard questions to everyone they could think of who might know something about their industry — including their competition. Most of the time, by engaging with your competition you make allies and learn from their mistakes instead of from your own.

### If I wasn't working in the wastewater industry, I would:

I've always thought being a park ranger would be a terrific job.

### Crystal ball time - This is my outlook for the wastewater industry:

I would guess the Type 3 treatment systems will get better and better — more efficient, less maintenance, and less expensive. I sure hope they do as we are cramming more and more people on this little old planet. □

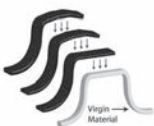
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# Indiana Bill Could Protect Users of Functioning Onsite Systems From Mandated Sewer Conversion

By David Steinkraus

A bill in the Indiana Legislature would alter the cost of replacing onsite systems with municipal services by changing the state's financial rules.

The particular focus of HB 1287 is developed and underserved communities with failing septic systems. Under the bill as it stands, a utility would have to show that the money paid by at least half of the potential customers in a proposed expansion would be enough to repay the expansion cost within 20 years. If there would not be enough money to repay the cost, the utility could require a deposit or other assurance from potential customers, or from the developer or an economic development organization.

An underserved area, the bill says, is developed land where structures receive water mainly from private wells or dispose of wastewater through private onsite systems.

The bill also addresses a common complaint: property owners forced to connect to municipal sewer and water utilities even though their onsite systems are functioning. Under HB 1287, if an owner makes a property improvement that does not include a bedroom or the equivalent of a bedroom, the owner will not be required to increase the size of an absorption field or connect to municipal water and sewer, provided a written report from a qualified inspector says the onsite system is not failing.

SB 1287 was approved by the House and sent to the Senate.

A related bill in the Legislature, SB 348, would establish a task force to look at the state's wastewater infrastructure investment and service to underserved areas. The task force would not have to include a representative of the onsite industry.

Under the current version of the bill, the task force would consist of 14 people: four senators, four representatives, and six people appointed by the governor including one officer or employee of the state, one representative of wastewater management systems, one engineer or professional with expertise in wastewater management systems, one person representing ratepayers, one person representing municipalities served by a wastewater operator not under the jurisdiction of the state utility commission, and one member of the public.

SB 348 was approved by the Senate and sent to the House.

## California

Instead of being governed by regional wastewater processing rules, California wineries will now be subject to statewide rules.

The new framework of regulation, advocated by wine industry leaders, was approved by the state Water Resources Control Board. The board's order sets guidelines for wastewater processing at most of the more than 3,600 bonded wineries in the state, reported the *Press Democrat* in Santa Rosa, California.

At least 1,500 of those wineries will be inside a regulatory structure for the first time. The order increases reporting requirements, caps the volumes of water discharged through land application and subsurface disposal, and requires groundwater monitoring for the largest wineries.

There will be a three-year window for permitting and another five years for wineries to come into compliance.

## Arkansas

For the first time, the state's Natural Resources Commission approved more than \$2.5 million in interest-free loans to help people in northwest Arkansas replace or repair failing onsite systems.

Loans, and some grants, will be available in the Illinois River and White River watersheds. This includes the counties of Benton, Washington, Crawford, Madison, Carroll, Boone, Newton and Franklin.

The *Northwest Arkansas Democrat Gazette* quoted installer Jon Jouvenaux of BBB Septic in Bentonville, Arkansas, as saying the money will serve a need after a year of pandemic. "It's not like I need any more business. We're installing systems every day," Jouvenaux said. "But people who had really nice jobs have been out of work."

And he said that because people are at home almost all the time, some onsite systems are stressed by the waste flows.

## New York

The East Hampton Village Board said earlier this year that it intends to change its onsite ordinance, so more people install nitrogen-removing onsite systems. In February 2019, the board passed a law requiring advanced treatment for all new homes and for any work that expands existing homes by at least 25% or adds to the number of bedrooms, reported *The East Hampton Star*.

Under the village's expected change, advanced treatment would be required when a conventional system fails, when a property is transferred, or when a business asks for a site plan review of proposed construction.

The village is on the eastern end of Long Island where Suffolk County and other municipalities have passed onsite laws to help control pollution of Atlantic Ocean coastal waters.

## Oregon

The town of Lakeview was scheduled to vote on raising its septage dumping fee from 3 cents per gallon to 6 cents. Public Works Director Jeff Marshall told the town council that neighboring communities charge 10 cents per gallon or more, reported the *Lake County Examiner*. The increase was necessary because the state Department of Environmental Quality required construction of a new \$125,000 dumping facility.

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## New York

About \$72,500 is still available to help people repair or replace onsite systems around Moon Lake, Red Lake and the Indian River. All are in Jefferson County, which touches northeast Lake Ontario and the St. Lawrence River.

In 2018, the county received \$75,000 to help people repair or replace cesspools or onsite systems that could contaminate bodies of water. Only one \$2,500 grant has been drawn from the fund, reported the *Watertown Daily Times*. About 50 homes are eligible for grants.

## Wyoming

The Park County Planning and Zoning Department earlier this year approved onsite regulations that replace rules updated in 2017.

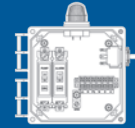
The regulations set new design and construction standards that conform to state requirements. There will also be minimum requirements for standard and nonstandard wastewater systems, reported the *Cody Enterprise*. All nonstandard systems will require an application that must be submitted before construction begins.

In addition, the regulations include limits on the use of portable restrooms. Use of chemical or portable restrooms will not be allowed for more than 30 consecutive days.

Joy Hill, the county's planning and zoning director, said the use of portable restrooms has been increasing, and she expects that use to continue increasing as there is growth in home construction and short-term rentals. She said some people make portable restrooms a nuisance by living in an RV on their property while renting out their house for the summer.

Portable toilet use is exempt from the 30-day limit at road, utility or pipeline construction sites; for seasonal agricultural use; at seasonal government inspection sites; and at remote industrial sites.

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## Minnesota

Otter Tail County has received \$1 million from the state to provide zero-interest loans for the replacement of failing onsite systems. According to a guidance sheet published by the county, \$500,000 will be available for systems that serve single-family homes, and \$500,000 will be available for commercial systems.

A separate pot of money from the state's Clean Water Fund will give grants to low-income households to replace failing onsite systems. Grants will cover 50% of the cost up to \$5,000. Grants will be awarded to both the property owner and the licensed installer when a project is complete.

Also in Minnesota, the Mower County Board of Commissioners entered the final phase of updating its onsite ordinance earlier in the year. One major part of the proposed ordinance changes is a requirement that an onsite system be updated before ownership is transferred or escrow is in place, reported the *Austin Daily Herald*, of Austin, Minnesota.


"One of the challenges in current property transfers is that sometimes sellers are leaving the state and going to other locations," Angela Lipelt, the county's environmental services supervisor, told the newspaper. "They didn't know they had to do anything, and it's difficult to find them."

The proposed changes also include constant compliance for commercial systems through either inspections or permits. □

"Rules and Regs" is a monthly feature in *Onsite Installer*™. We welcome information about state or local regulations of potential broad interest to onsite contractors. Send ideas to [editor@onsiteinstaller.com](mailto:editor@onsiteinstaller.com).

## PRODUCT NEWS

### Cape Cod Biochemical Jump Start

Jump Start healthy probiotic septic starter from Cape Cod Biochemical is designed to accelerate the health of septic tanks after being pumped. It prevents clogging, sewage backups and odor drafts from septic pumping tanks, reducing organic sludge, grease buildup and slime layers beneath the drainfield, according to the maker. After the septic tank is pumped, add 1 pound (two scoops) per 500-gallon tank capacity directly into the septic tank. For cesspools, apply 2 pounds (four scoops) per 500-gallon tank capacity directly into the cesspool following pumping. CCLS septic tank treatment should be used monthly per label or at the septic contractor's recommended dosage. It is safe for the environment when used according to specifications. 800-343-8007; [www.septiconline.com](http://www.septiconline.com) 



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## PRODUCT SPOTLIGHT

### Kubota focuses on comfort and technology for new compact excavator

By Tim Dobbins

It's not uncommon for installers to spend a significant amount of time in the cab of an excavator breaking ground and preparing a site. Not only does the equipment need to handle the task, but it's also important that it provides operators with a level of comfort for long hours behind the controls.

Kubota recently announced a new compact excavator, the KX057-5, which replaces the KX057-4 and offers improved technology and ample cabin space.


"Our new excavator models are built on the solid engineering our customers expect, and now feature more technology, much quieter cabs and many comfort features," says Patrick Baker, construction equipment product manager for Kubota.

The interior features a double adjustable seat, with both joystick consoles on the left and right of the seat also independently adjustable. Air conditioning ducts direct air to the back of the operator's neck to keep users cool, and the cab design has enhanced legroom from previous models.

The KX057-5 direct injected engine pushes 47.6 hp and is now available for the first time with an optional keyless start. The engine can be started with a four-digit code with up to 10 preset user passwords. The excavator is available in canopy or cab models and has a working range that includes a digging depth of 12 feet 9 inches with the bucket breakout force of 10,172 pounds.

Operators can also choose to rig the excavator with a rear-view camera or travel alarm. Each unit comes with LED work lights, which can be programmed to turn off 30 seconds to two minutes after the engine has stopped.

"We are truly taking care of our operators with these new units," Baker says. A fully opening bonnet and an arrangement of internal parts are engineered for efficient service and shorter downtime. The engine also utilizes an automatic regeneration system that performs diesel particulate filtration automatically before soot reaches a critical level, so the operator doesn't need to stop working to clean the filter manually.

The KX057-5 also utilizes an electrically controlled automatic activation of the third line hydraulic return, so operators no longer need to step down from the cab and reach under the bonnet to manually open and close the return. 888-458-2682; [www.kubotausa.com](http://www.kubotausa.com) 



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**Mecalac added five dealers in 2020**

Mecalac added five North American dealers to its network in 2020. This expands Mecalac's coverage across the eastern U.S., as well as provides a presence for the company on the West Coast and several Canadian markets. The new dealers are: Pennsylvania-based Wood's CRW, Illinois-based Hall Equipment, Florida-based Trekker Group, California-based Scott Equipment, and Canadian company Gear Equipment. □

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