Rock Structures Speeds Basement and Utility Excavation By 50 Percent With Grade Control

Ron Goodfellow, Owner and Operator of Rock Structures Utility and Excavation, has been in the excavation and contracting business for more than 20 years. Based in Kaysville, Utah, Rock Structures employs four to seven crew members full time. The company specializes in excavation for new residential homes, underground utility work, as well as rock retaining walls, topsoil, sand and gravel delivery, and demolition and landscape services. Currently, Rock Structures is in the process of installing all of the utility lines and infrastructure for 60 residential lots in Northern Utah, and works with six homebuilding contractors in the area on a regular basis. Goodfellow estimates that, on average, Rock Structures completes two or three basement digs a week.

Rock Structures’ traditional process for digging and basement work was to have one or two members, sometimes two, create in addition to the excavation plan. They would then install the site utilities, including the water, sewer and the land drain line. Once complete, the excavator operator would excavate the basement according to the design and, if necessary, would place structural trim-fill as needed, relying on a grade checker to check elevations and to reach grade within the allowed tolerances. After speaking with the team at SITECH Intermountain about some machine control options from Trimble, Goodfellow determined there was only one option that could work: GCSFlex System. He then had it installed on one of his John Deere 250G LC excavators.

Accurate and Cost-Effective

The GCSFlex system is a cost-effective and extremely accurate machine control system that is simple to install, rugged and reliable, and includes a graphical display that goes in the operator’s cab to show guidance to grade. “When we tried the GCSFlex system, after the first basement, I realized that I really didn’t have to have a grade checker in the hole,” said Goodfellow. “I could send him to go do a different excavation job in the next area, and he can put on a Concrest Prep job or do a final grade. For me and my customers, it made a lot of sense to buy the system to get more done and, ultimately, be more efficient and more profitable.”

After several months of using GCSFlex, Goodfellow attended ConExpo 2017 and started hearing about the Trimble Earthworks Grade Control Platform. Trimble Earthworks is the industry’s first integrated 3-D aftermarket grade control system with excavator automation capabilities. The new platform includes a unique, easy-to-learn software, is extremely customizable, and allows each operator to personalize the interface to maximize productivity, regardless of their experience or skill level. It also has a unique “auto” feature where the excavator sensor automatically, allowing operators to create smooth, fast or steep grades, as needed. Easily. The platform automatically controls the boom and bucket according to the digital design. From there, the operator controls the stick, and the system prevents the machine from undercutting or overcutting.

“I was asking questions about Earthworks, trying to figure what the system does in relation to GCSFlex,” said Goodfellow. “When I saw how operator-friendly the system was and I saw that I could be able to get a machine control as well, that really sparked my interest. The fact that I could pull a grade at a percentage of slope or at a degree piqued my interest even more.”

After the event, Goodfellow worked with SITECH Intermountain about the Trimble Earthworks platform and decided to try it out on his Trimble Earthworks, keeping the GCSFlex system on his other John Deere 250G LC excavator. SITECH set up the system on his excavator and began with some simple instruction. Goodfellow explains that he instantly liked the large, touch-screen display and liked the system to having a grade checker with him right in the cab. He also appreciated how simple it was to navigate on the screen and to swatch through grades, or to program different slopes.

In addition to how easy the manual interface is to use, Goodfellow also explains that the audible beep that indicates he’s at grade is easy to hear from inside the cab, so he can work as efficiently as possible and not be hesitant while listening for the beep. He was extremely eager to use the system to log the top residential utilities, entering the exact slopes as needed. Using Trimble Earthworks, he found he could install a 4-inch lateral at 2 percent slope automatically and directly from the display.

“The system worked great from the first day of our first basement dig,” said Goodfellow. “I was doing a utility line and realized that I could dial it in to whatever percentage of slope I wanted, whether it was 1 percent, 5 percent or something more atypical. With automatics, I didn’t have to worry because I could’ve overcut, and my grades were right there. We double-check it with a level and it came back showing at the same as what we were putting in. It was at that time that I realized that this system is amazing, for what it can do all around.”

Piping and Trenching

After that, Goodfellow started experimenting using Trimble Earthworks to lay out pipes and utility trenches. He realized after a few practice runs – and double checking grade – that he could hit the correct grade much more quickly with Trimble Earthworks. He believes the automatics feature helps him excavate 40 percent to 50 percent faster, compared to traditional methods. He also estimates he can pull grades from start to finish within about three tenths of an inch, because he uses much tighter throughout the stroke. Not only that, when backfilling around the pipes he can accurately place gravel, and grade to the minimum 2 percent slope, which is required by city code and helps prevent damage or displacement of the pipe.

Before Earthworks, we used to go through about a dump truck load of gravel per basement because of the over-excavation of the utility trenches,” said Goodfellow. “After using Earthworks, we started going through approximately half a load of gravel for each basement because I can set the elevation right from the cab and we see an increase to the loads and grade shows on the plan first. Since we dig two or three basements a week on average, a significant savings is achieved. A load runs about $350, and that same load can be used for two basements, so that roughly a 50 percent increase in profit margin we’re able to come up with right there. We estimate the decrease covers us up of $350 a month.”

Since adopting GCSFlex and Trimble Earthworks, Goodfellow believes his five-person crew has transformed into an even more efficient and effective team. Rock Structures has increased excavating production on basement jobs by 50 percent. And, because crew members can take on more jobs and can work more profitably and with greater grade accuracy, contractors and other customers are starting to take notice.

“On top of our production, I think our attention to detail has improved overall,” said Goodfellow. “Having Trimble Earthworks really helps us be more accurate because it allows us to get our dirt grades closer. When we can see less graded, that equates to less concrete for the foundation guys and down the line. Contractors are all about keeping those costs down, so we can help them do that, other contractors and our customers will readily like working with us.”