

## CASE STUDY

## Expanding with 3D

For many contractors, fine grading with stringlines and grade stakes is like the days of the “five and dime” store of last century. When your task is to fine grade two million square feet for today’s megastore sites like Walmart Distribution Centers—sites equivalent to about 20 Walmart retail stores—you want state-of-the-art technology. In Baytown, Texas, James Barger, vice president of J R Barger & Sons, an industrial flat floor company based in Omaha, Nebraska, put his new technology—a SiteShape 3D Grading System manufactured by Somero Enterprises LLC ([www.somero.com](http://www.somero.com))—to the test on the massive commercial site. The SiteShape System, which Barger obtained in January and uses on a Komatsu dozer, is helping his crew to get ahead, he says. “We can grade 80,000 square feet in six hours,” Barger says. “It enables us to pour so much more. As far as scheduling, we’re not ever in a bind because we can pump it out so fast.”

SiteShape adds automatic control of the height of the blade cutting edge to the dozer. A Trimble ([www.trimble.com](http://www.trimble.com)) Geodimeter Automatic Tracking System accurately measures and communicates blade location and elevation to a laptop computer that calculates what the proper elevation for the blade should be at that location. The computer then generates a command to adjust the blade elevation accordingly six times per second. Other components of the SiteShape system include a georadio that carries measurements from the Geodimeter to the laptop, sonic sensors, a Trimble GCS-21 control system, hardwired components, and brackets and cables.

The SiteShape system helped Barger’s two-person crew finish the Walmart center job within a month—the same month they obtained the grading solution. Implementation was seamless, in part because Barger and one of his operators had previous experience with Somero equipment. Barger has been using Somero’s 3D Laser Screed, the manufacturer’s inaugural product, since 1995 and upgraded to the SXP (Somero eXtreme Platform) model last year. Barger’s SXP laser screed includes the optional 3D Profiler System, which allows for concrete to be placed over contoured sites automatically. The components of the 3D Profiler System include the Geodimeter, radio, laptop and sonic sensors that the SiteShape system is composed of. This made the integration from the screed to dozer easier, requiring only a few additional brackets, cables and hardwired components provided in Somero’s Booster Pack.

Before he owned the SiteShape system, Barger manually checked stringlines and grade stakes; now he praises the efficiency he attains with automatic 3D grade shaping. “This system cuts [timing] in half if not more. We poured 50,000 square feet of paving and we were only five yards over. And that is awesome,” he says emphatically. He expects to increase his volume of work because of the system and says he’ll “buy more [systems] as we grow.”

Once onsite, a one- or two-person crew simply sets up the Geodimeter and shoots points of the site, a process that Barger

says takes about an hour depending on how many breaks and points the project site has. Barger says an hour to an hour and a half is needed for a jobsite approximately 50,000 square feet. “You take points,” Barger explains “like you do with the laser screed 3D system for every pivotal point per fall and then you just program it into the computer and go.” An operator shoots critical points on a ruggedized laptop to create a 3D map of the site. The laptop, which Barger owned and used with his laser screeds, withstands the elements of the construction environment. “We’ve only used one in a year,” he says. “We’re pretty rough on all our equipment. If it can last a year with us, it’s good.” An operator then screws a prism onto the grading machine and grading can begin; the model in the cab tells the blade what movements are required to follow the profile.



How’s the learning curve? “Pretty fast,” Barger says. “Within 100,000 feet—that’s all it took my operator to get it down.” Training for J R Barger & Sons crew members essentially took place in-house under the supervision of his experienced supervisor. “We were one of the first ones to use it, and it was kind of a push deal where I needed it real quick, so they [Somero] just kind of went over it with our guys at the factory,” Barger explains. Somero followed up by providing onsite training to Barger & Sons employees at a later date.

The benefits of the investment and training are already visible, Barger says. He normally has about 50 crew members working a site in the summer season, but the Walmart project only required two. Barger credits the resilience and efficiency of the SiteShape system for this increased productivity.

Implementing advanced technology has enabled J R Barger & Sons to expand their service offerings to include grading jobs. Although the four-generational company has specialized for years in industrial floors, commercial high rises, convention centers and “anything that’s of large volumes” Barger says, future jobs will include grading projects like the Walmart center job. Next up for J R Barger & Sons is a half million square foot trucking facility. “We kind of stumbled into these larger paving projects,” Barger says. “[But] we’ll just keep going after everything we can get.” **SP**