

# Project Profile

Ian Campbell

## When GPS Helps Get New Work

Georgia grading contractor Alan Cawthon likes to tell the story of how he once had to manually offset some stakes from a road's centerline to one side. Using a tape measure, he moved the stakes to the roadside to permit equipment to grade the road. His wife had watched him start the job and came back when he had finished.

"My wife asked me how long that took me to do," Cawthon recalls. "I told her it took an hour and a half. She said that dozer costs us \$450 an hour, and it was sitting idle all that time. So it cost us \$675—nearly the monthly payment on a Global Positioning System—to set those stakes manually. That's what opened our eyes to what GPS could do, because we wouldn't need the stakes."

That was more than two years ago. Since then, Alan Cawthon Inc., dba Peek Grading, has fitted two dozers and one motor grader with Leica GradeSmart 3D GPS. And Cawthon is glad he did, especially in these difficult economic times. "You can definitely bid projects tighter, and we can tell the customers they don't have to stake roads for us," he says. "We can work faster with the GPS, and the customer gets a finished product faster."

"We're looking at 20% to 25% time savings with GPS," says Cawthon. "A GPS puts the grading information on the screen, right in front of your face. If you've got stakes, and half of them are knocked over, then you've got to look at the plans to figure out where you're at. You may spend 30 to 40 minutes of unproductive time. Plus it saves rework: The job is done right the first time."

What's more, Cawthon says, a GPS will make an inexperienced operator into



Alan Cawthon fitted this Komatsu D39PX dozer with a GPS system from Leica Geosystems.

a decent operator—and make an average operator into an excellent operator. For example, Cawthon tells the story of how Leica Geosystems helped with his first-time demonstration of a GPS. The project was a 5-acre site for USA Ready Mix, a concrete company in Jackson, GA. It called for moving 40,000 cubic yards of earth.

One of Peek's inexperienced operators was running a Caterpillar D6R with a Leica GPS to cut a large slope. Cawthon turned the employee loose to grade the slope, left the site, and came back seven or eight hours later. "He had it looking pretty good," says Cawthon. "It kind of took the wind out of my sails, because I saw that we could give a kid a job like that and produce a slope that looked that good. He said he just followed the lines on the GPS screen. We liked the Leica system, and we bought it."

### Winning Projects

Cawthon says his GPS capability has helped win two recent projects because he can bid them tighter. Grading jobs

are hard to find, and bidding is very competitive. One of the projects is a commercial site road in Jackson. It's a 40,000-cubic-yard project with about 3,000 feet of road to grade. "I was able to put together a bid package with a competitive price because I know I can do the grading in a timely manner," says Cawthon. "I definitely think our GPSs helped us get that one."

The other project, the Village at Westgate, is a large residential subdivision in Fort Mitchell, AL, near the Georgia border. The estimated excavation quantity is 200,000 cubic yards, and the current phase includes 15,000 lineal feet of streets and 214 new home lots. The project is located near Fort Benning, GA, and benefits from housing demand created by military personnel. Cawthon reports that the project's developer likes the GPS because it cuts down on his surveying and staking costs.

For the Village at Westgate, Peek Grading runs two dozers—a Cat D6R and a Komatsu D39 PX, both fitted

with Leica GradeSmart 3D GPSs. Peek also runs a Caterpillar 140G motor grader with a Leica GPS. All three machines have automated blade control, but one of Cawthon's operators prefers to use only the visual GPS to guide the grading. The automated blade control is used mostly to finish-grade with the motor grader.

### The GPS Process

Cawthon says the first step in successfully running GPSs is to have a good set of plans from the engineer. An outside firm takes the plans and builds a 3D GPS model of the project. That supplier e-mails to Cawthon the 3D model, which he receives on the laptop computer in his pickup truck. The model goes onto a flash card, which fits into the Leica control unit on the dozer or motor grader.

Meanwhile, a surveyor has established control points around the perimeter of the site to be graded. The machine operator, or a surveyor using a Leica rover unit, goes around the site and reads the control points. "Then you've got the site loaded into the control unit, and you've got the new design," says Cawthon. "The GPS unit compares the two, and the screen tells you where to cut and fill, and how much."

In learning to use a GPS, it helps greatly to have a good relationship with your GPS dealer. Cawthon says that both Leica Geosystems and the dealer, Construction Laser, have been very helpful in climbing the GPS learning curve. "I can pick up the phone and call John Rosier, our Leica dealer, and tell him I've got three tractors sitting here," says Cawthon. "If he can't solve it over the phone, he'll come down here at a moment's notice and get us going again."

### Resolving Disagreements

Sometimes a GPS can help resolve

a surveying disagreement. That happened for Peek Grading on its first real GPS project: the Manor at Montpelier, a 100-acre residential site with about



Alan Cawthon runs a \$1.5-million grading business based in the town of Jackson, GA.

7,500 lineal feet of curb-and-gutter streets and three retention ponds.

"The developer was kind of leery about our GPS, because we said we didn't need any stakes," says Cawthon. "So the surveyor staked it out, working for the developer. Somehow, they got offline with their total station, and we found that we had to clear some more trees away in a different direction. It was a heavily wooded site.

"I said the road needs to be over here, not there," Cawthon recalls. "The

developer and I looked at the plans, and he said, 'I think you're right.' So we cleared some more trees and he paid us for the extra work." When the surveyor staked the road, his stakes lined up exactly down the center of the cleared area.

"That gave the developer confidence that we knew what we were doing, and it gave us confidence in our GPS," Cawthon says.


### Avoid Double-Handling

Peek Grading's GPS helped avoid double-handling of the topsoil at the Rehoboth Road Elementary School project in Spaulding County, GA. The project called for moving 140,000 cubic yards of earth on a 40-acre site. Peek's contract included parking lots, a large retention pond, two school building pads, and three athletic fields.

The project called for cutting a large slope next to a parking lot, then undercutting the slope by 4 inches and placing topsoil back in the undercut area. With the Leica GPS on two dozers and a grader, Peek cut the slope, the parking lot, and the areas next to the parking lot.

The contractor immediately placed the topsoil on the slope and in other areas as needed.

"In the past, we would have rough-cut the slope, waited for restaking, and stockpiled the topsoil to be placed later," says Cawthon. "But, with the GPS, we brought the topsoil from another place and put it on the slope right away. We did not have to double-handle the topsoil."

Summing up, Cawthon's GPS speeds up his grading, avoids rework, helps check grades and locations—and saves fuel. All in all, GPS is a paying proposition. 

*Ian Campbell* writes on topics related to the building and construction industry.

**NOW ON**  
**gradingandexcavation.com**  
BLOGS, NEWS, THE LATEST  
ISSUE & WEB-ONLY ARTICLES  
SEE RELATED ARTICLES AT  
[WWW.GRADINGANDEXCAVATION.COM/GPS](http://WWW.GRADINGANDEXCAVATION.COM/GPS)