Aye, Robots!

Upgrading total stations proves a transformative force for Pensacola, Florida engineering firm

Company
Baskerville-Donovan, Inc.
Pensacola, Florida

Project
Various
Pensacola/Pensacola Beach, Florida

Topcon Solutions
GT series robotic total station, HiPer VR GNSS receiver, Topcon FC field computer, Hybrid Positioning technology

Topcon Dealer
Lengemann Corp.
Altoona, Florida

Founded 95 years ago, Baskerville-Donovan, Inc. (BDI) is one of the larger, more in-demand engineering firms serving the Florida panhandle and southeastern Alabama. The company specializes in local government consulting but heads up engineering for a broad range of projects.

While BDI had long embraced total stations for the benefits they provide, in 2015, they purchased their first two GT-603 robotic solutions, and, based on that performance, haven't looked back since.

When pressed for the overriding benefit robotic technology brings to their worksite, three BDI colleagues had different but equally compelling opinions. For Robert Scott Mills, the company's vice president and surveying market director, it has always been about efficiency — the opportunity to maximize the potential of every person on the survey crew. For Taylor Brown, one of BDI's survey party chiefs, it is the ability to get

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jobs like topo surveys done quicker and with fewer headaches. For Jeff Gallagher, also a BDI survey party chief, it is all of that, coupled with an easy-to-use interface.

BDI recently played a role in one of the highest profile jobs in the area: completion of a new three-mile bridge over Pensacola Bay, linking the City of Pensacola with the Gulf Breeze peninsula. During construction, armed with his robotic solution, Jeff Gallagher could regularly be found on that span, establishing points for installation of a railing system.

"The walkway on that new bridge features a prefab cable railing system to ensure pedestrian safety," he said. "We provided six miles of precise measurements in order for those cables to be tightened to exacting specifications. Too long and it could sag — too short and connection would be impossible."

He added that challenges — traffic concerns, the ongoing bridge construction itself, job site obstructions, etc. — regularly presented themselves, particularly when it came to obtaining as-built locations.

"Several features of the robotic solution — the reflectorless prism and offset function, for example — really helped us out in that regard," said Gallagher. "The robot lets us nail hundreds of points each time we go onto the bridge. The combination of speed, accuracy and efficiency has been ideal, both for us and our customer."

BDI's robotic totals stations are helping reshape the way the company does business. The instruments feature direct-drive motors that provide extremely smooth, fast and accurate tracking, and can be easily upgraded to a Hybrid Positioning system for even more versatility.

While they place a great deal of faith in their robotics, BDI is quick to use a GNSS-based solution when needed. They recently did a project in an upscale area called Lafitte Cove which serves as the waterside access for some very impressive homes as well as a popular seafood restaurant.

For that survey, Gallagher said they had to locate all the channel markers, sea walls, docks, etc. at the entrance to the cove, then do hydrographic scans to verify the depth of the sea floor. After setting control in an area in which as much of the cove as possible was visible, they did the bulk of the work robotically.

"Then, after locating all that we could, we turned to our Topcon HiPer VR GNSS solution for the areas we couldn't see — rip-rap in the water, for example. We are lucky to have the capability to switch back and forth."

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As technology continues to develop, BDI's Mills said it's easy to forget how labor-intensive some of their projects used to be.

"Pre-robotics, survey parties might easily have been four or five people, with that number rising to as many as 10, depending on the complexity of the job," he said. "Now, our two-person crews are able to do even complex projects much quicker — often in half the time we bid. At their most basic, robotics have taken one person from being behind the equipment and freed them up to do other work such as cutting line or prepping for stake work — that can make a huge difference on site."

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