



No Strings on This Apron

GNSS technology helps turn nearly 30 acres of Hurlburt Field wetlands into prime parking space for newly arriving aircraft



Company

RC Construction Company, Inc.
Greenwood, Mississippi

Project

Hurlburt Field Apron Expansion
Ft. Walton Beach, Florida

Topcon Solutions

Millimeter GPS, 3D and 2D machine control, DL-502 digital level

Topcon Dealer

Lengemann Corporation
Altoona, Florida

To prepare for the impending arrival of twenty-one new AC-130J Ghost rider aircraft to Hurlburt Field in Ft. Walton Beach, Florida, a \$30 million expansion of the Field's apron area was undertaken and headed up by Mississippi-based RC Construction (RC), one of the country's foremost airport/runway specialists. Tapping the strengths of digital technology, machine control and stringless GNSS paving, the company turned one of the most challenging scenarios it's faced into another success story.

The airfield project, impressive in its own right was made even more so by the fact that it was taking place in a wetland area. According to Edward Murchison, RC's chief and quality control manager, that situation dictated its early phases.

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"We started with a clearing operation to remove trees and vegetation from the prospective apron area," he said. "With the area cleared, one of our subcontractors laid a multi-lift mat of geogrid designed to stabilize the area — both the material below and the sand placed on top of it."

The multiple lifts of sand and geogrid — as well as the settling plates on the final lift — are designed to displace the water and stabilize the soil, making it suitable for paving. "Once we placed the specified depth of material, which could be as much as 10' of sand, and installed the settling plates, we used a Topcon DL-502 digital level to monitor the settling process," said Murchison.

That digital level, he added, was the unsung hero of the surcharge operation — a bit ironic since it operated amidst a host of highly-complex GNSS instruments.

"After thirteen settling plates were set, we took measurements using that level every day to determine when the marsh was considered stable enough for construction," he said. Once it was determined that settling had ceased, the the surcharge was removed, the area was graded in advance of a one-foot thick graduated aggregate base course (GABC) and paving began.



The apron at Hurlburt was paved in 21 individual sections or lanes, which measure 19' 4" wide and 904' long. Each lane was 15" thick, heavily reinforced with large-size rebar and contained roughly 880 cu. yds. of concrete.

Both to meet the tight specifications demanded for the project and because of their long-time belief in the benefits of GNSS technology, RC eschewed the use of stringline for the lane pours at Hurlburt, opting instead for Topcon Millimeter GPS. According to Murchison, going that route was literally a no-brainer for the company.

"RC has been a user of Topcon GPS machine control for about 11 years now," he said. "Our confidence in the technology is evident everywhere here. We used it on graders and dozers working the surcharge operation. We used it to lay down and clip the GABC. We used it on our excavator digging utility trenches for the project. And we had machine control guiding the tracking of the GOMACO PS-2600 placer/spreader with which we fed the paver. On a project in which specs call for accuracies to $\pm 1/2$ " and production is key, going with the Millimeter GPS solution, which eliminates the need for both grade stakes and stringline, just made sense. Incidentally, we were regularly getting accuracies to $\pm 1/8$."



The full scope of RC's work taking place at Hurlburt also included installation of storm drainage, subdrainage, water, sewer, force main, as well as prepping for electrical distribution and communications. As mentioned, RC Construction's belief in GNSS technology is so strong it played a role in nearly every facet of the job.

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"Our commitment to Topcon machine control is based on the results we've gotten from it over the years," said Murchison. "So, tapping the stringless paving solution for this job was literally a no-brainer. The production is there, the accuracies are there, the ability to provide a safer work environment is there — the benefits speak for themselves."

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