

Put on the Map

Idaho superintendent discovers how beneficial it was to chart his course by GPS. Oh yeah, it wasn't as complex and expensive as he thought it would be either

BY LARRY AYLWARD, EDITOR

Clink! Clang!
“That’s not supposed to be there,” Gerald Flaherty said to himself and anyone else within earshot.

The scene was the first hole of a wide-scale renovation at Crane Creek CC in Boise, Idaho, last September. Flaherty, superintendent of the course, had just watched a backhoe strike a main irrigation line by mistake.

According to the course’s “as-built” map, the irrigation line was supposed to be about 20 feet south from where the backhoe was digging. But there the pipe was, right in front of the befuddled superintendent’s face.

The renovation was a typical modernization of a 40-year-old golf course, consisting of adding cart paths, expanding greens, reworking tees, rebuilding bunkers, and subtracting and adding trees. But problems ensued on the first hole when construction equipment encountered — make that hit — items such as irrigation pipe lines and power lines that weren’t on the course’s original 1953 map.

“We started finding things in the ground that we thought were many feet away from where we thought they were,” Flaherty says.

Being only the first hole, Flaherty didn’t have much confidence left in the old map. He knew he needed a new map. He knew the course needed to be mapped according to the Global Positioning System (GPS), something he had been wanting to do. (The GPS is a web of 24 government-run satellites in 12-hour orbits.)

“It became an easy sell [to the course’s de-



PHOTOS COURTESY OF LANDLOGIC

Gerald Flaherty collects the location of an irrigation controller while mapping his course.

cision makers] once we started finding things in the ground that weren’t supposed to be there,” Flaherty says.

And once the decision was made to map the course, Flaherty recognized it made sense to map it twice, before and after the renovation.

‘It was cake’

Flaherty studied several companies to perform the mapping but settled on LandLogic in Boise. Flaherty had heard good things about LandLogic from fellow superintendent Kevin Hicks of Hillcrest CC in Boise. Hicks

Problem

This is a classic case of a superintendent not “knowing” his course when he and his crew set out on a renovation. But it wasn’t the superintendent’s fault. The course’s 1953 “as-built” map didn’t provide much direction as to where items were located.

Solution

To create a better and more informative map before and after the renovation, the superintendent mapped his course according to GPS.

had helped LandLogic creator, Larry Robinson, test his mapping system and software.

Robinson began LandLogic out of his love for golf and his desire to help superintendents use the technological advancements of GPS in mapping of their golf courses. When he started the company in the mid-1990s, his goal was to present superintendents with a GPS mapping program that was simple and affordable. Robinson spent more than three years testing three prototypes. He introduced his system in late 2000.

Flaherty says LandLogic's price for its mapping services was substantially lower than the other companies he researched. It costs less because LandLogic's philosophy is to let superintendents map their courses rather than pay the high cost of labor to have mapping experts do it for them. "All we do is provide the equipment and mapping expertise," Robinson says, adding that LandLogic's price for mapping is about \$7,000.

Robinson says there's a perception that GPS mapping is the sole domain of engineers, hydrologists and geologists. While that's hardly the case, it's still difficult to get superintendents to believe they can map their own courses, he says.

The 42-year-old Flaherty was a perfect example. He half-jokingly says he's not sure now to turn a computer off, so he was skeptical that he could consult a satellite to map his golf course. But as it turned out, Flaherty says mapping his course was "a walk in the park."

"I'm not a computer guy at all, and I was nervous about this. But it was cake," he says. "[Robinson] spent about 10 minutes explaining the procedure to me. I couldn't mess it up if I tried."

While the mapping equipment consists of sophisticated computer software, superintendents need not be intimidated, Robinson says. All they need to do is wear the equipment as a backpack and walk the course with a hand-held personal digital assistant (PDA). The PDA provides simple and explicit directions ("Here's how to map this bunker"), communicates with a satellite and stores the information.

It takes several hours to map the course, but that's to be expected. Areas to be mapped include fairways, greens, tees, irrigation

heads, bunkers, trees, ponds and even manholes.

Flaherty says it makes sense for a superintendent — not a hired hand — to map his or her own course because it's a great way to view the track. It took about five days to map Crane Creek. "You notice things you might not have noticed if you weren't the person mapping it," he says.

After the mapping was completed, Flaherty sent the equipment — and all of the recorded data — back to Robinson, who organized the data and formulated an accurate map of the golf course from it. The data was then loaded onto a laptop computer along with LandLogic's course management and map maintenance software.

"A superintendent can use the software to view and edit his course map, and to access a myriad of other functions like head triangulation, perimeter measurements and irrigation site codes," says Robinson, noting that the software is also provided on a pocket computer that a superintendent can wear on his belt.

Old and new

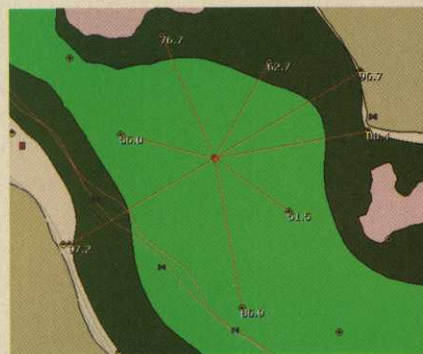
The first time Flaherty performed the procedure last September, he walked all over his course — mapping everything from bunkers and trees to valve boxes and sprinkler heads. Flaherty called representatives from local power and utility companies and had them come out to the course and mark their lines. Then he mapped them.

If he wouldn't have done that, Flaherty is sure he and his crew would have run into even more trouble during the renovation. "We avoided hitting a fiber optic line which would have been ungodly expensive to repair," he says.

After the renovation was complete, LandLogic sent the equipment back to Flaherty so he could conduct a second mapping to update the course with the renovations. The second mapping is included in the \$7,000 fee.

It's great to have a comparison of the "new" and "old" courses on computer to show to

Continued on page 66



A superintendent can use the software to access functions such as irrigation head triangulation.

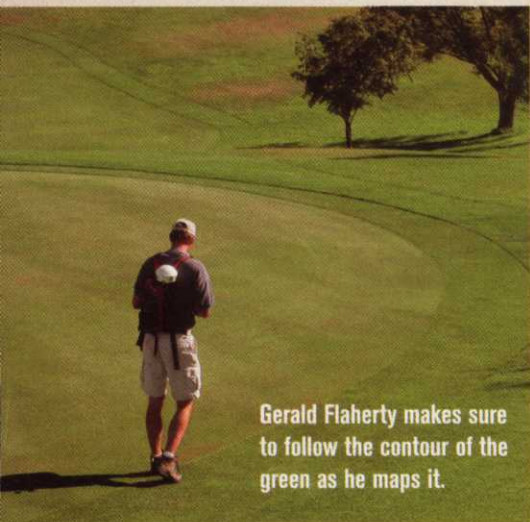
**Read another
Real-Life Solutions
on page 72**

Real-Life Solutions: GPS Mapping

Continued from page 65

green committee members and other decision makers, Flaherty says, especially when it comes to forming a budget.

"We can show them that our bunkers doubled in size, our tees increased by 30 percent, and our greens



Gerald Flaherty makes sure to follow the contour of the green as he maps it.

increased by 10 percent," he says. "We can show them that we took down more than 'a couple' of trees."

Because the system can store vital information about maintenance procedures, such as square footage and labor rates, superintendents can provide their bosses with thorough reports on how much was spent on tasks such as fertilizer applications and fairway mowing. Robinson says the information collected for the map is accurate from 4 inches to 6 inches of the exact measurements.

Attaining accuracy

Mapping a course continues to be beneficial in subsequent years, Robinson says. That's when superintendents can access records to see what maintenance procedures they performed on a particular green the season before and how the turf responded to the procedures. They can also check to see what the weather was when they performed cer-

tain tasks. They can use all the information gathered previously to make real-time decisions.

Flaherty says the new map is already playing an important role in his operation. In June, he and his crew installed 300 feet of new drainage. "Because we knew where the drain lines were, we could dig with confidence," Flaherty says.

Mapping is also important if superintendents are planning renovations with outside contractors. That way, they can work with contractors to define the square footage of the areas to be renovated accurately.

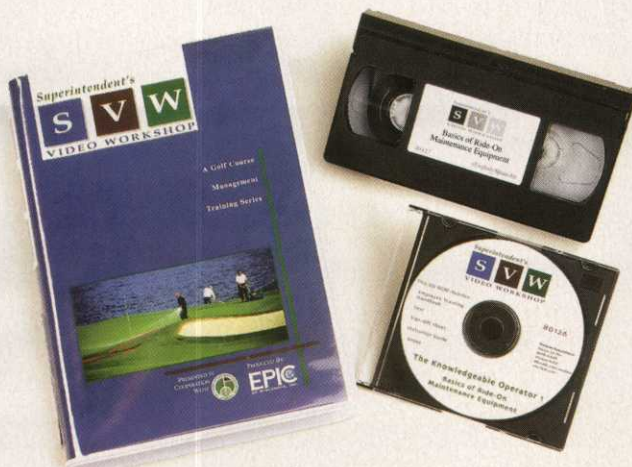
While GPS mapping is a proven tool to improve a golf course's maintenance operations, it's still not in demand because it's regarded as complex and expensive, two labels LandLogic has strived to combat. "The biggest issues are education, education and education," Robinson says. ■

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Making the Most of the Money

New turfgrass cultivars forced Ridgeway CC to replace its 30-year old irrigation system, using a creative financing method to fund the job

BY FRANK H. ANDORKA JR., MANAGING EDITOR

Time finally ran out on the irrigation system at Ridgeway CC in Memphis, Tenn. After more than 30 years of valiant service, it couldn't pump enough water to meet the needs of the new zoysiagrass fairways and bentgrass greens that certified superintendent Al Davis installed.

"It was a great system when it was installed in 1971, and it served our needs well for a long time," Davis says. "But we were fixing 50 to 60 leaks per year, and it was expensive to fix them."

So Davis started looking for a new irrigation system. He replaced his hodge podge of different parts with a complete, one-brand system through careful planning in conjunction with an irrigation consultant. Then

Ridgeway got creative when it came to financing to make sure the project was completed.

The problem

It all started when Davis decided to change the turf on his course. Wanting to improve the overall turfgrass quality of his course, he switched from bermudagrass greens and fairways to zoysiagrass fairways and bentgrass greens. He chose zoysiagrass because peers told him it was drought-tolerant, which after last year's weather conditions seemed like a godsend.

Trouble was, once he planted the turf, he discovered what he'd been told about zoysia wasn't necessarily true.

"I didn't find zoysiagrass to be more drought-tolerant," Davis says. "So be-

tween the bentgrass and the zoysia, we pushed the limits of our irrigation system more than in the past."

The old system watered between 55 acres and 60 acres of bermudagrass tees, greens and fairways and handled that adequately. But after the transition to turf that needed more water, it finally broke down. Leaks sprung up at the rate of five per month because of the increase volume of water being pumped through 30-year-old piping. When Davis wanted to fix a leak, he had to shut off the entire system. And the process of repairing leaks caused other related problems.

"Whenever you fix an irrigation leak, there's the disruption of digging up the pipes, and you run the risk of breaking pipes and cutting wires," Davis says. "We were doing some of that, so it had become a nightmare."

Finally, Davis says he had no central control over the older irrigation system. To change the cycles, he had to change the electromechanical clocks by hand at every station. "It was time-consuming and not cost-efficient," he says.

The club authorized the purchase in the spring 2002 after being warned that the system was inadequate to deal with another long, hot summer.

The solution

Davis' first move was to hire an irrigation consultant as he started planning for his new system.

"It was his job to sell the board members on the need for a new system and the advantages it would bring," Davis says. "If I tell them they need a new system, they may not listen. But if a consultant tells them the same thing, they're attentive and are more likely to authorize the purchase."

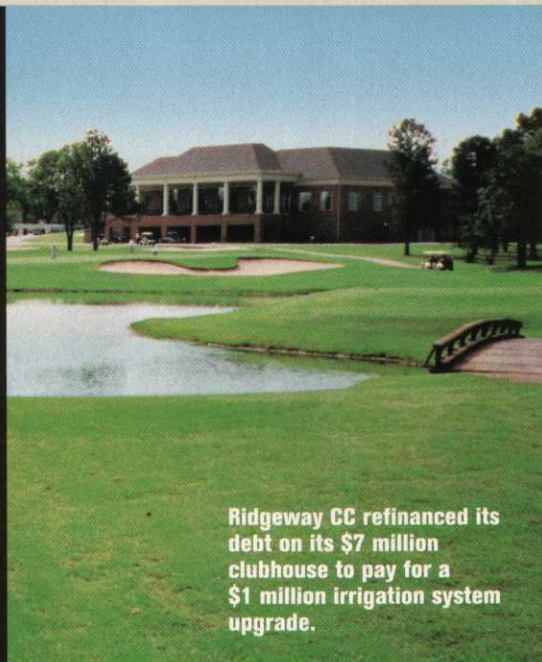
His second decision was to create a

Problem

A 32-year old irrigation system couldn't handle the increased capacity after Ridgeway CC changed from bermudagrass greens and fairways to bentgrass greens and zoysiagrass fairways.

Solution

A new \$1 million system allowed the superintendent to increase the amount of irrigated turf from about 60 acres to 150 acres. What allowed the project to move forward in a down economy was the refinancing of debt already spent for a clubhouse renovation.



Ridgeway CC refinanced its debt on its \$7 million clubhouse to pay for a \$1 million irrigation system upgrade.

global positioning system (GPS) map for his course. (The GPS is a web of 24 government-run satellites in 12-hour orbits and employs the triangulation method to determine position.) The goal was to use the map to determine how much pipe a new system would use. Davis says it helped him more accurately forecast the amount of pipe he would have to buy.

"I didn't have a good irrigation map, and the GPS map was the best investment I could have made," Davis says. "It was so accurate that we predicted within a few sticks of pipe how much we needed."

Davis says he was so impressed with how long his previous hybrid system performed, he initially wanted to follow the same formula this time around. When Davis went to his consultant with the idea, however, he laughed. "He told me he couldn't do that because we'd never get any warranties with a mix of systems," Davis says.

Davis asked his peers to recommend a single system to install. He eventually chose Hunter Industries.

The most attractive piece of his new irrigation system is that the central-control computer program is being customized for his golf course, Davis says. Hunter sent its computer programmers out to discuss exactly what features he needed so they could include them in the package. (In late June, the program was still being written, and Davis was operating on a temporary system.)

"I'm not good with computers," Davis says. "I've never had a computer before, let alone computerized control for my irrigation system. But I'm learning how to do it now, and I like the flexibility."

He was also impressed that the new system will run automatically even if his computer goes down. Each satellite is programmed to run on the last schedule it received even if there's no communication from the central computer. "Once they train me and I get

the Internet at my shop, I'll even be able to run it over the Web," he adds.

There was still the problem, however, of how to pay for the \$1 million system. The economy is still in the doldrums in many parts of the country (including Tennessee), so it took some creative thinking at the course to find

the funding. Fortunately, a previous \$7 million clubhouse renovation came to the rescue.

"The club was able to go back to the bank and say it needed an extra \$1 million for the new system," Davis says. "That ended up being no problem." ■

RENOVATION HIGHLIGHT

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A Look Back in Time

In 2001, Philadelphia Country Club underwent a major transformation of its storied course. During the renovations, which included much needed tree work and fumigating the fairways, and greens, a number of old aerial photographs were found. The photographs were taken during the late 1920's and show much of the course in its original design.

The photos showed very large, dramatic bunker complexes which didn't reflect their present state. Course Superintendent, Mike McNulty was quite surprised.

"We knew the bunkers were grassed in several decades ago. But the old photos showed that our current bunkers were roughly two-thirds the size." McNulty said. He further determined that much of the grassing had occurred to minimize bunker maintenance costs.



McNulty had the opportunity to install Sandtrapper,™ an advanced polymer designed specifically for lining bunkers. "With so many of the newly redefined bunkers having dramatic shapes and flashing, we had to identify a solution." Along with new drainage systems, they installed Sandtrapper on the severe slopes to complete the bunker renovation on 9 of their 27 holes.

We followed up with Mike to see how well Sandtrapper worked on his new bunkers. "This product has worked exceptionally well. We've had several big storms recently that washed out most of bunkers without Sandtrapper." When asked how this product aided in his renovation, he replied, "We're going to install Sandtrapper on another 9 holes this year."

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