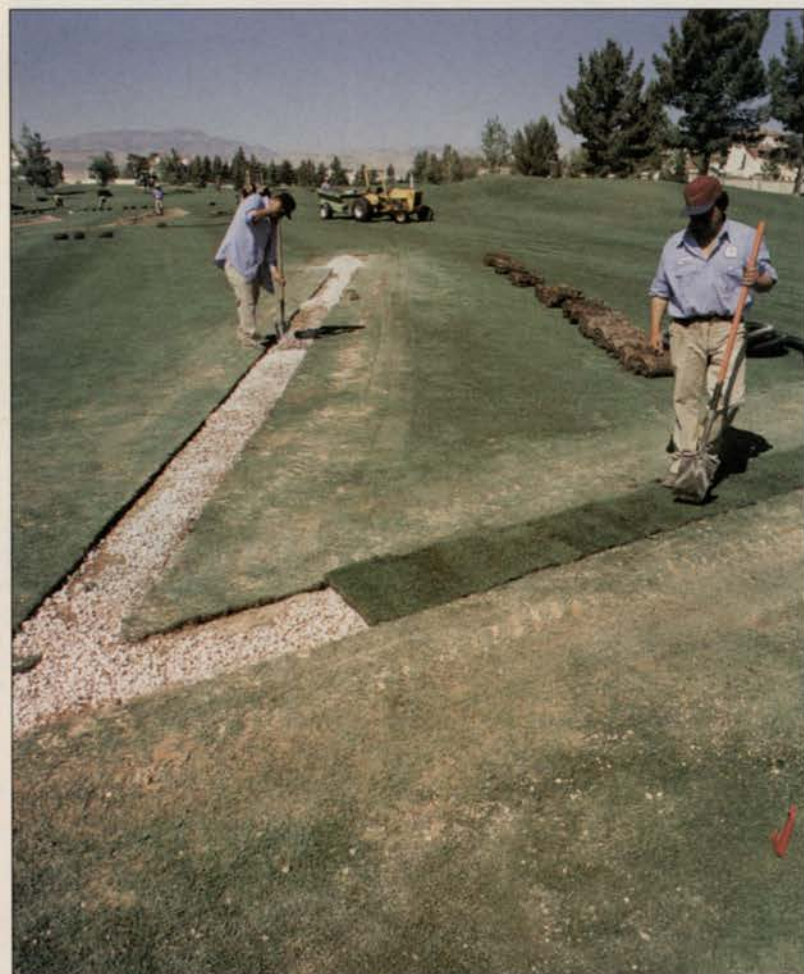


# Every drop counts

*Superintendent Bill Fielder, CGCS, seeks long-term water conservation solutions in maintaining Spanish Trail Country Club Golf Course in Las Vegas.*

By DON DALE

**S**panish Trail in Las Vegas is an impeccable golf course but receives, on average, just three inches of rain a year. Bill Fielder is, understandably, big on water conservation. And how: the annual water bill for the club is almost \$1 million. But his primary re-



The Spanish Trail crew works on installing drainage tile on the #9 hole on the Canyon Course. A new pump station, redesigned irrigation system are in place too.

sponsibility, as a certified golf course superintendent, is to maintain quality turf and trees at Spanish Trail Golf and Country Club where members expect superb playing conditions.

"We pay the highest water rates for golf courses anywhere in the western United States, and maybe the entire country," says Fielder who waters 210 acres of turf (common Bermuda fairways, hybrid 328 Bermuda tees, Penncross bentgrass greens) on the 240-acre development. His water conservation program seeks savings in places where many courses might not even think they can conserve water.

"The first thing was to get a new pump station," Fielder says of his new dual-pump Flowtronex PSI station with six 75-hp motors. The pump station, costing about \$110,000, increases water distribution efficiency, and allows Fielder to pump water where he needs it, when he needs it and under the pressure he needs it.

The new pump station, with its even pressures, has eliminated a lot of breakage and weeping of lines. Irrigators also constantly correct head spacings and nozzle imbalance.

The pump station is just part of a complete redesign of the irrigation system at Spanish Trail. That meant changing from a block system to a valve and head system on the 9-hole Canyon Course, with the other two courses scheduled for changeover in the near future. The redesign will cost \$1.5 million, but saves lots of water.

#### **More precise control**

By running each sprinkler head with its own valve, Fielder has more precise control of his irrigation. Before, he often had to overwater one spot to get adequate water on another spot. "Now we can address the hot spots, and only the hot spots," he says.

Management practices have a lot to do with total water usage, he notes, and he has gone to an efficient system. He has three irrigators, one for each nine holes.

"Constant maintenance of the system is the most important thing. Second is constant adjustment of the irrigation schedule," says Fielder. The Maxi V System is a great aid here, says the superintendent. Using the computer's calculations based on weather,

and their own knowledge of each course, Fielder and assistants make nightly adjustments to the schedule.

The superintendent even prints out each daily station log and go over it to see if there are problems, with irrigators changing each station's precipitation rates as needed to match up with evapotranspiration rates.

In the previous irrigation setup, Fielder recalls, "we'd actually have to come out in the day and add more water." In addition to poor coverage and massive water losses to evapotranspiration, the soil suffered from sodium buildup.

"Basically what happens is that sodium makes the plants unable to use the water that is there." Consequently, more water has to be used to get the desired effect.

#### Other options

"We use a lot of soil amendments and wetting agents to reduce the amount of water required to properly irrigate," Fielder says—calcium, sulphur, gypsum and, on an experimental basis, some porous ceramics. The amendments improve water penetration to the root zone, as well as improve drainage.

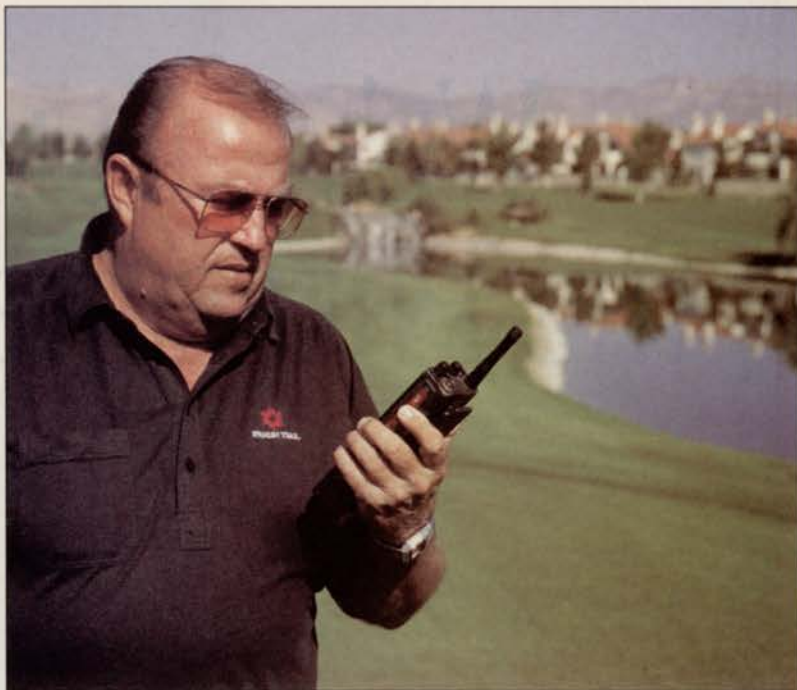
"In the case of wetting agents we're trying to reduce the surface tension so water will penetrate," he points out. He uses the wetting agents through the pump station, or applied with a boom pressure sprayer directly to greens, tees and localized hot spots.

The club is also laying drainage tile under one fairway, and plans to French-drain other holes if this experiment in leaching is successful.

Another method of reducing water usage is by reducing turf, and Fielder has taken out about 10 acres in low-use areas such as along drainways. This isn't popular in a development that has houses worth up to \$15 million, but it does save money.

Spanish Trail is also drilling its own water well to participate in an irrigation district groundwater recharge program. This will give the club reduced rates on their Colorado River water, but it will also cost \$0.5 million for all the upgrades.

Leaky lakes are scheduled for a bottom-lift in the future, and that will save water in bunches. "We're



Bill Fielder at Spanish Trail Golf Club in Las Vegas says the three most important things on a desert golf course are—"irrigation, irrigation, and irrigation."

going to drain them and line them with 20 mm PVC liner," Fielder says. "Each one we do is going to cost us \$100,000."

But look at the cost to replace water lost to leaks and evaporation in one month, April, and you'll see why leak stoppage is a good policy. That month's water loss on one lake cost \$1,100.

When you start adding up the cost of all these improvements you're looking at millions of dollars. But Fielder says that in a city of a million people that is adding a thousand families a week to its population, water will become more expensive in the future. Restrictions on usage will also be more prevalent.

"In the desert the three most important things on a golf course are irrigation, irrigation, irrigation," Fielder says, adding, there are two ways to pay for a golf course: "Now, or forever." A good irrigation system pays off now.

It's paying off now at Spanish Trail thanks to an aggressive program to conserve water. □

—Writer Don Dale is based in Willcox, Arizona