

# Deep Tines on Fairways Equal Deep Roots

Thanks to new aerification strategy, fairways are in fabulous condition, Iowa superintendent says

BY LARRY AYLWARD, EDITOR

**H**ave you ever purchased something to use on something and you ended up using it on something else?

About three and a half years ago, Rick Tegtmeier purchased a deep-tine aerator to use on his golf course's greens and tees at Elmcrest CC in Cedar Rapids, Iowa. Six months later, the certified superintendent was using the machine,

the Verti-Drain, on his course's fairways as well.

"We have push-up greens here that are 70 years old," Tegtmeier says. "After we started [deep-tine aerating them], we saw some success. We thought, why not try it on the fairways?"

They did, and Tegtmeier and his crew have been deep tining the course's bentgrass fairways once a year ever since. The process is a slam-dunk for deep-rooted, healthy turf, Tegtmeier says.

The Verti-Drain, manufactured by Redexim Charterhouse, functions by "shattering" the soil to create multiple fissures in the hardpan layer. "This is accomplished

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### The Goal

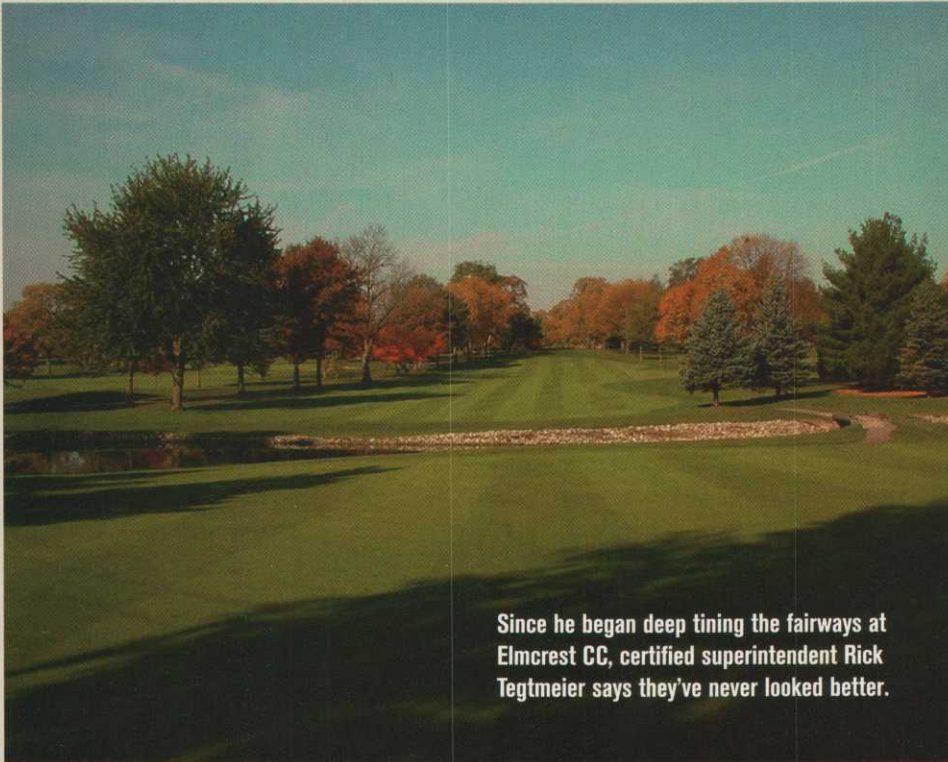
Certified superintendent Rick Tegtmeier wanted to improve the health and look of the fairways at Elmcrest CC so the turf could better combat stress and pests.

### The Solution

Tegtmeier decided to deep tine the fairways after he and his staff had success deep tining the greens. The fairways now have much better drainage and deep, healthy roots.







Since he began deep tining the fairways at Elmcrest CC, certified superintendent Rick Tegtmeier says they've never looked better.

through a parallelogram heaving action in which each tine is forced backward underground, shattering compaction at depths ranging from 6 inches to 24 inches and at speeds up to 2.7 mph," the company states.

The machine can be easily adjusted for increased heave and shattering or simply straight in and out movement of tines for minimal surface disturbance, the company adds.

When they first started deep tining the greens, Tegtmeier and his crew were using half-inch solid tines at about 10 inches deep.

"I told the guys, 'Let's go to about 8 inches on fairways so we don't hit anything,'" Tegtmeier says. "The first year [we used the Verti-Drain on fairways], we saw some big improvements. The course had much better drainage, and the localized dry spot went away. I have a 16-inch soil probe, and I was seeing roots down about 14 inches to 16 inches."

The deeper roots equate to healthier turf, which can better combat drought, heavy traffic and attacks from turf diseases and insects. "We have some of the best fairways around," Tegtmeier contends.

Tegtmeier recalls the reaction he received from members the first time he used the Verti-Drain on fairways.

"We were aerifying the fairways, and there were no cores," he says. "Our members were asking, 'When are you going to start aerifying the fairways?' I said, 'We're about halfway done.' The members were ecstatic because there were no cores."

Tegtmeier and his crew were previously coring fairways twice a year. Since they began deep tining, they're only coring once a year.

Tegtmeier credits his former boss, Bill Byers, director of golf for the Des Moines (Iowa) Golf & CC, with turning him on to the Verti-Drain. Tegtmeier worked under Byers for seven years as the superintendent for one of the club's two 18-hole courses.

But there's a bit of ingenuity in Tegtmeier's approach to deep tining the fairways, which can be classified under the all-important "cultural practices" category. In fact, Tegtmeier recently made a substantial decision that will change his agronomic approach.

Previously, Tegtmeier and his crew were deep tining in the spring and coring in the fall. It made more sense to deep tine in the spring because coring can become messy and muddy during April showers.

"When you core in the spring, you bring  
*Continued on page 34*

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**Read another  
Real-Life Solutions  
on page 50**



## Real Life Solutions: Deep Tines

*Continued from page 33*

a lot of dirt up," Tegtmeier says. "You go through a lot of reels (on mowers), which have to be grinded again. It's a hassle for the mechanic. That's why I was coring in the fall."

That said, Tegtmeier cored the course's fairways for the last time this fall. In the fall of 2003, he'll switch to deep tining.

He has decided to go back to coring in the spring — muddy mess and all — because coring in the fall means possibly fetching *Poa annua* seeds that could germinate. Tegtmeier would rather deal with temporary messy fairways than dreaded annual bluegrass. "I don't want to bring up any *Poa* seeds," he laments.

Besides, coring in the spring has its advantages. The soil microbes from the cores help decompose the thatch buildup in the Penncross bentgrass

throughout the spring and summer, Tegtmeier notes.

"Penncross is a thatch producer," he says. "Getting those soil microbes up helps."

The Verti-Drain requires only one worker at a time for operation, but that doesn't mean the machine helps cut down on aerification labor. Tegtmeier employs one worker in the morning and one in the afternoon to deep tine the fairways.

"I can core all the fairways in two days with eight to 10 people," Tegtmeier says. "But I use two people when deep tining, and it takes about a week and a half."

Yeah, it's a big job and it's tough on the Verti-Drain and the tractor that pulls it, Tegtmeier admits.

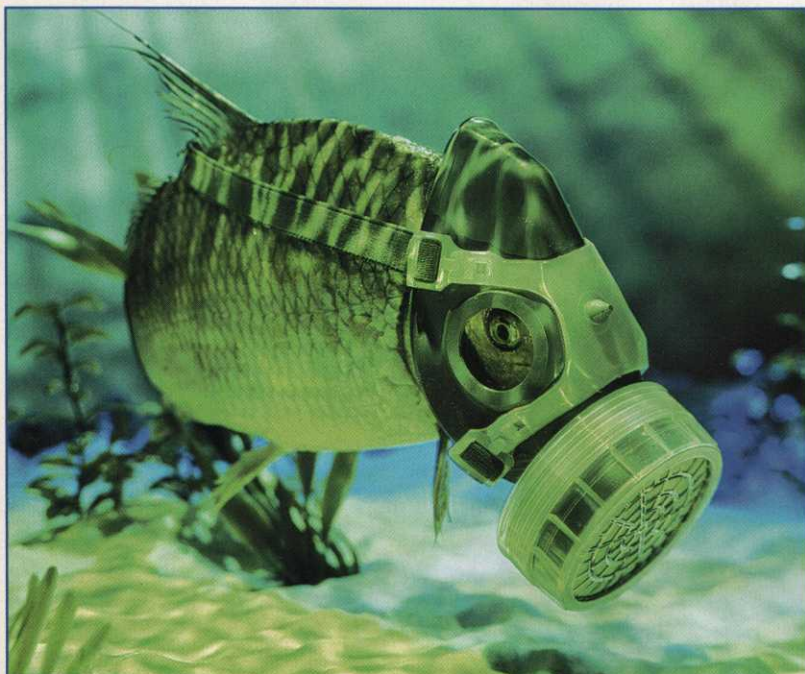
"We've bent some tines, and there's been a lot of wear and tear on the machine," Tegtmeier says. "But the

benefits outweigh the wear and tear."

Tegtmeier is not the only superintendent deep tining his course's fairways. Last spring, fellow Iowa superintendent, Ken Ellenson, superintendent of Amana Colonies GC, contracted a business to do the job. "We have heavy-duty clay in our fairways, and I wanted to see if it would help," he says.

Ellenson says the contractor used the Soil Reliever aerator, manufactured by Southern Green. Previously, Ellenson only aerified the course's fairways once a year by coring them in the fall. But he plans to deep tine them again next spring along with coring in the fall — and deep tine in the springs thereafter.

"We had a lot less problems with turf stress this year than we've had in the past," Ellenson says. "[Deep tining] helped a lot." ■



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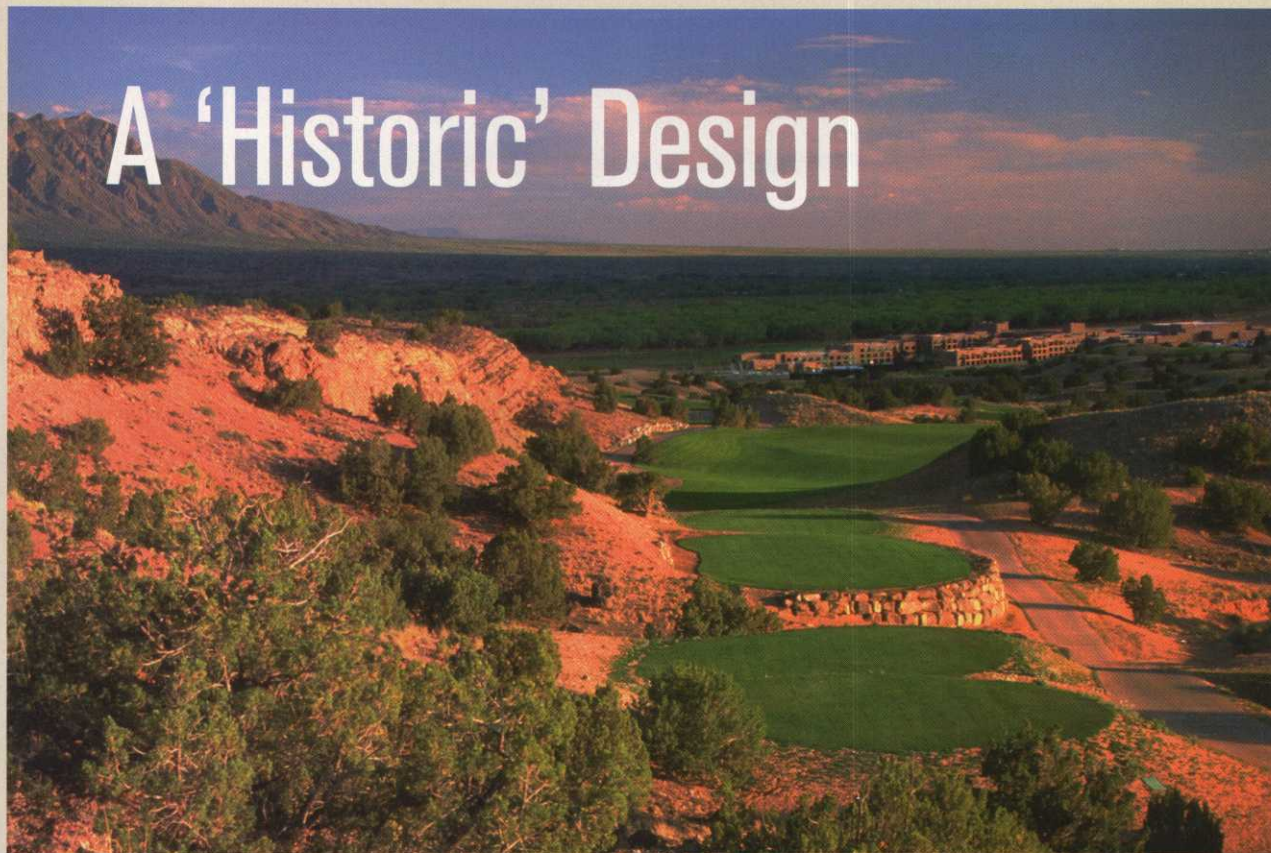
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# Real-Life Solutions

DESIGN CHALLENGES ON AN INDIAN RESERVATION



## A 'Historic' Design

COURTESY OF GARY PANKS

Arizona architect Gary Panks was more than happy to reroute his initial design of Twin Warriors GC to preserve the sacred grounds of a local Indian tribe

BY BRUCE ALLAR

**W**hen architect Gary Panks won the competition to design Twin Warriors GC in Santa Ana Pueblo, N.M., he knew he'd be laying out 18 holes in an unique desert environment. But he didn't know how unique.

From the very beginning, Panks took a strong personal interest in the project. He traveled five times to New Mexico during the interview phase and produced preliminary routing plans to further his chances (the other

two finalists, Tom Fazio and Jack Nicklaus, sent representatives to the interviews, according to Roger Martinez, director of operations for Twin Warriors). Those early renderings showed how Panks would design the course around sacred grounds on the site belonging to the Santa Ana Pueblo tribe, whose reservation land also encompasses nearby Santa Ana GC and the Hyatt Regency Tamaya Resort & Spa.

### Nothing's final

Panks' persistence won him the job, but it was only the beginning. Later on, after much work, Panks pro-



Gary Panks took a strong personal interest in Twin Warriors GC even before he was hired as the course's designer.

### The Challenge

**To design** a golf course on a New Mexico Indian reservation around sacred grounds to preserve artifacts and maintain the property's history.

### The Solution

**Do it carefully.** Scottsdale, Ariz.-based architect Gary Panks did his homework and worked closely with members of the Santa Ana Pueblo tribe to make sure the course was designed to not disturb the sacred sites.



duced what he thought might be a “final” layout for Twin Warriors. He would later learn that he had unwittingly plotted tees, fairways and greens over a number of Pueblo cultural sites.

“I had a routing plan completed,” Panks says. “Then the client produced a map of some cultural sites that no one was aware of. So we had to go back to the drawing board.”

Panks, whose firm is headquartered in Scottsdale, Ariz., got a quick education in how things work on tribal lands held in trust by the Bureau of Indian Affairs. After plans for the course were announced, a group from the historic preservation office of the state of New Mexico walked the entire grounds — 200 acres at the time — positioned at arms’ length distance from one another. They searched the sacred ground for artifacts and found pottery shards and

animal bones. They also discovered about 20 previously unknown culturally sensitive areas.

As a result of those findings, the course was rerouted and its area, all reservation land, expanded to more than 400 acres. “We routed the golf course around, through and intermingled with those sites,” Panks says. “They are there in the nonplay areas.”

The result is a championship track that cost \$6.8 million for course construction and \$9.1 million with buildings included. Twin Warriors GC, which opened May 2001, is the site of the 2003 PGA Club Professional Championship. Signs identify culturally sensitive sites, including an old cave dwelling believed to have been inhabited in the 1400s and a horse corral from the 1800s.

A sacred butte with mystical meaning for the Native Americans called Tuyuna (translated as

“Snakehead”) is near holes 14 through 16. The Santa Ana Pueblos were initially concerned the course would border Tuyuna too closely, which the tribe does not want approached by hikers. Knowing that golfers would not trespass onto the sacred butte and that trespassers likely wouldn’t cross a golf course to hike there, Panks suggested a plan — and won its approval from the five tribal members on the board of directors overseeing construction — for a design that borders the holes near Tuyuna. “We suggested that the golf course become a buffer that you can have control of,” Panks says.

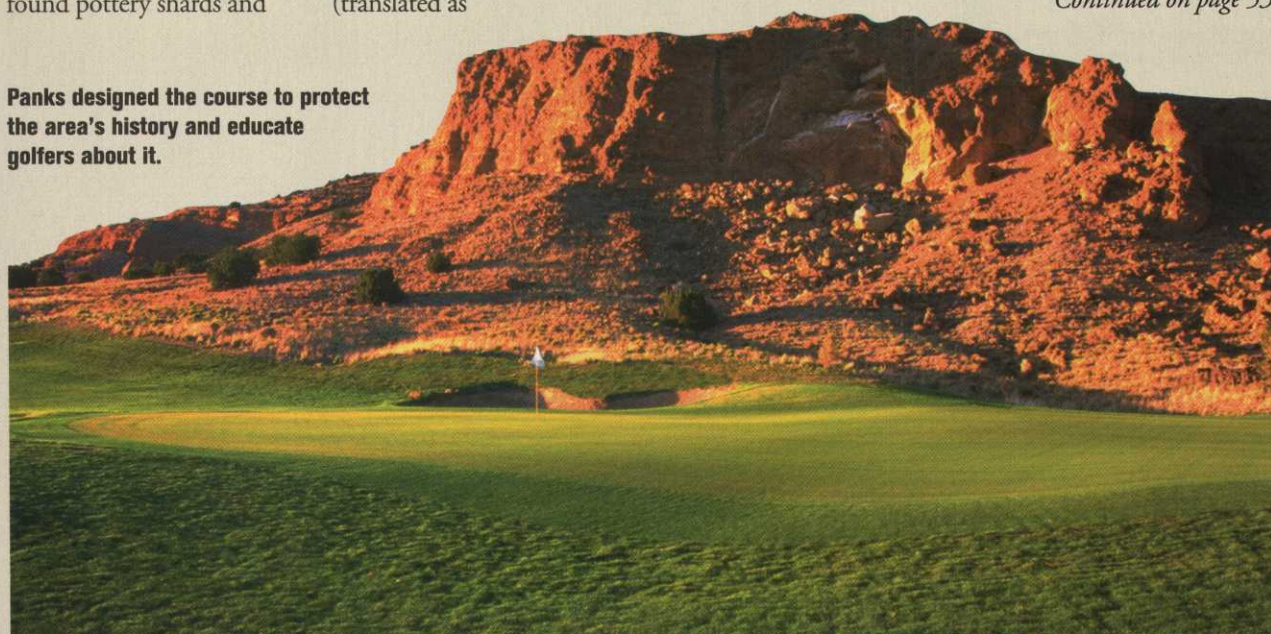
This collaboration between the architect and the client produced a course that protects the area’s history and educates visiting golfers about the setting. Each golf cart is equipped with a global positioning system set up to monitor the

environs. When a cart strays into protected land, a light goes on in the golf shop and notifies course management to watch its progress. A message on the individual cart’s GPS screen tells the golfers, “You are in a culturally sensitive area.” Most immediately exit the site.

A nursery operated by the Santa Ana Pueblos was used during construction to supply native, drought-tolerant plants such as sage and four winds saltbrush for nonirrigated areas on the course. Irrigation was put in to re-establish replanted native species in off-fairway areas. Then, after a year when the plants were healthy, the water was shut off. As a result of working with the tribe on course vegetation, Twin Warriors exhibits a more natural look and, at present, only 93 of the over 400 acres are irrigated, despite the high-desert climate.

“In the end, we had a  
*Continued on page 53*

**Panks designed the course to protect the area’s history and educate golfers about it.**





## Real-Life Solutions

*Continued from page 51*  
better golf course,” Panks says.

### Done it before

Gary Panks Associates underwent a similar experience in designing two courses for the Gila River Indian Community at the Whirlwind GC in Chandler, Ariz. In planning the Devil’s Claw Course, the first project there, Panks personnel attended tribal meetings and learned that a goal of the Gila was to restore the Gila River to its original state; it had become choked with vegetation and suffered other environmental degradations in recent years. The idea was to let the river flow between the two golf properties and to bring back indigenous vegetation.

Gary Brawley, an associate designer with Panks, says: “Once we got the golf routing staked in the field, we took their cultural people out there. You’d be amazed — things that are so miniscule to you and I are of great importance to the Native American people. There’s a lot we can learn from them as to what the land can yield. They use every piece of what’s on the land.”

The Gilas walked the course three times prior to construction, saving each individual plant of importance to them. On one excursion, they found an arrow weed plant and salvaged it. Arrow weeds were harvested and tightly stranded to make arrows in previous centuries. A cactus about 3 inches tall was



**As a result of working with the tribe on course vegetation, Twin Warriors displays a more natural look. Despite its high-desert climate, only 93 of the course’s more than 400 acres are irrigated.**

also saved and replanted.

More common varieties special to the Gilas — such as squawberry plants and mesquite trees — were salvaged before construction and then transplanted back onto the course. An onsite nursery was built as a temporary home for about 300 squawberries and 80 mesquite trees awaiting transplanting.

“One time we found a grove of about nine mesquite trees,” Brawley says. “We actually went back and changed the design to incorporate them

rather than box them and salvage them. Now they frame the fourth green.”

The bermudagrass fairways and ultradwarf bermudagrass greens are surrounded by hearty native plants at Whirlwind, another reservation resort course, this time near a Sheraton Hotel. Brawley says working with the Native Americans has taught the designers to stress well-adapted native vegetation in future projects — and think less about forcing other grasses.

“The Native Americans have learned to use the re-

sources they have for survival, so they’ve learned what each individual plant can do for them — whether it’s for food, for medicine, for weapons or tools,” says Brawley. “I think we’ve taken that for granted.”

While the Panks group may have taught the tribe something about golf course design and construction, the Gilas and Pueblos reciprocated by educating the designers in new ways to view the landscape.

“Whenever we do a project, we’re environmentally concerned about the properties,” Panks says. “Now we also look more into the histories of the properties than we might have before. We look a little deeper.” ■

*Allar is a free-lance writer from Floyd’s Knobs, Ind.*