



Bite Back at Bunkers!

New and improved bunker products attempt to take the pain out of bunker maintenance.

BY JOHN WALSH

Bunkers are the biggest challenge in golf. Just ask Todd Jenkins, PGA, vice president of sales for Better Billy Bunker.

“Players know bad bunkers, but they don’t know why,” says Jenkins. “Superintendents know why but can’t convince owners to spend the money to fix them properly. Everyone’s always worried about washouts and a lack of drainage, which leads to sand contamination. If you address that problem, you can improve bunkers drastically.”

Bunkers constitute 3 percent of the average U.S. golf course acreage, according to the GCSAA, yet they likely constitute more than 80 percent of golfer complaints. As much as 10 percent to 25 percent of a maintenance staff’s time is spent maintaining bunkers, and most golf courses with many bunkers require 15 percent to 25 percent of the available labor hours for routine maintenance.

Because they take a long time for workers to repair, bunker washouts are a major concern for superintendents. “It kills superintendents’ budgets,” Jenkins says. “Crews spend countless hours repairing bunkers. One superintendent spent between \$120,000 and \$140,000 a year” on bunker repair.

An eight-year guarantee

When Kevin Clark was an assistant superintendent growing in Lantana Golf Club in Texas in 2000, the bunker mat he used failed before the course even opened.

“Ownership came to us and said, ‘What are we going to do?’” Clark says, adding that the owners gave the crew funds to test various products. “We tested everything that was commercially available and weren’t happy with any of them.”

So Clark, a managing member of KLC Concepts, experimented with a Rhino liner truck bed, AstroTurf and carpet. Eventually, he used a product that consisted of plastic fibers similar to synthetic turf used on athletic fields. “The fibers I use are different in that the fibers on an athletic field are oily and smooth, and I wanted the roughest, stiffest, nastiest fiber you could stand,” he says.



Four years ago, Lantana Golf Club eventually renovated its bunkers — 170,000 square feet of them — with Clark's product, Bunker Solution. Before that renovation, Lantana renovated individual bunkers with everything available on the market.

Clark, who now sells his bunker liner full time, has many international patents and two U.S. patents (one for the actual parts and materials that make up the liner and one for the way it's installed).

Bunker Solution was promoted by word of mouth, but now Clark is actively promoting it at places such as the Golf Industry Show.

Morris Johnson, the director of golf course operations at River Oaks Country Club in Houston, was the first superintendent (aside from the one at Lantana) to renovate all 18 greens with Clark's product. (See sidebar, "Sold in 30 Minutes," Page 14.)

"He was the guinea pig," Clark says. "He had some sleepless nights, but 14 more courses have done a complete bunker renovation since. I've sold 1 million square feet. Word is getting out."

Bunker Solution, which has an eight-year guarantee, combines the properties of mat and soil-binding type liners.

"We want all the water entering the bunker leaving out of the drain," Clark says. "The

liner is 99 percent nonpermeable. We don't allow water to move through it. I wanted to create a bathtub and eliminate issues caused by getting subsoils wet."

Drain it dry

When superintendent Jeremy Parkman experienced repeated flooding of the bunkers at Dale Hill Golf Club in Ticehurst, East Sussex, England, he used his water management experience to find a solution. He drew up a design for a bunker drain that would be adaptable to all bunkers and easily fitted by a maintenance crew, which wouldn't have to dig up the entire bunker and make the bunker unplayable for hours at a time.

Parkman's first prototype connected to existing drainage and was mounted at the base level of the bunker under the sand. It worked well initially, but the sand became contaminated after heavy rainfall, and the efficiency of the unit was impaired by sand and water backup.

Then Parkman decided to extend the unit to the surface of the sand, which increased the drain's ability to remove water. Because the water no longer had to filter through the sand, the majority of contaminants that washed into the bunker were carried straight through into

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“BUNKERS AREN'T JUST FOR THE UPPER ECHELON OF THE MARKET.”

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the unit, where they could be removed.

Parkman's design tweaks also created additional benefits, such as providing a flushing point and a datum point of sand depth in the bunker and reducing sand migration. The aesthetic cost, however, is a 6-inch grill visible in the bunker.

Parkman's final test was to ensure that sand and other contaminants would not block the outfall pipe. He accomplished that, so now water enters the unit through the grill then fills the top chamber, where sand and contaminants are trapped.

When full, water flows down the central pipe into a second sand trap, enabling the water to flow freely away down the existing drainpipe. Because the length of the center

pipe extends into the second sand trap, finishing below the level of the outfall, the unit's efficiency is slowed only after extreme rainfall when both sand traps are full, making sure no sand blocks the outfall pipe.

Parkman, now technical sales executive for Bunker Plug, launched his brainchild at the BTME Harrogate Show last January.

Typically, the Bunker Plug works in bunkers as big as 1,000 square feet. And depending on the catchment, sometimes two or more plugs can be used in long bunkers to help eliminate sand migration along the bunker.

The Bunker Plug can:

- Reduce contamination significantly
- Prevent sand or silt infiltrating drainage runs

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Sold in 30 minutes

A superintendent in Houston finds a bunker liner he likes after numerous trials.

Several years ago, Morris Johnson had bunker problems at River Oaks Country Club in Houston. The bunkers were too contaminated and didn't drain well. After a washout, it took three days to repair the bunkers. That required tons of labor. Additionally, underlying rocks were working their way through the subsoil of the bunkers.

That was unacceptable to the director of golf course operations at the exclusive private club, even with his large maintenance budget.

"We did tons of research," Johnson says. "We conducted trials of every liner on the market, but we refused to use fabrics and saw no long-term solution. We needed a nonpermeable barrier between the sand and rocks."

Word can travel fast, and word about former assistant superintendent Kevin Clark's Bunker Solution reached Johnson, who eventually saw Clark's product in bunkers at Lantana Golf Club in Flower Mountain, Texas.

"Within 30 minutes, I was sold," Johnson says. "I saw members hitting balls in the bunker before the sand was put in. I liked it."

The polymer that the three-part liner (mat, anchor and drain liner) is composed

of isn't a new material; it's been used as artificial turf on sports fields. But the application is new. The liner is three-fourths to 1-inch thick, isn't dense and is club friendly.

"The average age of a member here is 59 years old, and I can't have members breaking a wrist," Johnson says. "It's softer than other nonfabric liners."

In 2008, River Oaks completed a \$2 million, Rees Jones-designed renovation of its 1923 Donald Ross-designed course. The project included green-side irrigation, bunkers, sand-capped approaches, tee leveling and four new tees to make the course longer.

Three years later there have been no snags, tears or rips in the bunker liner, Johnson says, acknowledging his crew uses bunker rake machines every day before the bunkers are hand-raked.

Bunker Solution is more expensive than most liners on the market (approximately \$2 per square foot for the entire system), but it eliminates the use of gravel and offers an eight-year warranty.

"It's so simple, it's brilliant," Johnson says. "Every contractor is amazed by it. This is the only liner I've seen that will outlast the sand. The beauty of this liner is on

many levels. I can expose drain pipe if percolation is slow and repair or fix it without another bunker renovation."

Johnson says the new liner has saved 200 man-hours after a major rain event, claiming the bunkers were nearly playable after 14 inches of rain fell in two days after Hurricane Ike.

The liner keeps sand cleaner longer, partly because of a mesh layer that's installed under the turf to prevent muck and silt creeping into the sand.

"The sand is the same color as the day it was installed," Johnson says.

Johnson says there are only two things to look out for regarding Bunker Solution:

- 1) Avoid pockets of water in-between drain lines with a herringbone drainage pattern.
- 2) Use a quality sand that is compatible with the sock pipe.

"I've been doing this for 30 years, and there's nothing close to it on the market," Johnson says. "It's a no-brainer. Any medium-sized club and above can justify the money."

Out of the Trap



Bunker Solution combines the properties of mat and soil-binding type liners.

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- Fit 2-, 3- and 4-inch drainage pipes at various depths
- Be fitted in about an hour
- Be tailored to any bunker
- Eliminate flooding 90 percent of the time

Currently, Parkman is working to establish the manufacturing and distribution of the Bunker Plug in the U.S. He has teamed up with golf construction company MJ Abbott to manufacture the product.

Parkman says golfers like the Bunker Plug because it improves the playability of a course in adverse conditions, management likes it because it's cost effective, and superintendents like it because it's easy to install and relieves them from pumping bunkers.

"It doesn't take many golfers leaving a course saying negative things before a good reputation becomes a bad one," he says. "The inevitable loss of revenue will follow. Being all things to all people is difficult but the Bunker Plug goes a long way to keep all parties happy."

Eliminate the liner

Former Augusta National superintendent Billy Fuller's method of bunker building (drain pipe, gravel, a geotextile layer and sand)

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Out of the Trap



Better Billy Bunker worked with Dow to formulate a sprayable polymer that binds the gravel together, eliminating the need for a liner.

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worked for years, and architects started specing it. Hundreds of superintendents and contractors have used the Billy Bunker method. In fact, according to Jenkins, 600 to 700 golf courses have the original Billy Bunker. But the liners eventually became exposed, then torn, compromising the method's benefits. The method worked well until the liners failed.

Now Better Billy Bunker has worked with Dow to formulate a sprayable polymer that binds the gravel together, eliminating the need for a liner.

“You get all the benefits of original Billy Bunker, but we eliminated the weakness,” Jenkins says.

The layer of gravel is the key because the water needs somewhere to go, Jenkins says, adding that the Better Billy Bunker's gravel layer can drain more than 350 inches of rain per hour. Comparatively, sand percolates at 40 to 50 inches per hour at its highest rate.

Better Billy Bunker, which has spent the past five years on research and development, has developed a polymer that binds the gravel.

“The initial problem is fine-tuning the application of the polymer in an adequate fashion,” Jenkins says. “Getting it the right thickness required tons of tests. Working with Dow, the process was perfected in two years.”

Numerous bunkers with the new polymer have been installed during the past two years. The first 18-hole project was Cole Park Golf Course in Fort Campbell, Ky. Jenkins says the much-tested method has had a calculated rollout because the company is selective with contractors it hires to install the bunkers.

“The application must be done right,” he says.

The cost of the Better Billy Bunker is comparable to building an original bunker, Jenkins says. “We don't want to out-price the market,” he adds. “Bunkers aren't just for the upper echelon of the market. They're for all golf courses. Our ultimate goal is to do something good for the game of golf.” ■

John Walsh, a contributing editor for Golfdom, is based in Cleveland.

PHOTO COURTESY: BETTER BILLY BUNKER