



Courses get creative with drainage

Sand Slits, swales, sand caps keep courses drier — and open by Jim Dunlap

Drainage has always been a major golf course issue. Recent extreme weather fluctuations and increasing pressure to drive rounds have made efficient drainage more critical than ever.

Golf architects increasingly are turning to outside-the-box thinking and new technology to ensure that turf damage, erosion and unplayable conditions caused by faulty drainage are held to a minimum.

Several recent examples of innovative drainage design and new technology include projects at Salishan Golf Links in Gleneden Beach, Ore.; Aliante Golf Club in North Las Vegas; and Monterey Peninsula Country Club Shores in Pebble Beach, Calif.

At Salishan, the Jacobsen-Hardy design firm is doing a major redesign and renovation. Chronically poor drainage made it all but impossible to mow and maintain as many as five holes during the area's frequent rainy spells.

Rex VanHoose, senior architect with Jacobsen-Hardy, said a custom-built piece of equipment and a procedure called Sand Slits will play a key role in resolving the problem.

The project subcontractor, Greenshield Systems of Mount Vernon, Wash., developed an equipment system that VanHoose said is remarkably efficient and creates minimal dis-



PHOTO COURTESY OF MAVERICK GOLF DESIGN

Workers install drain pipe and sand capping to resolve chronic drainage problems at Monterey Peninsula Country Club Shores.

turbance to the turf and course.

"Basically it's a wheel trencher attached to a Bobcat that features an integrated conveyor system which carries the dirt straight into a Ty-Crop," VanHoose said. "The dirt never hits the ground."

He said the system even does backfilling of sand over the new drainage pipes.

Cynthia Dolman, Greenshield's owner, said the company has laid up to 3,600 feet of drainpipe in a day using the system, with minimal disruption to the turf.

"We laid 9,000 feet on a soccer field on Mercer Island," Dolman said, "and when we fin-

ished the job three-and-a-half days later, they played on it that night."

Aliante Golf Club is a new public course being developed by Pulte-Del Webb and North Valley Enterprises on a relatively flat desert site. Mike Angus, lead project architect for Scottsdale, Ariz.-based design firm Gary Panks & Associates, said veteran desert course designer Panks was able to create drainage swales that will carry off water from the area's periodic flash floods.

Angus said that not only will the rock-lined swales move storm and irrigation water runoff from the course, but they have added substantial strategic value

to the layout.

At Monterey Peninsula Country Club Shores, architect Mike Strantz's Maverick Golf Design used Permo2Pore — a porous ceramic soil amendment from Agronomic Systems Design of Columbia, S.C. — to resolve chronic drainage problems by sand-capping all of the course's fairways.

Maverick, Agronomic Systems and E-Z-Flow Piping of Phoenix, Ariz., teamed up to lay 42 miles of underground piping for drainage, with five inches of the Permo2Pore application in the fairway and only two-and-a-half inches in the rough.

Chris Starin, executive vice president for Agronomic Systems, said the soil amendment not only provides drainage, but also creates a nutrient-rich, moisture-retaining shallow root base for continued good turf growth. Although the process can be expensive, Starin said the actual cost in this case was in the ballpark of what a normal 8-inch sand cap would be.

In each of these cases, the results are expected to be dramatically improved drainage, healthier turf and fewer rounds lost to unplayable conditions — all music to a course owner's ears.

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