

GOLF & ATHLETIC TURF

Public course helps city out of waste water nightmare



Meadow Lakes Golf Course, irrigated with effluent water from the tiny nearby city of Prineville, Ore., is a pretty sight from the surrounding 300-foot plateau.

■ Wayne VanMatre looks down from the 300-foot-high plateau to survey his Meadow Lakes Golf Course below. It looks like an intricate green puzzle in central Oregon's Crooked River Valley. With his eyes he can pick out the 66 bunkers, but he needs binoculars to distinguish any of the 1,500 young trees.

"I can walk the rim rock and see every inch of the course," says VanMatre. "It's like being able to fly over the golf course anytime I want to."

It's a pretty sight in the dry, crisp air just east of mountainous Willamette

National Forest. A relatively new sight too. Construction started on the course in May 1992 with the front nine opening in July 1993 and the back nine a month later.

Golf course architect Bill Robinson did a nice job. He designed 10 acres of blue ponds into 133 acres of turfgrass. Wetlands, about 10 acres, separate the golf course from the river's edge.

When VanMatre, a native Oregonian, heads for the plateau though he's not sightseeing; he's usually checking out Meadow Lake's irrigation.

Water's a big deal at this course that's

located a half mile south of downtown Prineville. Specifically, waste water. Meadow Lakes uses a lot of it for irrigation (last summer about 350,000 gallons per day, this summer probably more). It's a good thing for Prineville that it does too. The course helped the city get out of a big jam. Here's how.

Fines threatened—Less than five years ago the city of Prineville (pop. 5,800) faced fines of up to \$10,000 a day for non-compliance to provisions of the Federal Clean Water Act. Its out-dated waste water

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treatment facility discharged pollutants into Crooked River.

"Nobody disputed the need to clean up the river," says VanMatre. "The problem was financing a new plant."

The city looked into building a state-of-the-art treatment facility. But the price tag of \$25-\$30 million was too steep. Finally, Prineville gained EPA approval, along with \$10.3 million in grants and financing, to upgrade its older facility.

This appeased regulatory authorities. But it left the city with another problem.

Prineville had to find something to do with as much as 1 million gallons of treated waste water daily because, by agreement, it could only discharge into Crooked River six months of the year, or only during the fall and winter. During the growing season the waste water was to be applied to the land.

Effluent as irrigation—The original plan called for irrigating alfalfa fields with the effluent. But there wasn't enough acreage. Then the mayor and city manager turned the city's attention toward using the effluent to irrigate a new golf course.

Initially, the EPA said "no way" to this suggestion, remembers VanMatre. Regulatory agencies finally acquiesced when enough safeguards had been designed and built into the project.

For example, even though this part of

Oregon is high desert and gets only 10 inches of precipitation annually, the ground water is just 5-8 feet below soil surface. To keep effluent from contaminating the ground water, crews, using a laser-guided trencher, installed 22,000 feet of deep drainage tile during the course's construction. It took 1½ weeks. They dug it, laid the pipe and put a sand envelope around the pipe all in the same operation, says VanMatre.

The course must regularly monitor seven wells on site for evidence of nitrates or contamination. So far, no problems, says VanMatre.

Safeguards in place—The city is producing about 650,000 gallons of treated waste water daily. It's pumped from the city treatment plant to a 13-acre storage pond. From there it's piped to the 10 shallow ponds on the golf course. These ponds are lined with high-density plastic. The ponds will hold a total of about 15 million gallons. About 13 million gallons will evaporate during a normal summer.

Then, in the evening, when all golfers are gone, the effluent is used to irrigate the course. The Rainbird Maxi 5 irrigation control system can apply 3,200 gpm, as much as 1.5 million gallons a night.



Wayne VanMatre,
superintendent of
Meadow Lakes Golf
Course, Prineville, Ore.

Since the property on which the course was built was flat, Meadow Lakes fairways had to be sculpted to drain into its 10 plastic-lined ponds.

The greens also drain into the ponds. That allows the Meadow Lakes crew to over water the greens one week a month to flush effluent salts from the Pennlinks turfgrass.

VanMatre says the public course should be finished with about 30,000 rounds in its first full season. He's hopeful that it will build to 40,000 rounds per season within

five years.

Between 70-80 percent of the play comes from outside of the Prineville area, adds VanMatre. Some comes from Bend, Ore., a nearby community of about 50,000. And some comes from the other side of the mountains, cities like Portland and Seattle.

Whether VanMatre is walking the course or looking down onto it from the adjacent plateau, he says Meadow Lakes is both challenging and beautiful. And, because it's a municipal-type course, it's also affordable.

"We wanted the type of golf course that would draw people here," he says. "We think it turned out pretty nicely."

—Ron Hall



Skogley, with a healthy patch of Velvet bent that thrives in shade or sun.

Velvet bent: the future of temperate greens?

by C. R. Skogley, Ph.D.
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■ Velvet bentgrass (*Agrostis canina*, subsp. *canina*) could be the grass of the present and the future for golf greens in temperate regions. Large sums of money are spent annually attempting to find ways to reduce management inputs on golf turf. One obvious—but neglected—method to achieve this goal is to use a grass that has reduced growth requirements.

Velvet bentgrass is such a grass.

Velvet bentgrass was a common component on greens on many older golf courses into the 1960s. In most cases, it arrived as a component of "South German mixed

bent," the seed widely used on our earliest courses. "South German" was a naturally-occurring blend of creeping bent (*A. stolonifera* L.), colonial (*A. tenuis* Sibth.) and velvet. For many years, it was the only bentgrass available as seed. Until the advent of 'Seaside' and 'Penncross' varieties in the 1940s and 1950s, greens were established with "South German" seed or were vegetatively established from stolons.

Under the low level of maintenance provided through the first half of this century, velvet bent would generally predominate over creeping bent. With the advent of increased inorganic fertilizer and water use, velvet began to suffer and developed a

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