Longaberger Golf Club earns Audubon certification

Course uses storage tanks to filter runoff water

BY JOEL JOYNER

NASHPORT, Ohio — The Longaberger Golf Club, located here some 45 miles east of Columbus, has become the first course in the state and one of 22 courses nationwide to earn certification as an Audubon International Signature Sanctuary.

"The golf club staff has been focused on meeting the certification standards for more than four years," said Tami Longaberger, president and CEO of the Longaberger Co. that manufactures handcrafted baskets.

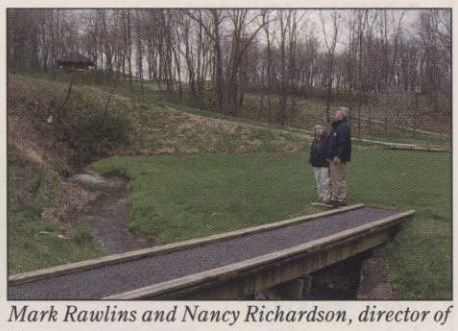
The property covers 550 acres of which, including native grass areas, some 175 to 200 acres are maintained, according to superintendent Mark Rawlins.

Dealing with drainage issues at the course was one of the biggest challenges. "The course is fairly hilly, and part of the certification program is being careful of where you route the drain tiles," said Rawlins. "There were seven locations on the course, five greens and two sets of tees, where we had no option but to run drainage into a stream or pond."

500-GALLON SEPTIC TANKS

After discussing the situation with Dr. Bud Smart, who works with Audubon International, Rawlins discovered that a course in Arkansas used storage tanks to filter runoff water.

The course also has a wash-water system



Mark Rawlins and Nancy Richardson, director of the signature program, view the stream on hole 11 on the day of the final environmental audit.

that uses charcoal filters to help recycle water that has been used to rinse off maintenance equipment. "What we ended up doing was installing these 500-gallon septic tanks with a dividing wall in it with a small hole at the bottom of the wall," said Rawlins. "On the one side, we placed gravel and charcoal so that the water would have to filter through it before entering a body of water."

The seven tanks are placed two to three feet below ground level, and grates above the tanks allow access for inspections and to take water samples. "The water put into our ponds and streams is better than the water coming onto the course," Rawlins said.

The course also uses organic fertilizers like Nature Safe and Roots products to reduce leaching and runoff. "We've also established no spray zones around our ponds, streams and wetlands," said Rawlins. "As far as pesticide and fungicides, we do a lot of scouting and go curative as much a possible.

"Some things like dollar spot you almost have to go preventive," he said. "But we wait until we actually see spots before we spray our fairways. Dollar spot is always a nagging problem for us. Fortunately, we have L-93 on our greens which is pretty resistant."

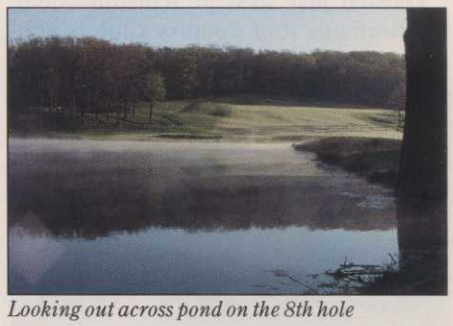
WILDLIFE

Several deer and an abundance of Redtail hawks share the property. "We have two young hawks that we watched mature and leave their nest," Rawlins said. "They're still hanging around."

The Ohio Department of Natural Resources visited the site and documented wildlife prior to construction. As far as environmental impact, Rawlins believes it has been positive. "We're attracting more wildlife," he said. "We put two ponds on the property which attracts mallard ducks, wood ducks and a variety of waterfowl."

The course currently sports 35 bluebird nesting boxes. "In the last couple of years, we've had close to a 100 bluebirds fledged on the property," said Rawlins. A member of the maintenance staff built about 25 of the bird houses.

LOOK, THINK AND DO CLUB



Looking out across pond on the 8th hole

Longaberger sponsors the Look, Think and Do club that encourages children to visit various properties owned by the company to search for insects, birds and other wildlife.

"The golf course is one area they visit," Rawlins said. "We give them a tour, and one group of kids were out here the day we saw the two baby hawks leave their nest.

"We've also had Cub Scouts out on the course, and this spring they monitored our bluebird houses for us," he added.

Guidelines help beat effluent odds

By HAL KILPATRICK

In recent years, the use of effluent water for golf course irrigation has become the rule more than the exception. Five years ago, the use of effluent affected only about 30 percent of the golf course irrigation systems we designed. This year, nearly 90 percent were required to make use of effluent.

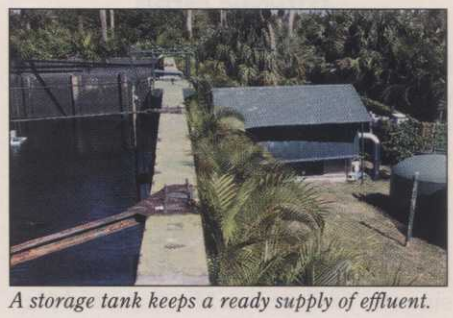
For many golf course projects, the reason for using this water is clear, but the understanding of how to implement its use is an entirely different matter.

The biggest mistake that I see golf course personnel make is entering into an agreement with the effluent provider before there is a full understanding of the course's irrigation requirements. This can create a serious problem between supply and demand, particularly for a new golf course project.

To help navigate through the process, it's wise to consider a few guidelines.

• **Use experienced professionals** – First, courses should involve an irrigation design firm before you negotiate your agreement with the effluent provider. Since this water will be used for irrigation, courses will need an experienced professional to evaluate the needs of the irrigation system and determine the best way to receive and store the effluent.

• **Insist on random testing** – In my experience, effluent providers will test the water at a set time when they know all of the parameters are in the acceptable ranges. This does not necessarily insure the water quality that you will receive. If your provider will not agree to random testing, at least insist on the test being done just prior to the delivery of the water. This information should be provided daily to the course superintendent. The main water quality concerns courses will be looking at are biological and agricultural.



A storage tank keeps a ready supply of effluent.

The main biological concern with effluent is the treatment level. The level for irrigation use should be at least "secondary." This is usually considered "IQ" or irrigation quality water and is considered safe. The most advanced treatment is "tertiary." This follows many of the same treatment processes as drinking or "potable" water. Superintendents should be most concerned about sodium and carbonate levels because they affect turf growth, soil structure and soil pH.

• **Delivery and storage options** – Effluent is supplied in several different ways. The most common is the gradual delivery of water over a 24-hour period. This water is stored in a lake or a tank located on the golf course. On average, the effluent supply rate is generally half of the gallons-per-minute (gpm) rate that the irrigation pump station discharges at full capacity.

Storing the effluent in a lake on site is preferred. This will create a buffer between the daily irrigation water and the typically lower effluent supply rate. Also, this will give the staff the ability to evaluate the water quality and address any problems before you distribute the water throughout the course.

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Pesticides in turfgrass clippings

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clippings in roughly a 60/40 ratio with tree leaves. We placed the mixture in home composters to monitor the disappearance of pesticides over time," said Stephenson.

The researchers harvested one study the day after pesticide treatments were applied, and multiple-loaded studies were harvested at week intervals. "In about four to five weeks, the pesticide residues were not detectable in the multiple-loaded scenarios," Stephenson said.

"In the once-loaded scenario, although the pesticides were disappearing, the dry weight of the compost was decreasing as well," he said. "The concentration of the pesticides didn't change."

CHANGING CULTURAL PRACTICE

Superintendent Rob Brown at the Martindale Country Club in Auburn, Maine, used to compost clippings at the facility. "We weren't under any restrictions to change our practice at the course, it just seemed the sensible thing to do," he said. "About three years, we stopped composting grass clippings altogether and decided to leave them on the course and in our rough areas."

For Brown, environmental awareness and responsibility prompted his pro active measure toward changing the cultural practice at the course.■

PERSISTENCE OF PESTICIDES

Estimated total dry weights of compost, 2,4-D, mecoprop, dicamba, chlorpyrifos and chlorothalonil in each composter at the beginning and end of the "once-loaded" composting process.†

Material	TOTAL DRY WEIGHT (KG/COMPOSTER) ✣ 0 Time	9 to 10 wks	Percent decrease
Compost	7.7	3.69	52%
2,4-D	0.818×10^{-3}	0.115×10^{-3}	86%
Mecoprop	0.644×10^{-3}	0.137×10^{-3}	80%
Dicamba	0.336×10^{-3}	0.090×10^{-3}	74%
Compost✗	12.85	4.21	67%
Chlorpyrifos	1.400×10^{-3}	0.200×10^{-3}	86%
Chlorothalonil	5.040×10^{-3}	0.017×10^{-3}	99%

†Compost consisted of treated grass clippings plus untreated tree leaves (60/40, v/v).
✣Mean of 3 composters.
✗The studies with chlorpyrifos and chlorothalonil were conducted in a different year than the study with 2,4-D, mecoprop and dicamba.

Information provided was originally printed by the International Turfgrass Society Research Journal Volume 9, 2001, in an article titled: Persistence of 2,4-D, Mecoprop, Dicamba, Chlorpyrrifos, and Chlorothalonil in Composted Turfgrass Clippings.

Effluent

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With this storage lake configuration come environmental issues. In some cases, the lake will need to be lined with an impermeable material to ensure the separation of the effluent from the groundwater. Courses should consult with a civil engineering firm to make sure they are in compliance.

• **Storage tank option** – The other on site storage method is the use of a storage tank. The use of a tank can be problematic, as this configuration can be restrictive because of the finite amount of water stored in relation to the fluctuations in daily irrigation demands. Also, it is usually difficult to find a location on a typical course for a tank large enough to store a daily requirement of irrigation water, let alone providing any buffer.

• **Direct supply** – The least favorable way of receiving water is "direct supply." In this method, the course receives the water directly into the irrigation mainline, or booster pump, for direct distribution through the system. This configuration can result in inadequate operating pressure required for proper irrigation equipment performance.

The method of boosting the pressure is difficult, due to fluctuations in the supply pressure. This is primarily due to the fluctuation in flows that are typical of an irrigation system operation. If the supply pressure fluctuates substantially, the irrigation booster pumps cannot respond quickly enough. This is even true with variable frequency drive (VFD) controls. The result can be a high- and low-pressure shutdown of the pump station.

With all of these points to consider, it is important to note that each can have an effect on the amount you will pay for the water. The fees are set on a "cost per thousand" basis. This averages around 20 cents per thousand gallons. This cost fluctuates based on whether the effluent provider will be required to store the water after treatment or if they deliver the water as it is treated. Your effluent provider will want to set a minimum water delivery amount. This should be carefully considered, as this can commit you to water that you cannot use or dispose of.■

Hal Kilpatrick is president of Irrigation Services Group, Inc. in Delray Beach, Fla.

Farris at Black Hills

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constructed by two local businessmen as a part of a housing development, is projected to cost less than $3 million.

The low-cost construction has been achieved, in part, because very little earth has been moved.

"Ron did a great job routing the course," said golf course builder Timothy Furness. "He has laid it into the ground as well as can be done, so there has been minimal earthwork. We did most of the work with just a dozer. It will be a very cost effective project."

There has been some luck as well, admitted Farris.

"We were worried about two things – water and topsoil," he said. "The Black Hills are typically light on topsoil, but we found pockets of it as we began digging and have not had to import any. We also drilled wells that gave us access to a local aquifer."

OLD FRIENDS

This is not the first time that Farris and Furness have worked together.

While Farris honed his design skills working with Pete Dye as a project manager in the United States and Japan, Furness was doing the same as a shaper. Farris also designed two courses in Japan – Aygami Golf Club and Miyazaki Sunshine Golf Club – before relocating to South Dakota in 1989.

Back in the States, Farris hooked up with Furness on a job renovating Scenic Golf and Country Club in Pigeon, Mich.

According to Furness, Farris is doing something special at Red Rocks. "This is going to put Ron's name on the map," he said.

Furness' crew has all 18 holes at Red Rocks roughed in and for the first time is also installing the irrigation system. They will also seed nine holes before winter hits and put down dormant seed for the rest of the course.

"We want to have a head start in the spring," said Farris. "We are putting low- mow bluegrass on the fairways and tees and L-93 on the greens."

Superintendent Rick Witt, formerly the assistant at Minnehaha Country Club in Sioux Falls, is already on board to oversee the grow-in of the course.

AFFORDABLE GOLF

Green fees at Red Rock will be low to compete with the surrounding market.

"The green fees will be around $30, which will be affordable" said Farris. "We aim to increase the quality of golf but still keep the price reasonable."

The developers plan to recoup most of the construction costs from the sale of the 300 homesites on the 360-acre property.

After having a season to grow in, the course is scheduled to open in spring 2003.■

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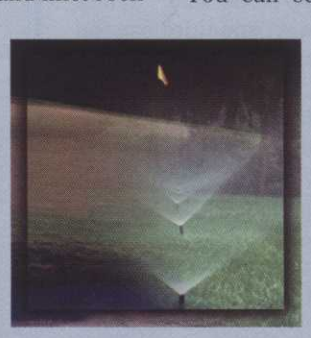
PS Form 3526, October 1999 (Reverse)

New irrigation products

Continued from page 12

retaining snap ring, valve, valve seal, valve seat and inlet rock screen can be removed in one fell swoop," said Dunn. "When there's contamination in the line from mainline breaks, you can pull out the entire unit leaving a large opening – larger than anything in the industry – to flush contaminates through."



The company also has released to full production the Genesis III central control system with integrated graphics. "You can scan a golf score card or layout rendering and create hot spots," Dunn said. "A superintendent can place the mouse over a portion of the course and click to bring up the programming for the controller in a specific area. It's a user friendly way to control and manage the irrigation system using graphics." ■