

Regrassing Greens at New Haven Country Club

A successful regrassing project, utilizing washed sod, modernized and restored the classic green pads at New Haven Country Club.

BY JASON BOOTH



Soil Preparation and Drainage: (Above left) All the greens were cultivated twice with 5/8-inch solid tines in early September in anticipation of the project. The greens were then drilled and filled to incorporate more sand into the rootzone. The sand channels left from the operations provided pathways to help the sod root. (Above right) Drain lines were trenched directly into the greens following the aeration practices. Two-inch corrugated perforated poly pipe was installed at a six foot spacing, and the trenches were backfilled with a 5-2-2-1 mix compacted to the surface. Cultivation with 5/8-inch solid tines and topdressing was repeated prior to removing the sod.

The New Haven Country Club is a golf course designed by Willie Park Jr. that was built in 1921. The large, undulating, push-up-style greens had a long reputation for providing some of the best South German bentgrass surfaces in the state of Connecticut. However, annual bluegrass became more prominent in the greens, and by 2009 it dominated most of the surfaces. The surface soils in the greens had been modified with sand through topdressing and aeration practices, but there were no signs of functioning subsurface drainage. And, like many older golf courses, a number of greens were impacted by shade and air circulation problems.

I began my tenure as superintendent at the club in 2008, which happened to be a wet and fairly hot summer. It did not take long that summer for the shallow-rooted annual bluegrass on

the greens to show its true colors. The putting green surfaces declined from wet wilt and a severe case of crown rot anthracnose. We reestablished the surfaces and modified our maintenance approach to reduce stress and manage the anthracnose disease. Nitrogen fertility was increased; we raised mowing heights to 0.130 inch, utilized smooth rollers, and shortened the interval between fungicide applications. We continued to selectively remove trees and added internal drainage to three of the most poorly drained greens. All was well as we entered the 2009 season, or so we thought, with the more conservative management approach we adopted in 2008. However, a mid-August heat wave and humidity once again impacted the putting surfaces, and it was at that point we realized that simply modifying cultural practices alone was not

enough to address the problems with our 90-year-old greens.

The decision to regrass the greens was a practical one for the membership. Rebuilding the greens to USGA recommendations was not an option, due to cost and the short time frame in which we had to operate. The membership also had a positive experience with the regrassing process on the practice green several years earlier, which further supported the case for the intermediate regrassing approach. We recognized that subsurface drainage was a necessity in the remaining greens and that more trees would have to be removed if we were going to be successful managing creeping bentgrass. We then went to work determining the estimated costs and the best methods to complete the project in the limited time frame available to us. Contractors were called and contracts

were formulated contingent on membership approval. The proposal to install internal drainage and regrass the greens was presented to the membership, who overwhelmingly approved of the project. The greens were closed to play on September 24, 2009, when the project began.

THE PLANNING PROCESS

The planning process began well before the membership vote was completed. We consulted with our USGA Green Section agronomist to help identify and document the condition of our soil profiles, drainage needs and growing-environment concerns, and determine what the best long-term options were for our golf course. We also visited with John Garcia, superintendent at the nearby Patterson Club, who recently completed a similar project successfully. We agreed that the regrassing option was viable, based on the sand content in the modified upper 4-5 inches of the rootzone. We confirmed this by having two undisturbed soil cores from our greens analyzed for structure, porosity, water infiltration, and other physical parameters.

Our next step was to secure a sod source and coordinate the project so it could be completed in the five-week window that remained available before winter. We selected contractors to complete the drainage work, the sod removal, and installation. We developed a detailed project schedule that integrated the work of our in-house staff and outside contractors. This schedule included dates for cultivation work, drainage installation, material deliveries, sod removal, and installation. We had hoped to have the greens fumigated as part of the project, but our limited time frame and difficulties involved with obtaining a permit to use methyl bromide prevented that process. We realized this would probably have long-term implications on keeping the greens free of annual bluegrass, but at that point we decided to move forward. We were fortunate to have some very dedicated members who used their expertise to help expedite the contract and planning processes. The contracts were signed and we were ready to initiate the work.



Sod Removal: The sod cutter was set to a depth of one inch to remove the thatch and most of the organic mat beneath. The sod pieces were shoveled into piles for removal and the surfaces were raked. The greens were cultivated again with $\frac{5}{8}$ -inch solid tines and verticut at $\frac{1}{4}$ -inch depth in two directions to further loosen and smooth the surfaces. We took great care to avoid modifying the greens' original undulations.



Sod Installation: We chose a washed sod blend of A1 and A4 creeping bentgrass from a commercial nursery in New Jersey. The grassing crew managed to install 10,000 square feet of sod in about six hours, working off plywood. We incorporated a granular organic fertilizer into the upper rootzone prior to the installation. The last green was completed on November 2, 2010.



Establishment: *Permeable covers were installed on the greens following the sodding. After four days, the sod began to root vigorously. On day seven we removed the covers and began to roll and mow the greens. Our initial roller was a gas-powered Ryan drum roller. The greens were cut with a hand mower set at 0.185 inch. At day 17 we began mowing every other day. The greens were aerated with $\frac{5}{8}$ -inch solid tines and topdressed. A one-ton roller was then used to roll the surfaces prior to winter.*

The new greens handled the winter weather very well. We rolled the greens two more times in spring with a two-ton roller to further smooth the grade. A very warm start in spring allowed us to open the greens for regular play on April 17. Most of the sod seams had disappeared by that time, and none were noticeable in mid-May. We did experience some slight settling over the drain lines, which was corrected through spot dressing with sand. Overall, the greens were smooth and true in their first season. Mowing heights were gradually lowered from 0.175 inch to 0.120 inch by mid-June. The greens were topdressed lightly every three weeks to keep the surfaces smooth and firm.

The greens were cultivated four times in 2010. One of the coring practices was completed with $\frac{1}{2}$ -inch hollow tines and the others were done with $\frac{1}{2}$ -inch solid tines. There was some annual bluegrass present in the sod, and it was removed by hand. We applied bensulide at a rate of six fluid ounces per 1,000 square feet after the first aeration in the spring and again following core aeration in early September. We have also begun to use the herbicide Velocity in trial

applications over the practice green in hopes that it will offer an additional tool to manage annual bluegrass encroaching into the greens.

The cost of the entire project was approximately \$490,000, which included

\$35,000 for tree removal work and \$455,000 for draining and regrassing the greens, which average 7,945 square feet in size. Completing such an ambitious project in a short time frame was definitely a challenge, and we were fortunate to have the weather on our side. We probably would have done some things differently if we had additional time and resources to do so, but we believe the bentgrass surfaces at New Haven Country Club are vastly improved as a result of the project, and we are now more confident that we provide the playing conditions that are desired by our membership. The project also provided an opportunity to restore green pads to their original contours and helped to attract new members to the club. If the greens' performance in their first season is any indication, the right decision was made.

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Tree Removal: *The final stage of this project involved removing trees that continued to shade the greens. A total of 160 trees were removed following the completion of the regrassing project, and more will be removed based on shade patterns and air circulation problems we observe this upcoming summer. The vistas that were created across the golf course following the tree removal were an unexpected benefit.*