

# Greens Construction: An Alternative Approach

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*Soil stockpiled at the proposed hole 12 green site.*

When the City of Anoka Minnesota decided to undertake the renovation of six greens at Greenhaven Golf Course, they took a somewhat unusual approach - the greens were sodded rather than seeded.

The original front nine holes at Greenhaven Golf Course were built in 1937. As is typical of most of Anoka County, the underlying soils were nearly all sand with very little topsoil. The push-up greens were constructed without draitile and averaged about 3800 square feet in size.

In 1955 the City added nine holes, now the back nine, and over the next 42 years reconstructed ten of the greens to modified USGA standards with drain tile and a sand based amended soil. Other changes were also made but as Greenhaven's popularity increased, the course began to show its age. The small greens and tees were slow to recover from ball marks and divots and the greens began to show stress from inadequate irrigation and lower cutting heights. Bunkers grew in size, lost definition and became difficult to maintain due to the development of ridges created from decades of raking.



*Hole 12 fairway bunkers and green after completion of final shaping and bunker edging.*

In January of 2002, the City Council requested proposals for design and project management services and subsequently retained our firm, Herfort Norby, to assist with the renovation of six greens on the back nine. We were told that the City wanted to sod all six greens and wanted the course open for play by the spring of 2003. Superintendent Morrie Anderson had been with Greenhaven for 34 years and was anxious to improve the quality of the putting surfaces and reduce the ongoing maintenance issues associated with the small putting surfaces. In February of 2002, a renovation plan was prepared which assessed the strengths and weaknesses (safety, strategic quality, etc.) of each hole and identified the need for some additional improvements.

In March of 2002 detailed drawings of each hole were prepared to indicate green size, sand traps, cart paths and drainage. The proposed greens averaged 5,800 square feet with number 12 and 13, the short par four and short par five, being somewhat smaller. We had sodded putting greens previously but I had strong reservations about doing six greens at one time. I was most concerned that it would be difficult for Morrie and his staff to keep up with the watering, aeration and topdressing of the new greens at a time of year when his seasonal staff would be gone and his remaining staff would already be spread thin.

The project went out to bid in late March and, as is often the case on competitively bid public projects, we received numerous bids ranging from \$254,000 to 362,000. On April 10<sup>th</sup> the City Council reviewed seven bids and approved Hartman Companies' bid to reconstruct six greens, four sets of tees, ten sand bunkers and approximately 300 lineal feet of cart path. The original budget of \$240,000 established by the City in 2001 was increased to \$259,000 to include the additional cart path improvements, irrigation and the expansion of four sets of tees.



*Hole 12 green after construction from new fairway bunker.*

The City decided that it would prefer to close the back nine holes around labor day to allow the project to proceed as quickly and as efficiently as possible. We had originally set the schedule to allow for construction to start immediately after labor day and to have the project completed prior to October 1st of that year. However, after some discussion, I was able to convince Morrie and the City Council that we could start the project earlier if we relocated the green for hole number twelve 40 yards to the east. Number twelve was a very short part four which played downhill and straight



*Early in the construction process at the hole 14 green site.*

away. It had two peanut shaped bunkers at the green which were too far way from the putting surface to have much strategic value.

On August 7, 2002 the City began hauling approximately 2,000 cubic yards of soil into the new green site for number twelve. On August 11<sup>th</sup> our contractor began rough grading the new green complex and bunkers as indicated on the green drawing. Drainage was installed and 12 inches of 80/20 soil mix was placed on August 13<sup>th</sup>.

Greenhaven's existing irrigation system utilized a block system whereby all four heads around the green were operated by a single electric valve. The irrigation installed around the new green utilized modern valve-in-head sprinklers with individual control. On August 16<sup>th</sup> the putting surface was seeded with certified Penncross seed at a rate of 3 pounds per 1,000 square feet. Prior to seeding, the green was fertilized with a 10-10-10 starter fertilizer and Milorganite. The green surrounds, rough and fairway were sodded with Kentucky bluegrass and the bunkers were draitiled and filled with 4-6" of sand. From start to finish, the construction of No. 12 green took 15 days including a delay of two days due to rain. After the seeding and sodding was complete the old green and bunkers were regraded to create some subtle mounding and then resodded and irrigated.

On August 22<sup>nd</sup> the City closed the back nine holes to play and we began construction of the five remaining greens. The first of these five greens was number thirteen. Our goal was to reconstruct the greens in their current location without having to import or export soil. This was critical to minimizing disturbance to turf areas and to keeping the project on budget. Each green site was rough graded using a small dozer and then the bunkers and green were cored-out using a small backhoe. Just as with the seeded green on No. 12, each green received draitile, pea rock, 12 inches of green mix and new irrigation. On August 29<sup>th</sup>,

Penncross Bentgrass sod was installed on No. 13 green. The sod was provided by Country Club Turf from their fields near Wyoming, Minnesota. The sod was freshly cut in the morning and delivered to the site the same day. Since the sod was grown on sandy soils it was not necessary to wash the sod. Once the bentgrass sod was laid, the sod was rolled and then thoroughly watered. Generally, we found that after three days the sod was rooted into the soil. After five to seven days the sod could be mowed.

Each of the five greens was completed using the same procedures. The final green on hole number 17 was completed on September 20<sup>th</sup>, 2002 – only 43 days from the start of the project to finish.

Grow-in of a sodded green is much like that of a seeded green. It is important, initially, that the green be thoroughly watered and, once rooted, that it is topdressed and aerated frequently.

Initially, the sodded greens were mowed at  $\frac{3}{8}$ ". This height was slowly brought down every other week and was stopped at  $\frac{1}{4}$ " for the fall of 2002. In the spring of 2003, the cutting height for all six new greens was started out at .140" and then brought down to .125". They were fertilized with 19-2-19 at  $\frac{1}{2}$  lb. of nitrogen every three weeks and aerated three times during the year. The greens were also topdressed and rolled every other week throughout the 2003 and 2004 season.

On April 2, 2003 the back nine was opened to play. Again, I expressed some concern that this date might be too early for the recently installed sod to handle the stress. But after visiting the site on numerous occasions my concerns were put to rest. Morrie was doing a great job and the greens looked great. By early June, Morrie could cut a cup and observe a healthy root system of 6 inches or more. Maybe equally as important, the membership and golf staff were delighted and, according to Morrie, by the fall of 2003 there was no discernable difference between the sodded and seeded greens. Greenhaven logged over 37,000 rounds in 2003.

Finally, a word of caution. The success of any project is in large part a function of the experience and knowledge of the superintendent, contractor and the architect. Even after such a successful project, I would not necessarily encourage someone to follow Greenhaven's lead and take on a project which involves the sodding of five greens at one time. Seeding is, in my opinion, still the best method of constructing a putting green. However, if disruption to play is keeping your Board or your Greens Committee from giving you the go ahead to complete your project you may want to consider sodding as an alternative to seed. The key points to remember are 1.) the sod should be grown on sand, 2.) the sod should be freshly cut and delivered immediately to the site, 3.) the sod should be newly seeded and free of thatch and, 4.) be patient – allow time for the turf to mature.



*Renovated hole 14 green and a view of hole 15 fairway.*