

Golf Architecture

A WORLDWIDE PERSPECTIVE

VOLUME THREE

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Building a USGA putting green at home: Kinipela Golf Club

Rob Crompton



opposite: Kinipela Golf Club, Victoria BC, Canada. Standing on the tee, with the view of the bunker and green. 'Play away please!' (Photo by Rob Crompton.)

My budget for this project was non-existent, meaning there would be no power equipment available to help with the excavation and construction of the green, sod-wall bunker, tee-box and stream. I thought, 'How bad could it get?' I soon found out.

Green

I began excavating the green-cavity and immediately hit blueclay. Great if you want to line a pond, but horrible otherwise. After thirty days of picking, shovelling and hauling (after work, dinner and weekends), the green-cavity was roughly finished, with approximately twenty-two yards of dirt and clay removed. On more than one occasion during this intense phase of the project, I

questioned my sanity in doing this—all for the glory of a little white ball.

It was time to consider all the other steps necessary to complete this project. Feeling a bit overwhelmed with all the details, I remembered a reporter asking Rick Hansen, a Canadian long-distance wheelchair athlete and world ambassador, if going around the world in his wheelchair was too big of a distance for him to travel? He said that he did not think of the total miles, but only of the miles he was going to do that day. From then on, I would concentrate on what I could get done that day, just keep pushing forwards.

Once the green-cavity was finished, I shot the subgrade to make sure there was a one per cent slope from back-to-front. I used

green spray paint to mark drain lines on the subsurface, and then picked and removed all material. I dressed the bottom of the trench with pea stone, installed a five-centimetre perforated pipe and topped it up with pea stone. I made sure to fix all blemishes on the subsurface and then hammered wooden stakes at random spacing over the entire green-cavity. The distance between the stakes was big enough to manoeuvre a wheelbarrow through. A mark, just over ten centimetres, was made on each stake to create a level placement of the pea stone. After four or five wheelbarrows were dumped, the back of the landscape rake helped to move and level the pea stone to the required mark on the stakes. Pieces of

plywood were laid on the subsurface, thereby minimising the disruption to the finished subgrade. The root-zone mix was done off-site at a ratio of eighty per cent sand, and twenty per cent Natures Gold (organic soil amendment). Before embarking on this project, a sample of Natures Gold was sent off to a lab for analyses to see if it would meet the USGA requirements. It did. I produced twenty-three yards of root-zone mix to fill the green-cavity to a depth of almost thirty-one centimetres. The green size is 525 square feet.

One of the most difficult decisions facing any turf manager is choosing what type of grass to install on the putting green. For this project, I chose *Poa annua*, as the climate conditions in Victoria BC, Canada—coastal, rain, mild conditions and other—are perfect for this type of turf. There are three different ecotypes of *Poa*, namely, annual, bi-annual and perennial, with perennial by far the best for this project. Master superintendent Brian Youell of Uplands Golf Club allowed me to secure several yards of healthy cores after their spring aeration.

Before installing the cores, I roughed up

the root-zone mix with the back of a leaf rake. I laid the cores on top to a thickness verging on four centimetres. One pound of Rye seed was overseeded as a nurse crop, to create a quick turf canopy. In time, I knew the *Poa* would out compete the rye. I did a light top-dress with straight sand, and then rolled in four different directions. Within a few weeks the new turf was being cut at nearly six-and-a-half millimetres. The first few cuts were done without a bucket to help form the mat layer and to 'knit' the turf together. By August the height of cut was just over three millimetres, and stemping ran at nine and a half.

Tee

The construction of the tee took less work than the green, although I did have to remove several existing trees in the area to make room for the tee-box. This removal of trees and other vegetation served to maximise sunlight penetration and air movement.

It was necessary to bring in material to raise the subsurface and to create a one per cent slope from front-to-back for the tee. I created this slope by using a six metre, (two

by four) placed on end on the subsurface, then securing a twenty-five millimetre nut between the (two by four) and my level. As long as the bubble in the level was level, I had created a one per cent slope on the subsurface of the tee. Installation of two small socked tile drain lines at the back of the tee was necessary, as this would allow excess water to drain into a main seven-and-a-half centimetre line. The rooting medium was a combination of sand and Natures Gold similar to the green mix, with the exception that it was a physical mix done on site. Total depth was almost twenty-one centimetres, with Natures Gold being worked into the top twelve centimetres. Rough sod (perennial rye, native *Poa* and fescues, etc.) was rolled out along the sides of the tee, and just over six millimetres of fairway sod (perennial rye and native *Poa*) finished off the tee's surface.

Stream

The streambed construction proved highly labour-intensive. With so much vegetation growing all over the banks and along the streambed it took several days to be removed.

As I started to remove a lot of the ivy I found all kinds of garbage, from car and motorcycle batteries, to chunks of metal and lots of plastic—just about everything you can imagine. Once removed, I randomly placed large-sized rocks all the way down the stream, and then finished it with nineteen-millimetre river rock and some pea stone. The stream only flows in the wintertime and the volume of water is determined by how much it rains.

Sod-wall bunker

A confession: I thought that building the bunker would be a breeze. After all, it was small, and all I had to do was excavate the intended area. By the second swing of the pick, however, I hit something awfully solid. After an hour of moving soil around, it became apparent that this was a stump of just over one metre in length! With a chainsaw, axe and all the strength that I could muster up, this problem was taken care of and removed in three hours.

A bowl shape was created in the bottom of the bunker, and at the lowest point I placed a seven-and-a-half centimetre solid pipe for

drainage. At forty-five centimetres above the bottom of the bowl, against the back wall, I made a similarly wide shelf for the sod to sit on. The entire area was covered with geotextile cloth, starting on the streamside and working it over to the other side. Once the geotextile cloth was in place, I started placing the sod on the shelf.

Starting on the right side, I worked around to the left, with every second row being inset by just over six millimetres and then packing the back of the sod with soil. A tamper was used to compact the sod rows as I went along; by doing this it added strength to the sod wall. Within a few hours I had reached the top and capped off the top of the bunker. A five centimetre perforated sock pipe was installed and hooked up to the seven-and-a-half centimetre main drainage line. Approximately twelve centimetres of off-white silica sand was installed as the playing material. In order that the sod layers could be seen, one application of Glyphosate (round-up) was applied. The bunker turned out fantastic!



The complete view of the golf hole, with the stream flowing in front. (Photo by Rob Crompton.)

Sump

It is very important that those in our profession take a proactive approach in dealing with environmental concerns. With this in mind, I decided to install a water-quality monitoring sump. At the front of the green, a seven-and-a-half centimetre perforated drain line runs six metres into this sump. The herringbone drainage, in the subsurface in the green-cavity, drains to this line. The sump size is: nearly two and a half metres long; three-quarters of a metre wide; one and a half metres deep. This sump holds approximately 100 cubic feet of water (622 imp gallons/748 US gallons). It has a perforated pipe (just over ten

1: After the green-cavity was excavated, herringbone-style drain lines were installed, along with perforated pipe and pea stone to the top of the trench.



2: Wooden stakes were placed randomly throughout the cavity to help make the pea-stone layer.



3: Following the installation of the pea-stone layer, it was rolled five times.



4: The excavated sod-wall bunker and the soil sod shelf running along the back of the bunker.



5: After construction of the tee-box and the surrounding areas, turf completed this section of the project.



6: Perennial *Poa annua* cores being utilised for the putting surface.



7: The green receiving its first cut; the next few cuts were without a bucket to help form the mat layer.



8: The green's first top-dress was treated with straight sand. For the remainder of the growing season, the green was on a 'light and frequent' top-dressing program.



9: A view of the finished Kinipela golf hole: standing on the tee looking over the stream and bunker to the green. (Photos by Rob Crompton.)



centimetres) standing vertically in it, surrounded by nearly one metre of two-centimetre rock, thirty centimetres of pea stone and thirty centimetres of sand and Natures Gold mix. Installing a vertical pipe in the middle of the sump was a means of aiding water sample collection—removing the cap, lowering a device to collect a sample, then having it sent to a lab, if needed. Nitrogen run-off is a potential concern, and with a stream close to the green, I wanted to take every safety step possible. Rough sod (perennial rye, native Poa, fescues, etc.) went on top to cap off the sump.

As my stream waterfalls into another tributary farther down stream with small fish and other forms of life, I thought it important to be able to monitor the water quality coming out of my green. It is easy to take a sample of the water and send it off to a lab for testing.

Environmental inspiration

By completing this project in an environmentally responsible manner, I hope others will be inspired to do the same. In these

uncertain times of pesticide hysteria and the potential bans of certain products, it is important that the image of our industry is one of professionalism. The turf industry, for the most part, does not get the respect it deserves. Some groups portray it as wasteful with water and careless with pesticides: environmentally unfriendly. This is far from the truth. Overuse of any component necessary to maintain a golf course is a waste of material, time and money. We need to educate the public and demonstrate how much more is involved with a putting green than what is seen on the surface.

In closing, I would like to thank all those who supported this project, especially my wife, Jennifer (Kinipela is Hawaiian for Jennifer), superintendent Randy Page for showing me what to think about when designing a golf hole, superintendent Brian Youell, for the Poa cores. Greg Kowalski, superintendent Royal Oak Golf Course, Mick Kilsby of Natures Gold and John Smith of Capital City web design were also most helpful.



ABOVE: A view of the bridge and stream. Heavily reliant on rainfall, the stream only flows in wintertime. (Photo by Rob Crompton.)



BELOW: Inside the sod-wall bunker looking up at the green: difficult to build, and a not so easy 'up-and-down' for par. (Photo by Rob Crompton.)