

Caskey Gives Further Details of Rochelle's Watering System

By GEORGE CASKEY

Greenkeeper, Rochelle (Ill.) G. & C. C.

(Continued from last month)

WHEN the question of installing the system came up, the board asked the local plumbers and city engineer to submit bids. Their bids, however, were too high and they were rejected. I got in touch with J. E. Nelson of Findlay, Ohio, who makes a specialty of this kind of work and asked him to submit a bid. His bid was accepted and he started work immediately.

The pipe was all laid to drain with a minimum of one foot cover. On account of the timber and the size of the job Mr. Nelson did not use a ditching machine but dug the trenches by hand. Under his contract he was obliged to dig the trench to grades submitted by the engineer, lay the pipe, and test it to the satisfaction of the engineer in charge, and backfill the trench. He commenced work on May 5th and completed the work on May 31, laying 7,094 feet of pipe and digging 5,900 feet of trench at a cost to the club of only \$529.33, a remarkably low figure, I think.

He paid his labor 40 cents per hour and his foreman \$50.00 per week.

Right here is a good time to mention

the drinking fountains. Two were installed. One at No. 1 tee which is but a short distance from No. 3 green and also one between No. 4 green and No. 6 green. The one at No. 4 green serves players as they hole out at No. 4 and again at No. 6 green. The pipe serving these fountains is connected to the water supply at the clubhouse and is laid in the same ditch as the irrigation main, but about four inches above it. The irrigation main was first laid, and then backfilled to a depth of 4 inches above the top of the pipe and a new grade established for the fountain lines.

The construction of the pumphouse presented a small problem. For the installation of such a small pump, it seemed foolish to spend much money on a pumphouse. A good, strong man could lift the whole unit, pump, motor, and base.

Kyte creek where it flows through the golf course, flows on solid rock. It is a drainage ditch, and at this point had been deepened by blasting. The edges were loose and flaky, back from three to five feet from the waters edge due to the blasting. I decided to dig down along the edge of the creek bank through the flaky material to solid rock and make a place large enough to hold a concrete box six feet square with walls six inches thick, leaving an opening on the creek side for water to flow into the sump. An eight-inch mesh screen was placed over the opening, keeping out all dirt, sticks, etc. This concrete box was built up to one foot above the highest high water mark known.

It formed the foundation for our pumphouse, which is a wooden structure covered with paper shingles and pa-



This pumphouse, on the banks of Kyte Creek, cost only \$250 to build.

per roofing, and it makes a dandy at a low cost of approximately \$250.00. The form lumber used on the sump was used to build the house so as to eliminate waste and save money.

I placed the hose connections at the greens, wherever possible, so that a sprinkler at the end of a 100 foot hose could be made to reach the entire green surface, slopes and approach. This necessitated two outlets at No. 1 green, No. 7 green and No. 9 green, though we were able to get by with only one outlet at No. 2 green.

We bought 800 feet of one-inch hose and 100 feet of three-quarter-inch. The three-quarter-inch hose is unsatisfactory. We decided on the Thompson Master sprinkler as fitted to our system and pressure. We are using eight of these sprinklers with the one-inch hose, the nozzle which has an opening of 7/32 of an inch. These water a circle approximately 80 feet in diameter when all nine sprinklers are operating. On our largest green, No. 4—180 yards, three settings of the sprinkler covers the entire green, slopes and approach out to 20 feet from the edge of the putting area.

On the sprinkler operating from 3/4-inch hose we are using a nozzle having an opening of 3/16 of an inch and watering a circle about 70 feet in diameter. The sprinklers using the 7/32 inch nozzles are throwing from 10 to 11 gallons per minute depending on their location, and the other sprinkler operating on the 3/4-inch hose is throwing about seven gallons per minute.

Checks Up on Pressure

A pressure gauge placed between the hose and the sprinkler when all nine sprinklers were operating showed the following pressures:

At No. 1 green.....	32 lbs.
At No. 2 green.....	34 lbs.
At No. 3 green.....	34 lbs.
At No. 4 green.....	35 lbs.
At No. 5 green.....	35 lbs.
At No. 6 green.....	35 lbs.
At No. 7 green.....	38 lbs.
At No. 8 green.....	44 lbs.
At No. 9 green (3/4-in. hose),	28.5 lbs.

Note the difference in pressure using the 3/4-inch hose. No. 1 green is the highest point on the course and farthest from the pumphouse; No. 8 green the lowest and closest to the pumphouse.

The big thing we are crowing about is that we have a system with which we can water nine greens at one time if we want

to and, believe me, this dry summer, we did want to several times, and at a small cost because we are operating at maximum capacity. And when we only want to water one green or two or more or treat a green, we don't have to have a big pump turning, eating up electricity to give the club treasurer the hebe-jeebies when the electric power bill comes due, and must be paid, and the dues are still due.

The entire cost of the system to date is as follows:

Pipe and fittings	\$1,875.39
Pump, complete with motor	236.25
800 feet hose (1-inch) & clamps..	242.85
8 sprinklers	129.60
Pumphouse complete (Approx.) ..	250.00
Installation costs	529.33

Total

\$3,263.42

There may be a few items left out of the list for example, the engineering which I handled myself along with the other work of superintending the building which would run the cost up.

Low Operating Cost

Our operating cost for the season was \$112.92 for electric power. This dates from June 10 approximately, when we first started using the system, to September 25 when the last bill was received. It costs us 42 cents per hour for electricity to operate the pump and 40 cents per hour for labor or a total of 82 cents per hour to water nine greens or nine tees at one time.

This covers the cost of all current used in watering the greens, slopes, approaches, tees, and clubhouse lawn, and many areas on fairways that threatened to die unless something was done immediately.

Nine Drains in System

We have nine drains on the entire system, six on the irrigation lines and three on the drinking fountain's line. One of these drains is located at the pumphouse, one at the creek where the line crosses to No. 8 green, one on the drinking fountain line in the basement of the clubhouse and one draining the irrigation on the clubhouse lawn which empties into the gutter. Of these drains the pipe line is exposed in such a manner that the water from the lines flows away freely, and it is impossible for water, accumulating in the wintertime, to flow into these drains unless unusually severe conditions exist. The remaining five are all the way from two to three feet underground. All the drains on the irrigation system except one are

equipped with valves. Those on the drinking fountain lines are simply pipe plugs screwed into the end of the pipe or a tee whichever it may be.

A 15-inch tile 36 inches long is placed vertically over the end of each of the underground drains, the bell end coming flush with the top of the ground and a plank cover filled into the bell. The holes for these tiles are dug approximately 18 inches deeper than the tile and then backfilled with coarse rock to the bottom of the tile. A hole large enough to admit the drain pipe was chipped through the side of the tile and the valve placed on the end of the pipe inside the tile. This arrangement makes a seepage basin deep enough to be below frost so that any water collecting in the winter time will seep away. It also gives ready accessibility to the drains in case of any debris collecting in the pipe lines.

Kyte creek is muddy and a certain amount of sediment is bound to collect in the pipes even though the water passes through a screen before entering the system. By opening a drain when the system is in operation the line can be "blown out" getting rid of the accumulation.

The tiles I used were the best grade of V. S. P., but were slightly checked and had been condemned as unfit for sewer work. They cost me \$1.00 apiece. Placing them in the ground cost about \$3.00 each, making the covers, lumber, paint, etc., \$1.00, total cost per drain \$5.00, and I would say the cost figure was liberal rather than conservative.

These tile boxes around the drains were all placed so that unless the ground is flooded, surface water will not run into them from the top.

Gate Valve on Each Line

There is a gate valve on each line so that if any one part of the line goes bad the entire system is not crippled. These are boxed in with concrete with plank covers similar to the drains. The cost was approximately \$5.00 per box including making the forms, etc.

On four different occasions this summer we had hose stolen. The nocturnal visitor wanted only a short piece and wasn't particular where or how he got it. He would slice here and there taking out a piece wherever fancy suited, usually 10 or 20 feet and never stopped to say thank you.

We were at a loss to know what the object was for sometime. The Midwest

Canning Co. is located in our town and they employ a large number of men in the summertime,—a floating class of labor. Some of these had automobiles and no money to buy gas. However, with a piece of golf course hose and a canning company tractor standing out in the field with a tank full of gas—nuff said. But the canning company started to watch the tractors at night, and when they caught the thieves, they also found the hose.

To stop this thieving we built hose boxes at each green. These boxes are 30 inches square and 30 inches deep in the ground, and with four inch concrete walls. We dug the hole about 36 inches deep and back-filled with gravel and coarse stones to a depth of one foot leaving us a box for hose and sprinkler, 30"x30"x24". This box is deep and large enough to hold 100 feet of inch hose and a sprinkler without crowding or without going to a lot of trouble in rolling up the hose.

It can be folded into the hole and taken out without any kinks and very quickly. We used a plank cover secured by a padlock for the top. These boxes are set flush with the ground. Mowers and tractor pass over them without any trouble or even the exercise of caution on the part of the operator.

Our course is new, hardly five months old the first of November, but we started playing the first of August and until the weatherman put the golf bags and clubs away we had from 20 to 100 players per day, and our water system gave us plenty of water.

RECONDITIONER NOW PART OF PEERLESS SHARPENER

Plymouth, O.—Fate-Root-Heath Co. presents a new reconditioner attachment as the outstanding feature of the 1931 model of the Peerless Mower Sharpener. This attachment revolves the reel knives backward for lapping in with grinding compound or emery paste. The reconditioner is quickly attached with one cap screw. A guard covers all gears. The device may be attached to any Peerless sharpener with serial number 500 and upward.

Sheep's fescue and Canada bluegrass have generally been found to be ideal grasses for the rough. They do well enough on poor, dry soil and are suited to almost all parts of the United States, especially the North.