Rochelle's Watering System

Laid Out with Eye to FUTURE EXPANSION

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It is hard to believe that only one year ago this attractive short hole on the Rochelle course was the city dump.

FEW country clubs can boast of the location that the Rochelle (Ill.) Town and C. C. has. The club lies wholly within the city limits, within walking distance of all members. Professional and business men of the town are able to play a few holes during lunch hour or before office hours in the morning, and Rochelle women are not dependent on their husbands, or a car, for transportation to and from the country club. They walk.

The club lies between the Meridian highway (Ill. No. 70, U. S. No. 51) on the west and Main street on the east, Kyte creek and the business district on the north, and city limits and open country to the south. Also a block east is the city park, just across the creek to the northeast the public school, and across the Meridian highway on the northwest corner, Spring lake, a beautiful natural swimming pool, operated by the city.

The property was originally a part of the Southworth estate, and the clubhouse was the pride of three generations of Southworths. It stands, a 21 room, cement structure, as solid and as perfect as the day it was built, a credit to the contractor who built it, and to the Southworth who selected the flawless oak in which it is trimmed. Today it would be impossible to buy the lumber that was used in its construction.

The course was laid out last fall by Perry D. Maxwell of Ardmore, Okla., and some clearing was done and three greens were thrown up in the rough. When I came on the job this spring, I found men busy finishing the clearing and piling up dirt on the sides of greens and tees.

The property is approximately one-half timber. Holes Nos. 1, 2 and 3 lie entirely in the open and No. 4 and No. 6 are partially in the open, and No. 5, No. 7, No. 8 and No. 9 play through a beautiful grove of oak, hickory and maple. No. 8 (140 yards) plays across Kyte creek and No. 9 (320 yards) plays back across the creek.

Mr. Maxwell, having his hands full with the construction of the greens, turned the water system entirely over to me with a suggestive layout which I followed.

Two sources of water supply are avail-

able; Kyte creek and the City of Rochelle.

Cost Rules Out City Water

There was much in favor of using city water. It was already available at No. 8 green and No. 9 tee, at No. 9 green and No. 1 tee, at No. 3 green and No. 4 tee and at No. 1 green and No. 2 tee. This would mean a tremendous saving in pipe, about 4,000 feet, and the city pressure was ample to turn sprinklers of a good capacity.

Against using city water was the fact that it was very cold and hence undesirable, and as the city refused to allow the golf course a special rate, the cost of watering would be almost prohibitive.

Kyte creek, the alternative, flows sluggishly through muddy fields and due to certain by-products that it collects from factories along its way did not look promising. But the water was warm and a sample sent to the University of Illinois for analysis was found to be all right for watering purposes.

So much for the water,—when it came to the amount of pipe for the two systems, and the layout, the saving of approximately 4,000 feet of pipe together with the cost of laying maintenance, etc., was no small item.

Using city water it would be necessary to install a meter and service box at No. 1 green, and at No. 9 green, and one at No. 8 green. The service at No. 1 green would serve No. 1 green and No. 2 tee, at No. 8 green, it would serve No. 8 green, No. 9 tee, No. 7 green and No. 8 tee. The service box at No. 9 green would serve the balance of the course.

This installation called for approximately 3,300 feet of pipe. Using city water it would also be possible to install drinking fountains at any point on the line while using the creek water it called for an extra line. (It actually took 1,275 feet of extra pipe.)

Using Kyte creek as a source of water it would take approximately 7,000 feet of pipe including the 1,275 feet for drinking fountains. But it would give us a system entirely independent of the city, and at a much lower operating cost once it was installed.

I placed all these facts before the board of directors together with a sketch showing the layout, using Kyte creek and recommended Kyte creek.

Mr. Maxwell was very much opposed to using city water and endorsed my recommendation.

The board accepted the recommendation and instructed me to design a system using Kyte creek as a source of water supply.

Stakes Out Piping

After deciding on a site for the pumphouse (to the left of No. 8 Fairway), I proceeded to stake the line on the ground as no print of the course was available.

From the pumphouse, the line crosses in front of No. 8 tee to the rear of No. 7 green, where a branch line crosses the creek to No. 8 green and No. 9 tee. The main line continues along the edge of No. 7 fairway and along the west edge of No. 4 green, where a lateral runs to the back of the green. The line continues between Tees No. 7 and No. 5 along the edge of No. 5 fairway and No. 6 green to No. 5 green and to No. 6 tee.

At a point on the edge of No. 7 fairway directly opposite No. 9 green and closest to it, a line was run to No. 9 green passing between No. 9 green and No. 1 tee passing to the rear of No. 3 green and No. 4 tee.

From No. 9 green a line was run to the clubhouse lawn for lawn irrigation. From No. 1 tee the line continues along the edge of No. 1 fairway to No. 1 green and No. 2 tee.

At a point along No. 5 fairway directly opposite No. 2 green and closest to it, a line was run to the rear of No. 3 tee and to No. 2 green. This line crosses No. 6 fairway at approximately the 175 yard mark. On all lines which run along the edge of the fairways tees were placed at intervals of 100 feet or less for fairway watering.

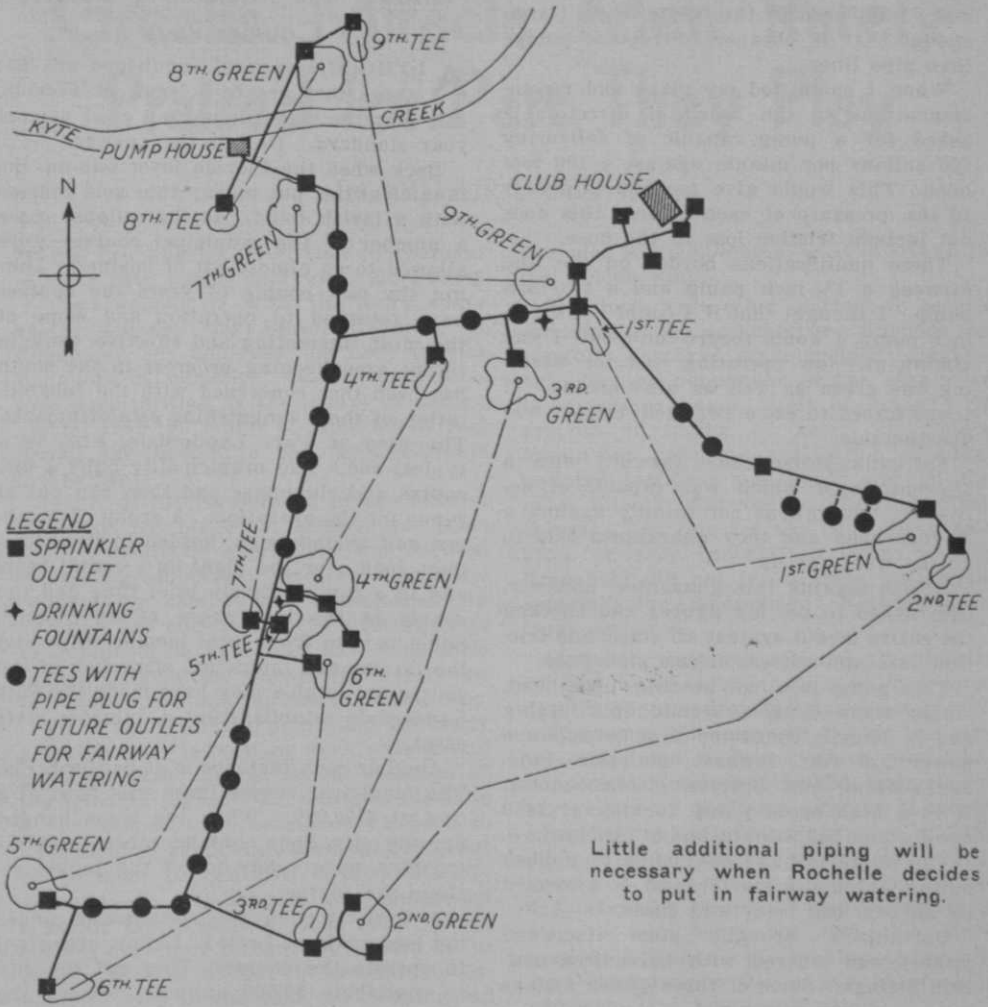
Figures Pressure and Friction Loss

After staking the line, I ran a set of levels from which to figure my pressure and friction loss.

From this information, and a property line survey which was available, I proceeded to make a sketch of the system which would show fittings, connections and be sufficient for a contractor to figure from.

My notes on the elevations told me that I had to force water against a 20-foot head (the course is comparatively level) suffering a loss of nine pounds pressure there.

I wanted a system which would water nine greens at one time, and one which, if water was only wanted at one green would not necessitate turning a large pump at a considerable cost, and I think I succeeded very well. I realized that in order to do



Little additional piping will be necessary when Rochelle decides to put in fairway watering.

this I would have to operate the nine sprinklers at a little less than the pressure they should be operated at. Here was a danger, because if that pressure was too low, the sprinklers would only throw a single stream instead of a fine spray causing irregular distribution of water and a liability of washing. I finally decided that if I allowed a flow of 10 gallons per outlet for the nine outlets and then added an extra 10 gallons making it an even 100 gallons per minute, I would have enough water.

Bearing this in mind, I started to figure my friction loss. With nine sprinklers operating, the pump must, theoretically (no leaks) deliver 90 gallons per minute into the main at the pumphouse. At the point on No. 7 fairway where the lead travels to No. 9 green it must deliver 70 gallons per minute; 30 gallons into the line to No. 9 green and 40 gallons into the line to No. 4 green and No. 5 green.

Selects Larger Pipe

Then the question came up whether to use small pipe lines and buy a pump capable of delivering 100 gallons per minute at high pressure, or use large pipe and a smaller pump. As my object of design was low operating cost, the high pressure pump requiring more power did not seem economical. Comparing pump prices, I found this to be true, and I believe it is in every case, to spend a few more dollars and put in larger pipe and have a smaller elec-

tric bill every month. Also if more water ever was needed the pipes were large enough. It is cheaper to replace pumps than pipe lines.

When I submitted my plans and recommendations to the board of directors, I asked for a pump capable of delivering 100 gallons per minute against a 100 foot head. This would give me approximately 40 lbs. pressure at each outlet; this does not include friction loss in the hose.

These qualifications border on the line between a 1½-inch pump and a two-inch pump. I thought that if I could use a 1½-inch pump, I would secure the result I was aiming at,—low operating cost for watering one green as well as nine greens. If I was forced to use a two-inch, then it was questionable.

Fairbanks-Morse came forward with a 1½-centrifugal which was capable of delivering 100 gallons per minute against a 90 foot head and they guaranteed this to do the work for us.

Before making this guarantee, however, they asked to see my figures and checked the entire layout against all static and friction loss and corresponding pipe sizes.

This pump is a ball bearing, high head, single stage double suction, split casing and is directly connected to a seven horse power 220 volt, 3 phase, 60 cycle, Fairbanks-Morse ball bearing electric motor. It is a high speed pump turning at 3450 revolutions per minute under full load.

The pump is hand controlled by a push button automatic starter and is protected by an overload relay and fuses.

Galvanized wrought steel (screwed joints) was ordered with galvanized mal. iron fittings. Some of the 3½-inch fittings were cast iron galvanized.

Our specifications called for:

570 feet of 3½ inch pipe
1551 feet of 2½ inch pipe
1446 feet of 2 inch pipe
1870 feet of 1½ inch pipe
1986 feet of 1 inch pipe
295 feet of ¾ inch pipe

The ¾-inch pipe was used only in the line to the drinking fountains and of the 1,275 feet of this, 1,035 feet was inch-pipe, and the balance of the inch-pipe was used in short laterals to the tees. Nothing smaller than 1½-inch pipe was used to any of the greens.

We used the California type of hose connection using 1-inch screwed hose connections.

(Continued next month)

Florida Finds Reclaiming Deserted Courses Pays

ALTHOUGH general conditions are not those that create a boom in Florida, this year the travel is up to a good normal year standard. Golf is the answer.

Back when the Florida fever was on, the municipalities put money into golf courses with a lavish hand. As the collapse came a number of the municipal courses were allowed to go almost out of business. During the past couple of years the courses have returned to operation and some of the most interesting and effective work in recent greenkeeping progress in the south has been that concerned with the rehabilitation of these languishing establishments. The case at Fort Lauderdale, Fla., is a typical one. The municipality built a fine course and clubhouse and then ran out of funds for the operation. A group of northern golf businessmen, headed by Joe Roseman, took over the plant on a rental basis and in a comparatively brief time had the course in the best shape of its history. Some income from local memberships and the income and municipal attraction of the course for outside play have made the Fort Lauderdale establishment a valuable civic asset.

Another such instance is at Sanford, Fla. The municipal course there was built at a cost of $150,000. When the boom banged up, the city dads, having other financial troubles, were ready to let the jungle reclaim the course.

A few vigorous golf enthusiasts under the leadership of Leon L. LeRoy, organized to operate the course. They got the city to contribute $2,500 annually toward the club's operating expense providing an equal amount could be raised privately. The Chamber of Commerce assisted in a membership drive. The playing privileges were set at $10 per individual per year, or $20 for an annual family membership. During the first two days of the drive $3,000 in cash was raised.

The course was put into shape under the direction of Allan Stewart, pro-greenkeeper, and an increasing volume of winter greens fees brought into the income side of the ledger. It costs around $8,000 yearly to operate the plant. The greens fee is $1.00 a day the year around.

Labor is inexpensive at Sanford and the course is so constructed and arranged that a maximum of maintenance work can be done by machine.