SEWAGE TREATMENT FOR GOLF CLUBS

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Golf or country clubs being situated as a rule remote from public sewer systems require some independent method for treating their sewage.

In order to dispose of the sewage from a golf club, several requirements must be met. In the first place, the whole treatment plant must be as inconspicuous as possible. A sewage plant under the best conditions is not particularly attractive; as part of a recreation ground it should be hidden. In the next place, the final effluent must be of good appearance; it should not attract even passing notice, especially if the brook or run into which it is discharged passes through the course. Then, too, the plant must operate with a minimum amount of attention. No ground keeper wants to be bothered with a sewage plant. He usually has enough other troubles. It is fair to assume, therefore, that unless the devices function successfully and practically automatically, the plant as a whole will soon fall into ill repute.

The most stringent requirement, and perhaps the one hardest to meet in some instances, is that the sewage plant must operate and produce a satisfactory effluent without creating odors. Absence of odor in such cases cannot be relative, it must be absolute. Good golf demands that there be no distractions. Consequently, even a slight sewage odor may be considered a mental hazard, and just blame for high score cards.

The sewage from a country club varies greatly in rate of flow, but its character in most cases probably is essentially similar. It is generally derived from four main sources: toilets, showers, kitchen and laundry, the amount from each depending upon the size and general use of the club house. It differs from municipal domestic sewage in that the percentage of soapy water and grease is relatively much higher.

The methods usually employed in treating the sewage from country clubs are combinations of sedimentation and filtration, with perhaps the septic tank followed by sub-surface irrigation of some kind the most common. However, these plants are often constructed without due regard to soil conditions, and trouble sometimes follows.

The purpose of discussing the possible ways of treating the sewage from golf clubs, may best be accomplished by outlining briefly the method employed at one club to satisfactorily dispose of its sewage, and by drawing conclusions from this installation which may be applied generally.

DESCRIPTION

The Canterbury Golf Club is situated in one of the suburbs of Cleveland at too great a distance from a public sewer to make a connection. A proprietary septic tank, far too small, followed by an absorption system which did not absorb but produced a vile smelling swamp, made it necessary to institute a change in the method of sewage disposal.

The accompanying plan shows the layout of a plant which, after a study of the problem, was recommended and built at a total cost of about $3,600.

The treatment plant includes a septic tank, grease chamber, by-pass overflow.
The sewage treated includes wastes from the kitchen, toilets and showers. No roof water is admitted to the sanitary sewers. The flow of sewage is estimated at 40 gallons per capita per day of 16 hours, the total daily volume being estimated at 8,000 gallons. On the above basis, the plant can serve 200 persons.

The plant is located about 150 feet from the club house, the portion above ground being hidden for the most part by trees and the topography. The sewage enters the septic tank from two main lines, one from the kitchen and the other from the toilets and showers. It was not feasible to put a grease trap in the kitchen line. The septic tank 20 feet long by 5 feet wide, and having a water depth averaging 6 feet, gives a detention period of approximately 13 hours. The sludge can be removed in winter by opening a sluice gate, and discharging by gravity either onto low ground or into a brook at high water. The tank is just below ground level and is covered, with provision for entry through two manholes.

From the septic tank the sewage flows into a grease chamber, whence it passes through a removable screen into a siphon...
chamber. In the grease chamber, balls of grease which pass through the septic tank are floated and held back by the 4 mesh wire screen. In winter this screen is removed and a stop plank substituted. Any sewage flowing through the tank then rises and passes through an overflow direct to the creek. After passing the screen the sewage enters a small siphon chamber equipped with a 5-inch Miller siphon.

The siphon, which empties the chamber in about one-half minute, discharges the settled sewage into a small dosing tank which feeds two nozzles on the trickling filter. The dosing tank holding 185 gallons operates under an effective head of from 5 to 0 feet, the flow from the siphon occurring in such short time that full benefit is derived.

The trickling filter is 26 feet by 13 feet in plan and 10 feet deep, underdrained by half tile abutting on a central drain. The filtering material is a local slag 1 inch to 2 inches in size and is contained within a water-tight timber crib which is roofed over, entry being obtained through a small door in one end. The sewage is distributed over the surface by two Pacific Flush Tank nozzles operating as stated previously under a falling head of from 5 to 0 feet. The filter building is ventilated by means of an electric fan.

The effluent from the trickling filter discharges into a small tank 7 by 4 by 5 feet deep, which may be used as a settling tank, or be filled with sand or cinders to operate as a strainer. At the present time, it is operated as a strainer. The final effluent discharges into a small run which is dry in summer.

The distinctive features of this plant are the grease chamber and screen, the dosing tank separate from the siphon chamber, the tightly covered trickling filter with a ventilating system used at night, and the final clarification filter.

**Operating Results**

The plant as a whole has operated satisfactorily from the start, when viewed from mechanical and biological standpoints. From the esthetic viewpoint, however, it did not do so well at first, and various means were tried to eliminate the occasional odors which in a municipal plant would have been considered negligible, but which on the nearby tenth tee was a cause of grave concern.

Boarding up the 6 inch screened opening in the sides, suspending trays of chloride of lime inside the building, ameliorated, but did not entirely do away with the odors which escaped occasionally. Finally, an 18 inch Ventura electrically operated fan was installed in one gable of the filter building. This fan is operated usually at night and so changes the air inside the building and dissipates it, that during the past summer there have been very few complaints. Before passing into the atmosphere, the air from the filter is forced downward through a column of charcoal, recently added.

Except during some peak conditions, when all the showers are in use, the final effluent is clear. It does not cause nuisance even when discharged into the dry run.
The plant has been in operation for the past 2 years from early spring till late fall, and thus far has required little attention. The septic tank, siphon chamber and dosing tank are all below ground, yet readily accessible. The trickling filter sets in the hillside, and the final tank or strainer near the creek. The visible parts of the plant are not conspicuous; the effluent is satisfactory and the devices require little attention to keep them working in such a manner that the player can do his regular number of holes without the distraction of sewage odors.

CONCLUSIONS

Our experience with the sewage problem at the Canterbury Golf Club and other country clubs clearly demonstrates that in order to satisfy the demands of a supercritical membership, the logical and most satisfactory manner to dispose of the sewage is to discharge it into a public sewer, if it is at all possible. If, however, this is found to be impracticable, the problem should receive careful study and a method adopted which will produce satisfactory results without odor, with a minimum of operating attention, and from devices as inconspicuous as possible. Where suitable sub-surface irrigation or filtration is impracticable, a plant of the type described above will prove satisfactory, particularly if the topography permits a gravity installation. Such a plant requires relatively small area and can be made to harmonize with the surroundings.

VITAL STATISTICS TRAINING*

This Committee was appointed to consider the possibility of offering special training in vital statistics. It is unreasonable to suppose that any large number of employed persons now engaged in some field of public health or allied science can, or would, leave their positions for the time necessary to take the work in vital statistics here discussed. If this training is to reach the group now employed, it will be necessary to offer this work through correspondence study courses.

Johns Hopkins University has indicated its willingness to consider the giving of correspondence courses in statistics under certain conditions, and it is possible that some other schools will do the same, and this committee was appointed to consider this matter and report to this section its ideas as to what should be included in such courses.

It seems necessary to make some division of the groups of persons who prepare or who use vital statistics and consider the training required by each, if they are to make intelligent use of available knowledge of this subject. The following divisions are offered:

1. Health officers.

By this term we mean to include those men who are acting as administrators of health departments, state or municipal, bureau directors, epidemiologists and others occupying administrative or executive positions. These persons are supposed to have and to be keeping in repair the necessary foundation in medicine, public health and hygiene, laboratory sciences, epidemiology and sociology. They are called upon to use vital statistics

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* Report of the Committee presented before the Vital Statistics Section of the American Public Health Association at the Fifty-fourth Annual Meeting at St. Louis, Missouri, October 20, 1925.