

comes modification and compromise between the requirements and finances. Not often is an original plan or alternate plan adopted without modifications occasioned by financial considerations. After modification, approval from the board or committee of a definite plan and estimate is needed. Perhaps they direct that bids on several alternative plans be taken. Where we have not already taken bids the estimates must be correct to within five per cent of the final installed cost.

### The Final Stage: Letting Contracts

Finally it is time to prepare detailed plans and write detailed specifications covering every phase of construction conditions, materials, and actual construction and installation. It is customary to select bidders, invite bids, receive sealed proposals with deposits, tabulate the proposals for consideration of the committee, and in conference with the green-chairman select the most promising bidder and confer with him as to details. Usually bids are taken on several different classes of pipe, and on alternate methods of construction. When the board approves the final recommendation of the engineer, he prepares the contracts and sees that they are properly executed, and the contractor proceeds with construction under the direction of a supervising engineer who has full authority to enforce the plans and specifications. Contractors desiring to bid on the work are always provided with: (1) an invitation to bid; (2) complete information to bidders giving an outline of the project and scope of the work, and conditions of the bidding; (3) copy of the surety bond (50% of contract) that is required of the successful bidder; (4) copy of the contract; (5) copy of the specifications; (6) a report form on which the bidder outlines his equipment, experience, responsibility, and references; (7) a complete set of plans (blue prints); and (8) a detailed proposal form providing places to quote lump sum prices as well as unit prices. The lump sum prices for the estimated scope of the work are used for comparison, while the unit prices are used in paying the contractor for the work actually done as shown by final measurements. To prevent indiscriminate distribution of these materials it is customary to require a deposit against the return of the plans and specifications, of \$15 to \$25. To eliminate irresponsible bidders and to insure that the successful bidder will sign the

contract, the specifications require a certified check of \$500 or more, to be deposited with each proposal.

We have outlined in detail the consulting engineer's procedure in handling an irrigation project for a turfed area. It sounds like considerable work, and certainly is! But remember that the engineer can take no chances and do no guessing. Procedure of the character outlined is always religiously followed even though the engineer may have ready data in supposedly similar projects.

As we have already stated, it is not practicable for clubs that cannot or will not employ an engineer to follow in its entirety the procedure outlined; hence in developing the mechanics, hydraulics, and detailed planning we shall in a future part of this discussion supply certain empirical facts and data that will enable such clubs, particularly the nine-hole clubs, to proceed with their water systems.

In part II we give a classification of irrigation methods and a practical, brief description of these methods.

## Restaurant Business Perilous, Government Report Shows

WHEN golf club officials or members raise the question "why is it that we lose money on meals when there are so many restaurants making big money at lower prices," the manager is inclined to shrug his shoulders, talk about the uncertain load which is never too big at its best, and the high costs of the club standard of food and service.

All that part of the answer is well enough in its way but a government study made of the restaurants in Kansas City, Mo., a typical situation probed at the request of the National Restaurant association, shows restaurant profits are a long way from being satisfactory . . . even if there are any profits.

More than 50% of the 1,084 restaurants licensed during the year studied either changed hands or went out of business that year. The membership in the Kansas City Restaurant association, comprising "the more stable and prosperous owners of the city" showed an "amazingly high" turnover of its membership. Out of 73 of these restaurants belonging to the association in 1925 only 33 were still in business in 1929.

The commercial feeding business is one of perilous profits.