

LARGE SUBMERGED SEWER OUTLET.

The city of Rochester, N.Y., is installing a sewage disposal system, some of the work of which is very interesting, particularly that of laying the effluent pipe in Lake Ontario. In a recent issue of the Municipal Journal, of New York, Mr. John F. Skinner, principal assistant to the city engineer of Rochester, describes the method of laying this pipe. The following abstract is made from the article:

The city up to the present time, has been drained by a combined system into the Genesee River through eight main outlet sewers, which serve territories having areas varying from 187 acres to over 5,000 acres. An interceptor is being constructed to receive the dry weather flow and two and one-half additional volumes of storm water from these outlets, which sewage and storm water will be conducted to disposal works near the lake, and the effluent discharged at a point 7,065 feet from shore in about 50 feet of water.

The effluent conduit will be a 66-inch lock-bar pipe, made up of $\frac{1}{2}$ -inch steel plates dipped in "Pioneer Mineral Pipe Coating." Proposals for this portion of the work were received March 13, 1912, and on the following day the contract was awarded to the T. A. Gillespie Co. A summary of the bids is given on the next page.

It will be noted that tenders were also invited for "Ingot Iron" from "Cast-Iron" pipe. It was not thought, however, that the existing conditions warranted the greater expense for material other than steel. The high cost of the cast-iron pipe is, in a measure, due to the requirement which specified that it be laid on pile bents.

Borings made in the lake bottom indicate fine sand and some clay with but little gravel.

from its mouth, and was towed to its site, two miles east of the river's mouth, where it was sunk, guided by piles driven on two sides of its position.

The lake bed was dredged so that the bottom of the crib is 3 feet below lake bottom, the mouth of the discharge pipe is 10 feet below lake bottom, and the top of the crib will be 26 feet below low water.

The contractor's plant consists of a 12-inch hydraulic dredge with 90-foot ladder; a pile driver scow 32 feet 6 inches

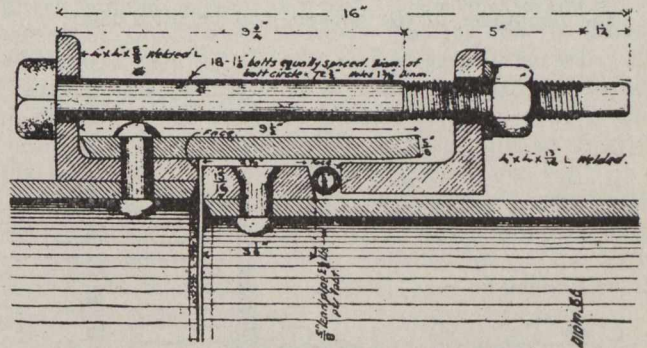


Fig. 1.—Detail of Submarine Joint.

x 80 feet; two derrick boats, the smaller one 21 x 50 feet, and the larger 34 feet 6 inches x 95 feet; two tugs, and a diver's boat with two complete equipments.

The pipe leaves the crib a little above lake bottom, curves downward and then horizontally so that the remainder of the pipe can be laid in a trench and backfilled about 2 1/2 feet deep. The curved pipe will be covered with a mound of sand, and 400 cu. yds. of rip-rap will surround the crib.

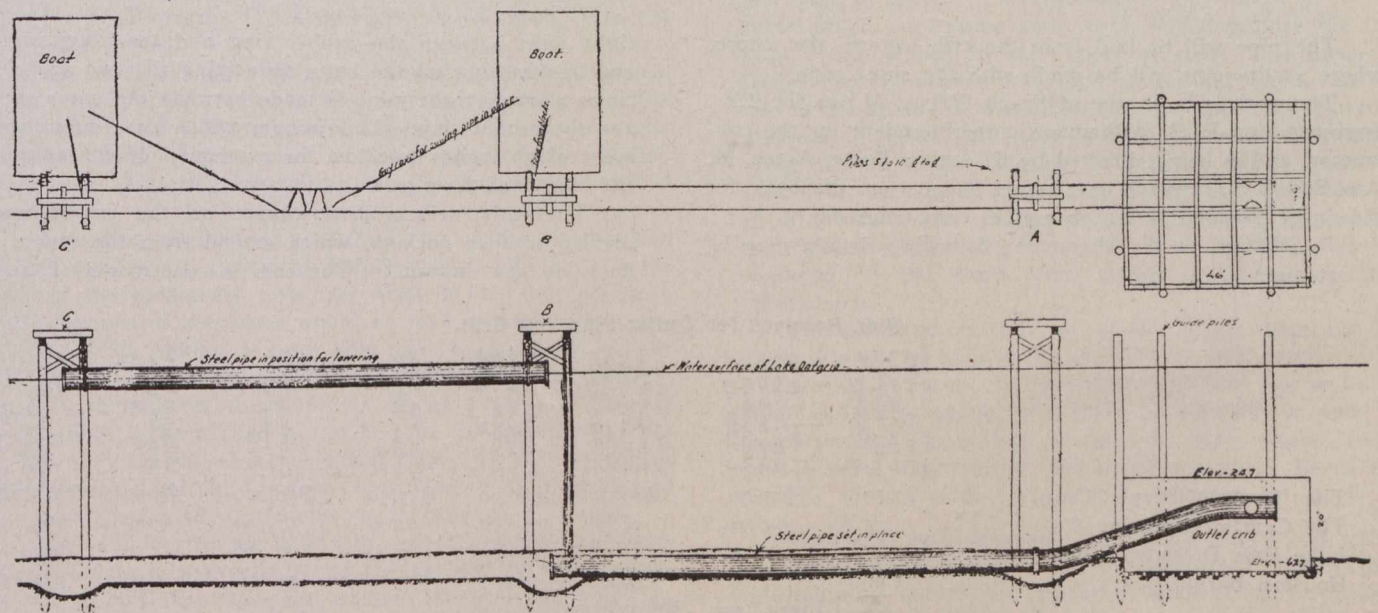


Fig. 2.—Proposed Method of Laying Outlet Pipe from Crib to Shore.

The crib, which is 46 feet square and 24 feet high, is constructed of 170,000 board feet of 12 x 12-inch hemlock timber. It contains a steel special to which is bolted the last length of the pipe. The special has a 6-inch outlet in line with the pipe and two 38-inch outlets, one on each side. These three openings are provided with flanges so that they may be extended, if necessary, and the side openings are closed with steel covers.

The crib has pockets loaded with 1,075 cubic yards of stone. It was constructed at a dock two miles up the river

The plan is to dredge a short portion of the trench, drive four piles at each end of a pipe length, lower a section of pipe into position and while it is supported from the pile clusters make the joint and backfill the trench before moving to the next length.

The submarine joint used consists of a socket on one pipe into which the spigot end of another pipe is inserted. A gasket or ring of 1-inch heavy lead pipe is forced into the base of the socket by a follower which is drawn up by bolts manipulated by a diver. The city also has a diver who inspects the work.