

and the level of the entrance floor of the gate house is 518 ft. The tower is circular in section with an inside diameter of 18 ft. top and bottom. The walls are 4 ft. 6 ins. thick from the bottom to level 465 ft. and taper to 18 ins. at the top. A concrete arch bridge connects the tower with the shore.

There are four 40-inch square intake openings in the tower at levels 430 ft., 451 ft., 469 ft., and 487 ft. at angles of 60 degrees of each other. The openings are belled to the outside and covered with coarse racks 6 ft. square. Gates are secured over the openings on the inside of the tower and since these gates are subjected to back pressure only, tending to force the disc away from its seat, it was necessary to build them of special design. The cast steel disc slides in vertical guides, but the gate seat and the back of the gate are at a slight angle to the direction of travel.

The disc is therefore wedged tight to the seats when in the lowest position, the guides taking the full thrust of the pressure of the water against the back of the disc. In all other positions of the disc the seats are not in contact; hook wedges are provided at the top and bottom of the gates to hold against the seat. The seats and all wearing surface are lined with gun-metal. These gates are enclosed in a sheet steel box having an opening directly in front of the gate opening over which the fine screens are placed; these screens are made up in teak

wood frames and are lowered into position by means of a hand winch placed on the operating floor.

The screen frames slide in channel guides secured to the tower walls by brackets and bolts.

A secondary intake is provided situated entirely within the tower whereby water may be drawn off at any desired level. This intake consists of a steel stand-pipe 42 ins. in diameter built up in four separate sections having conical seats, on the upper and lower ends, each section seating on the next one below it, and the bottom section seating on a heavy cast iron elbow set in the tower floor. The intake pipe sections are guided between two 60-lb. steel rails placed on opposite sides of the pipe and fixed to the wall of the tower.

The lifting rods, 1½ ins. in diameter, are attached diametrically opposite near the top of each pipe section. This intake is operated by hand by means of a lifting gear which may be attached to any set of lifting rods. The approach channel to the tower, 20 ft. wide with slopes 1½ to 1 with sides rip-rapped, is cut from base of tower to deep water in the lake.

Tunnel Approach.—A tunnel 1,938 ft. in length, and terminating with a steel pipe 4 ft. 0 in. in diameter well below the dam, was driven almost entirely through solid rock to a valve house. A pressure-regulating apparatus is also installed at this point. The 25-in. and the 14-in. corporation mains are connected at this point with the

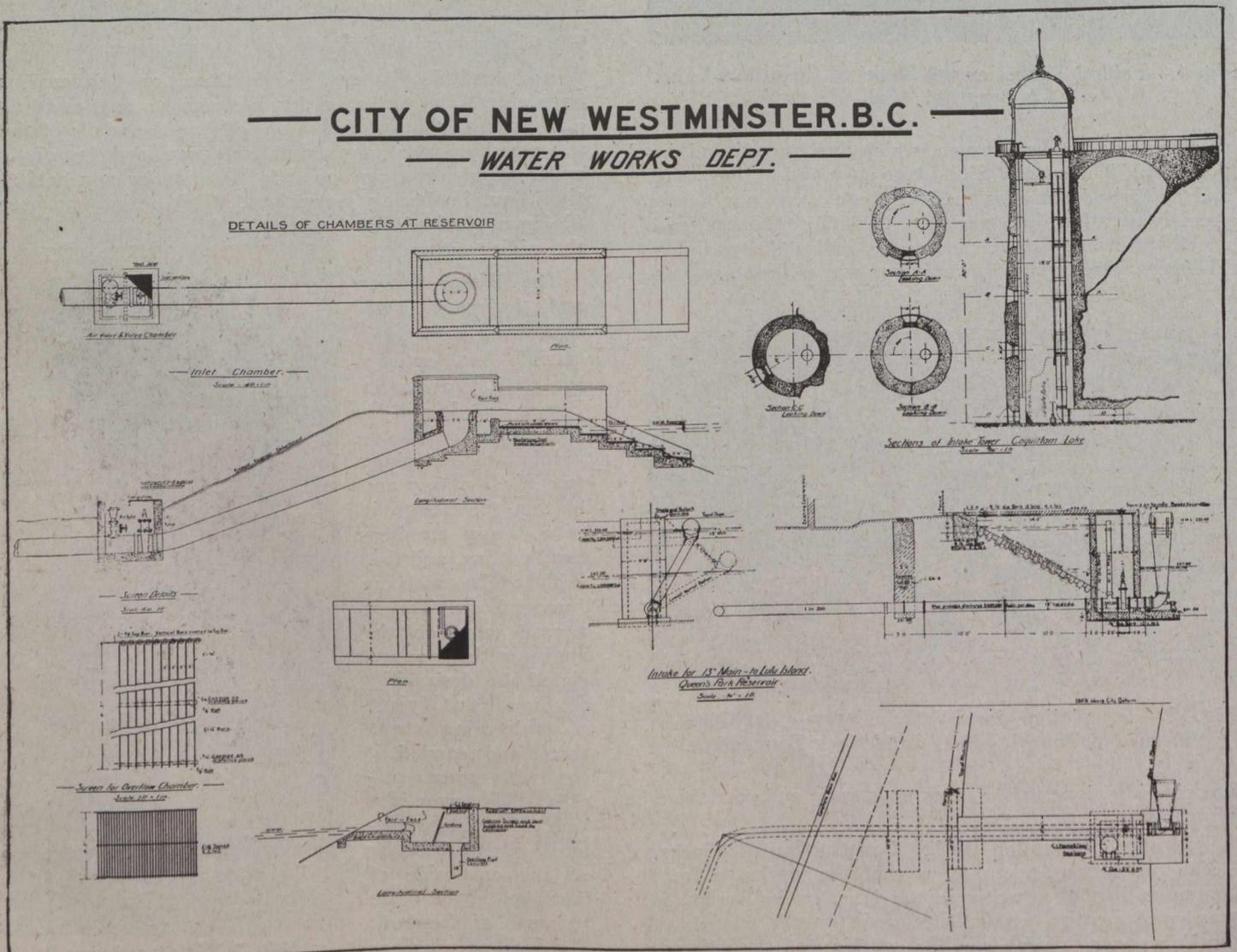


Fig. No. 8.