

horizontal beams, so that the basin wall is virtually a vertical continuous beam over three supports and fixed at the lowest one. The basin was designed to resist distortion stresses rather than the theoretical stresses due to water pressure, as cracks are more to be feared than actual failure.

The coarse aggregate for the concrete work was crushed limestone; and for fine aggregate, limestone screenings or dust from the crusher was used, to which was added sufficient sand to give a creamy mortar.

This limestone dust was used partly because of the high cost of sand in this locality, whereas the dust was readily obtained from a nearby quarry, and because of the dense, impervious concrete that it makes, density rather than hardness being desirable for this work. No waterproofing materials whatever were used, the action of the lime dust being similar to that of hydrated lime in making concrete waterproof. All concrete was mixed in proportion of 1 to 6.

The filter is of the usual type of rapid sand filter, and so far as principle is concerned, has no unusual features. It is proposed to use crushed marble in the filter bed, in proportion of 1 to 2, a practice that has been adopted in several recent filters in Canada. The filter consists of two units, each 11 ft. by 13 ft. 4 ins., operating independently, and is designed for the usual rate of 1.66 gallons per square foot per minute. Each unit will be provided with a rate-of-flow controller and loss-of-head gauge.

The apparatus for back-washing the filter consists of an air-blower of 656 cu. ft. per min. capacity, connected

directly to the clear water manifold, and an 8-in. centrifugal pump driven by a 25 h.p. motor. The hand-wheels for all valves used in operating the plant, together with the clutch levers for the blower and pump, are grouped together on the operating floor most conveniently for the operator.

It will be remembered that the raw water flows to the filter in what is practically an open pipe without pressure.

The rate of flow is controlled at the Greensville dam two miles from the filter. This fact necessitates somewhat unusual methods of handling the water at the filter. It is admitted to the mixing chamber through a valve controlled by a float in the skimming trough. A constant head will thus be maintained in the filter beds, and any excess water runs to waste.

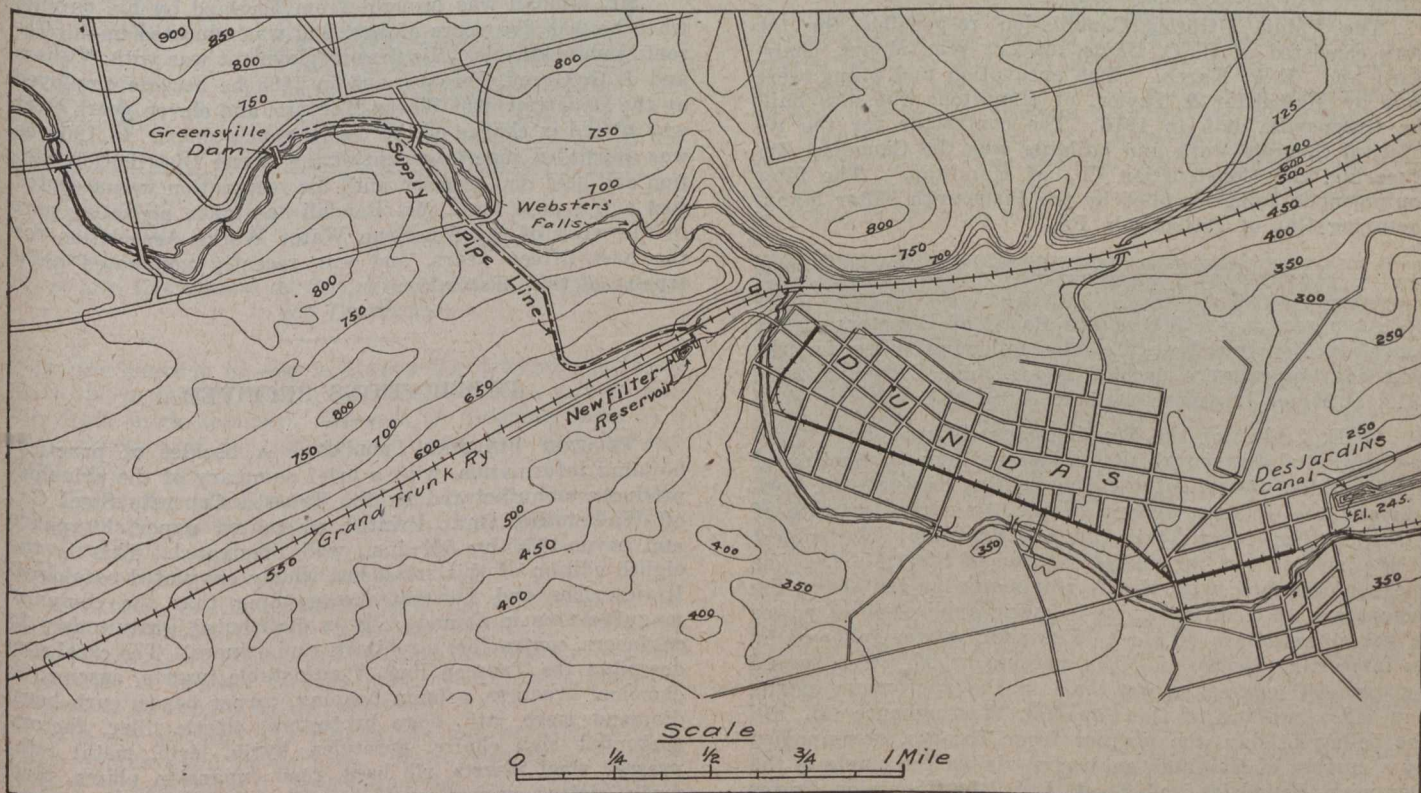
The sedimentation basin is divided into two sections by the centre partition wall, and by means of the 10-in. by-pass pipe it will be possible to operate either section independently. This will allow the basin to be cleaned without interrupting the town's supply. Under normal conditions, the

filter will be run at a uniform rate throughout the 24 hours, the variation in demand being taken care of by the clear water reservoir.

In calling for tenders for the filter equipment, the specifications were made definite enough to ensure uniform tenders, and yet broad enough to permit manufacturers to tender on their own special equipment. Details of baffles and one or two other minor matters were altered in order to



THE GREENSVILLE DAM



MAP OF DUNDAS AND VICINITY, SHOWING LOCATION OF GREENSVILLE DAM AND NEW FILTER PLANT