

## REPORT OF THE CITY ENGINEER.

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*To the Honorable City Council of the City of Worcester:—*

Gentlemen:—In accordance with Chapter 7, of the Ordinances of the city, I have the honor to submit the following report for the year ending November 30, 1913.

Continued work upon the Kendall dam has finally brought to completion this long delayed structure, and added the most important reservoir yet built to the city's system of water supply. During the early stages of this work the appropriations were so meagre that but little could be accomplished except to carry on in a small way the diverting dam and canal on Asnebumskit brook, so that eight years have elapsed since this project was undertaken. The erection of the dam itself was not begun until September 1911, and it was not until June 28th of this year that the gates were finally closed, and the filling of the reservoir began. In the meantime it has been possible to draw the waters from this service through a temporary conduit, and so help out the overtaxed reservoirs on Tatnuck brook, that without this aid would have been unable to meet the demands upon them. During the fall months just passed, the Tatnuck brook reservoir No. 1, the main storage basin on that stream, was so depleted that on November 18th, a considerable volume of water was drawn from the new reservoir. It was very gratifying to find that so good a store of water was in readiness, rather than to again face the deplorable situation of two years ago.

The several large tracts of land bordering upon the shores of the new reservoir, that have been acquired by purchase, should be reforested. Such treatment of these areas would make their barren slopes of great value, by lessening the severity of floods and making a better distribution of the water that flows from them.

With the men and apparatus on the ground it would appear advisable to begin operations on the building of the Pine Hill dam, and by so doing control, and make use of, when necessary, the waters of the main stream. As this dam will compound the water from the major portion of the newly acquired shed, there should be no hesitancy in beginning this desirable addition to the system of water supply.

It has been the endeavor of this department for many years to point out that portions of the distribution system were inadequate, which was partially emphasized by the failure to deliver water to the higher levels of Belmont Hill. The fact that a small reservoir existed at a suitable elevation in Green Hill Park, and that it could be filled during the night time when the frictional loss was least, gave temporary relief to a condition that has long been anticipated. There are other similar localities that are being supplied with water through pipes too small for much more than household uses that need correction. Most of such conduits were laid many years ago, and are not suitable for to-day. In the extensions that have been made there are several instances where it became necessary for the time being to supply the larger pipe from one of less capacity. That the new pipe should be of suitable size, such connections were considered only temporary, but they have been allowed to remain for too long a period, and to the detriment of the locality so supplied. The investment in the larger pipe, which is primarily for protection against fire, would seem to warrant connections that will admit of their full value being obtained.

With the new high service conduit to Webster Square, this service in Park Avenue should be extended to Grove Street, and there connect with the new line to Greendale. By the extension of a sub-main to Burncoat Plains these territories will then receive the volume and pressures they now lack. The old high service line at the junction of Cambridge and Southbridge Streets is much in need of reinforcing which would improve the conditions on Providence Hill, where attention is needed also. There are other localities that should be considered, and a better protection against fire provided.

The laying of the proposed new conduits from the distribution reservoirs should proceed without delay, and be carried through not only to the outer confines of the city, but into its very center, where connections can be made with existing larger conduits, and so make the service one of power and reliability.

This procedure is especially needed in relation to the low service conduits, in order to eliminate so far as possible the draft from the Parsons Reservoir. As the water from this reservoir is supplied from the basins constituting the high service part of the system, it should not be used for this purpose any longer than a substitute can be furnished, and which should eventually be supplied through the low service lines as above suggested.

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The high service should in every way be conserved, and I would especially recommend the substitution of low service water in all sections of the city where its pressures are suitable.

Respectfully submitted,

FRED'K A. McCLURE,

*City Engineer.*