

REPORT OF CITY ENGINEER

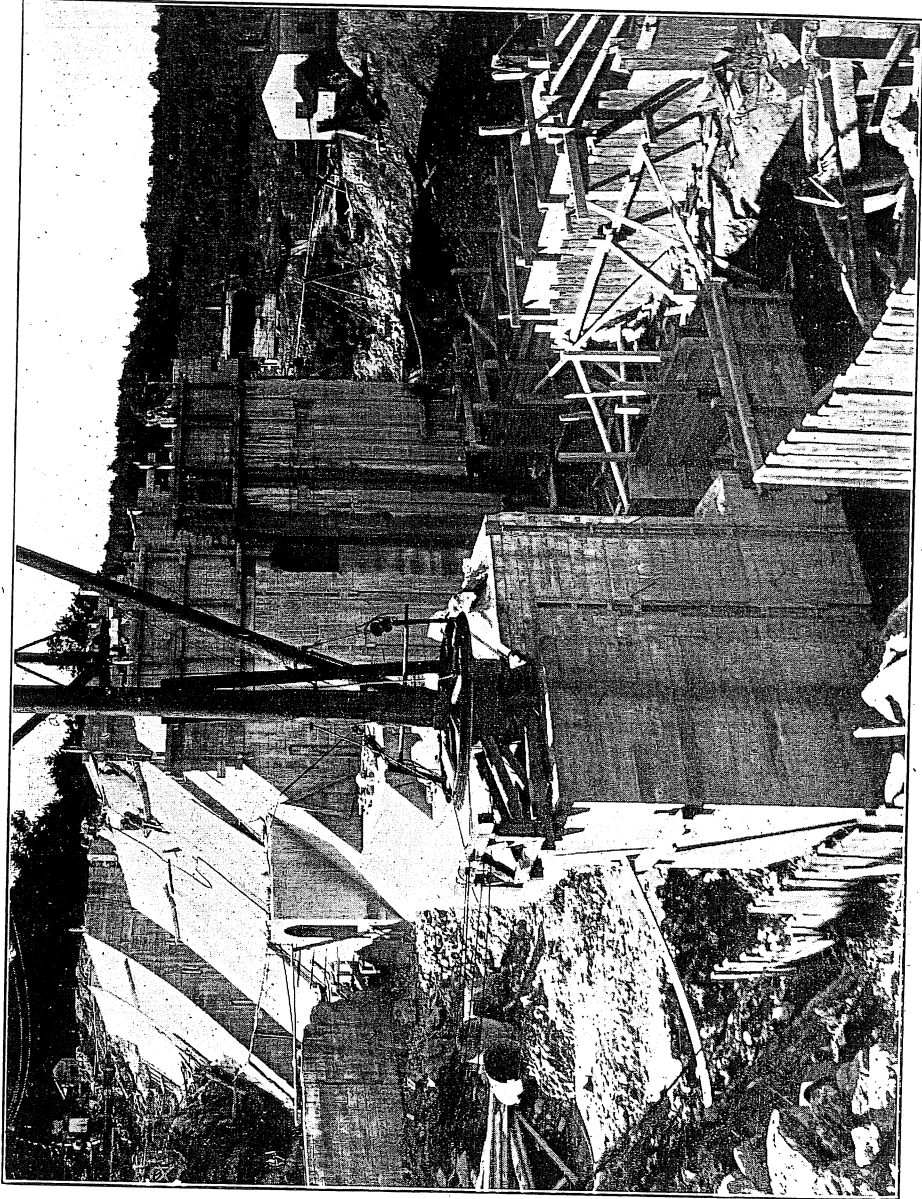
To the Honorable City Council of the City of Worcester:

As the ordinances of the city require a report with reference to the supervision of dams and other engineering structures that may be built by the city, the following report is respectfully submitted:

The only construction now under way is the building of the dam at Pine Hill. The work thereon proceeds under the handicap of a decreased labor force that at times has been at a minimum, so that while considerable progress has been made during the year, any great advance in the work has been out of the question. At no time has a sufficient number of men been present to admit of carrying on the different phases of the work at one and the same time, so that it has been necessary to interrupt the proceedings in one direction and employ the force in some other way, like the procuring of plums, or large stones, the making of sand and the transport of materials. To work to advantage, all such matters should proceed in unison, with a sufficient force to supply the materials needed.

I suppose this is only a reflection of the general conditions elsewhere, for labor has sought those fields where the greatest pay was obtained. The first of the season or during the latter part of the winter months, a satisfactory gang was employed; but as men were needed in other fields of labor, we were outbid, and so the desertions began. Most of the men who remained loyal were the older employees, but their rate of pay was not sufficient to attract others or keep a large force of men. Recently, however, the necessity for an increase in pay was recognized by the City Council.

It is to be regretted that action was not taken on the purchase of the Howard land, so called, at the westerly end of the basin, as the amount of wood and timber now standing there would have been of great assistance during this period of coal shortage. Where formerly considerable wood procured on the site of the work was burned for different purposes, it has been necessary to burn coal almost entirely during the past year. Some of the steam producing plants can readily burn wood, and if cut by the force employed, a considerable reduction in the item of fuel could be made. As this land stands in large part within the area to be flooded,



PINE HILL DAM. APPROACH TO NORTHERLY ABUTMENT

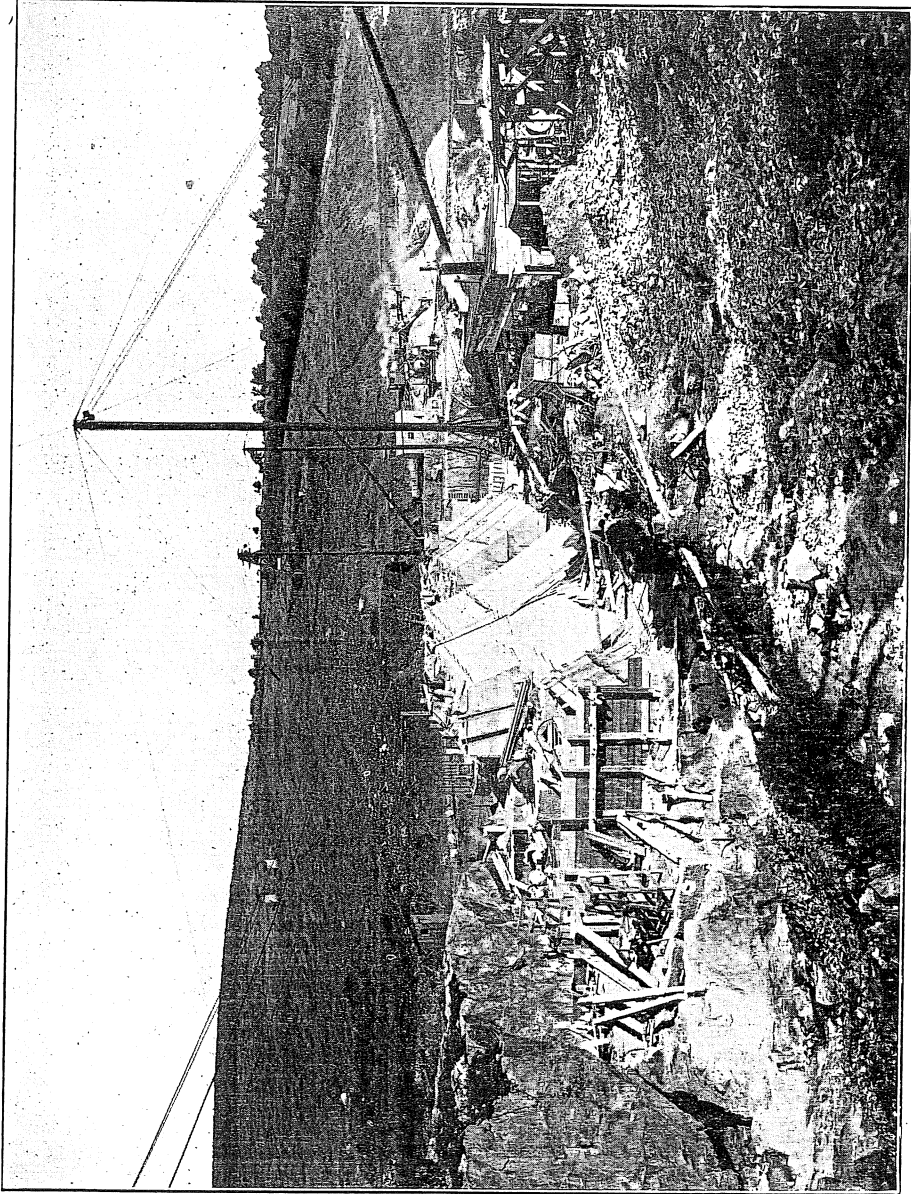
I again respectfully urge that its purchase be further considered.

The following schedule shows the expenditures for the fiscal year and the items to which the expenditures apply:

Automobile—maintenance, hire, etc.....	\$565.65	
Chauffeur.....	899.52	
New Ford car.....	854.77	
		\$2,319.94
Buildings—construction and maintenance.....		922.53
Clerical—labor, supplies and inventory.....		3,356.01
Cement—on hand Nov. 30, 1919.....		4,725.00
Dam:		
Diversion, pumping and care of water...	\$4,924.67	
Earth excavation and sheeting.....	20,944.71	
Rock excavation.....	7,123.50	
Drilling and grouting.....	4,505.44	
Concrete masonry.....	120,167.46	
Earth embankment.....	2,136.76	
		159,802.54
Engineering and supplies.....		4,617.26
Fuel on hand Nov. 30, 1919.....		1,800.00
Incidental labor—storehouse, repairmen, watchmen, etc....		9,756.86
Incidental supplies—gasoline, grease, oil, waste, packing, etc..		2,129.14
Land—mowing brush, court cases, taxes, etc.....		854.45
Lumber—cost and handling.....		2,350.70
Machinery and tools, general supplies.....	\$11,533.56	
2 new locomotives and concrete mixer.....	10,964.14	
		22,497.70
Medical and Workingmen's Compensation Act.....		2,291.39
Powder—dynamite and exploders—on hand Nov. 30.....		821.75
Railroad—material, maintenance and operation.....		1,638.53
Roadways and drives.....		168.12
Telephone—rental, repairs to line (Holden).....		175.74
Transportation of workmen—car fares.....		8,987.50
Trucking—material and supplies from city.....		266.58
Vacations—qualified workmen.....		2,142.46
Water supply—piping and pumping.....		2,495.31
		\$234,119.51
Total.....		
On hand Nov. 30, 1918...	\$60,370.73	
Revenue.....	1,860.32	
Loans.....	370,000.00	
		\$432,231.05
Expenditures for year 1919.....		234,119.51
		\$198,111.54

The cost of labor in the above items amounted to \$159,451.64.

In compliance with the Act of the year 1918 of the general court, which had to do with the petition of the city for authority to increase its water supply and to report upon



PINE HILL DAM LOOKING NORTH

all questions relating to the quantity of water to be obtained from available sources, its quality, the best methods of protecting its purity, the construction, operation and maintenance of works for storing, conveying or purifying the water, the cost of the same, the damages to property and all other matters pertaining to the subject, has occupied the attention of the department almost continuously for the fiscal year last past. The nature of the order necessarily required investigation over a large section of the territory within a practicable distance of the existing system of supply, and effort is now being made to furnish the data called for within the prescribed period of time stated in the Act.

As the report when submitted will give in detail the possibilities of the several projects under consideration, it is unnecessary here to further describe the activities of the department in this particular. It is hoped, however, that this matter will remain in the minds of those who have to do with it.

The city has grown so rapidly within a recent period that the exhaustion of the areas now under its control is fast approaching, and before that time arrives an increase in the catchment areas should be provided. Within the last ten years the increase in consumption of water has amounted to 65%, and I believe it of the utmost necessity that Pine Hill should be completed at the earliest possible moment labor conditions will permit. As we stand to-day, without the storage of Pine Hill Reservoir, we have exhausted our ability to get through a season of drought, but with Pine Hill completed and full, its addition will strengthen the supply for a very few years, which should be occupied in developing whatever new sources the city is able to procure. As action has seldom been taken except under great stress or on the verge of serious trouble, I trust the importance of not overlooking these facts, and repeating the situation of the year 1911, will warrant your earnest consideration.

Respectfully submitted,

FRED'K. A. McCLURE,

City Engineer.