

# The Canadian Engineer

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## ST. PAUL STREET BRIDGE, ST. CATHARINES

NOTES ON THE DESIGN OF FOUNDATIONS AND SUPERSTRUCTURE OF THE PROPOSED STEEL HIGH LEVEL VIADUCT FOR WHICH CONTRACTS ARE NOW BEING LET.

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**T**HE substructure is under way and tenders have been called for the superstructure of a steel viaduct 1,236 ft. 3½ inches in length to provide a better means of communication between the business centre of the city of St. Catharines and the section known as the Western Hill. The only steam railway entering the city is the Grand Trunk, and its station and freight sheds are

found nearer the surface than 85 ft. There was also a matter of \$40,000 difference between this design and an alternative one of concrete construction. Both factors figured materially in the selection of a steel structure. The cost of the bridge is estimated at \$165,000, while the right-of-way has been purchased by the city for \$55,000. Against this there are two grants, one from the Dominion

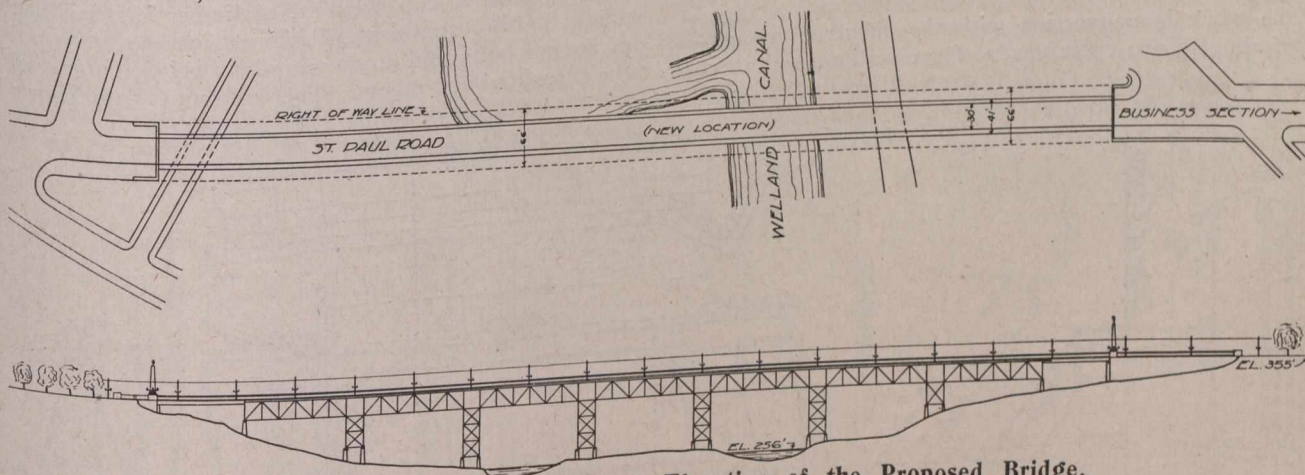


Fig. 1.—General Plan and Elevation of the Proposed Bridge.

also situated on Western Hill. A deep valley intervenes, through which extends the old Welland Canal.

The need of a high level bridge has been a subject of controversy for a quarter of a century, and several campaigns were started at different times by private enterprise to provide funds for its construction. No definite action was taken by the city itself, however, until shortly after the outbreak of European hostilities, when, in the face of an indefinite period of monetary stringency, a by-law was passed by the ratepayers authorizing its immediate construction.

Of the several possible routes the St. Paul St. extension was finally chosen as being in the best interests of the city. A very slight deviation of the street alignment was necessary, and the structure at the same street level, as proposed, is made to provide for the elimination of 80 ft. of heavy grades with which the present roundabout road to the station is handicapped.

Several designs for the contemplated structure were submitted by Messrs. Sprague and Reppert, consulting civil engineers, Pittsburgh, Pa. Fig. 1 shows the type selected. In the test borings on the site no rock was

Government amounting to \$50,000 and one from the Grand Trunk Railway to the amount of \$20,000; making a net cost to the city of \$150,000. Preliminary work has included, in addition to the above, the cost of removing four stores and three large houses from the site of the north approach to the bridge. A new street will be made, and, when the structure is completed, there will be two

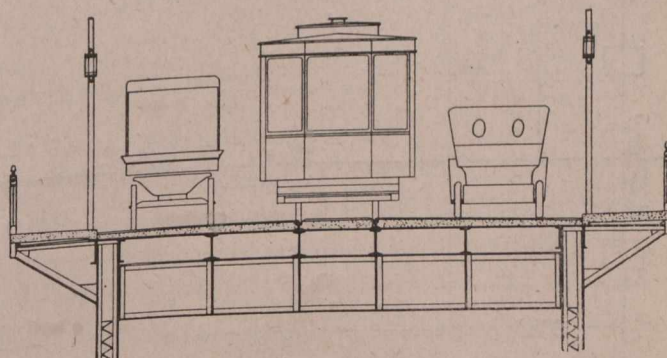


Fig. 2.—Section of Roadway.