

The contractor, after some experimenting, used a double row of Wakefield sheet piling separated by a puddled clay core. Pier "GH," third from the east end, gave much trouble, and was one of the two piers unfinished when the ice went out in April, 1914.

The first arches, A and B, were poured in June, 1914, and the last arch in November of the same year.

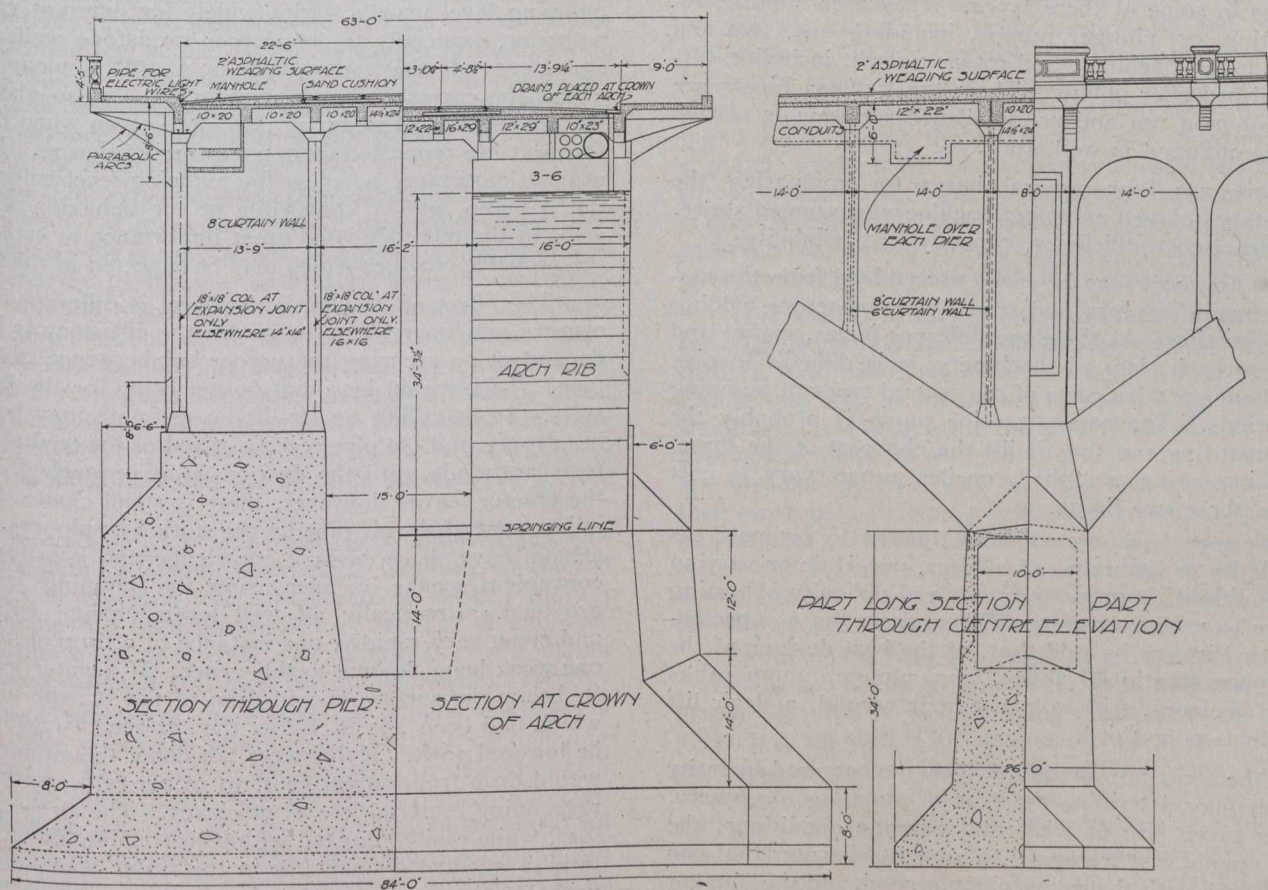
Since August all concrete has been deposited with a pneumatic concrete placing machine supplied by the Pneumatic Concrete Placing Co. of Canada, Limited, Montreal. This is the first work on which this machine has been used in Western Canada.\* Measured quantities of aggregate cement and water are introduced into a closed chamber; air, compressed to 110 pounds per square inch at the receiver, is then introduced at various places into this chamber, and the mix is "shot" through pipes eight inches in diameter laid along a trestle built above the centering to a discharge box situated over the work.

Part of pier "JK," immediately below the springing line of arches, refused to take a proper set and it was decided to remove the faulty material. The centering was kept tight by means of wedges under these arches and the poor material was removed in parallel strips running longitudinally through the pier and a very workmanlike job was done.

Responsibility for the failure of this concrete has not yet been definitely fixed and at the present time the Board is having a most careful enquiry made.

Wedges have been struck for the centering of all arches and the centering has been removed. All of the arches are entirely satisfactory. The taking down of the centering completed the season's work. The superstructure and railing are still to do.

The bridge was designed under the direction of A. J. McPherson, B.A.Sc., chairman, Board of Highway Commissioners, by the bridge branch of the Board, A. P.



Section and Elevation Details of Pier and Arch Construction.

The concrete, mixed in transit, is then troughed to the point of deposit. The longest distance of deposit from the mixer was 1,000 feet and the best performance of the mixer was 500 yards of concrete placed in 17 hours.

The specifications require exposed surfaces of piers and arch rings to be polished with a carborundum brick. Other exposed surfaces are required to be brushed by a stiff wire brush and clean water immediately after removal of forms. No cement wash or plastering is permitted.

The specifications call for a mix of 1 of cement to 7 of sand and gravel combined in the piers. In the arch rings and superstructure a mix of 1 to 5 is specified. A pit run gravel was used in the piers and the same gravel graded by adding coarse gravel to it was used in the arch rings.

\*See *The Canadian Engineer*, February 4th, 1915, p. 224.

Linton, B.A.Sc., assistant chief engineer. Mr. F. J. Robinson, D.L.S., succeeded Mr. McPherson as chairman in January, 1914, and since then the construction has been carried on under his direction. Mr. Daniel B. Luten acted as consulting engineer. He examined and approved the working drawings and has advised as to the construction.

Messrs. Geo. T. Clark and G. D. Archibald have been successively city engineers of Saskatoon during the construction. Mr. Fred Saynor is resident engineer for the Board.

The R. J. Lecky Co., of which Mr. R. J. Lecky is manager, are the contractors and Mr. L. O. Beam is their superintendent of construction.

We are indebted to Mr. Linton for this description of the structure.