

when the shop hands can easily pinch bar it into the locomotive house without calling on outside assistance. It is the intention to use the portion of the shop adjoining this through track drop pit for a heavy store.

In the design of the building some unique features have been embodied, principal among which is the door fastening device shown herewith. Locomotive house doors have a tendency to warp, and frequently leave large gaps when closed, making the heating of the building difficult, this warping tendency being more pronounced at the top of the door, where it is difficult to apply local pressure. The locking arrangement shown consists of a bell crank pinned to a bracket at the top of the door. The upper end of the bell crank carries a roller that bears on the outside of a steel plate on the door jamb. The lower end of the bell crank

connects with a rod, fastened at its lower end to a fulcrum lever, the depressing of which swings the bell crank roller up into engagement, tightly closing the door. The same action depresses a fastening pin at the bottom of the door.

The whole building will be electrically wired, with drop lights in minor positions, and flaming arc lamps in the more important places. The engine room will contain one flaming arc light, the machine shop six, and the locomotive house 12, each being independently controlled. There will also be two flaming arc lights in front of the locomotive house.

The designs for the whole standard locomotive house, with auxiliary buildings, were prepared under the direction of W. J. Press, M. Can. Soc. C.E., Mechanical Engineer, N.T.R., to whom we are indebted for the information on which this article is based.

Canadian Pacific Railway High Level Bridge at Edmonton.

The valley of the North Saskatchewan River, at the site of this bridge, between Edmonton and Strathcona, is about half a mile wide and 160 ft. deep. Of this width the river occupies from 800 to 900 ft., depending on its stage, the depth varying from about 8 ft. at the deepest point at the time when the ice goes out, to about 40 ft. during flood time. The current is about six miles an hour, and the depth of water is a very uncertain quantity, as the river sometimes

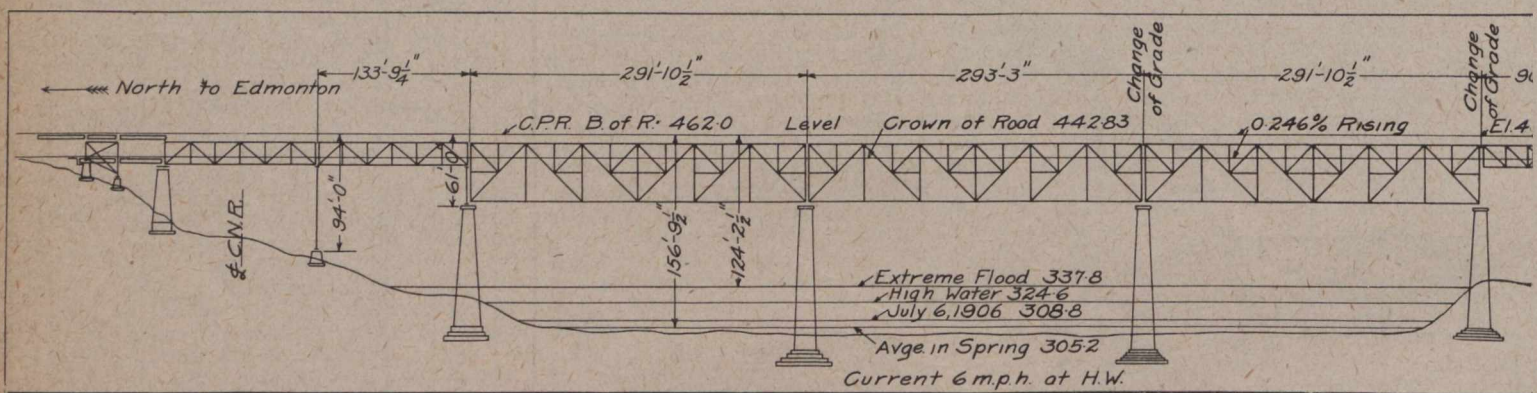
of the C.P.R. track. The top of roadway is situated 19 ft. 2 ins. below the base of rail, and is of concrete construction, floored with creosote blocks, this combination having a thickness of 14 ins. at the crown. The roadway is carried in the usual manner on steel stringers connected to floor beams, which attach to the verticals at the panel points of the trusses. Two sidewalks, 8 ft. in the clear, are carried, one at each side of the bridge at about the level of the roadway, on

towers, which are shown very clearly in the illustration, dated Sept. 30, 1912. There are also in the approach part of the work two Warren trusses, one 131½ ft. long, and the other 129¾ ft. long. These 15 spans, which form the major part of the approach work, have trusses which are 19 ft. deep and spaced 25 ft. apart centre to centre, and are similar to the large trusses, as regards the arrangement on their decks, while they have their bottom chords immediately under the highway floor and sidewalks.

Near each end of the bridge the roadway and sidewalks curve out from beneath the tracks upon the deck, and from these points of curving to the abutments are supported by a deck plate girder system with rolled I beam stringers and built up floor beams and brackets. The main girders are themselves carried on steel bents.

The general diagram shows in detail the arrangement of the highway floor, and gives in general the arrangement of the spans, of the towers, and of the girders and turnouts at the ends of the bridge.

An excellent idea of the method of erection may be obtained from the accompanying illustrations. In the one dated Sept. 30, 1912, the staging is shown complete for one of the 288 ft. main spans, with the span resting upon it. Between the second and third of the high piers may be seen the capped and braced piling, upon which false work similar to that shown between the first and second pier was afterwards erected for the support during the erection of the second of the large spans. This falsework

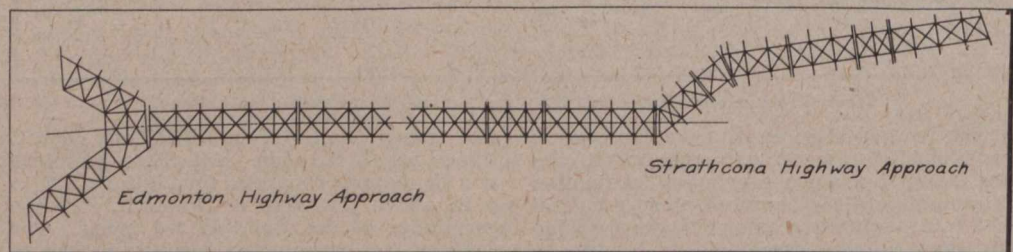


Canadian Pacific Railway Edmonton Bridge—Edmonton End.

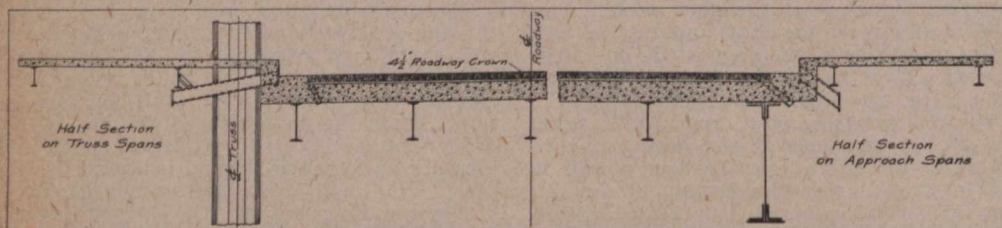
risers more than 10 ft. over night after heavy rains. The ground is sticky blue clay, with heavy boulders below the river bed.

The substructure of the bridge is of concrete, and consists of four main or river piers, each about 125 ft. high, and further, of 62 smaller piers which support the viaduct legs which carry the approach spans.

In the superstructure there are three main spans of the Pratt type, with subdivided panels; 12 subpanels at 24 ft. = 288 ft. centre to centre of end bearings. Trusses are 50 ft. deep, and are spaced 25 ft. apart



Highway Approach and Main Decks on C.P.R. Edmonton Bridge.



Highway Floors on C.P.R. Edmonton Bridge.

centre to centre. The main floor beams are 33¼ ft. long, and extend 4¼ ft. over the truss carried three tracks, a railway track for at each end. On the deck of the bridge are the C.P.R. upon the centre line of the bridge, and one electric railway track on each side

brackets which fasten to the ends of the roadway floor beams.

The approach spans consist of seven Pratt truss spans 96 ft. ½ in. long, and six similar spans 47 ft. long; the shorter spans are the tower spans, and occur over the

consisted essentially of five strongly braced towers, which support the span at its bottom chord panel points. An excellent idea of the traveller used is given in the illustration dated May 27, 1913. This traveller was arranged to erect not only the main spans, which were set upon falsework, but all the other spans of the structure without the use of falsework. In this illustration, it will be noted that a locomotive had just pushed cars through the under part, and had furnished its outstanding booms with the material which they were to presently put in position.

The work in connection with the steel for the bridge was carried out by the staff and forces of the Canadian Bridge Company, Ltd., of Walkerville, Ont., under the direc-