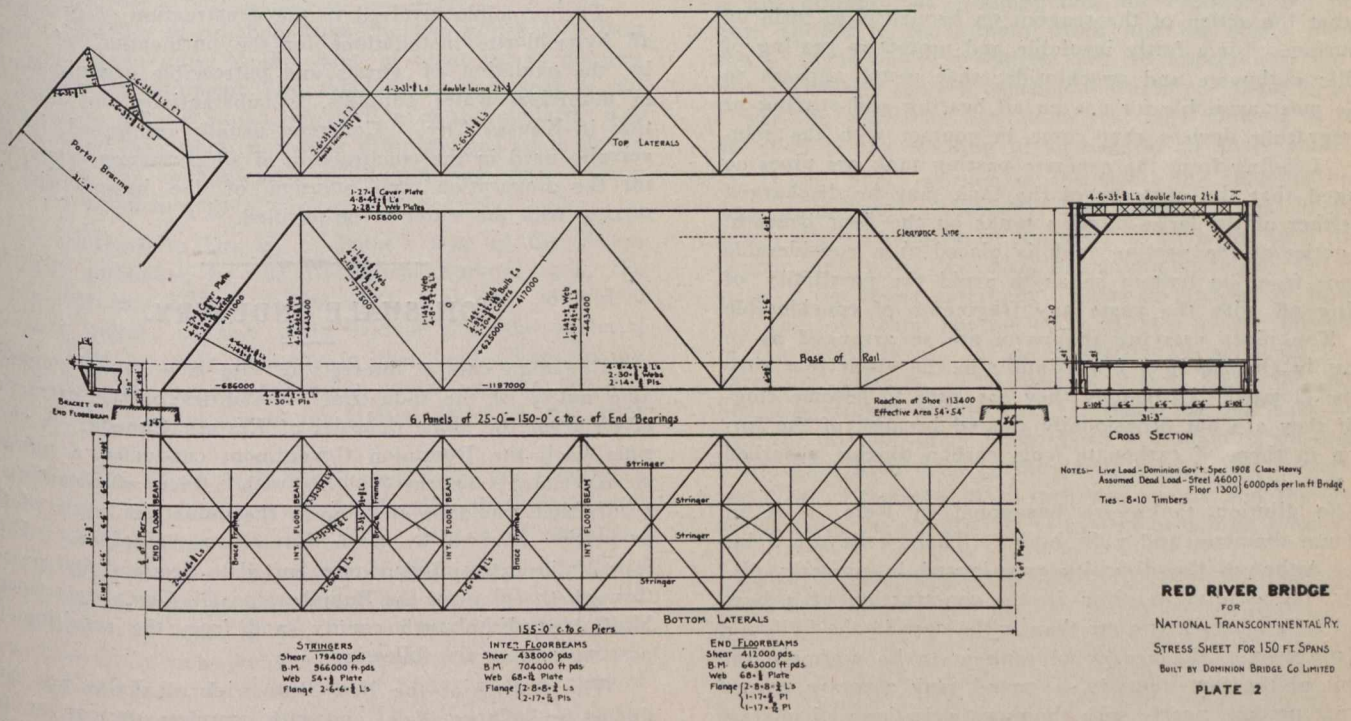
one 18 x 7/16 in. plate. Expansion was provided for at the points indicated on Plate No. 1; an apron plate was made to cover the tops of the cross beams adjacent to the expansion joint, to prevent the ballast from falling into the opening. The base of each post was anchored to the pedestal with two 1¾ in. anchors, and where a post is in a street the base is protected by a cast iron fender filled with concrete.

The cross section of the Thistle Lane span is shown on Plate No. 1. The floor beam was made parallel to the spur track. As the stringers were very close together it would have entailed considerable work to run a lateral system between them, so laterals were put only between the two centre stringers and between the side stringers and the main girders, the remaining stringers being connected up to this system with cross frames. The span over the next opening farther west is similar to the one at Thistle Lane, but it has no floor beam or side girders.

The spans at Notre Dame Street and Water Street have solid floors similar to the large viaduct, but the stringers are made flush on top with the cross beams and the side facia girders are carried on brackets from the post, as in the 23 ft. 7 3/16 in. chord of the viaduct. The stringers in both crossings are composed of one 44 x 9/16 in. web plate and flanges of two 8 x 8 x ¾ in. angles and one 18 x ⅝ in. plate. The facia girders are made 5 ft. 4¼ in. deep, which brings them flush on bottom with the main stringers and adds to the appearance of the bridges, as seen from the streets. In both cases there is a central bent, the posts and cross beams being similar to those of the long viaduct. In all cases where a ballast floor adjoins an abutment apron plates are used and the side facia girders are extended about 2 feet beyond the face of the ballast wall, so that there will be no possibility of the ballast escaping.



RED RIVER BRIDGE
FOR
NATIONAL TRANSCONTINENTAL RY.
STRESS SHEET FOR 150 FT. SPANS
BUILT BY DOMINION BRIDGE CO. LIMITED
PLATE 2

REINFORCED CONCRETE FOR HYPOCHLORITE SOLUTION TANKS.*

By Dr. Walter M. Cross.

During the year 1911 an experimental installation of the hypochlorite process for the approximate sterilization of the entire municipal water supply of Kansas City, Mo., was so remarkably successful in diminishing the sickness and death rate in the city on account of typhoid fever as well as other forms of intestinal disease, that the Kansas City Fire & Water Board undertook the construction of a permanent building and apparatus for the application of this purification process to the water supply.

A separate building was constructed to make possible the satisfactory storage, handling and making of the solution of hypochlorite ready for mixing with the sedimented water.

The building itself was designed by Mr. W. C. Root, architect, and the apparatus for use in connection with the sterilization process was installed under the direction and supervision of Mr. Burton Lowther, engineer in charge, and Mr. S. Y. High, superintendent of the waterworks department.

The apparatus for the handling of the hypochlorite and the supports for it are of reinforced concrete. It is to be observed that no other material is so well suited for use in connection with this sterilizing agent as good concrete for the reason that all other materials that are capable of oxidation are promptly attacked by the hypochlorite solution and become rapidly deteriorated. The prime consideration with regard to this class of installation is to employ such methods of construction and to use material that is so permanent in character as to obviate the necessity of repairs which would force the discontinuance of the application of the sterilizing agent even for an hour.

The basement of the building is used for storage of the reagent that is kept in reserve. The main floor is used to house the dilution tanks and the feeding devices, while on the floor above is placed the tank in which the hypochlorite

* From a paper presented at the eighth annual convention of the National Association of Cement Users.