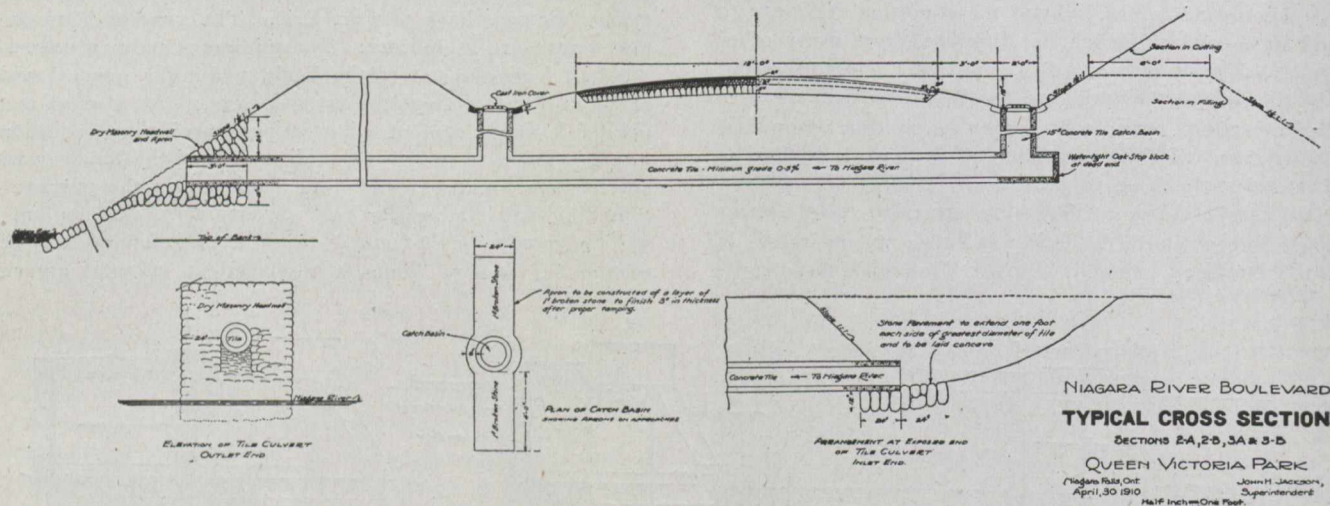


carried into effect that many large scale studies of different lengths have been made to preserve the healthy trees along the right of way, and new planting is made to correspond with the kind of growth that flourishes best at each section.

I wish now to take up the evolution of the engineering features of the construction. In 1908, when this roadway building was commenced, we found ourselves in possession of a general specification from the Highways Department of the Province, and considered it wise to depart as little as possible from this to commence with, but every operation was keenly observed in an endeavor to understand each problem and its solution.

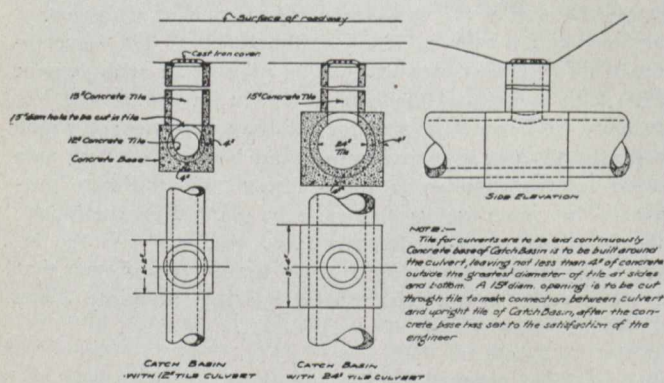
use on the building of good roads throughout the various municipalities. I may also say that we have watched with considerable interest a 300-foot stretch of roadway in the city of Niagara Falls, built entirely of limestone screenings. The section of this is much heavier than the ordinary macadam roadway, but it has bonded perfectly and presents a surface equal to some of the best macadam construction. It is, of course, our intention to use an asphalt oil for dust laying and cushion purposes along the entire length of the boulevard, with pea stone and screenings for a blotter.

In noting the difficulties, some of them peculiar to this particular work, and others to this class of work, it may be

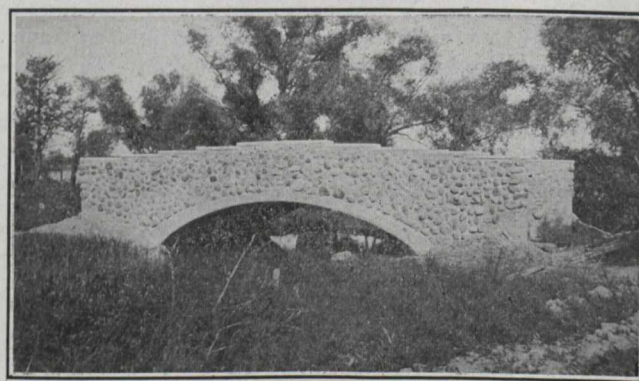


The accompanying table will show the changes that were considered desirable as the work progressed, and it will be seen that the section was changed both as to depth of stone, the crown of the road and the size of the metal. Our ideas have also changed respecting the material that may be used for filling the interstices and binding the stone, and where we had first used limestone screenings exclusively we are now using gravel for the lower course with sand and screenings for the top. Again, we have the feature of many different kinds of stone being used on the different sections, and all are being carefully observed to determine their wearing qualities. On Section No. 1 we have Queenston blue and grey stone, as also on Section No. 1A, Sections Nos. 1B and

remarked that the general grade of the macadam over some of the sections could not be placed at more than five feet above mean water level and on the stretch immediately north of Black Creek a dead level grade could be struck for five miles. This, of course, means that we had to create the grades required for drainage, and it has been necessary to accept a fall as low as an inch and a half in one hundred feet, but where this is the case the grade of the gutter is increased to not less than two inches in one hundred feet. Catch basins have been plentifully supplied and are never more than five hundred feet apart, except on either side of a summit where they may be as much as eight hundred feet from each other. The drainage problem has been one of our



2 are built from stone taken from the bed of the Niagara River in improving the entrance to the intake canal of one of the power companies. On Section No. 3 is used Queenston stone. On Section No. 4 a flint rock from Sherkston is employed, while Sections Nos. 4A and 4B are built of St. Davis limestone. On the entrance to the park itself we have Hagersville stone, and are now to use Thorold stone on one of the park roads. In as far as the experimental feature of this construction is concerned all of the records are at the disposal of the Department of Highways of the Province for



One Type of Bridge.

greatest and constant sources of difficulty, for it is believed that perfect draining of the subgrade and efficient apparatus for taking care of the surface water goes farther to make a road suitable for modern requirements than is ordinarily thought. The crown of the roadway, it will have been noted, has been altered from the first design, and where we had a rise from the edge of the macadam to the centre of 10 inches in nine feet, we now have one inch per foot, and where the