

Engineering Department

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Maryland Road Specifications.

Printed specifications for the construction of macadam and telford roads were prepared a few months ago by the Maryland Geological Survey, under the direction of Mr. Harry F. Reid, chief of the highway division, and Mr. A. N. Johnson, highway engineer. Extracts from these specifications, giving the essential features, follow :

MACADAM CONSTRUCTION.

There are to be three classes of macadam construction, known as A, B and C respectively. Each course shall consist of three courses of broken stone. For the first course the thickness, after rolling, is to be 4, 5 and 6 inches for the three classes respectively, and for the second course 2, 3 and 4 inches. The quantity of the screenings for the third course is to be such as will just cover the second course. The natural earth roadbed is to be prepared and rolled until firm and hard. If sandy or other soil be encountered which will not compact readily under the roller, a small amount of clay, or other means satisfactory to the engineer, shall be used until a firm surface is obtained. The portion of the roadbed prepared for the broken stone is to be below the sides by an amount equal to the thickness of the first course of stone, so as to prevent the stone spreading at the sides.

The first course is to consist of sound stone broken to sizes varying from three to two inches. No piece to have a piece a diameter greater than three inches. This is to be known as "No 1" size. The broken stone is to be spread upon the roadbed with shovels from piles alongside the road or from a dumping board, or directly from wagons especially constructed for this purpose and approved by the engineer; but in no case shall the broken stone be dumped directly upon the roadbed. After the broken stone for the first course has been spread to a uniform thickness, and has a proper cross-section, it is to be rolled with a steam roller, weighing not less than 10 tons, until it is compacted. Should any difficulty be experienced while rolling in having the stone readily compact, sprinkling with water or lightly spreading with sand or other material shall be employed. The rolling must begin at the sides and work toward the center, thoroughly covering this space with the rear wheel of the roller. Should any unevennesses or depressions appear, during or after

the rolling of the first course, they are to be remedied immediately with broken stone and re-rolled until a firm, even surface is obtained.

The second course is to be the same width as the first. It is to consist of stone broken to sizes varying from one inch to two inches, no piece to have a greater diameter than two inches. This will be known as "No. 2" size. The second course is to be rolled in the same manner as the first.

The third course is to consist of trap rock screenings varying in size from dust to one-inch pieces. Other material than trap rock screenings may be used if approved by the engineer. The screenings are to be spread dry with shovels from piles alongside the road, or from dumping boards. After the screenings are spread they are to be sprinkled with water from a properly constructed sprinkling cart, and then rolled with a steam roller, weighing not less than 10 tons. The amount of water necessary is to be determined by the engineer. The rolling is to begin at the sides and to continue until the surface is hard and smooth, and shows no perceptible tracks from vehicles passing over it. If, after rolling the screenings, the No. 2 stone appears at the surface, additional screenings shall be used in such places. The rolling and watering shall continue until the water flushes to the surface. The rolling is to extend over the whole width of the road, including the shoulders.

TELFORD CONSTRUCTION.

This is to be used wherever directed by the engineer or provided for in the plans. The roadbed is to be made in the manner specified for macadam construction. The first course of the telford construction is to consist of sound stone with sharp corners broken to the following dimensions : Depth, from 5 to 8 inches ; width, from 3 to 6 inches ; and length, not exceeding 16 inches. The pieces of stone are to be set by hand on edge and laid close together lengthwise across the road, resting on the broadest edge. Protruding corners are to be broken off and the interstices filled with small pieces. After the stone for the first course has been laid and brought to a proper cross-section, the spaces filled with spalls and made as compact a layer as possible, it is to be rolled with a steam roller weighing not less than 10 tons. The interstices must not be filled with earth. The thickness of the first course is to be eight inches when

finished. After the first course has been made as herein described, earth shoulders are to be constructed along each side of the road. The second course of the telford construction is to be the same width as the first and made in the same manner and of similar materials as specified for the second course of the macadam construction. The thickness of the second course after thorough rolling is to be four inches. The third course of the telford construction is to be made in the same manner, and of similar materials as specified for the third course of the macadam construction.

In resurfacing old broken stone roads the material for the first course may be obtained either by loosening the existing stone foundation, until sufficient material is obtained to give a proper shape, or broken stone may be used, or both, as may be necessary. The broken stone to be used for this purpose is to consist of pieces having no dimension greater than three inches, and may be any sound rock, approved by the engineer, that seems most available. It may be broken either by hand or in a crusher. The first course is to be nowhere less than five inches thick. After the first course has been made, earth shoulders are to be constructed as before, and against these shoulders the broken stone for the second course is to be spread. The second course of the resurfacing is to be made in the same manner and of similar materials as specified for the second course of macadam construction, and is to be nowhere less than three inches thick after thorough rolling. The third course is also to be made in the same way as that of the macadam construction.

The City of Hamilton.

A correspondent of the Municipal Journal and Engineer says : The city of Hamilton, Ontario, has been called "The Birmingham of Canada." It had its beginning early in the last century. According to a local historian, the municipality was organized shortly after the close of the American Revolution, and its first citizens were composed of refugees from the United States, who preferred to remain under the British flag, and gave up their lands and homes to migrate to Canada. Because of their loyalty, two hundred acres of land in this rich province were granted free to every one of these "united empire loyalists."

SETTLED BY REFUGEES FROM THE UNITED STATES.

Among other settlers, there came into the province in 1813, in this vicinity, one George Hamilton, who, taking a longer look into the future