

this cost, gets \$400,000. The items of cost are approximately:—

- \$5,500,000 for gravity flow steel pipe line.
- 500,000 for land, compensation, etc.
- 1,000,000 for engineering and contingencies.
- 1,000,000 for cost of construction.

In the first item, which is also the chief item, the cost of design and supervision is comparatively small. In the second item the engineers have little or no work to do. The third comprises the cost, not of any part in the construction of the water scheme, but the time and skill of the engineer. The fourth item is wholly constructional, but of a kind that does not involve any excessive amount of high-class engineering work. Evidently, there is room for criticism and objection on the most practical ground.

In justice to the city of Ottawa, it should be stated that if there was one thing more than another that decided the City Council in favor of placing the whole responsibility for the construction of the Gatineau Lake project on the shoulders of the eminent engineer who recommended the scheme, it was, undoubtedly, the disastrous experience which the city had had with its new

intake pipe and aqueduct. "Once bitten, twice shy." This probably accounts for the almost perfect unanimity of the citizens with the agreement, in the face of the most extraordinary conditions, as above set forth, in the provisions of the contract.

Ottawa people have the greatest confidence in the Mayor, and heartily congratulate themselves on having at the head of their municipal administration, a man so capable of grappling with any new situation as it comes up. But Mayor Ellis is not an engineer, and, however faithful and honest his intentions, he is scarcely capable of judging the merits of this agreement submitted by Sir Alexander Binnie.

The proper course to be taken by the Mayor and Council, would be to consult some capable engineer, not necessarily "eminent" or "knighted," of which there are men residing in Ottawa, or at any rate, in other Canadian cities, before agreeing to the Binnie contract, and binding the people of Ottawa to pay out to an engineer the large sum of \$75,000 to which he is in no way entitled.

Yours truly,

J. A. MACDONALD.

Ottawa, December 4th, 1913.

## PAVEMENT REQUIREMENTS IN OTTAWA

A REPORT ON THE COST OF PUTTING INTO GOOD CONDITION ALL THE STREETS OF THAT CITY—RECOMMENDATIONS INCLUDE TEN TYPES—BRIEF DESCRIPTION OF EACH PAVEMENT

PURSUANT to instructions from the City Council of Ottawa to prepare a report on the estimated cost of placing all the thoroughfares within the city in good condition, Mr. Arch. Currie, the city engineer, has presented to the Board of Control the following summary (Table I.) of the lengths, areas and costs of the various classes of roadways it is recommended should be constructed:—

TABLE I.

|   | Miles. | Length,<br>lin. ft. | Area,<br>sq. yds. | Cost.          |
|---|--------|---------------------|-------------------|----------------|
| 1. Asphalt .....                              | 9.81   | 51,814              | 183,263           | \$ 502,297.50  |
| 2. Asphalt macadam .....                      | 15.24  | 80,495              | 260,308           | 558,370.00     |
| 3. Asphalt and stone blocks .....             | 5.53   | 29,205              | 140,672           | 472,955.00     |
| 4. Asphalt macadam stone blocks .....         | 1.20   | 6,340               | 36,320            | 96,068.40      |
| 5. Concrete .....                             | 1.09   | 5,770               | 23,520            | 39,420.00      |
| 6. Macadam tar painted .....                  | 47.01  | 248,214             | 783,013           | 1,300,266.80   |
| 7. Macadam tar painted and stone blocks ..... | .42    | 740                 | 2,460             | 5,072.50       |
| 8. Macadam tar painted and granitoid .....    | .75    | 3,970               | 13,055            | 23,755.75      |
| 9. Stone blocks .....                         | .87    | 3,560               | 15,338            | 66,782.00      |
| 10. Tar macadam .....                         | 2.87   | 15,150              | 52,912            | 107,121.60     |
|   | 84.32  | 445,258             | 1,511,361         | \$3,172,119.55 |

In deciding on the various classes of roadways proposed to be constructed, very careful consideration had to be given to the amount and nature of the traffic on any particular road, with a certain assumption of what it might be in the future.

The following descriptions of each type of roadway will be of some interest.

**Asphalt.**—As there is nearly 40 miles of asphalt pavement in Ottawa at present, very little need be said about

it, but some alterations are required in the specifications, such as altering the proportions of the mixtures, etc. It is proposed to construct asphalt pavement on streets with very heavy traffic, such as will be found near railway freight yards and on streets where street cars are running, except in the track allowance and 18 inches on either side, which should be paved with stone blocks or setts. It has to be understood that asphalt pavement should not be used

on grades steeper than 5 per cent. The advantages of this pavement are:—

- (a) Ease of traction.
- (b) Comparative noiselessness under traffic.
- (c) Imperviousness to water.
- (d) Ease of cleaning.
- (e) Pleasing appearance to the eye.
- (f) Suitability to all classes of traffic.
- (g) No vibration or concussion in travelling over it.