

As before stated, the ground along the eastern slope was carefully examined and levelled, so that if there is no objection to the adoption of locks of 16 feet lift, another line can easily be laid down on that basis, and estimated for. In such case the length of lock and reach might be increased to nearly 1300 feet; and one lock could be omitted, the descent being accomplished by seven locks instead of eight, as shewn.

Even with locks of 14 feet lift, it is, however, possible to obtain a greater length of reach by throwing the line up nearer the "mountain," and making it more circuitous with the same, or, if required, less fall.

As the Great Western Railway ascends towards the east by a grade of nearly 40 feet to the mile against its outward and principal freight traffic, it is evident that no interference with this rate of incline, by which it would be increased, is admissible. The level of the rails will therefore govern that of the surface of any canal at the crossing.

A glance at the map will show that the nearer any line from the mouth of the ravine to the railway runs to the centre of the valley of the Ten Mile Creek, the less will be the distance between these points; and, as above stated, the railway rises rapidly to the eastward, there must necessarily be a greater fall—or, in other words, more lockage to do, and less space to do it in.

Thus, where the railway crosses the creek, its rails are 198 feet above datum, whereas at the proposed point of crossing for the canal line they are 216½ feet above the same plane.

This part of the line has been particularly described, inasmuch as it will hereafter be referred to in connection with the projected "Lateral Cut" to Niagara. The difficulties of location do not, however, cease when the railway is passed. To the north the ground is still steep for over mile, and had to be carefully examined to obtain a practicable line.

Near the railway crossing it becomes necessary to curve a good deal to the west, in order to run as straight as possible for May's Ravine, which, upon being closely surveyed and levelled, seemed to be the best place for descending to the reach above Lock No. 1 at Port Dalhousie.

The position of the swing bridge is accordingly shown on a short tangent between two curves to the west, each of 1000 feet radius.

The line then runs nearly straight to 3.62 miles, taking advantage of a spur of high ground between two small tributaries of the Ten Mile Creek.

This avoids throwing the Canal into heavy embankment. On the length of 1.22 miles beyond the Railway, locks Nos. 16, 15 and 14 (each 14 feet lift), lock No. 13 (13 feet lift), and locks 12 and 11 (each 10 feet lift), are shown. All these have reaches of from 630 to 850 feet between them.

The trial line then curves slightly to the west, and runs towards the western end of the St. Catharine's Cemetery, crossing the Ten Mile Creek where the banks are very low, at 3.92 miles.

It is noticeable that all the branches of the "Ten" have, on the vicinity of the Great Western Railway, high banks; but, at about three-quarters of a mile to the north of it, these valleys run out, and the streams are nearly on a level with the surrounding country. Advantage has been taken of this feature to cross the Ten Mile Creek at a favourable place.

The Cemetery corner is reached at 4.56 miles, and the road from St. Catharines to Homer, &c., is here crossed. The present line is shown on the map as curving slightly to the east, for the purpose of shortening the cut through the gravel ridge on which the road runs, and in order to get a crossing as nearly at right angles to the latter as possible.