

Throughout the whole line (excepting only the cutting for the foundations of the Locks on the hill) there is no rock excavation.

From the base of the lower Ridge downward the excavation is reduced to the smallest possible quantity by placing another Lock so soon as the depth of excavation yields a quantity of earth sufficient to form an embankment on each side of the Canal 15 feet wide at top. The sides of the embankment to have the same angle of declination (67°) externally and internally as the sides of the Canal.

The tenacious nature of the soil renders this system perfectly secure, very little puddling will be needed, but at several places the vegetable matter—and at other places the deposits of sand must be cleared off from the surface of the clay before the foundations of the embankments are laid.

The proposed Canal throughout the whole line can be kept entirely free from flood-water.

The whole distance is 11 miles—4 furlongs—559 feet.

The rise from the River to the level ground at the Town of Niagara requires 5 Locks. Two ways for placing these Locks presented themselves. The first by locating the Canal in a Hollow or Ravine which the line shewn crosses 2617 feet from the River following out the sinuosities of this Ravine to its termination at the Government Wharf and placing the Locks at such distances as could be obtained, using the intermediate spaces as Reservoirs to supply them with water. The second is that which I have adopted. By the first the distance from Lock to Lock could not have exceeded 600 feet, therefore the width of the Canal at the surface must have been 170 feet to fill one of our proposed Locks without decreasing the depth of water in the Canal more than 4 inches, or Reservoirs must have been constructed. The Ravine is within the Town—there is not space for Reservoirs—neither would it be desirable to form them there. The entrance to the Canal would also have been exposed to the swells of the Lake.

By the plan which I have adopted one of our proposed Locks can be filled from the level above (4180 feet in length) by only reducing the depth of water in the Canal one and one-third inches—and if the Wharves shewn on the Plan were formed the surface of the water would be so much encreased, that the depth would be only reduced one inch.—(These Wharves however I do not recommend to be made part of the works of the Canal.) The first plan would probably be somewhat less expensive, but taking into consideration the great influx of trade which will take place whenever this Canal is opened, it