

mattress to bulge upwards for some distance out from the toes of the slope.

The writer was not present until the completion of the filling of this sink hole, but although it had a length of only 600 ft. and had to be lifted to a height of 20 ft. above the depressed grade, a fill of 30,000 yards had raised it only 3 ft. Fortunately, by the use of spreaders, the embankment while sinking retained a good surface and alignment, and no difficulty was experienced in running passenger trains over this temporary velocity grade.

The next large fill occurred at the crossing of the Magnetawan River, the valley of which was about 3,000 ft. wide. With the exception of three girder spans this valley was crossed by a timber trestle about 40 ft. high. In this case the length of the trestle helped to reduce the unit cost of filling, as it was possible to fill from temporary grades placed on each side of the trestle, and thus leave the main line open for traffic.

It might now be interesting to mention a few of the bridges, with reference to foundations. On this 160 mile section, with two exceptions, there were no steel bridges larger than plate girders; the exceptions were at the Severn River, where there was a 200 ft. through Pratt Truss, and at Parry Sound, where there was a viaduct 1,700 ft. in length. The largest span consisted of two Howe Deck Trusses of 165 ft. span. In the earth district all concrete was carried below frost line and rested on piles; while in the rock country the piers in almost every case rested directly on the rock itself.

During the construction of the Parry Sound Viaduct a simple method was adopted to eliminate delay. The track was paralleled at the points by the C. N. O. Ry., and running rights, or rather haulage rights, were given by that railway over a four mile section through Parry Sound. In this way it was possible to lay some twenty miles of steel north of the Sound during the construction of the viaduct, at the same time leaving the bridge contractors a mile or more of blind main line for bridge yard purposes. The only difficulty occurred at one of the abutments at the South Nascoutyong River. In this case the abutment was carried to a depth of 10 or 15 ft. below the surface of the ground, and piles were then driven to bed rock, about 20 ft. further. Back of the abutment was a temporary trestle about 30 ft. high resting on mud sills, the soil being an alluvial clay which was kept moist by the presence of a stream less than 100 ft. away. No trouble was experienced with the abutment until train filling had proceeded for some time on the temporary trestle, when the earth filling caused a flow of the clay sub-soil, and although the bases of the piles remained in their places on bed rock, the flowing of the clay caused the abutment to tilt forwards, necessitating its demolish-