The obstructions, or the principal obstructions, consist of shifting sand-banks; consequently the channel is ever varying; and, although the river may be 15 or 16 chains wide, the channel is practically only 3 chains, the depth varying from 8 ft. to 15 ft., and in a few instances 30 ft., the rest of the river-bed being at summer level practically a dry sandbank. Between Tuakau and the Heads there is a long low flat about three miles in length, where the river spreads to a width of, I should say, two or three miles, with many small and varying channels. The river here requires restricting so as to create one definite channel.

This could be done by low training or wing walls 15 chains apart, so at to confine the scour, the method of forming these being loose rubble deposited on given lines to the height of, say, 1 ft. above low-water level at spring tides. Beyond this latter-mentioned work I think very little else would be required other than a little dredging from Port Waikato to the point where high-water neap tides reach up the river.

From this latter point up to the mouth of the Whangamarino River dredging would be required, and I apprehend that if a channel of, say, 3 chains wide were dredged, and the work hereinbefore proposed lower down the river were performed, the river would gradually scour itself to its original sole, and, with a little assistance, to its original width.

If the work as above proposed were performed, the Whangamarino and Maramarua Rivers would be enabled to perform their natural functions.

It must be evident that if the work as suggested is undertaken it will save considerable loss and expense to the Railway Department, and considerably enhance the value of lands belonging to private individuals. Therefore, I presume that before the work could be undertaken, even if the Government were willing and financially able to do so, some legislation would be necessary to enable an adjustment of the cost. There is one point to be remembered; there is plenty of waste land along the river-banks below Mercer available for depositing the excavated material from the river-bank, and a suction-dredge could easily deposit the said excavated material where required, and in many cases the land would be materially improved thereby.

If the works as proposed are carried on, there is plenty of suitable stone in the immediate neighbourhood.

In conclusion, I again inform you that I am of opinion that it is impracticable to drain, or otherwise reclaim the Whangamarino and other Government lands adjoining without commencing at the initial point—the clearing of the bed of the Waikato River.

Of course, I might have recommended the expenditure of a considerable amount in taking levels, but this, in my opinion, would be a wilful waste of time and money, and I am satisfied that were I to spend two or three months at the work I could afford you no more information than is herein contained, excepting, of course, detail work. The approximate cost of a dredge and gear suitable for the purpose of performing the work as proposed herein would be from £13,000 to £15,000.

I have, &c.,

Department of Lands, Auckland, 2nd March, 1910. WILLIAM C. BREAKELL.

APPENDIX V.—REPORT ON LANDSLIP AT WAIHI, TOKAANU, BY H. J. LOWE, DISTRICT SURVEYOR.

I HAVE the honour to forward herewith a sketch plan showing the position of the recent landslid near the Native village of Waihi, on the south-west bay of Lake Taupo, which occurred on Saturday morning, the 27th March, 1910.

On the south-west of the plan is shown the old volcano of Kakaramea, the north-eastern aspect of which presents an almost perpendicular face some 800 ft. high; from the base of this the land gradually slopes to the high terrace from which this landslide came.

A huge mass of volcanic *débris* some 30 chains long, 15 chains wide, and 400 ft. deep, consisting of sands, gravels, and huge volcanic bombs, slipped into the basin 500 ft. below (leaving cliffs from 400 ft. to 500 ft. high), and shooting down the narrow valley of the Waimatai, spread out over the cultivations and grass land, and out into the lake some 120 chains away and 1,000 ft. lower than the starting-point. There is still more to come.

The area of grass and cultivated land covered with *débris* from 10 ft. to 30 ft. deep I estimate at 45 acres, while quite 10 acres of new land has been formed above the waters of the lake. Huge quantities of *débris* were shot out into the deep water for many chains.

The new slide is much larger than the one which overwhelmed the old pa in 1846, and quite covers it up.

I understand that quite 12 acres of cultivations (potatoes, marrows, pumpkins, corn, &c.), have been destroyed, as well as pigs and cattle, and that the Waihi Natives will be short of food this winter in consequence.

A man was overwhelmed at the point A, and his body apparently located at the point B.

As far as I can judge, the Village of Waihi is, and always will be, quite safe, but further slips are liable to occur in this valley.

The upper and western side of the valley is simply perforated with steam-holes, some of which exploded as the slide passed over them.