

NORTH AUCKLAND MAIN TRUNK RAILWAY.

Okoro Section (24 m. 45 ch. to 34 m. 18 ch.; length, 9 m. 53 ch.).—A certain amount of preparatory work had been undertaken on this section during the previous year, and a start was only made with actual constructional operations at the beginning of the period now under review. Fencing was erected on both sides of the line from 28 m. 0 ch. to 28 m. 75 ch., and fourteen culverts, which consist of two 3 ft. arched concrete culverts and twelve concrete-pipe culverts ranging in diameter from 12 in. to 2 ft., were constructed. Earthworks have been completed for a distance of 2 m. 5 ch. from Okaihau Railway-station.

A light service tram 2 m. in length is being constructed from the end of the completed formation for the transport of excavating-machines and other plant required for the comparatively heavy earthwork at the end of the tram-line.

Two steam-shovels are employed on this section, and a large quantity of subsoil water in the form of underground streams and springs has caused difficulty in ensuring the stability of fillings. There is every indication that this treacherous country will be encountered for several miles north of Okaihau, and stone drains are being constructed on the foundation of every large filling. Two fillings which were built in 1909 were discovered to have slipped badly, and it was deemed advisable to deviate the line for a short distance at these places to avoid the treacherous ground. These deviations were completed during the year, and are standing well.

The construction of a short tunnel under the Okaihau-Ohaeawai Road was commenced in May last, and it has been completed for about 42 ft., or half of its entire length.

Some 32 ch. of platelaying and ballasting have been completed, and rails, &c. are on hand for several miles of the permanent track. Tenders have also been invited for the supply and delivery of 20,000 puriri sleepers.

Workmen's camps have been erected at Okaihau and at two other suitable localities. Each camp has been provided with a water-supply, and the Okaihau Camp has a sewerage system which discharges into septic tanks. Altogether 143 huts for single men, forty married quarters with wash-house, &c., two cookhouses, five sheds, as well as an office and other service buildings, have been erected.

Considerable prospecting has been undertaken to the left of the line at 27 m. for ballast, and detailed surveys have been made of a quarry-site and for 1½ m. of tram-line from the railway to the proposed quarry. It is anticipated that, in addition to metal for ballasting and concreting, there will be an abundant supply of stone available from this quarry for construction of stone drain and walls to prevent slips in cuttings and subsidences in fillings on the treacherous country, and thus save a considerable sum of money in the completion of the line.

Paparoa Section (90 m. 30 ch. to 92 m. 6 ch.; length, 1 m. 56 ch.).—Work undertaken on this section during the year consisted principally of maintenance and cleaning up of Paparoa station-yard. A large quantity of road-metal was, however, handled for Otamatea County. This section was handed over to the Working Railways Department in November last.

Mareretu Section (92 m. 6 ch. to 96 m. 20 ch.; length, 4 m. 14 ch.).—The heaviest work on this section was the drainage of the seat of the bank at 94 m. 73 ch. by means of drives. These drainage drives were finished, and the stability of the bank is now restored. A particularly wet cutting on the western approach road to Mareretu Station necessitated the reticulating of 15 ch. of the road, as well as the construction of 8 ch. of stone drain and retaining-wall. The ordinary maintenance of the section also received attention, including the removal of several slips, and the section was handed over to the Working Railways Department in November last.

Waikiekie Section (96 m. 20 ch. to 107 m. 28 ch.; length, 9 m. 66 ch.).—Work-trains were engaged in clearing water-tables and small slips in addition to the usual track maintenance. As mentioned last year, difficulty was experienced owing to serious displacement of the lining at the entrance to Waikiekie Tunnel due to heavy ground-movements. It has been found necessary to reline portion of the tunnel, and this work, together with the inverting, has been completed. The approach road to Taipuha Railway-station is being given a coating of fine metal. This section was handed over to the Working Railways Department in November last.

Kirikopuni Section (107 m. 28 ch. to 121 m.; length, 13 m. 52 ch.).—The main objective during the year was to establish rail connection between Waiotira and Pukehuia, and this was achieved. The permanent track was laid as far as the Wairoa River Bridge at 118 m. 77 ch., with two lifts of ballast to Pukehuia, and the Railway Department is allowing its rolling-stock to run over this unopened length. Formation is now complete with the exception of a big bank in Kirikopuni station-yard and 1½ m. of access road between Paradise and Otiria Saddle. This bank, which is on treacherous river-flat country, has been very troublesome, and several months of work will be necessary before the trimming of Kirikopuni station-yard can be commenced.

Another serious subsidence occurred at the northern approach to the Wairoa Railway Bridge. This long and high approach bank over an old river-flat split in half longitudinally for about 7 ch. or 8 ch., one half sinking 14 ft. in five minutes, the other half remaining in its original position. This incident necessitated the borrowing of a further 11,000 cub. yd. of material to complete the bank. A further example of the treacherous nature of the country is given by a filling at Kirikopuni, which was 16 ft. in height above the flat. This filling sank and pushed up the surrounding country in waves, in some cases to within 2 ft. of the top of the filling. Over 30,000 cub. yd. of extra material have been placed on this filling to raise it to the required level, or sufficient to have constructed the bank 60 ft. high on a solid foundation.

Embankments on these old river-flats, which have a crust only a few feet thick, with a great depth of soft material underneath, have had to be widened at the base and also on top to distribute the weight over a greater area of ground, and several times the original estimated quantities of earth were tipped into the banks before they became anything like stable.