

NORTH AUCKLAND MAIN TRUNK RAILWAY.

Rangiahua Section (24 m. 45 ch. to 38 m. 34 ch.; length, 13 m. 69 ch.).—This section extends from Okaihau Station to Rangiahua Station, and includes the whole of what was previously called the Okoro Section, the use of which name is now discontinued. In my last report the work on this section had practically just started anew, but it is to be noted that this section was under construction some years before and owing to financial restrictions work had to be stopped till last year. The result of this was that much of the formation done was rendered useless by cuttings filling in and banks slipping away in bad country.

The whole of the country for a distance of 8 m. from Okaihau has proved to be of a very treacherous and unstable character. Practically every cutting excavated has slipped and many banks have subsided. The railway here traverses the slopes of a wide valley and crosses several old slips of considerable extent, which circumstance adds to the already unstable nature of the country. However, it is anticipated that by use of stone drains and dry-stone retaining-walls, the difficulties in regard to slips and subsidences will be overcome.

Fencing has been erected on both sides of the railway reserve from 28 m. 75 ch. to 32 m. 30 ch., a total length of $6\frac{3}{4}$ m. for the year. Sixty-five culverts have been constructed, consisting of one 8 ft., one 6 ft., five 4 ft., and four 3 ft. arched culverts, thirty-six concrete pipe, and eighteen earthenware-pipe culverts.

Earthworks have been completed from 26 m. 50 ch. to 28 m. 30 ch., making a distance of 3 m. 60 ch. of completed formation beyond Okaihau. Further earthworks are in hand to 32 m. 50 ch. One mile of this, from 28 m. to 29 m., is very heavy, and three steam-shovels are still at work between 28 m. 30 ch. and 29 m. What with an exceedingly wet season and treacherous ground, work has been seriously delayed on this section. Nothing but thorough drainage by means of culverts, drainage-drives, stone drains, and stone walls has enabled work to be carried out at all over some miles of this length.

The laying of a temporary tramway to the heavy work above mentioned at the head of the valley has obviated the necessity of providing and maintaining metalled service roads. The driving of a short tunnel at 25 m. 11 ch. under the Okaihau Horeke Road, mentioned in my last report, is completed. This tunnel is 160 ft. long, and takes the place of an overbridge originally designed for this place.

During the year 1 m. 47 ch. of track, from 24 m. 77 ch. to 26 m. 44 ch., was laid. A service tram-line was continued on to 28 m. 65 ch., a further distance of $2\frac{1}{4}$ m. It is worth noting that locally grown puriri sleepers are being used on this line instead of Australian hardwood.

Several sites were surveyed and test bores put down for a quarry for ballast and road-metal. The originally proposed sites did not prove economical to work, and a new site is now proposed almost 1 m. from the railway-line.

A fourth workmen's camp was built at 32 m., and the three existing camps were enlarged. During the year 108 single huts, 87 married men's houses, 2 cookhouses, 3 bathhouses, and 2 staff cottages were erected. Accommodation is now provided for the 260 men employed on this line.

An engine-shed, truck-repair shop, carpenter's shop, and a school were built at Okaihau. A cinema outfit was installed by the Y.M.C.A. in the Public Works recreation-hall at Okaihau, and is well patronized by the workmen and settlers in the vicinity. An average of 226 men were employed on this section during the year.

Kirikopuni Section (107 m. 28 ch. to 121 m.; length, 13 m. 52 ch.).—As reported last year, the line was laid and ballasted sufficiently to carry passenger traffic from Waiotira (107 m. 28 ch.) to Pukehuia (118 m. 20 ch.). Under ordinary circumstances future work on this length would entail only the completion of the ballasting and the running of traffic, but, as usual on North Auckland railways, clearance of slips and proper drainage of cuttings and banks has been much the greater portion of the work. During the very wet winter experienced last year much more trouble on this account was encountered than was anticipated. Practically every cutting between Waiotira and Pukehuia has slipped, and dry-stone retaining-walls and stone drains had to be constructed in them in order to keep the line open for traffic. Five steam-shovels have proved invaluable in removing the wet, heavy, slipped material, the cost of the removal of which would have been excessive by any other means.

With the exception of some half-dozen workmen's cottages, all workmen's camps have been removed and the sites cleaned up between Waiotira and Pukehuia.

The Pikiwahine and Omana station-yards on this length have been finished and ballasted, and access roads to the stations completed. Pukehuia station-yard is also completed, together with access roads and a $\frac{3}{4}$ m. road-deviation at 118 m. 60 ch. As mentioned in my last report, repair work due to subsidence was necessary in the Tokatoka Tunnel. This work has been satisfactorily completed.

North of Pukehuia, formation was completed last year, with the exception of the big bank at Kirikopuni station-yard (120 m. 72 ch.). This bank is still giving trouble, and two steam-shovels have been working in borrow-pits continuously for the last six months to fill up the subsidence that has occurred.

All banks north of the Wairoa River and near the river have given an extraordinary amount of trouble. The river-silt forming the flats here is so fine in texture that banks have to be made two or three times the standard width in order to reduce the pressure to a sufficient amount to enable this weak foundation to support them. Even then there is an unusual amount of subsidence before stability is reached. Work of this nature has had the effect of enormously increasing the anticipated cost of the railway.

During the year $3\frac{1}{4}$ m. of access road were formed to Kirikopuni Station from Paradise Road, and $1\frac{1}{2}$ m. of this road were metalled. On the road connecting the same station with the main highway from Kirikopuni to Parakaoa $4\frac{1}{2}$ m. were metalled.