

MINOR TRIANGULATION.

The work under this heading was principally in connection with the rural standard surveys in the Hawke's Bay District.

TOPOGRAPHICAL SURVEYS.

Except for a small area in Westland, the work under this heading was confined to the Auckland District.

SETTLEMENT SURVEYS.

The returns show an increase of approximately 50 per cent. in the area of Crown lands and land-for-settlement surveys during the year. The areas are set out in Table 1 under their appropriate headings for each land district.

NATIVE LAND SURVEYS.

Practically the whole of the work under this heading was carried out in the Auckland and North Auckland District, partly by the staff and partly by private surveyors.

GEODETIC TRIANGULATION.

No work under this heading was carried out during the past year.

HAWKE'S BAY RE-ESTABLISHMENT OF SURVEYS.

Good progress has been made with the controlling rural standard survey work in the Hawke's Bay District, a distance of 166 miles being completed during the year by Staff Surveyors at an average cost of £18 12s. per mile, which is very satisfactory for this class of work. With the completion of the work in hand (a little over 100 miles) it is considered that, with the triangulation control effected, sufficient work will have been carried out to effectively control future surveys. Good progress has been made with the revision of the standard survey of Hastings Borough, and this work should be completed early in the year.

STANDARD SURVEYS.

With the exception of the standard survey work in connection with the re-establishment surveys in Hawke's Bay District and the maintenance of existing standards, no work was carried out under this heading during the year.

FIELD INSPECTIONS.

Ten inspections which were necessary for title purposes were made.

STANDARD OF ACCURACY.

In ordinary rural surveys the misclose of traverse circuits is usually less than half a link multiplied by the square-root of the number of miles in the circuit. Where this is exceeded, the cause may be ascribed to tortuous, short-line traverses in hilly or broken country.

A detailed report of the accuracy of the rural standard surveys will be made when a larger number of these has been adjusted.

TIDAL SURVEY.

The tide-tables for 1936 for the seven standard ports (Auckland, New Plymouth, Wellington, Lyttelton, Dunedin, Bluff, and Westport), for which predictions are published, were received from the Hydrographer to the Admiralty. The work of measuring the times and heights of high and low water was performed as usual by the Tidal Institute, University of Liverpool.

PROPOSED OPERATIONS, 1935-36.

Hawke's Bay Re-establishment of Surveys.—The control traversing of the principal roads will probably be completed during the year, about 100 miles remaining to be surveyed.

Some further minor triangulation will also be necessary, and this will be taken up as required. Recent triangulation work has disclosed discrepancies in the secondary triangulation in a particular district, due, so far as office computation can show, to a shift in the positions of two or more of the secondary stations. As this district was subjected to a severe earthquake in September, 1932 (after the completion of the secondary triangulation), it is extremely probable that a shift occurred then. A field revision of this triangulation is being put in hand immediately.

Adjustments of the minor triangulation and standard traverses to bring into harmony with the geodetic and secondary triangulations (already adjusted) will be continued. This, with the present staff, will take about two years to complete.

Geodetic Triangulation.—Work on this is being resumed during the year.

Standard Surveys.—Several works of this nature are urgently necessary in Auckland, Gisborne, and Canterbury districts, and will be put in hand.

Precise Levelling.—This work is still being held in abeyance, but it is hoped that it may be resumed at an early date.

Topographical Survey.—The results of a field survey of contours in Canterbury, undertaken by the Public Works Department, are being compiled in a suitable form and will serve as a basis for any topographical survey in the area covered. A large area in the North Auckland district is being considered for an aerial topographic survey to be made in collaboration with the Defence Department. Plane-table surveys over the areas in which the varved clay deposit is situated are being continued and will shortly be completed.