

Sugar-beet Trials.—Tests are being made in collaboration with the officers of the Department of Agriculture to determine the sugar content of various strains of sugar-beet grown in the surrounding district, and these tests are to be continued for another year.

MARLBOROUGH IRRIGATION INVESTIGATIONS.

Topographical surveys have been completed for 35,000 acres in the Wairau and Waihopai Valleys.

A stream gauging station is being established on the Wairau River at Ferry Bridge to enable the river-flow to be studied.

Observations have been continued at the thirteen soil-moisture and rainfall stations already established last year, and evaporation and wind observations were continued at Blenheim.

A systematic soil survey of the Wairau and Waihopai Valleys was put in hand towards the end of the year.

HYDRO-ELECTRIC DEVELOPMENT.

ARAPUNI SCHEME.

Work on the extension of the Arapuni Power-house to provide for the installation of further generating-units was continued, and during the year excavation was completed for the power-house site and foundations, together with most of the tail-race, 6,154 cubic yards being removed in the first few months of the year. The cable-way handled 3,830 cubic yards of excavation from the power-house site to the tip.

To date a total of 57,854 cubic yards of rock has been excavated from the power-house site, and the cable-way has handled 50,990 cubic yards of this from the power-house site to the tip. A steel-sheet piling cut-off wall was placed across the tail-race, a total length of 3,053 ft. of steel-sheet piles being driven to a maximum of 40 ft. depth below tail-race level.

Concreting work for the power-house foundations and tail-race was completed, and the power-house extension building with the machine foundations is well on towards completion. For the year, 9,405 cubic yards of concrete were placed, making the total to date 17,479 cubic yards. A total of 179,720 square feet of formwork has been built, 122,320 square feet of which was placed during the year. For the power-house and outdoor-station extensions, a total of 317.6 tons of steel reinforcement has been used to date, 126.8 tons of which were placed during the year. Painting and cement-washing of the finished portions of the power-house and outdoor-station extension concrete structures was commenced during the year, 2,262 square yards of cement-washing and 1,294 square yards of painting being completed. For drainage, sewage, water-supply, &c., at the power-house extensions, a total of 2,006 ft. of drain was laid during the year, 3,178 ft. being completed to date; 121 ft. of 7 ft. by 4 ft. tunnel was excavated in the hill at the rear of the power-house for the pitometer gallery, bringing the total completed to 196 ft. Pumping was carried out continuously throughout the year to keep the tail-race and power-house foundations and building dewatered during construction.

Work at the outdoor-station and repair-room extensions was carried on, the outdoor-station site excavation being completed, together with all foundation work. A total of 6,828 cubic yards has been excavated, 3,378 cubic yards of which were excavated during the year, representing the foundation work below formation level. 919 cubic yards of concrete were placed in tower foundations, switch frames, oil circuit breaker pads, cable trenches, and repair-room extensions. 20,250 square feet of concrete formwork was built during the year, and 75 ft. of drains for oil piping system and drainage were laid at the outdoor station. Crushed metal for concrete aggregate was supplied by the quarry, and totalled 8,021 cubic yards for the year, 15,103 cubic yards being supplied to date. 5,397 cubic yards of sand were supplied for concrete during the year, the total supplied to date being 10,205 cubic yards.

All the turbine, generator, and control equipment for the power-house, and structural steelwork and circuit-breakers for the outdoor station were unloaded at Putaruru and transported to Arapuni. Four transformers were also transported to Arapuni for drying-out in readiness for installation. Seventy-five per cent. of the structural steelwork for the power-house roof was erected and welded.

During the year a cookhouse was put into operation, and a reading-room and library was built in the camp for the use of workmen.

WAIKAREMOANA SCHEME.

Other than the building of eight staff cottages and several new garages, no construction work has been carried out on this scheme.

Surveys for the lower development intake were put in hand.

WAITAKI RIVER SCHEME.

The work of closing the temporary sluice-gates in the dam was completed during the year.

CONSTRUCTION AND IMPROVEMENT OF ROADS AND BRIDGES.

WHANGAREI DISTRICT.

Kerikeri Inlet Road (Bay of Islands County).—This is a new road which will provide access to a large number of settlers occupying land on the southern shore of Kerikeri Inlet and whose only access up till the present time has been by water. 2 m. 56 ch. was formed 14 ft. wide and culverted during the period. A contract for a bridge 90 ft. long over the Okura Stream has been let.