

DESIGN AND PROJECT PLANNING

(a) HYDRAULIC SECTION

Karapiro.—All design details were completed during the year and all operating mechanism tested and proved effective.

Checking of ground-water levels for change in the vicinity of the dam, with special reference to the valley of the Karapiro Stream, continued. In May, 1947, after two months, stability has not yet been reached, but there are no untoward developments.

Maraetai.—The schematic and functional designs have all been worked out and co-ordinated. Structural designs are in hand, including river diversion, dam, spillway, penstocks, and the intake and spillway gates.

Whakamaru.—Studies were continued of the very complex area with a view to determining the most favourable layout.

The Lands Department has commenced land-development in this area with a view to the supply of fresh foods to the workers in the Mangakino Town and associated communities.

Waikaremoana.—Except for a few minor details, most of the upper development design is complete and attention has been given to the last stage—sealing the leaks in the lake margin.

Cobb River.—Investigations were continued with the collaboration of the Geological Survey. The site and form of a dam have now been decided on and preparations are being made for construction.

Clarence Valley.—Valuable assistance has been given by the Lands and Survey Department in preparing contour plans from aerial surveys, and these are being co-ordinated with the field-work so that a scheme or schemes of development may be outlined.

Tekapo.—Much has been done on the intake gates and on the surge chamber and penstocks.

Pukaki.—The greatest need in the South Island system at the present time is to store water for further use at Waitaki. To meet this, plans were prepared to build a dam and regulating-sluiques that would enable Lake Pukaki to be filled and held 30 ft. above its normal level. Special arrangements were made to build the dam, and good progress was obtained. A small amount of storage was obtained for this water, and it is hoped that the work will be far enough advanced to make a much larger quantity available for the winter of 1948.

Clutha River.—The site above Roxburgh was examined by bores, shafts, and drives. A start was made to prove by drive under the river the continuity of the rock structure, all findings being examined by a geologist.

Waitaki River (Black Jack's Point).—Surveys of this area, including the lake that will be formed, are about complete. It has not been possible to do any foundation testing at this site.

Hydrology.—Records have been kept and special studies made in connection with the North and South Island systems.

(b) STRUCTURAL SECTION

The design of the Maraetai Power-station is well in hand. The building which will contain five main units each 40,000 kVA. and two auxiliary units each 750 kVA., will be 320 ft. long, 90 ft. wide, and 110 ft. high from draught tubes to parapet. The floor area at generator-floor level, including the workshop annex, is approximately 29,000 square feet and provides for a control-room and general offices in connection with the administration of the station.