

For the 220 kV. Otahuhu Substation it was decided that the large building to house the 80-ton crane and the four 30,000 kVA. synchronous condensers should be founded on piles. Drawings and specifications were prepared and a contract let for the making and driving of long, reinforced-concrete piles. Plans were also issued for the installation of sub-surface and oil-drainage schemes.

Complete plans and specifications were finalized for the construction of the synchronous condenser and control buildings at Bunnythorpe, and tenders are being called for this work. Design of the structural work required in the outdoor station area proceeded, and some drawings and specifications were issued. Two gantries were designed for lifting heavy machinery during transport to Bunnythorpe Substation. Plans for the development of the Haywards substation site were advanced.

Design and specifications were completed for construction of the control and switch-rooms at Hamilton No. 2 Substation, and also for extensions to three smaller substations. Design work proceeded on the buildings for three further substations.

(c) ELECTRICAL SECTION

Power-stations.—Finality was reached on the layout of the 220 kV. equipment at Maraetai, and a start made on detail drawings. For the Whakamaru switching-station drawings are being prepared showing the arrangement of the 220 kV. switchgear cables and piping.

Design work for Karapiro was practically completed, and drawings issued for the permanent village 400 v. reticulation, street lighting, and fire-alarm system.

Provision was made for installing additional voltage regulators on the A.C. and D.C. auxiliaries at Arapuni, and, after consideration, equipment was ordered for converting units 1-4 to closed-circuit cooling.

The drawings for Tuai were brought into conformity with the extensive alterations made. Consideration was given to modifying the lubrication arrangements for the Piripaua main units. Problems raised by the proposed mounting of outdoor type 110 kV. O.C.B.s on the upper floors of the Mangahao Power-station were investigated.

Further design work was done for the Cobb River extensions, special consideration being given to the layout of the outdoor station in view of the confined space.

For Waitaki, design work for the installation of No. 5 unit was practically completed, and proposals drawn up for modifications to the 110 kV. switchgear, and the protective and voltage regulation systems of No. 1 and No. 2 units.

Data was prepared for the specification of the Roxburgh main units and transformers.

General work included a survey of load growth and generating-capacity for both North and South Islands. Tenders were analysed and orders placed for test equipment to bring the Department's test laboratories into line with modern standards.

The installation of 4-400 kW. Diesel-driven generators at Stoke was investigated.

Substations.—Design was finalized, specifications prepared, tenders called, and orders placed for the following: transformer-banks at Ongarue, Lichfield, Waipawa, Mangamaire, and Stoke; a second transformer-bank at New Plymouth and Wanganui; all major items of equipment at Longburn and Fernhill; cranes at Ongarue, Edgecumbe, Mangamaire, Stoke, Invercargill, and Maungatapere; switchgear and steelwork at Kaikohe, Edgecumbe, Lichfield, Te Awamutu, Waverley, and Half-way Bush; switchgear-cubicle at Te Kiri; regulating-transformer at Stoke; second synchronous condenser at Hororata; and O.C.B.s and transformers for Half-way Bush.