

Restoration work at a number of camp-sites on city parks and rural areas has been completed and the areas handed back to the owners.

Construction work has been confined almost solely to the Devonport Naval Base.

The new reinforced-concrete breastwork, 800 ft. long, has been completed, and after dredging was finished, 780 lineal feet of heavy fixed fendering was erected.

In the boiler-shop, foundations for the 40 ft. by 2 in. plate rolls were built, and the machine is now erected. The 250-ton press and a large guillotine have also been erected. The whole of the earth floor (2,400 square yards) has been given a bituminous covering  $1\frac{1}{2}$  in. thick.

Work on the bulk-fuel-oil tunnels is practically complete and the main items of equipment have been received and installed. During the year 1,655 cubic yards of concrete have been placed and 22,000 square yards of guniting and 15,000 square yards of silicate of soda treatment of the tunnels has been carried out.

Roading at the base is almost complete and the laying of fresh- and salt-water fire-fighting mains is well advanced.

Work on the new entrance at Stanley Bay has been started and erection of the unclimbable fences and concrete boundary walls completed.

About 80 per cent. of the fixed harbour boom defence has been dismantled and the salvaged material stored on the new Stanley Bay reclamation.

## DESIGN OFFICE

The principal work during the year has been the design and preparation of plans of bridges, including a number ranging from 900 ft. to 1,250 ft. in length. An unusual type was the Mangakino Bridge, on the access road to the Maraetai power development, with two 85 ft. and one 110 ft. reinforced-concrete box-girder spans on 110-ft.-high piers. The central 110 ft. span will be the largest single girder span in reinforced concrete built in this country. Other bridges designed include reinforced-concrete arches, long-span plate-girders, and steel trusses.

Several reservoirs of up to 500,000 gallons capacity have been designed; also other hydraulic structures.

The plans and specifications for the Wellington water-supply pipe-line and structures have been an important feature of the year's work. This has involved a considerable amount of design and checking. Preparation of the specification for the pipe-line, which incorporates features novel to New Zealand, has been a formidable task. In order to clear up a number of important points in connection with this specification it was necessary for the Chief Designing Engineer to visit Australia, where similar problems have been met; the visit proved to be of great value and much useful information has been obtained.

The preparation of a series of standard drawings for structures required by the Soil Conservation and Rivers Control Council was undertaken.

Steel formwork for the diversion tunnel at Maraetai hydro-electric development was another difficult design problem.

Numerous bridge proposals submitted by district offices, counties, and consulting Engineers had to be examined and approved. Local Government Loans Board proposals have been received in increasing numbers for examination and design check; they included water-supply, sewerage, storm-water drainage, bridge, and street proposals.