

1942.

NEW ZEALAND.

DEPARTMENT OF LANDS AND SURVEY.

**DRAINAGE OPERATIONS IN HAURAKI PLAINS.**

REPORT FOR THE YEAR ENDED 31ST MARCH, 1942.

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*Presented to both Houses of the General Assembly pursuant to Section 20 of the Hauraki Plains Act, 1926.*

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Department of Lands and Survey, Wellington, 1st July, 1942.

SIR,—

I have the honour to present herewith the report of the Chief Drainage Engineer on operations carried out during the past year on the Hauraki Plains in accordance with the provisions of the Hauraki Plains Act, 1926.

I have, &amp;c.,

R. G. MACMORRAN,

Under-Secretary for Lands.

The Hon. the Minister of Lands.

**REPORT OF THE CHIEF DRAINAGE ENGINEER.**

SIR,—

I have the honour to submit the thirty-fourth annual report on the drainage and land development work carried out on the Hauraki Plains. The report covers the year ended 31st March, 1942.

The season has been favourable for farm production, but there has been a decline in the volume of produce as compared with the previous year, which was a record for the district.

The rainfall at Kerepeehi in 1941 was 52.42 in. The wettest month was October with a fall of 8.37 in. The average rainfall over a period of twenty-six years is 44.416 in.

Because of the number of men taken for special duties connected with the war effort and for the armed forces the volume of construction and land development work has declined steadily during the past two years and the stage has now been reached when it is difficult to obtain labour for seasonal maintenance work.

It is gratifying to report that as the result of arrangements made with the Drainage Boards concerned the work of strengthening the stop-banks on the foreshore of the Hauraki Gulf has been commenced. About twenty-seven miles of stop-banks require attention, and this will occupy the two machines at present engaged on the work for a period of over five years. The work is of such importance that only urgent defence requirements should be allowed to interrupt it.

The necessity for maintenance of the improved river channels and large canals has been mentioned in previous annual reports. It is realized that there is a limit to what can be undertaken at the present time with the defence effort in full swing, but it is suggested that the necessary financial arrangements for carrying out river-maintenance work should receive consideration so that there will be no unnecessary delay when the time is opportune. No. 11 grab dredge will be laid up early in the coming year, and this dredge could be used for river-maintenance work until more modern plant can be procured.

The following is a brief review of the works carried out during the year:—

#### DREDGES AND EXCAVATORS.

The earth-moving plant on the Hauraki Plains was increased during the year by the transfer of *No. 31 Ruston Bucyrus Excavator* from Rangitaiki in October. Three drag-line excavators have been continuously employed throughout the year, and one Priestman dredge and one mechanical shovel intermittently.

*No. 15 Bucyrus Excavator* completed the construction of the stop-bank along the Kaihere Road between the Piako River and Kaihere Stream Bridge and, after dredging the landing-bays of the Kaihere Ferry and some flood-gate outlets, was overhauled at Kerepehi Depot. In September the machine was moved by pontoon to Waitakaruru, and after dredging the mouth of the Waitakaruru Stream was again moved by pontoon to Pipiroa, and on the 12th November commenced raising the stop-banks on the left bank of the Piako River. Working down-stream from Marshall's Flood-gate, 64 chains of stop-bank reconstruction had been completed by the end of March. In 190 working-days this plant excavated 28,759 cubic yards of material at unit cost of 1s. 6d. About half this quantity was under-water excavation carried out with machine afloat and operating a grab.

*No. 16 Bucyrus Excavator* has been working on the Maukoro Canal throughout the year. It completed the eastern side road embankment between 3 miles and 3 miles 50 chains and 3 miles 75 chains and 4 miles 25 chains, and widened and deepened the canal between 3 miles 50 chains and 3 miles 75 chains. Using a half-cubic-yard bucket on 50 ft. boom this machine handled 46,179 cubic yards of material in 226 working-days at unit cost of 10-8d.

*No. 29 Light Bay City Excavator* was at the end of the previous financial year under overhaul at the Kerepehi Depot. The repairs were completed and the machine was shipped to Torehape Landing and travelled by road to Waitakaruru, and on the 23rd April commenced deepening the road drain on the eastern side of the Maukoro Canal between Hopai Road and the Railway Canal. During the period July to December the machine was employed deepening the Maukoro Canal between 3 miles 50 chains and 3 miles 75 chains. Then after constructing a new spillway from the dam in the Maukoro Canal it crossed the dam and widened and deepened the road drain on the western side of the canal for a distance of 62 chains southwards from Gubbs Outlet. The output of this plant for 202 working-days was 41,654 cubic yards and the unit cost was 6d. per cubic yard.

*No. 31 Ruston Bucyrus Excavator* arrived by rail at Kopu from Rangitaiki in October. This is a Diesel-engined 17-ton caterpillar-mounted machine operating a half-yard drag-line bucket on a 40 ft. boom. The plant commenced work at Orongo enlarging the stop-bank on the Waihou River for a distance of 38 chains between the old Ferry Landing and the Hauraki Bridge. The machine was then moved by road to the Piako River mouth and has repaired 82 chains of weak stop-bank around the Maioro Block that had been damaged by tidal overflow. Working ninety-nine days in the Hauraki Plains district, this machine excavated and placed in stop-banks 24,819 cubic yards of material at cost of 7-6d. per cubic yard, including moving expenses.

*No. 28 Bay City Shovel and Drag-line Excavator.*—This machine was employed loading ballast trucks in the Torehape Pit during the period May to November, when 12,619 cubic yards of clay ballast was loaded into dump trucks for delivery by tramway on to peat roads in the Pouarua Area. Operating with drag-line equipment, the machine commenced reconditioning the large drain on the north side of the Torehape Road. Working westwards from the Maukoro Canal, 9,814 cubic yards of material was excavated from 111 chains of drain. Loading ballast trucks cost 7d. per cubic yard and drain excavation 6-8d.

*No. 11 Priestman Dredge* has been used for removing willows from the banks of the Piako River. Working down-stream from the Waitoa Stream junction, a total distance of 9 miles 27 chains of river has been cleared of snags and bank willows by the dredge, which reached the 16 mile 48 chains peg on the 31st March, 1942. Near the old Mangawhero Landing at the 17-mile peg the river channel was deepened for a distance of 21 chains. This dredge was in commission for eight months of the year (May to October and February and March), and during this time cleared of willows 2 miles 27 chains of river and removed 4,800 cubic yards of material in deepening the channel.

#### TOREHAPE AND WAITAKARURU DISTRICT.

Activities in this district have been chiefly connected with Maukoro Canal construction, road-formation, and land-development.

The Maukoro Canal, which extends inland for seven miles from the Hauraki Gulf, has been under construction for several years. It collects and discharges directly into the sea the flow from the hill-fed streams of the Pataroa Range that originally spread over 25,000 acres of flat land on the western side of the Piako River. Subsidence of the land through which this canal is being constructed of 1 ft. to 20 ft. is to be expected, and work on the canal must be carried out so that this subsidence and consolidation of the land is brought about gradually.

The roadwork comprised spreading 1,735 cubic yards of metal on the Maukoro Canal Road (eastern side), where the metal surface is being extended a distance of 74 chains along the frontage of Sections 40, 42, 44, and 46 and part 48, Block IV, Piako Survey District. Also the spreading of 12,619 cubic yards of clay ballast along the peat sub-grade of Torehape Road. The clay was hauled an average distance of five miles by light railway.

Land-development work carried out on the Pouarua Block included the excavation by manual labour of 16,707 cubic yards of material in the reconstruction of 12 miles 66 chains of drain, cleaning 53 miles 33 chains of drains, erecting 31 miles 61 chains of fence, clearing 526 acres, and sowing 813 acres of land.

Maintenance-work included cleaning of 17 miles 44 chains of main drains and improvement of 41 chains by manual labour. In the improvement of 300 chains of main drains 30,382 cubic yards of material was excavated by machine.

The number of men employed on these works varied throughout the year between twenty-nine and forty-two.

#### CENTRAL DISTRICT.

By manual labour 51 miles 42 chains of main drains were cleaned in the Kerepechi, Patetonga, and Orongo districts and 10,662 cubic yards of material excavated in improving 6 miles 65 chains of main drains.

Willows on both banks of the Awaiti Canal have been ring-barked for a distance of approximately 7 miles and new growth of willows has been cleared on the banks of the Piako and Waitoa Rivers that were previously cleared and are not under the control of the Thames Valley Drainage Board.

In the Kerepechi Extension No. 1 Block material excavated by hand in improving 9 miles 3 chains of boundary and field drains was 7,850 cubic yards, 13 miles 12 chains of similar drains were cleaned by manual labour, and 19 miles 37 chains by weed-cutting launch: also 2 miles 18 chains of fence was erected.

The ferry service across the Piako River at Kaihere has been maintained with an interruption of fourteen days in January, when the punt was docked at Kerepechi for painting and repairs.

A depleted staff in the Kerepechi Workshops has been busily engaged on construction and repair work connected with land-development operations and drainage-works on the Hauraki Plains and Waihi districts.

The pump-station, which serves an area of 3,800 acres in the Kerepechi Blocks, operated intermittently during July, September, and October for a total period of 105½ hours.

#### SURVEY AND OFFICE WORK.

Engineering surveys carried out on the Hauraki Plains during the year required 23 miles of levels, 14 miles 20 chains of traverse lines, and the measurement of 6 miles 44 chains of drains and canals to determine excavation quantities.

The total length of main and subsidiary drains constructed on the Hauraki Plains since the inception of the scheme is now 893 miles 11 chains.

The principal works carried out on the Hauraki Plains during the year under review are summarized in the following schedule:—

	Length.		Excavation. Cubic Yd.
	Miles.	Ch.	
Drains cleaned by manual labour .. .. .	135	31	..
Drains cleaned by weed-cutting launch .. .. .	19	37	..
Drains widened and deepened by manual labour .. .. .	29	20	36,189
New drains constructed by manual labour .. .. .	0	32	515
River-channel, canals, drains, and stop-banks improved by machines .. .. .	8	3	156,025
Clay ballast delivered on peat roads .. .. .	2	0	12,619
Roads partly metalled or resurfaced .. .. .	2	67	1,735
Area swamp harrowed or rolled with tractor .. .. .	..	..	230
Area swamp cleared of scrub, &c. .. .. .	..	..	581
Area swamp sown with grass .. .. .	..	..	871
Area swamp resown with grass .. .. .	..	..	276
River-banks cleared of willows .. .. .	2	27	..
Willows ring-barked on banks of canal .. .. .	7	0	..

Net capital expenditure amounted to £4,682, while the net maintenance costs was £3,777. The rates struck were £2,616, while £3,224 was collected on account of current and arrears of rates.

I have, &c.,

R. L. INNIS,

Chief Drainage Engineer.

The Under-Secretary for Lands, Wellington.

#### STATEMENT OF ACCOUNTS.

A statement of accounts is published in parliamentary paper B.-I [Pt. IV].

*Approximate Cost of Paper.*—Preparation, not given; printing (475 copies) £5.

By Authority: E. V. PAUL, Government Printer, Wellington.—1942.

