

1941.

## NEW ZEALAND.

## DEPARTMENT OF LANDS AND SURVEY.

## RANGITAIKI LAND DRAINAGE.

REPORT FOR THE YEAR ENDED 31ST MARCH, 1941, TOGETHER WITH STATEMENTS OF ACCOUNTS.

*Presented to both Houses of the General Assembly in pursuance of Section 10 of the Rangitaiki Land Drainage Act, 1910.*

SIR,—

Department of Lands and Survey, Wellington, 1st July, 1941.

I have the honour to submit herewith the report of the Chief Drainage Engineer on drainage operations on the Rangitaiki Plains for the year ending 31st March, 1941, pursuant to the provisions of the Rangitaiki Land Drainage Act, 1910.

I have, &amp;c.,

R. G. MACMORRAN,

Under-Secretary for Lands.

The Hon. Frank Langstone, Minister of Lands.

## REPORT OF THE CHIEF DRAINAGE ENGINEER.

SIR,—

In accordance with the provisions of the Rangitaiki Land Drainage Act, 1910, I have the honour to submit the report of the works carried out on the Rangitaiki Plains during the year ending 31st March, 1941.

Aided by exceptional weather conditions, the farmers of the Rangitaiki district have had an exceptionally favourable season, and new records have been set for farm production in the district. The Rangitaiki Dairy Co., which handles most of the butterfat produced on the Plains, manufactured 5,064.5 tons of butter during the twelve months ending 31st March, 1941, an increase of 669 tons over the quantity produced during the previous twelve months.

The rainfall recorded at Thornton for the period 1st January to 31st December, 1940, was 39.96 in., rain falling on ninety-six days. For the period 1st April, 1940, to 31st March, 1941, 43.91 in. was recorded for ninety-two days of rain. The wettest month was January, 1941, with 7.26 in., and the driest month February, 1941, with 0.58 in. There were no flood-producing storms.

The Department's activities during the past year can be generally described as intensive maintenance operations.

During the last three years over 17 miles of drainage canals have been reconditioned with mechanical excavators. This work, which is to be continued, has considerably improved the drainage conditions over a large part of the district.

## DREDGES.

The excavating-plant was reduced from five to four drag-line excavators by the transfer of a small machine to the Hauraki Plains in October. The total output of these machines for the year was 206,900 cubic yards.

*No. 17 Monigan Drag-line Excavator* has completed the deepening of the Kopeopeo Canal for a distance of 6½ miles between the junction of Reids Central Canal and the Rangitaiki River. The work was commenced in 1938, and 49 chains above the Whakatane River outlet was deepened during April and May, 1940. The machine was then moved to the Waioho Stream canal, and, working up-stream from the junction of the Waioho Drain, has removed the silt from the channel and placed the spoil on the right stop-bank for a distance of 94 chains. The output for the year was approximately 53,800 cubic yards.

*No. 28 Light Bay City Excavator*, using drag-line boom and bucket, completed the by-pass channel to divert the Orini Stream through the recently constructed triple 5-ft.-diameter flood-gates. The machine then moved to the Omeheu Settlement and constructed 20 chains of new drain leading to a recently installed flood-gate discharging into the Omeheu Canal, and also spread the spoil bank along the lower end of Walkers Drain for a distance of 51 chains and widened and deepened 55 chains of the same drain. Fitted with shovel equipment, the plant loaded 3,400 cubic yards of sand filling into motor-trucks to construct a substantial filling across the old channel of the Orini Stream to divert the flow through the new flood-gate. This is an old machine, and as the result of wear of the caterpillar traction mechanism it is now unsuitable for drain-excavation, and for this reason it was transferred to the Hauraki Plains works in October for power-shovel work requiring little travelling. The material handled in the Rangitaiki District was 10,700 cubic yards.

*No. 30 Bay City Drag-line Excavator* has been employed since 1937 improving the stop-bank on the right bank of the Tarawera River. Ninety-three chains of stop-bank has been enlarged during the year ending 31st March, 1941, and four weeks later the machine will complete the bank to Factory Road. From this point the bank improvement has been continued up-stream by No. 31 excavator. The year's output for machine No. 30 was 47,000 cubic yards.

No. 31 *Light Ruston-Bucyrus Drag-line Excavator* commenced work in February, 1940, at Factory Road, and, working up-stream on the right bank of the Tarawera River, has completed 72 chains of stop-bank improvement. On this reach the ground-level is in places about 6 ft. and 3 ft. respectively below the high- and low-water levels of the river, and in the past the bank has been breached by seepage through and under it. To meet these conditions, a banquette, extending in places over 100 ft. from the water edges, has been constructed along the inland toe of main stop-bank. This 40 ft. boom excavator has constructed both stop-bank and banquette without double handling material in two operations. The machine first extends the base of the original stop-bank to form a track on which it moves to construct the banquette with material excavated from the existing stop-bank spread to the full reach of the boom. For the second operation the path of the excavator is in nearer the river and the main stop-bank is built with material removed from the bed of the stream. The machine excavated and placed 60,800 cubic yards of material in 67 chains of bank, which is a very good performance for the operating conditions.

No. 32 *Light Ruston-Bucyrus Drag-line Excavator* has been employed widening and deepening Seccombes and Edgecumbe Catchwater Drains near Te Teko. The soil in which these drains are excavated is light, coarse pumice sand, and special methods had to be adopted to prevent excessive erosion of the drain banks during construction. This retarded progress. Using a bucket of  $\frac{3}{8}$ -cubic-yard capacity, this machine handled 34,600 cubic yards.

#### DRAINS AND FLOOD-GATES.

The drainage-work has been principally reconditioning and maintenance of ditches. One drain reconstruction undertaking requiring 66,000 cubic yards of excavation is nearing completion. This is the enlargement of the Edgecumbe Catchwater Drain, which is being carried out to provide drainage for the Putauaki Native Block.

The triple flood-gate outlet for the Orini Stream, which was completed last year, was put into commission after the stream had been diverted to a new channel connecting with the flood-gates and the old channel closed with a substantial filling.

The Department maintains 158 miles of canals and drains, and the total length of the drains constructed in the district to date is—

	Miles.	Ch.
Dredged canals .. .. .	68	43
Main drains .. .. .	121	36
Road drains .. .. .	31	2

The work of removing the willows from the banks of the lower reaches of the Rangitaiki River was continued when a heavy tractor became available for hauling and 98 chains of river-bank was cleared during the year. The river-banks have recently been cleared of willows between Thornton and Edgecumbe. Above Edgecumbe the right bank has been cleared for a distance of 110 chains and the left bank 72 chains. This type of river improvement gives the greatest return for the expenditure, and considerable improvement in the efficiency of the river channel has been effected.

The mouth of the Rangitaiki River moves eastwards, and periodically a direct outlet to the sea has to be restored by excavating a channel through the sandspit which forms across the mouth. The last time this was done was June, 1938. Since then the eastward movement has been considerable, and advantage of the first favourable opportunity must be taken to reopen the mouth giving the river a direct approach to the sea.

#### TARAWERA RIVER.

The progress made during the past four years of work on the Tarawera River stop-banks will ensure that the strengthening of the right stop-bank will be completed in 1941. Similar reconstruction of the existing stop-bank on the left bank of the river and up-stream from the railway bridge is strongly recommended. Temporary repairs were carried out during the winter of 1938, when this stop-bank was breached in two places, but the whole bank is in a dangerous condition. Because the low-water level of the river is above the level of the surrounding land, a serious break in this bank might cause the river to change its course and the result might be the interruption of road and rail traffic in the district and the loss of stock.

#### SUMMARY.

The principal works carried during the year are summarized below :—

	Miles.	Ch.	Excavation. Cubic yd.
Drains cleaned by manual labour .. .. .	7	40	..
Drains and canals cleaned with weed-cutting launch ..	15	74	..
Drains widened and deepened by manual labour ..	1	8	2,632
New drains constructed by manual labour .. .. .	..	36 $\frac{1}{2}$	1,550
Drains and canals improved with excavators .. .. .	7	1	93,000
New drains constructed with excavators .. .. .	..	20	6,100
Stop-banks reconstructed or repaired with excavators ..	2	..	107,300
River-bank cleared of willows .. .. .	1	18	..

The number of men employed on the works has varied between sixteen and twenty-five, together with a number of contractors engaged on seasonal drain-cleaning work.

	£	s.	d.
Net maintenance expenditure .. .. .	8,610	5	8
Rates struck—	£	s.	d.
Special .. .. .	10,648	19	1
General .. .. .	7,156	2	3
Rates collected—			
Special .. .. .	10,843	8	1
General .. .. .	7,642	17	6

I have, &c.,

R. L. INNIS,

Chief Drainage Engineer.

## RANGITAIKI LAND DRAINAGE SCHEME.

## RATE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1941.

	Capital. £	Maintenance. £		Capital. £	Maintenance. £
Remissions .. .. .	435	387	Balance as at 31st March, 1940 ..	501	9,751
Transfer to Reserve Fund ..	1,295	..	Rates struck for 1940-41 year ..	10,433	7,012
Interest on capital cost .. ..	8,660	..	10 per cent. penalty added to 1939-40 rates ..	216	144
Cost of maintenance .. .. .	..	8,610	Subsidy on maintenance-costs .. ..	..	2,870
Balance as at 31st March, 1941 ..	770	10,789	Adjustment: Amount previously written off .. .. .	10	9
	<u>£11,160</u>	<u>£19,786</u>		<u>£11,160</u>	<u>£19,786</u>

## REVENUE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1941.

	£		£
Losses written off .. .. .	13	Accrued rent .. .. .	187
Interest on Public Works Fund Capital ..	19,567	Interest on capital cost recoverable by rates ..	8,660
	<u>£19,580</u>	Balance, transferred to Drainage Works Account ..	10,733
			<u>£19,580</u>

## RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1941.

Receipts.		Consolidated Fund. £	Payments.		Consolidated Fund. £
Rates .. .. .	..	18,624	Maintenance completed works .. .. .	..	8,481
Rents .. .. .	..	173	Refund rates .. .. .	..	77
Law-costs .. .. .	..	183	Refund law-costs .. .. .	..	1
Subsidy on maintenance-costs .. .. .	..	2,697	Transfer net receipts to Treasury Adjustment Account ..	..	22,899
Sundries .. .. .	..	1,300			
Transfer of expenditure to Treasury Adjustment Account .. .. .	..	8,481			
		<u>£31,458</u>			<u>£31,458</u>

## BALANCE-SHEET AS AT 31ST MARCH, 1941.

Liabilities.		£	Assets.		£
Public Works Fund .. .. .	..	489,169	Drainage-works—	..	..
Free capital from Employment Promotion Fund ..	..	891	Recoverable capital expenditure (section 11, Finance Act, 1937, No. 2) .. .. .	..	205,000
Reserve Account for repayment of capital cost ..	..	2,538	Not recoverable: Capital expenditure and capitalized interest .. .. .	..	562,380
Treasury Adjustment Account .. .. .	..	299,381	Plant, machinery, and tools .. .. .	..	1,688
Unpaid purchase-money for land taken .. .. .	..	210	Buildings .. .. .	..	1,330
Sundry creditors—	..	..	Sundry goods .. .. .	..	1,085
Departmental .. .. .	..	1,015	Sundry debtors—	..	..
Miscellaneous .. .. .	..	289	Rates—	..	..
		1,304	Capital .. .. .	..	17,705
Rate Account—	..	..	Maintenance .. .. .	..	13,242
Capital .. .. .	..	770	Law-costs .. .. .	..	303
Maintenance .. .. .	..	10,789	Rents .. .. .	..	19
		11,559	Miscellaneous .. .. .	..	59
Writings-off in Suspense .. .. .	..	1,419			31,328
Payment in advance: Rates .. .. .	..	9	Cash in transit from Post Office .. .. .	..	1,359
		<u>£806,480</u>	Expenditure from Employment Promotion Fund ..	..	891
			Losses in Suspense .. .. .	..	1,419
					<u>£806,480</u>

R. G. MACMORRAN, Under-Secretary for Lands.  
G. I. BEESON, Chief Accountant.

I hereby certify that the Rate and Revenue Accounts and Balance-sheet have been duly examined and compared with the relative books and documents submitted for audit, and correctly state the position as disclosed thereby, subject to the explanatory notes dealing with departmental accounts generally as appearing at commencement of parliamentary return B.—1 [Pt. IV].—CYRIL G. COLLINS, Controller and Auditor-General.

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