

SESS. II.—1897.
NEW ZEALAND.

WATER-CONSERVATION FOR MINING AND IRRIGATION PURPOSES, OTAGO AND WESTLAND DISTRICTS

(REPORT ON), BY T. PERHAM, A.M. INST., C.E.

Presented to both Houses of the General Assembly by Command of His Excellency.

Mr. T. PERHAM, A.M. Inst. C.E., to the UNDER-SECRETARY, Mines Department, Wellington.
SIR,—
Mines Department, Wellington, 18th August, 1897.
Acting on instructions, by memorandum, 27th April (Mines 97/895), to report on water-conservation for mining purposes and irrigation in the colony, and especially in Central Otago, I proceeded to and arrived at Naseby on the 14th May, and commenced by an examination of the Eweburn Dam site.

In dealing with the different localities visited I propose to take each in rotation from Naseby onward by way of Clyde to Lawrence. In some cases, where convenient and advantageous, water required for mining and irrigation have been taken together; others have been taken separately.

I regret not being able to start on the work a month sooner as the winter had set in and snow had accumulated on the hills on my arrival at Naseby, and therefore many places I had intended to visit could not be examined.

I have, &c.,
T. PERHAM.

The Under-Secretary, Mines Department, Wellington.

EWEBURN DAM.

The site is about six miles from Naseby, in a north-westerly direction, and about 200 ft. above the Courthouse, in a valley under Mount Ida, and just above where the Mount Ida Water-race takes the water from the West Eweburn. It is a flat valley, confined at the entrance, and widens out at the back, and is in every respect suitable for a reservoir, provided the nature of the ground for foundation of the dam is proved to be favourable.

Mr R. H. Browne, Maniototo County engineer, who surveyed for and designed the dam, accompanied me to make an examination of the line of foundation, and to consult generally upon the manner and cost of construction. Considerable doubts have been expressed by engineers who have examined the site as to the nature of the bottom being sound enough to prevent leakage, and have recommended pits being sunk or borings taken to determine the bed-rock. I concur in this, and have marked on the sketch-plan attached the positions in which the work should be done on line A B.

Looking up the valley from the race fluming and on the right bank of the stream the rock (sound schist) is almost perpendicular, and the strata lies in a favourable inclination—that is, leaning away from the water or reservoir side—and would form at the base a suitable foundation on the centre-line of dam as far as the creek. On the left bank, however, the terrace or spur against which that end of the dam would rest is gravel-wash, and clay overlying schist, which crops out sharply on that side of the creek. It then seems to dip considerably, and it is here the boring is required. It may, I think, be found that a puddled core could be stepped in the rock, called “Maori bottom,” generally overlying the schist rock, and, if so, Mr. Browne agrees with me there would be no leakage. Fairly good clay can be obtained by sinking near the site in the terrace up the valley for the core.

It has been suggested to bore higher up, with a view of finding more favourable ground, and shift the site, but in my opinion this is not wanted. I consider, however, that the centre-line of dam should be taken on the line of borings shown on line A B, for the reason that the dam will be of less depth at this (terrace) end, will have a better backing against the bend of the terrace, and will be less costly. I estimate cost of boring at £150, and recommend that arrangement be made for Mr. Browne to superintend, subject to consent of the County Council.