

FURTHER PAPERS RELATING TO

TABLE showing WORKS IN PROGRESS, with Nominal Horse Power of Engines in course of Erection.

No. on Plan.	Name.	Locality.	Description.	Nominal h.p.	Level.	Remarks.
18	United Pumping Association	Tookey's Flat ...	Pumping Machine	250	L. L.	
64	Albion Gold Mining Company	Tookey's Flat ...	Winding ...	40	L. L.	
65	Hape Creek Saw Mill Company	Hape Creek ...	Saw Mill ...	50	L. L.	

WORKS not included in other Tables.

No. on Plan.	Name.	Locality.
66	Thames Gas Works	Mary Street, Shortland.
67	Chlorination Works	Waterfall Creek.

MEMORANDUM for the information of C. E. HAUGHTON, Esq., Under Secretary for Public Works, Gold Fields Department.

IN accordance with your memorandum, received per telegraph, I forward herewith sketch plan, showing modification of "low-level water scheme," as suggested by me.

My report to you, of date 6th May, 1872, states that at the time I measured the water in the Waiwhakaurunga River, there was at the head of the low level 7 cubic feet of water flowing per second, and a further quantity of 5 cubic feet could be obtained from the Hihi, a tributary not included in the above scheme. In a subsequent rough sketch, I showed that Mr. Sims' proposition, to bring the water in wrought iron pipes from the head of the low level, could be considerably improved on by first conveying the water by fluming a portion of the distance, about four miles, and picking up the several tributaries along its course, thereby augmenting the 7 cubic feet in the main stream and the 5 cubic feet which can be obtained from the Hihi by a branch flume across the river, a distance of about twenty chains or so.

At the most practicable point along the proposed line of fluming, I would suggest that a service reservoir be constructed, capable of containing two or three days' supply for the battery service during the repairs to the fluming.

If these suggestions be adopted, the distance will be lessened, and the height at which the water will be available above high watermark will be increased from 130 to about 150 feet, *i.e.*, assuming that the distance, as given on the plan of the low-level scheme, be eight miles, with a fall 5 feet per mile, and the termination at the Moanatairi Creek 130 feet above high watermark, the head of the race would be 170 feet above the same *datum*.

As regards the matter of compensation where the proposed race would pass through Shortland and Grahamstown, this can be in a measure avoided by laying the pipes along the streets, and the only point where the "Native difficulty" will show itself, will be for about one mile and a half between the Native reserve boundary and the Wai Kei Kei Creek at Parawai. This difficulty will affect any low-level scheme, but the one I now suggest least of any.

R. MILLETT,
Provincial District Engineer, Thames.

29th May, 1872.

Mr. N. P. CARVER to Mr. C. E. HAUGHTON.

SIR,—

Shortland, Thames, 7th May, 1872.

As it is generally admitted that a low-level water supply is the most feasible for the supply of this gold field, I have the honor to submit, for the information of the Government, the following remarks upon the low level, proposed by me to Mr. Carruthers, Engineer-in-Chief.

1. The race will supply the greatest possible quantity of water at the least possible cost. I estimate its cost at £23,000.
2. The race being constructed in sections, the supply is safe.
3. It has the advantage of a large supply of storage water, formed by an almost natural reservoir.
4. By adopting fluming, the natural resources of the country supply the materials for its construction.
5. An extensive revenue would be derived from timber, for mining and other purposes, that could so readily be obtained and floated down the race, as the back waters of the reservoir would extend to the margin of one of the finest kauri forests in New Zealand.

And I would suggest, in the event of iron pipes instead of timber being adopted, the advisability of testing the action of the mineral properties of the water on iron, as the exceedingly destructive properties of the Thames waters upon boiler-plates is a well-known fact; and that some of the Kauwae-