

12. Have you any idea what would be the character of the gradient from Kumara to Hokitika? They have a tramway on a very moderate gradient to Kumara Township?—I could not state.
13. Do you know the Kumara tramway?—No; I have not been over it.

APPENDIX D.

Mr. O'CONNOR to the CHAIRMAN, Hokitika and Greymouth Public Works Committee.

SIR,—

District Engineer's Office, Hokitika, 14th November, 1877.

I have the honor to forward herewith *resumé* of evidence given before the Hokitika and Greymouth Public Works Committee, which I have written out afresh, as the original draft of evidence sent me for signature could not be corrected sufficiently to make it clear.

I also send extracts from Parliamentary Paper D, No. 9, year 1872, containing preliminary report on Hokitika to Greymouth Railway, which may be found useful. From inquiries made as directed concerning traffic on the Greymouth to Kumara tramway, &c., I estimate that the present probable traffic returns of a line of railway from Hokitika to Greymouth would be about £200 per week, and the Engineer-in-Chief estimates that the working expenses of said line would be £7,500 per annum.

The original draft of evidence sent to me is enclosed herewith.

I have, &c.,

C. Y. O'CONNOR,

District Engineer.

E. Barff, Esq., M.H.R., Wellington.

Mr. O'CONNOR, District Engineer of Westland, examined.

Plans of proposed railway produced, and, in reply to questions, Mr. O'Connor stated as follows:—

The line commences at Hokitika in the Police Reserve, which it is proposed to convert into a railway station, and runs through the Town of Hokitika for about 70 chains, the ground throughout that distance being practically level.

From 0 miles 70 chains to 3 miles 70 chains it keeps close to the Hokitika to Greymouth road, on the west or sea side of it, traversing moderately flat ground. In this distance there would be two small river bridges.

At 3 miles 70 chains it crosses to east side of road, and passes over the Arahura River at a point about 50 chains from the sea. The bridge over the Arahura would consist of six 60-foot spans with eleven small spans at ends.

At 4 miles 60 chains the line reaches foot of terrace.

Between 3 miles 70 chains and 4 miles 60 chains the ground is low, and would necessitate embankment; but this would not be a very heavy item.

From 4 miles 60 chains to 12 miles 52 chains the line follows along foot of terraces about 20 chains from the sea, passing over old gold-workings. The ground throughout this distance is rough; but there would be no heavy earthworks, and the only bridges worth mentioning would be those over Waimea and Kapitea Creeks, each consisting of three 40-foot spans with small spans at ends.

From 12 miles 52 chains to 15 miles 39 chains two lines have been surveyed across the Teremakau River, one of which crosses that river at the Lower Gorge about 80 chains from the sea, while the other crosses it on the flat about 30 chains from the sea. The bridge on the upper route would cost about £24,000, while that on the lower route would cost about £27,000; but the total cost is about the same for both routes. The line nearest the sea is the best from an engineering point of view, as it is 43 chains shorter than the other and has much flatter grades.

From 15 miles 39 chains to 21 miles 48 chains the line again follows along foot of terraces, being about 30 chains distant from the sea at 15 miles 39 chains, and 20 chains distant from same at 21 miles 48 chains. For the greater part of this distance it traverses old gold-workings, the ground being a good deal broken, but not so much as to require very heavy earthworks. There would be in this length only two bridges requiring notice—namely, those for New River and Saltwater Creek. The former would consist of three 40-foot spans, and the latter of two 40-foot spans, with, in both cases, small spans at ends.

From 21 miles 48 chains to 23 miles 51 chains the line passes through the Town of Greymouth, terminating at 23 miles 51 chains in the existing station-yard of the Brunner Railway. The ground throughout this distance is pretty even, but the earthworks necessary to keep the line above flood level would be heavy. The low-lying land has been followed in order to avoid passing through land which has been built upon. This, with the exception of the portion at the Teremakau, would be the most expensive portion of the line.

The total estimate, made from detail plans, including ample provision for rolling-stock, land purchase, and stations, with connection to wharf and other items at Hokitika, is £221,000.

The quantity of land which would have to be purchased is small.

On the whole, the line may be characterized as an easy one, there are no engineering difficulties in the way of constructing it, and the gradients are easy, the steepest being 1 in 100, which occurs but seldom, and only for a short distance at a time, so that the working expenses would not practically be any greater than on a flat line. With the exception of the bridges over Teremakau and Arahura, and the four other smaller ones above mentioned, the bridges and culverts throughout are merely ordinary water openings, with spans in no case exceeding 40 feet.

The goods traffic would consist principally of coal and timber.

There is timber along the line between Arahura and Greymouth, but wooden tramways would be necessary in the course of time to get at it, if very large quantities were required for export. These tramways would of course be constructed by the persons or companies engaged in exporting the timber.