

SESS. II.—1879.
NEW ZEALAND.

HOKITIKA AND GREYMOUTH RAILWAY COMMITTEE

(REPORT OF, TOGETHER WITH MINUTES OF PROCEEDINGS AND EVIDENCE).

Brought up and ordered to be printed 5th December, 1879.

ORDER OF REFERENCE.

Extract from the Journals of the House of Representatives.

WEDNESDAY, THE 19TH DAY OF NOVEMBER, 1879.

Ordered, "That a Select Committee, consisting of Mr. Macandrew, Hon. Mr. Gisborne, Mr. Ormond, Mr. Masters, Mr. McLean, Mr. George, Mr. Seddon, Mr. Wood, Mr. Bunny, and the Mover (three to form a quorum), be appointed to inquire and report to this House upon the expediency of diverting the proposed line of railway between Hokitika and Greymouth, in order that it may pass through or be connected with Kumara, Goldsborough, and Stafford Town. The Committee to have power to call for papers and persons, and to report in a fortnight."—(*Mr. Reid.*)

REPORT.

THE Select Committee which was appointed to inquire into and report upon the expediency of diverting the proposed line of railway between Hokitika and Greymouth, in order that it may pass through or be connected with Kumara, Goldsborough, and Stafford Town, have the honor to report as follows:—

That they have carefully considered the question referred to them, and have taken evidence thereon of Mr. Blair, Engineer in Charge for the Middle Island; Mr. O'Connor, District Engineer for Westland; Mr. Wyld, civil engineer; Mr. Brown, Registrar-General; and the Hon. H. H. Lahmann, M.L.C.

The proposed diversion would lengthen the line by about ten miles; but no complete survey has as yet been made which would furnish a reliable estimate of the additional cost of construction which the diversion would entail.

The Committee are of opinion that, in the case of no great additional expenditure being caused by the diversion or of any steep gradients being necessary, the connection of three comparatively large centres of population by a loop line with the termini of Hokitika and Greymouth would insure a much larger reproductiveness than can be anticipated from the original line along the beach. A vast extent of valuable land, rich in timber and minerals, would be opened up; a large increase of goods and passenger traffic would be secured; and permanent settlement promoted.

The Committee feel assured that the diversion of the line in the manner indicated would in every respect prove to be of greater advantage than by the construction of two branch lines to Kumara and Goldsborough. The length of line in the former case would be shorter, and the necessary additional expenditure for plant of £5,000 on each branch line, together with the working expenses, estimated at £25 per week for each of the branches, would be obviated.

The Committee therefore recommend that a survey should forthwith be made to show the best line of diversion and its probable cost; and, should the cost of the diversion not increase the original estimate of the whole line, or only necessitate a small addition thereto, that the works should be proceeded with in the direction indicated immediately upon the survey being completed.

While the survey is being proceeded with, no delay need take place in the formation of the line to the Arahura and Teremakau Rivers, nor in the construction of the bridges over these two rivers.

The Committee would therefore further recommend that these works be in the meantime prosecuted with all practicable despatch.

5th December, 1879.

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R. C. REID,
Chairman.

MINUTES OF PROCEEDINGS.

MONDAY, 24TH NOVEMBER, 1879.

The Committee met pursuant to notice.

Present : Mr. Bunny, Mr. Macandrew, Mr. Masters, Mr. Reid.

Order of reference, dated 19th November, read.

On the motion of Mr. Bunny, seconded by Mr. Macandrew, it was unanimously resolved that Mr. Reid act as Chairman.

The Clerk was directed to summon Mr. W. N. Blair, Engineer in Charge for the Middle Island, to give evidence at 12 noon on Tuesday, the 25th November, and to request him to produce before the Committee all papers, &c., connected with the Hokitika and Greymouth Railway. To enable the latter to be done, the Clerk was also directed to request the Under Secretary for Public Works to furnish Mr. Blair with the necessary documents.

On the motion of Mr. Bunny, the Committee then adjourned until 12 noon to-morrow.

TUESDAY, 25TH NOVEMBER, 1879.

Committee met pursuant to notice.

Present : Mr. Bunny, Mr. George, Hon. Mr. Gisborne, Mr. Masters, Mr. Reid (Chairman), Mr. Seddon, Mr. Wood.

The minutes of previous meeting were read and confirmed.

Mr. W. N. Blair, Engineer in Charge for the Middle Island, attended and gave evidence before the Committee. (*Vide Minutes of Evidence.*)

It was resolved that the Mayor and Town Clerk of Kumara be summoned by telegram to attend the Committee as early as possible to give evidence.

The Clerk was directed to summon to attend the Committee at 12 noon on Monday, the 1st December, to give evidence : Mr. C. Y. O'Connor, District Engineer, Westland, and Mr. W. R. E. Brown, Registrar-General.

On the motion of Mr. Seddon, the Committee then adjourned.

TUESDAY, 2ND DECEMBER, 1879.

Committee met pursuant to notice.

Present : Mr. Bunny, Hon. Mr. Gisborne, Mr. Macandrew, Mr. Masters, Mr. McLean, Mr. Reid (Chairman), Mr. Seddon.

The minutes of previous meeting were read and confirmed.

On the motion of Mr. Bunny, it was resolved that Mr. J. Bladier be informed, by telegram, that his evidence will not be required by the Committee.

The following witnesses attended and gave evidence : Mr. W. R. E. Brown, Registrar-General, Mr. C. Y. O'Connor, District Engineer, Westland. (*Vide Minutes of Evidence.*)

The Clerk was directed to summon Mr. J. Wylde, Town Clerk, Kumara, to attend the Committee at noon to-morrow, to give evidence.

The Committee then adjourned.

WEDNESDAY, 3RD DECEMBER, 1879.

Committee met pursuant to notice.

Present : Mr. Bunny, Hon. Mr. Gisborne, Mr. Masters, Mr. McLean, Mr. Reid (Chairman), Mr. Seddon.

The minutes of previous meeting were read and confirmed.

Mr. James Wylde, C.E., Town Clerk and Engineer for the Borough of Kumara, attended and gave evidence before the Committee. (*Vide Minutes of Evidence.*)

On the motion of Mr. Seddon, it was resolved that the Chairman move in the House that permission be obtained from the Legislative Council for the Hon. Mr. Lahmann to attend and give evidence before the Committee at next meeting.

The Committee then adjourned until to-morrow.

THURSDAY, 4TH DECEMBER, 1879.

Committee met pursuant to notice.

Present : Mr. Bunny, Hon. Mr. Gisborne, Mr. Reid (Chairman), and Mr. Seddon.

The minutes of previous meeting were read and confirmed.

The Hon. Mr. Lahmann, M.L.C., attended and gave evidence before the Committee. (*Vide Minutes of Evidence.*)

The Committee then adjourned.

FRIDAY, 5TH DECEMBER, 1879.

Committee met pursuant to notice.

Present : Mr. Bunny, Mr. George, Hon. Mr. Gisborne, Mr. Macandrew, Mr. Reid (Chairman), and Mr. Seddon.

The minutes of previous meeting were read and confirmed.

On the motion of Mr. Macandrew, it was unanimously resolved that the following report, submitted by the Chairman, be adopted, and that the Chairman report the same to the House, namely:—

That the Committee have carefully considered the question referred to them, and have taken evidence thereon of Mr. Blair, Engineer in Charge for the Middle Island; Mr. O'Connor, District Engineer for Westland; Mr. Wylde, civil engineer; Mr. Brown, Registrar-General; and the Hon. H. H. Lahmann, M.L.C.

The proposed diversion would lengthen the line by about ten miles, but no complete survey has as yet been made which would furnish a reliable estimate of the additional cost of construction which the diversion would entail.

The Committee are of opinion that, in the case of no great additional expenditure being caused by the diversion or of any steep gradients being necessary, the connection of three comparatively large centres of population by a loop line with the termini of Hokitika and Greymouth would insure a much larger reproductiveness than can be anticipated from the original line along the beach. A vast extent of valuable land, rich in timber and minerals, would be opened up; a large increase of goods and passenger traffic would be secured; and permanent settlement promoted.

The Committee feel assured that the diversion of the line in the manner indicated would in every respect prove to be of greater advantage than by the construction of two branch lines to Kumara and Goldsborough. The length of line in the former case would be shorter, and the necessary additional expenditure for plant of £5,000 on each branch line, together with the working expenses estimated at £25 per week for each of the branches, would be obviated.

The Committee therefore recommend that the survey should forthwith be made to show the best line of diversion and its probable cost; and, should the cost of the diversion not increase the original estimate of the whole line, or only necessitate a small addition thereto, that the works should be proceeded with in the direction indicated immediately upon the survey being completed.

While the survey is being proceeded with, no delay need take place in the formation of the line to the Arahura and Teremakau Rivers, nor in the construction of the bridges over these two rivers.

The Committee would therefore further recommend that these works be in the meantime prosecuted with all practicable despatch.

The Committee then adjourned.

MINUTES OF EVIDENCE.

TUESDAY, 25TH NOVEMBER, 1879.

Mr. W. N. BLAIR, Engineer in Charge, Middle Island, examined.

Mr. Blair.

25th Nov., 1879.

1. *The Chairman.*] This Committee, you are aware, Mr. Blair, is appointed to inquire as to the expediency of constructing a line of railway from Hokitika to Greymouth, in order that it may pass through Stafford Town, Waimea, and Goldsborough. As you were in Wellington we thought it would be advisable to summon you to attend to give evidence and produce papers in connection with the subject. Perhaps you would first of all tell the Committee what the cost of the railway would be, and what would be the difference between the cost of the line at present contemplated and that spoken of?—I produce a map of the district, and also a plan showing the levels. This [pointing to the map] is Greymouth, and that is Hokitika, and the proposed line runs along the beach. It is very straight and flat—indeed, it is almost level. This plan also shows approximately where the diversion would come, and also where the branches would be—that is, in case of branches being made. Here is the diversion, and here are Stafford Town and Goldsborough, and this is Kumara. The plan I now hold in my hand shows the levels over the two lines. The one, as I have said, is practically level. With regard to the other the ruling gradient would be 1 in 50, but the curves would be very sharp, probably about 5-chain curves.

2. Is that pretty well on the same line as the present tramway is—that from Greymouth to Kumara?—Yes.

3. *Mr. Seddon.*] What is the distance, the entire length of the deviation?—The increased distance is eleven and a quarter miles.

4. What is the length of the branch line from the Teremakau to the Kumara?—Five miles; a shade over five miles.

5. Then to make a loop instead of a branch to join the railway again would involve the addition of six miles?—Yes; it would be the difference between five miles and eleven and a quarter miles—about six miles.

6. The intention is to make a branch line from the Teremakau to Kumara, is it not?—I have not heard.

7. Have you a report of the year 1877 on this subject?—No, I have not got it; but I believe there was a report. A Committee sat that year.

Mr. Seddon: Perhaps the Clerk would get the report for 1877.

8. The next question I wish to ask is, what is the population between the Teremakau and the other point? Is the district inhabited at all?—There are very few people there, I believe.

9. What country does it run through?—Poor unproductive country.

10. Any timber?—I do not think there is timber along the sea-coast—none of much account.

Mr. Blair.
25th Nov., 1879.

11. The beach is on the westward of it, is it not?—Yes; it runs within a very short distance of the beach.

12. Do you know the population in the Waimea, Stafford Town, and Kumara District?—No.

13. Is it a thickly-populated district?—Yes.

Hon. Mr. Gisborne.] We can get the extent of the population from the Registrar-General, according to the census.

14. Mr. Seddon.] Now, as an engineer, do you believe it would be preferable to have a branch or a loop line in a case of this kind, as a matter of public policy?—So far as the working of the line is concerned a loop is generally preferable to a branch, but it all depends on the length of the loop.

15. Yes; but I mean taking into consideration that one would go along the beach through unproductive country, and with no population, whilst, with the addition of six miles, the other would go through centres of population—through country that is settled. Taking this into consideration, which do you think would pay best, as a matter of public policy?—It all depends on what the future of the railway is to be: whether this line is intended to run eventually to Okarito or in that direction.

16. Provided with a population at Kumara, would it be advisable to take a line of railway to that population?—It is all a question of traffic.

17. There are no engineering difficulties?—No, there are really no engineering difficulties; but, of course, the gradient of 1 in 50 is a comparatively serious thing.

18. The Chairman.] What is the original estimate of the cost of the line?—£220,000.

19. And what would be the difference in case of bringing it inland?—I have not made a detailed survey, but I fancy it would cost £8,000 per mile, including plant.

20. What is the line costing now per mile?—I do not know what the contracts are, but they only include formation, not the railway complete.

21. At the Kapitea and Waimea there would be two very large bridges. Mr. O'Connor, the District Engineer for Westland, says, according to this report of 1877: "From 4 miles 60 chains to 12 miles 52 chains the line follows along the foot of terraces about 20 feet from the sea, passing over old gold-workings. The ground throughout this distance is rough, but there would be no heavy earth-works; and the only bridges worth mentioning would be those over the Waimea and Kapitea Creeks, each consisting of about three 40-foot spans, with small spans at ends." There would be no bridges going inland, would there?—You would have to cross the same rivers going inland.

22. Have you been along the Greenstone Road?—I have been along the road to Kumara.

23. Would there be any bridges there?—They would be very much smaller there than at the mouth.

24. What would be the source of traffic on this line from Hokitika to Greymouth?—Very small under any circumstances. It would be timber chiefly, and coal. Coal from Greymouth to Hokitika, and possibly timber from Hokitika to Greymouth, and general merchandise traffic between the two places.

25. And also the passenger traffic between Greymouth and Hokitika?—Yes.

26. There is no passenger traffic from the beach, is there?—No; the intermediate passenger traffic would be from Kumara to Stafford Town.

27. Are there coaches running there?—Yes, two coaches a day, carrying passengers.

28. Then you estimate these additional six miles would involve the expenditure of £48,000—that is, at £8,000 per mile?—Yes, something like that; but I think this portion of the line would be the most difficult. The country is pretty rough, and there would be some very sharp curves.

29. At any rate, the average for the six miles would be £8,000 per mile?—The maximum amount to complete the loop would be £48,000?—Yes, something like that; assuming the branches were to be made under any circumstance.

30. Taking all circumstances into consideration, would you not be in favour of making a loop line in lieu of having simply a branch to Kumara?—I think that if the two branches had been decided upon it would have thrown the balance of advantages in favour of making a loop; but this other branch to Kumara not being so easy of construction, this is not so apparent.

31. Hon. Mr. Gisborne.] Now, Mr. Blair, I want to have this matter put more clearly before me. Show me on the map which is Hokitika and which is Greymouth?—[Witness pointed out these places on the map.]

32. What would the cost of the railway be from Hokitika to Greymouth?—£220,000.

33. There are two other proposals besides the one to which this amount refers. One is to go from some place on the beach as far as Stafford Town. What survey have you got of that?—Nothing, except the reconnaissance survey, the plan of which I hold in my hand.

34. What is the estimated cost of that line?—It would cost about £8,000 per mile.

35. I want to impress on the Committee that there are three proposals altogether in reference to this railway; and now I want to know particulars of the cost (after making calculations).—The present line between the two places, a distance of eight miles, at £8,000 per mile, would be £64,000; the loop line, a distance of nineteen miles, would cost about £152,000; and the branches £72,000. Let us take it as it costs from Hokitika to Greymouth by beach. It would cost £220,000.

36. Very good. And supposing you had two branch lines?—The branches would be nine miles long. Say, £80,000.

37. With branch lines, then, the railway would really cost £300,000? Is not that it?—Yes.

38. Well, then, with the diversion or loop?—About £320,000.

39. But you have not had detailed surveys made, have you?—No. I think the first branch will be very heavy and the line a bad one, because Mr. O'Connor, who has given me a report on the subject, says, "Heavy side-cuttings—partially through gold-workings—in some places diversion will probably be required, to avoid curves sharper than 5 chains." He makes the minimum curves to be 5 chains, which are very sharp.

40. As between the branch lines, then, and the diversion the difference in cost would be £20,000. The diversion would cost £20,000 more than the branch lines. Which do you think would pay best?—I would rather have the diversion than the two branch lines.

41. Then the question is reduced to one affecting the branch lines and the diversion?—Yes.
42. Well, the line along the beach would simply connect Hokitika and Greymouth. It does not go through any centres of population?—No.
43. By the diversion it goes through Kumara, Goldsborough, Stafford Town, and Waimea; they are all centres of population?—Yes.
44. And it goes through thickly-timbered country as well?—Yes.
45. Have you any means of showing the probable traffic along the beach compared with that on the line through Kumara and Goldsborough?—No.
46. I suppose Mr. O'Connor could tell us that?—Yes, I think so.
47. And he is coming up?—Yes.
48. When?—On Monday.
49. Is it your opinion, then, that the diversion would be more productive than the line along the beach?—I really do not know. I should be afraid to give an opinion on it, because I am quite sure that this diversion would almost spoil the through traffic from Hokitika to Greymouth.
50. Why?—Because you could go to Hokitika by coach from the Teremakau as fast as you could go by rail by the diversion.
51. *Mr. Seddon.*] Is there a road there?—No; but suppose a road was made.
52. *Hon. Mr. Gisborne.*] Do you know how many trams run every day between Greymouth and Kumara?—Three, I believe.
53. And from Kumara to Hokitika coaches go twice a day?—Yes.
- Mr. Bunny:* The trams are not a very delightful way of travelling. I have been round that country myself.
54. *Hon. Mr. Gisborne.*] If the diversion were executed, articles of consumption intended for conveyance between Greymouth and Hokitika would be taken by railway?—Most probably.
55. How would they reach Hokitika?—They would be taken from Greymouth to Kumara by tramway, and then go on through Goldsborough.
56. *Mr. Seddon.*] Is there much direct through traffic?—Comparatively little.
57. Really, then, the traffic is from Greymouth to Kumara, and from Hokitika to Kumara?—Yes, that is practically the case. And the railway line would take all that traffic.
58. Then the line along the beach would take very little of that traffic.
- 58a. *Mr. Bunny.*] It would take only the through traffic from Greymouth to Hokitika?—That is all, and it is very little.

59. *Mr. Seddon.*] Do you think there is sufficient trade to warrant the expenditure of constructing a line from Greymouth to Hokitika alone?—I have not been asked the question before, and at present I hardly know how to answer it positively.

60. Which would be the most likely to become reproductive? Which would be the most payable or most likely to pay from a commercial point of view?—It would all depend on the question of traffic.

Mr. Bunny: You must bear in mind that we have not to discuss whether it is advisable to connect Greymouth and Hokitika by rail. The money is already authorized. The question we are considering is whether it would be better, by spending £80,000 or £100,000 more, to take in all this country inland a little.

Hon. Mr. Gisborne: And it is possible that on a closer survey this excess of £100,000 may be considerably reduced.

Witness: I do not think we can reduce it.

61. *The Chairman.*] When was this rough survey made?—Just recently; within the last month. It is a rough survey made for the whole of the deviation.

62. *Mr. Seddon.*] Has it been taken from surveys already made?—Yes.

I thought so. Well, I do not think we can do anything more till Mr. O'Connor comes. He will be here on Monday.

TUESDAY, 2ND DECEMBER, 1879.

Mr. W. R. E. BROWN, Registrar-General, examined.

Mr. Brown.

2nd Dec., 1879.

63. *The Chairman.*] You produce this plan?—Yes; it shows all the localities where there is a population.

64. *Mr. Seddon.*] The first question, Mr. Brown, is, what is the population between Whitcombe Town and Arahura, on the beach following this railway line?—I shall have to total up the numbers.

65. Take from the River Teremakau?—There are 3,177 persons in the Arahura Riding. There are about 239 persons in the beach localities in the Arahura Riding.

66. Will you name the localities?—The divisions on the map marked 15, 16, 17, 18, 19, and 20 comprise the Arahura Riding. The population is contained in the first five named.

67. What are the names of the localities on the beach?—There is Whitcombe, 12 persons; Waimea Creek, 135 persons.

68. But that is not on the beach?—Waimea Creek comes out on the beach; and as the returns do not show on what part of the creek the population reside, I gave them as beach population.

69. I want to get what is along the railway line?—I can only give you what are shown in the returns published. I can state approximately what are on the coast.

70. Well, take the sea-coast?—On the sea-coast, otherwise undescribed, there are five—Chesterfield, 30; Auckland Beach, 27; Arahura Sea-beach, 23; Arahura River, 7; Whitcombe, 12.

71. One hundred and four; that is right. Now, what are there between the Arahura River and Teremakau River?

The Chairman: There is a large population between that and Greymouth.

72. *Mr. Seddon.*] Well, what is the total population of the Arahura Riding?—3,177.

73. *Hon. Mr. Gisborne.*] Does that include boroughs?—There are no boroughs in that riding.

74. There is Kumara?—The boroughs are not included in ridings.

Mr. Brown.
2nd Dec., 1879.

75. *Mr. Seddon* : And the total population of Arahura Riding is 3,177?—Yes.

76. What is the population of the Borough of Kumara?—1,275.

77. *Hon. Mr. Gisborne.*] And Pindleston?]

Mr. Seddon : That is in the riding.

78. *Hon. Mr. Gisborne.*] What is the population of the Greenstone or the Pounamu, County Grey—the Hohonu River?—In the Hohonu Riding the population of the Greenstone Creek is 110, and of the Greenstone Road 23. The whole of the population of the Hohonu Riding is 526.

79. Have we got Stafford Town?—That is included in the Aharura Riding, representing 3,177.

80. *Mr. Seddon.*] When was this census taken?—In March, 1879.

81. Since March, 1878, a rush has taken place at Westbrook, and that would mean an increase in the population; but you cannot, I suppose, give any information about it?—I cannot.

Mr. O'Connor.
2nd Dec., 1879.

Mr. C. Y. O'CONNOR, District Engineer, Westland, examined.

82. *The Chairman.*] *Mr. O'Connor*, we have had *Mr. Blair's* and *Mr. Brown's* evidence; and, as the Committee heard that you were coming up, they thought they would like to hear your evidence. The Committee, as you know, have met for the purpose of inquiring as to the deviation of the Hokitika and Greymouth Railway?—I do not know if I can say much more upon it than I have said in my report.

We have not had your report.

Mr. Seddon : The report was made in 1877.

The Chairman : You had better give your opinion from a professional point of view.

83. *Hon. Mr. Gisborne.*] Did you make a report on this matter?—Yes; a report of mine accompanied the map, which I see is before the Committee.

84. What date is it, and where is it?—It is the same date as the map; and I sent it up with the map.

85. Is it this year?—Yes; about a month ago.

86. I have never seen that. Will you read it, please? What is the date?—The 20th October, 1879. [Report put in, and read, as follows:—]

Hokitika, 20th October, 1879.

In re Hokitika and Greymouth Railway. Proposed Deviation through Stafford Town, Goldsbrough, and Kumara. Memorandum for the Engineer in Charge, Middle Island, Government Buildings, Wellington.

IN accordance with instructions contained in your telegram of the 10th instant, I have the honor to forward herewith plan and sections, showing grades on original line of proposed railway, as well as on proposed deviation of same above alluded to; and also sections showing grades along the branch line, proposed as an alternative in lieu of the said deviation; also a copy of the memorandum on the subject, furnished to the County Council of Westland, at their request, in June last.

The sections showing grades along proposed deviation and branch lines are necessarily only approximate, as no regular survey has been made along them; but they are, nevertheless, pretty reliable in the main, as a good deal of data, in the shape of levels taken for roads and water-races, was to hand, from which they were compiled.

Further than this it is scarcely necessary for me to say more than I have already said on the subject in my memorandum to the County Council above alluded to; but I should mention, as regards the crossing of the Kapitea Gully, therein mentioned, that this, which on road line is 40 feet deep for a distance of 20 chains, would be considerably reduced by following the line now proposed; said reduction, however, being attained by an increase of a mile in the length of the proposed deviation, which is now eleven and a quarter miles longer than original line, instead of ten miles longer, as stated in my memorandum hereinabove mentioned.

C. Y. O'CONNOR, D.E.

Copy of Memorandum on subject of proposed Deviation through Stafford Town, Goldsbrough, and Kumara, furnished to County Council of Westland, at their request, on the 20th June, 1879.

The proposed deviation would increase the length of line by ten miles. The estimate (and probable cost) of the line as it now stands is, for works and permanent way alone, £6,000 per mile. It is evident to any one on the face of it that the cost of the proposed deviation would be at least as much per mile as the original line, and therefore the extra cost involved by the deviation would be at the least £60,000; and two branch lines to connect both Goldsbrough and Kumara with the main line could be constructed for less than that amount. In fact, the aggregate length of the two branch lines would only amount to the excess in length of main line which the deviation would cause; and the branch lines, while fulfilling all the requirements of the case, would avoid the difficult country between Goldsbrough and Kumara, especially the crossing of the Kapitea Gully, which the proposed deviation would encounter.

Besides all this, it has to be remembered that the Hokitika-Greymouth Railway would eventually become a portion of a main-trunk line from Nelson to Dunedin; and, looking to that contingency, it would not be wise to increase its length by ten miles unnecessarily, and so bring the whole of the large traffic which might be anticipated upon a main line of the sort over an extra distance of ten miles, when the end sought to be attained by the proposed deviation could as well be attained by branch lines.

There is also another point against the deviation, namely, that while increasing the length it would at the same time increase the inclination of the grades, and this, for a line that would depend greatly for its traffic on the carriage of timber and coal, would be very undesirable; whereas, if Kumara and Goldsbrough were connected with the main railway by branch lines, the grades on these would not be of much importance, and a given length of such branch lines could therefore be constructed at a far less cost than the same length of main line over the character of country in question.—C. Y. O'CONNOR.

87. *Hon. Mr. Gisborne.*] With regard to the point where deviation would commence—4 miles 60 chains, I think—that is on the northern side of the Arahura, is it not?—No; 4 miles 60 chains is on

the south side of the Arahura River. It is at about 5 miles 60 chains, I think, that the deviation commences. *Mr. O'Connor.*

88. *Mr. Seddon.*] It states in the printed evidence, 3 miles 70 chains.—If so, the 3 miles 70 chains must be a misprint. *2nd Dec., 1879.*

89. At 4 miles and 60 chains the line reaches the foot of the terrace.—Yes.

90. That would be on the north of the Arahura.—Yes. I find that what the printed evidence really says is that at 3 miles 70 chains the line crosses to the east side of the road, and then passes over the Arahura River at a point 50 chains from the sea. It does not state the mileage on line at which the crossing occurs.

91. Then the bridge over the river would be of 60-foot spans?—Yes.

92. What is the distance here between the points of leaving and rejoining the old line?—Eight miles and three-quarters.

93. You would propose making a branch line, would you not, from the Teremakau (Whitcombe) to Kumara?—Yes.

94. What is the length of that branch line?—Six miles.

95. Would the distance from the bridge at Whitcombe to Kumara be six miles?—Yes.

96. And what is the distance from the junction of the deviation with main line at Flowery Creek to Goldsborough?—Five and a half miles.

97. That would be eleven miles and a half for the two branch lines?—Yes.

98. Then the length of the two branch lines necessary to connect the main line with these two places, together with the intervening length of main line itself, amounts to twenty miles and a quarter?—Yes.

99. Well, now, what is the total length of the road from Whitcombe through Kumara and Goldsborough to Flowery Creek?—Twenty miles.

100. From the junction at Whitcombe to Kumara, and thence through Goldsborough and Stafford Town, and down to the proposed junction with the main line at Flowery Creek, would be twenty miles?—Yes.

101. Would the cost of the branch from Flowery Creek to Goldsborough be anything more than the average cost along the other part?—Yes.

102. Do you mean the branch lines?—No; I meant if constructed as a main line. If constructed as a branch line it would cost about the same as the average of the line along the beach.

103. Are there any great difficulties between Whitcombe and Kumara, or would it be as cheap as running along the beach?—There are no great difficulties. It would be practically as cheap as the beach line.

104. Now, from Kumara to Goldsborough is there any very expensive work if you went round the extra distance, or any very serious engineering difficulty?—It would be a very heavy line.

105. Would it be heavy in grade?—Not very heavy in grade, but heavy in earthworks.

105A. Then, as to the portion between Goldsborough and junction with main line at Flowery Creek?—With regard to this portion I would wish to explain that if a branch line was made to Goldsborough it could be made very cheaply; but if it is to be part of the main line it would be very expensive. If it is a portion of the main line it would have to follow steep hill sides, and in order to get up to the level flat at foot of German Gully you would have to pass Goldsborough at a point about fifty or sixty feet above the level of the creek, and you would also have to pass above Stafford Town a very considerable height.

106. You would not surely take it on the side of the workings. Have you any levels along the hillsides in question?—We have taken the levels of the creek itself.

107. And would you lay it out through Stafford Town on the side of the hills at south side of creek or where?—It would have to go on the south side, or otherwise you would have to bridge across the Waimea Creek at an enormous elevation. The Waimea Creek runs at right angles to the sea, and the railway would have to go on the south side of it—that is to say, if it is made as a portion of the main line. If it is made as a branch line it could be made on either side, whichever is preferred.

108. There would be two large bridges on present proposed line along beach across the Waimea River and Kapitea Creek, would there not?—Yes.

109. But they would not be required to be so large in order to cross the same creeks on the deviation line, would they?—No, they would not.

110. Is there any chance of getting a line of railway between Whitcombe and Goldsborough direct? Is there not a chain of ranges running along between Waimea, Stafford Town, and Kumara, which would prevent this?—Yes; there is a range of terraces there that you cannot get through, between Chesterfield and Goldsborough. There is no chance whatever of getting a railway along any route intermediate between the beach route and the deviation now under consideration.

111. Is there not good forest along the deviation line?—Yes; with the exception of three miles, there is good timber on the whole line.

112. Now, what would the formation of the original line cost? What do you anticipate the cost of that line would be, according to the price paid on recent contracts? The construction of the line simply—viz., formation and permanent way?—As stated in my report, I think the cost of construction only would be £6,000 per mile. The total original estimate, including rolling-stock and stations, was £220,000 for 23½ miles.

113. *The Chairman.*] Do you think that estimate low or high?—I think it is a liberal estimate.

114. What would the estimates extend to by making the new line, as compared with the old one?—In the report I have just read I gave it as a minimum. It is rather hard to make an estimate without having proper surveys, so I put it at a minimum based on the cost of the original line, in order to be sure that I was not overstating the case as against the deviation. There is no doubt, therefore, that it would cost more. Taking the minimum, we made out it would cost £60,000 more.

115. You gave the minimum?—Yes, I gave the minimum; so that I think it would cost more than that.

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116. Do you think from what you now know of the decrease in the cost of material, &c., that the line, with the deviation now under consideration, could be completed at or under the original estimate?—No, I do not.

117. *Mr. Seddon.*] Do you know that the line, including deviation, could not be made for £220,000?—I feel sure that it could not.

118. Would you consider it proper, in order to give people out of the line of railway like facilities to those along it, that a branch line should be made to Kumara?—I think that is a question of policy, and scarcely a matter of professional evidence; but, as one of the community, I think it would be very desirable.

119. I understand that you have not made an actual survey of the route, Mr. O'Connor; but you can probably tell us what is the steepest grade?—I have estimated that there will be grades at least as steep as 1 in 50; and, in connection with this, I should like to show you the evidence we have upon that, because you might think it is more rough than it is. This [producing a map] is a map got up in connection with proposed water-races some years ago, and you see it is thickly studded with levels; and it was through this that we compiled the section and statement of grades along deviation line: so that, although, as I said before, we have had no special survey made of the deviation, there was sufficient data to enable us to form a pretty reliable estimate of what the grades would be.

120. Very well, then, what is your steepest grade?—Well, we know we will have to have 1 in 50.

121. *Mr. McLean.*] You are talking now of the deviation?—Yes.

122. *Mr. Seddon.*] Do you consider 1 in 50 a heavy grade for railway purposes?—It requires powerful engines, and a different class of engine from what we are using on the West Coast.

123. *The Chairman.*] But it would be a very small portion of the line of that gradient, would it not?—No; there is a lot of it. There are in all miles of it—viz., two miles together at one place, a mile and a half at another place, and so on at different points.

124. Is it as steep as 1 in 50 anywhere between Greymouth and Kumara?—Yes, in some places it is.

125. *Mr. Seddon.*] What is there then between Canterbury and Otago?—There is lots of 1 in 50 in Otago. None as yet, I think, in Canterbury.

126. There is some 1 in 15, is there not, in Otago?—No; nothing so steep as that.

127. But the Rimutaka, near Wellington, is 1 in 15 is it not?—Yes. From 1 in 15 to 1 in 17, I think.

128. The next question I wish to ask you is this: You speak about this line being constructed to Otago: what distance have you got to go before you get to Otago from Hokitika, and what is the country you have to go through?—It is something like 400 miles, I believe, but I do not remember exactly. The exact distance is given in the Public Works Statement for this year.

129. Do you think the traffic solely between Greymouth and Hokitika would pay expenses?—The original estimate made out that it would do so.

130. Do you think it is reasonable to mix up the present question with the remote contingency of a line from Greymouth *viâ* West Coast to Dunedin?—

130A. *The Chairman.*] What Mr. Seddon wishes to show is, that our impression is that the Haast Pass route is an impracticable route at present, or, at any rate, not likely to be gone on with at present?—As to that, it is of course a matter of policy for the Government to decide. I looked at it from the view of what I saw in the Public Works Statement, and thought it my duty to point out that if the construction of that route *viâ* Haast Pass was in contemplation, the deviation of the Hokitika-Greymouth Railway through Kumara would be undesirable. For many years to come, however, there will be no chance of a railway *viâ* the Haast Pass to Otago. I do not think, that even if commenced now, it would probably be completed for thirty years or so.

131. *Mr. Seddon.*] In the meantime, then, as a matter of policy and expenditure with a view to repaying working expenses, the loop line is preferable to the line on the beach?—You would get more traffic by the loop line than by the beach.

132. Would there be any traffic between Hokitika and Greymouth? For instance, if the line was made, would it take the timber to the shipping ports?—Yes. It would probably carry timber from the Teramakau and intervening points to Hokitika on the one side, and Greymouth on the other.

133. But the only through traffic between Hokitika and Greymouth would be coal, would it not?—Yes, except when one bar happened to be good and the other bad.

134. What tonnage of coal do you think there would be taken from Greymouth to Hokitika?—About ninety tons a week was the estimate made some years ago. I do not suppose there would be so much now.

135. You have not made an actual survey of the loop. Do you not think it would show to much better advantage if you had an actual survey made?—I cannot say. The information supplied is as complete as I can give it from the data I had to go upon. I have no reason to think it would be either better or worse.

136. You admit that by going through Stafford, and Goldsborough, and Kumara it would be only twenty miles, whereas by making branches to Goldsborough and Kumara, in addition to the line along the beach, it would be a quarter of a mile longer?—Yes.

137. *The Chairman.*] If you remember, before the tramways were made from Hokitika and Greymouth, they never imagined they could have got such level lines?—No, not at that time; but the country is better known now, and I have availed myself of all the information obtainable about it. But it will be observed that I have not in this matter gone into any question of excavation at all—that is to say, I have not gone into any question of gullies or terraces, but have merely shown the ruling gradients which the main levels of country will require to be adopted, and these grades no survey will get over.

138. *Mr. Seddon.*] Would it not require two extra plants to work the two branch lines?—It would, I think, unless the traffic was very slight.

139. What would be the cost of the plant required to work these two branches?—At the outside, I would say about £10,000.

140. And by the loop that would be saved?—Yes.

141. Now, the cost of maintenance of these two branch lines would be double the cost of the loop, would they not?—Only about the same, I believe; as, for instance, if you want a train a day each way between Greymouth and Kumara, it would travel over same distance if it went by the loop as if it went by the branch line.

142. As an engineer of some standing, do you not think a loop is preferable to this branch for opening up the country, and saving cost of maintenance and avoiding an unnecessary route?—I think the loop would be easier to work if traffic is slight; but if a great deal of through traffic is anticipated I think the branch line would be the best.

143. But you do not anticipate that the Greymouth and Hokitika Railway, if made along the beach, would have much traffic?—I do not think there would be much through traffic at present.

144. *Mr. McLean.*] Taking the flat line along the beach, would the maintenance be great?—No; it would be an easy line to maintain.

145. Then, taking the deviations and cuttings at the sides of the hill, is it very steep ground?—Yes, it is so; and, although that is a question I have not gone into in my report, it is a serious one. Nearly all the workings are on the south side—that is to say, the Hokitika side of the creek.

146. *Mr. Seddon.*] And your railway would also be on the Hokitika side of the creek?—Yes; we should have to follow the south side of the creek.

147. Could you not get below the slaughter-yard there, on the German Gully side?—We might. If it was made as a branch line it could be done right enough; but if made as a main line, with grades of 1 in 50, I am afraid we should get to such an elevation that we could not cross the creek without very great expense.

148. *Mr. McLean.*] What is your opinion of the permanence of the population of Kumara?—It should be a pretty permanent one—to extent of ten or fifteen years, at any rate.

149. *Mr. Seddon.*] Waimea and Goldsborough are about the two best places on the coast, are they not? You have not sufficient water to supply them with, I believe?—No; there is not sufficient water to supply the present demand.

150. What would a regular survey of the deviation line cost?—It would cost about £80 a mile—for twenty miles, about £1,600—or to provide for contingencies, say, £2,000.

151. *Mr. McLean.*] How much of the line is let by contract at the Greymouth end now?—Three miles and a half.

152. *Mr. Seddon.*] There is nothing to prevent the two bridges going on at the present time, is there—the construction of the two bridges across the Arahura and Teremakau Rivers?—The Teremakau Bridge cannot be gone on with until it is determined which route to take; and then most of the material for it will have to come from England, so it cannot be commenced on the ground for a considerable time.

153. *Mr. McLean.*] How long will it take to do that survey?—About three months.

154. *Hon. Mr. Gisborne.*] Did I not understand you to say the present line of railway would cost £220,000?—Yes; that is the estimate.

155. If branch lines were made they would cost £11,000 more, would they not?—If both branch lines were made, in addition to the main line, they would cost £50,000, in addition to the £220,000.

156. And if a loop line was made it would cost £60,000, in addition to the £220,000?—Yes.

157. Then the difference in cost between the branch lines and loop lines would not be great?—Not on that basis; but it must be remembered that, while the estimate for the branch lines is probably a liberal one, the estimate for the deviation is a minimum one.

158. Suppose a private company determined to make a railway line from Hokitika to Greymouth, and you were not only their professional engineer but also adviser—their general adviser—would you advise them to make a line along the beach, with branch lines to Kumara and Stafford Town, or would you advise them to make a loop line—looking at all the circumstances as you know them?—What I would recommend would be to make a main line along the beach, with a branch to Kumara only.

159. How much do you estimate that at?—The branch to Kumara could be made very cheaply. It would cost about £25,000.

160. Would your advice be modified by the possibility or probability that the line would be extended in future years, either by Greymouth to the East Coast, or by Hokitika through the Haast Pass?—No; I think not. I think that I would advise as I stated above, even if the line was never going any further at all.

161. Or if it was going further?—Yes, certainly so; if it was going further.

162. You know the railway system in England, I suppose?—Yes.

163. Do you not know of companies making detours in order to meet centres of population?—Yes; I do.

164. After all, the detour in this case would not be more by the loop line than eleven or twelve miles?—That is all.

165. *Mr. Seddon.*] And the estimate for the loop is £280,000, while the estimate for the original line, with the two branches, is £270,000?—Yes; but I want to say that this estimate for the loop is a minimum estimate.

166. *Hon. Mr. Gisborne.*] How long would the survey take?—Three months.

167. How much would it cost?—Say, £2,000.

168. *Mr. Seddon.*] With regard to the question of estimates again, I understand that, with the cost of plant for the branch line added, the cost of original line, together with the branch lines, would be exactly the same as the cost of the deviation?—The one is an estimate, and the other a minimum estimate. If I was asked what it would really cost to make the deviation line, I should say it would cost fully £100,000 more than the original line along the beach.

169. In taking a fair average, you said £6,000 a mile?—That was the average of the beach line, not of deviation.

170. *Hon. Mr. Gisborne.*] For £2,000. I suppose we could distinctly know in two or three months the exact cost?—Yes, I think so, with moderate weather.

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171. What would this branch to Kumara cost?—£25,000.

172. *Mr. Seddon.*] That is £4,000 per mile. From Kumara to Goldsbrough; what did you estimate that at?—It would cost at least £8,000 per mile.

173. And from Goldsbrough to Flowery Creek?—It would cost at least £10,000 per mile.

174. *Hon. Mr. Gisborne.*] Where does Kumara get its supplies from?—From Greymouth and Hokitika; principally from Greymouth, I think.

175. What is the present traffic from Hokitika to Kumara?—Between Hokitika and Kumara there are two coaches each way daily, besides drays and wagons.

176. Have you any means of giving us a comparative return of the traffic on what would go by the railway in the shape of freight and passengers? There are four lines proposed now. There is one laid out at present: what would be the estimated traffic on that? One by loop line: what would be the estimated traffic on that? One a branch to Goldsbrough and Stafford: what would be the estimated traffic on that? And one to Kumara: what would be the estimated traffic on that? Have you no means of giving us a comparative estimated traffic on each of those lines?—We have not sufficient data to give an estimate accurately, but I went into the matter carefully this morning, and have formed some idea of it, and I find, first, that it was stated in the original estimate, made some years ago, that the traffic would probably amount to £200 a week on the beach line; and, second, that though the route, if the branches are made, may affect the question of working expenses, it will not naturally affect the quantity of traffic, and I estimated that, to connect with Kumara, Stafford Town, and Goldsbrough, by loop or branches, would probably increase the returns by £60 a week over and above those estimated for the beach line.

177. And if there is a branch to Kumara alone?—Well, I cannot say exactly; but I do not think it makes very much difference going to Stafford Town.

178. What would be the difference in the cost of working between the loop line and the two branches?—The working expenses of the branches would be perhaps about £50 a week in excess of those of the loop.

179. The loop will be so much less?—Yes. I think you would have to have an engine and carriages for each of the branches if the traffic is considerable.

180. If there were no branches I suppose the cost of working would be about the same. I mean that the loop line would not cost more than the beach line to work per mile?—It would cost a little more on account of the grades.

WEDNESDAY, 3RD DECEMBER, 1879.

Mr. Wylde.

3rd Dec., 1879.

Mr. JAMES WYLDE, Town Clerk and Engineer for the Borough of Kumara, examined.

181. *The Chairman.*] Your name is Wylde?—Yes.

182. And you are engineer and clerk?—I am Engineer and Clerk for the Borough of Kumara.

183. Have you made any survey of the proposed line of railway?—I have made a slight survey of it—not a detailed survey, but a reconnaissance survey of a great portion of the line, and I have made myself acquainted fully with all the levels of the country.

184. Are there many engineering difficulties in this proposed detour?—The one shown here on the map?

185. Yes.—This is a plan I have not seen, and I shall require to examine it a little more first. A portion of this corresponds with what I would have suggested myself, and a portion of it does not correspond. Over about two-thirds of the line there is no difficulty whatever. It is as easy country as I have seen anywhere on the coast for bush country.

186. Do you know the distance of the present line? It is twelve miles all but 11 chains.

187. From where?—From Teremakau River to the Arahura River.

188. What additional length would it make in making this deviation?—It would make between eight and nine miles.

189. And what would you estimate roughly the cost per mile in constructing the railway over such country as this?—I should put it at the lowest cost that Government railways are costing at the present time in flat bush country; and, from what I know of the course of line, I should say that £5,000 a mile would be ample provision for it completed. I am aware of work being done now at a cost very much lower than it was supposed could be done. Five thousand pounds a mile is ample, with an allowance of £5,000 for a little extra work between Goldsbrough and Stafford Town.

190. The heavy part of the work is between Goldsbrough and Stafford Town?—There is no heavy work anywhere in heavy cuttings or bridges, except the ordinary culverts over small creeks; and the only part where a little extra expense would be incurred would be between Goldsbrough and Stafford Town; and, if I did it, I would take it down to Waimea Creek, which would make it slightly more expensive there. Assuming it to be nine miles, which would be fully the extra length, I would consider an extra £50,000 would be ample.

191. Then, as an engineer, you consider that the line of railway could be constructed at an additional cost, in this direction, of some £45,000 or £50,000 over and above the original estimate?—Yes; but we have to consider that if the original line is made it was always understood there would be two branches.

192. You might give some information about distances.

193. *Mr. Seddon.*] Mr. Wylde, you are acquainted with the country between the proposed deviation and the original line. How long has that original line been surveyed?—Well, I have nothing at all to prove the survey of it, but I believe it is three or four years or more. I could not give a definite answer to that. It was surveyed before the present line of country we are speaking of was settled—before gold was discovered to the extent that it is now. It was laid off before we discovered Kumara Gold Field.

194. Is there a range of hills running from the township at Kumara to Flowery Creek?—You could hardly call it a range. There is a cluster of hills between Teremakau River and Arahura.

195. It would be impossible, would it not, from the nature of the country, to put the tramways so as to carry timber from the Greenstone Road—the country on the eastern side of these hills—down to the sea-beach?—It would be impossible to put railways or tramways, except by two particular lines, which are now occupied by the road and tramways. You could not put direct lines through the bush.

196. You have made an actual survey from the Greenstone Road?—I have.

197. Is there any timber along the beach that would be marketable?—No; along the beach there is no timber of any value at all. It is all stunted scrub and bush, which is spoilt by the sea breezes.

198. Inland, between Christchurch Road, Greenstone Road, and this, can you tell us about what is the nature of the country?—It is fine flat bush, abounding in splendid red pine, silver pine, and rata. There are very large pieces of bush containing very large quantities of silver pine and rata. The former is the most valuable wood we have.

199. This would be practically shut out, would it not, if the line was along the beach?—If the line was along the beach it would not be opened in any way whatever.

200. Where are the supplies principally brought from to Kumara—the stores and so on?—They are brought from both Hokitika and Greymouth. They are brought from Hokitika by road, and Greymouth by tramway.

201. Do you know how many trams per day are running to Kumara?—There is a little alteration, but there were three a day each way.

202. Do you know how many wagons?—There is not much road traffic from Greymouth, but an immense traffic from Hokitika.

203. I wish to get at the number of horses employed in bringing stuff from Kumara by tram, and then we will take those bringing from Hokitika. In addition to the three trams running from Kumara to Greymouth, how many luggage trams are there daily?—I think there are but two. It is a subject I am not prepared to give much evidence upon. There are also a good many carts on the road. There is a road from Greymouth to Kumara as well as the tramway, but it is over a very high range, and goods are not carried to a great extent by it.

204. Do you know how many coaches there are running from Hokitika to Kumara daily, passing through Waimea and Stafford Town?—I think there are four coaches daily, each way.

205. Do you know how many wagons are on the road?—There is Keech and Malley's, Cameron's, Grey's, Smith's, and several others.

206. How long does it take them to go from Kumara to Hokitika and back?—They go one day and come back the next.

207. What tonnage would you estimate they would take each time?—The wagons are calculated to carry seven tons each time; but it is a matter I am not well up in.

208. Well, an average?—At the lowest I would put the average at four tons each. They carry seven occasionally. They are seven-horse teams.

209. That would be forty-eight tons per week drawn by wagons from Hokitika?—Yes.

210. Are there drays as well?—Yes.

211. What would you consider to be the number of passengers travelling by these coaches? What are they licensed to carry?—They vary—about fourteen passengers each, I think. At present I would put down a hundred daily for the two lines, seven hundred a week. The fares are very expensive, and it is bad travelling.

212. Is the population likely to be a permanent one at Kumara?—From what I know of it it is the most permanent gold field we have in New Zealand. It has every appearance of it. Within the last three or four weeks there has been a considerable extension of the gold field, and when the Government sludge-channel and other similar works are in full play, there will be a very large number of works to be done, and country opened up. The whole country appears to be auriferous, and it is a mere matter of time to open it all up.

213. Has there been an additional population since 1878 settled down at the northern side of the Teremakau River?—At Cape Terrace rush?

214. Yes.—Yes, considerable during the last few months.

215. What would you estimate the population of the Greenstone District at? It is set down in 1878 at 506 persons, what would you put it at now?—Well, the men are engaged now driving to their claims, so that they are employing few hands, but I would put them down at 200 in that locality. That track has just been made by the county authorities. I have been along it and found men driving all along the terrace.

216. Are the works of a permanent nature on the Westbrook side?—Yes. There is a large water-race called the Erin-go-bragh, which must be five or six miles long.

217. What is the carrying capacity of that race?—I should think thirty heads, perhaps.

218. Are there any engineering difficulties on this loop?—In the deviation? No; there are no engineering difficulties whatever. I may safely say that. I have already stated so, I think. If the railway had been carried by the present line of road there would be very great engineering difficulties to be encountered, because the present road is taken over this cluster of hills, but by going round the cluster, instead of going over it, it would not be so difficult.

219. What would be the length of the branch line from Whitcombe to Kumara?—Seven miles.

220. And from Goldsborough to Flowery Creek?—I have estimated the distance from Goldsborough to Arahura, but I am not quite sure what the distance is to Flowery Creek. It would be about seven miles.

221. Well, Mr. Wylde, you are an engineer by profession?—Yes.

222. If you were an engineer for a private company, and if it was contemplated to lay a line between Hokitika and Greymouth for the carriage of passengers and goods, and if you were asked a question as to the most favourable route of country, what would you advise under the circumstances? Where would you advise the lines to be laid, and your reasons why?—Well, as an engineer, I should always consider it my duty to lay out a line that would best supply the wants of the country. One drawing traffic from both sides is double the advantage of another drawing traffic from one side only, and, when the two alternatives present themselves, an engineer is bound to choose the one that would

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bring in the largest amount of traffic. That would apply to this case; a line along the beach would only draw from one side, and a line through the country would draw a traffic from both sides. This is the more serious, because the line along the beach passes along an utterly unsettled and valueless country. I would reject it at once as being utterly useless. I have gone carefully into the matter, and cannot see that the line along the beach would be of the slightest use to the country. It would never pay for running an engine along it unless these branches are made. If the branches are made they require an additional length of fourteen miles.

223. *Mr. McLean.*] The two branches?—Yes; and then they would not supply the country fairly. For instance, Kumara is far the largest centre for mining operations and settlement. You would have to go from Hokitika to Teremakau, and then back again up the branch line to Kumara, so that every ton of goods from that port would be handicapped, if I can so express it, very heavily. In that case the total length of line to be made would be twelve miles along the beach and fourteen miles—twenty-six miles. By striking out the useless part of the line along the beach, and joining the two branches, we have a line twenty-one miles long, and a saving of between five and six miles.

224. *Mr. Seddon.*] Do you know what would be the cost of plant necessary to work these two branches—trucks, and so forth?—It would depend entirely upon how the lines were worked. The main line being useless, it could be considered only as a portion of the branches. I think you would want an extra engine on one of the branches, and extra trucks. I suppose it would take from £7,000 to £8,000, more or less.

225. Well, there would be additional expense, would there not, for each of these branch lines, assuming there are two locomotives?—Yes; there would be additional labour required for the engine-driver, stoker, guards, men at the points at each place. It would probably entail, at least, an additional ten men to work it.

226. Would £50 a mile be a fair charge for a survey of that country right through?—Fifty pounds a mile for the deviation?

227. Yes.—Fifty pounds a mile would be far more than is ever paid now. I consider that would be an extreme price to pay. There is one portion of the line so well known—two-thirds of it so easy—that there is very little more to do than to cut the line. An engineer could give the bearings at once. The lines could be cut, levels taken, and the thing done very cheaply. There is little else to be done. I should say that an average of £30 per mile for that would be ample.

228. Well, now, as regards the grades. According to this plan it is shown that the steepest grades would be 1 in 50. As a professional man, do you look at 1 in 50 as a steep grade for a railway line?—It depends upon the length of it. On our present line 1 in 50 is nothing. In this case the grade would be a falling grade in the direction of coal traffic. If a heavy trade sprung up in coal in the direction of Hokitika the grade would be a falling grade to carry that coal. I cannot conceive that 1 in 50 would be required except for a short distance by Goldsborough. The fall from the farthest point inland to the sea-beach line is 400 feet in eight miles, which is equal to a grade of about 1 in 105. For the sake of economy it might be well to make one short piece of a little heavier fall.

229. Would there be any difficulty as regards sharp curves?—No; none whatever.

230. You do not think there would?—No; it is not country like the Brunnerton and Greymouth line. You would not have to curve round like you do there. That line is full of sharp curves, and it brings the coal traffic. This is a line through flat country, and there are no hills.

231. Are there any private properties that would be interfered with by this proposed route?—No. Starting at Teremakau, is seven miles to Kumara, and it would pass through Crown land and a reserve for the Borough of Kumara. There would be no difficulty there; and from there to Goldsborough, another seven miles, I only know of one section, 12 chains wide, and that is of no value worth speaking of, and you might say there is no compensation to speak of until you go to Stafford Town, and there there would be a slight compensation.

232. The ground has been worked?—Most of the ground has been worked, and abandoned.

233. And taking for granted that it is going to cost, say, £220,000, the original cost along the beach, and £27,000, the estimated cost of the loop?—No; that is not my estimated cost. Supposing work cost as much as estimated originally it would be that, but now I consider that £220,000 would be ample to make the line by the inland route. I am certain that would make it. The original amount of estimate is £9,400 a mile, which we all know, from Government returns of the cost of works now, is far in excess of what that class of work costs at the present time.

235. That is a liberal estimate, you think?—Very liberal; but it was done before the department had the experience it has now.

236. You say that it would not pay working expenses along the beach?—I think it would be perfectly useless.

237. There would not be sufficient returns?—No. In addition to that, there is no land for sale along the beach; and on the other line it would open up land for sale up to the Christchurch Road, and bring it all within easy access of the markets.

238. *Mr. McLean.*] Will you tell us the amount of the traffic on tramway between Greymouth and Kumara?—There are three trams a day, and the tram-car is generally full. I have not any particulars of what is taken, but the tram-car will hold sixteen or eighteen I suppose, and it is generally fairly full. I think it goes with an average of a dozen persons.

239. I suppose it would be easy to get returns of the traffic?—I have no doubt. This is not of course a subject upon which I am well posted up. It was not brought before me.

240. What is your opinion of the traffic between Greymouth and Hokitika? What traffic do you think there would be there? Do you think the railway would pay?—I have taken a great deal of care on the subject, and, if compared with other lines in New Zealand, I am convinced it would be the best paying line you have, after the Greymouth and Brunner line.

241. I mean along the beach between Greymouth and Hokitika?—I think it would be paying public money away without any return. There are two ports—Hokitika and Greymouth—and the line connecting these would be valueless.

242. Is it not a fact that sometimes you can work one port when you cannot work the other?—It

occurs occasionally; but that would hardly effect the case, because the small boats can be outside for a few days. I do not think the coast traffic along that line from town to town would be anything. I have never known stocks so low at one port that they could afford to bring them from the other by land.

243. You said there was considerable traffic between Kumara and Hokitika?—Yes.

244. You said that seven-horse wagons could carry seven tons?—Yes; and I know that very frequently they do. I have seen instances occur in which goods have had to be carried away, and have ascertained in that way that they have carried seven tons with seven horses.

245. They must be splendid horses?—They are splendid teams. I think on an average they have to carry four tons, and as they are seven-ton wagons the weight would not be so much on the horses comparatively as a single dray.

246. Have you any means of ascertaining pretty nearly the amount of freight going from Hokitika, and the number of passengers by coach?—It could be ascertained in a short time; but I could not give evidence myself that would be of any value just now. I should think the best means of getting at that would be to get the ordinary consumption of the population. In addition to that we have to add the Greenstone population, which is considerable, and the up-country population, and if you take the census returns you can ascertain what amount of goods they should consume, bearing in mind that miners are larger consumers than an agricultural population.

247. *Mr. Seddon.*] The population has been increasing lately?—Yes.

248. *Mr. McLean.*] Do you say there are four coaches running each way?—Yes; there have been always.

249. Are you an engineer?—Yes; I was Provincial Engineer of Canterbury for some time.

250. Have you been over the track this deviation would go over from Goldsborough to Kumara?—I know every part of it, I may say.

251. What sort of country would it be to make a railway through that portion of it?—I see no difficulty. I have not seen this plan before. It does not come from where I would have taken it exactly. I should have taken it along the creek.

252. Well, you say it would have been an easy thing to go towards Hokitika, as it would be mostly down hill?—Yes.

253. Have you seen that plan before?—No.

254. By that map have you not to keep up the same incline about the same distance as you have to get down?—Taking these distances, you have to get up six miles, and have to get down eight miles and a half. The Kumara side being only six miles, you have a shorter grade than you would have the other side; but for economical reasons the engineers thought it would be desirable to have one piece steeper than the others. It could probably be done in one grade, but it would cost more money on account of heavier cuttings, &c. It is 1 in 50 for a mile and a half, and that is not an extreme grade.

255. *Mr. Seddon.*] This line from Whitcombe to Sandy Stewart's Hill is pretty level, is it not?—It is a gradual rise. The difficulty originally was supposed to be from Kumara to Goldsborough; but the Kumara Borough Council pointed out that they could go round these hills.

256. *Mr. McLean.*] Taking the line from Hokitika to Greymouth, if you say it is a waste of public money, how was it started? Was there much pressure put on the Government?—I am not aware of it.

257. I mean at the time the contracts were let for the railway?—We were always told this country would be opened up by branches.

258. Suppose now, for want of money, we got stuck up at the end of these sections, would the others be any good to work?—It is doubtful.

259. Would it pay anything at this end where there is no tramway?—I do not think it would. They would never bring goods to the railway there. When that line was laid out this country was not known; and it is difficult to examine bush country of that nature well.

260. How long would it take to get a proper survey of the deviation—one that would satisfy you as a professional man?—I think six months. The actual survey would not be so long; but what you must take into consideration is fixing the grades, and examining the country over and over again. I would say six months.

261. Could it not be done in less than that?—Three months would do the actual survey.

262. Sufficient to say whether it would be advisable to adopt that route?—That I would consider could be done in a month, because you could confine yourself to where there was a difficulty—namely, that little bit between Goldsborough and Stafford Town.

263. What would be the effect of working it round that way where there is a grade of 1 in 50?—I should say that was a matter for the opinion of engineers, who may probably differ. My own opinion is that a grade of 1 in 50 for that distance is no objection, or very trifling.

264. Do you know what steep grades there are in Canterbury?—Yes; I came down the line last week on my way here. I know the country very well, and know the fall of the River Waimakariri is 40 feet to the mile, and in some places the fall of the country is greater.

265. If you go to Blueskin Hill you will find it very steep?—Yes.

266. *Mr. Seddon.*] This is supposed to be the main trunk line between Otago and Nelson. The minerals, to get to the East Coast, would not come round this way at all, would they?—No.

267. The probable traffic would be timber and passengers?—Yes.

268. And the timber cut in the loop would come down hill to Hokitika?—Yes.

269. By one side to Hokitika and by the other side to Greymouth?—Yes. It is fairly level country except going down the Waimea Creek, and there it would require a detailed survey to say what the curves would be; but I am supposing that they would not require more than 5-chain curves anywhere. It would require some walls there; but there is material on the ground. At the present time the Chinamen are turning the creeks with stone walls, quite good enough for the railway.

270. *Hon. Mr. Gisborne.*] Does not the coach run on Sunday between Hokitika and Greymouth?—Yes; they are crowded on Sundays.

Mr. Wylde.
3rd Dec., 1879.

271. From what you know of a mining population, do you know if this loop line was constructed between the two places whether the passenger traffic would be very much increased?—Yes; it is the invariable rule that the means of traffic makes the population travel about. I may say that, within a week of its being opened, the traffic would be doubled. Travelling by these coaches is alike disagreeable and expensive, so that people only travel when they are obliged to, but if a railway was opened they would travel on every slight occasion.

272. Then, in point of reproductiveness, you think the traffic would be increased by the loop line?—I think it would be one of the best lines in the country. I know of no lines of that length superior, except such as the Lyttelton and Christchurch line.

273. *Mr. McLean.*] Would you rely on goods traffic and passengers alone paying that line?—Yes.

274. Would the traffic and people amount to £5,000 per annum?—Yes.

275. There is good timber, is there not, on the one side of it?—Yes, all the way.

276. That would be get-at-able?—Yes; there is silver pine and rata.

277. That is valuable timber?—Yes; silver pine is the most valuable timber known in the world for bridge-work or anything of that kind.

278. May I ask you how you arrive at the £5,000 per mile?—Well, I have taken generally the cost in New Zealand and similar country to this, and I have taken the highest cost for that sort of country as not exceeding £5,000 a mile. You make some that cost more.

279. That includes the permanent way and everything?—Yes; it is shown by contracts which have been let at prices fully 30 per cent. below the original estimate.

THURSDAY, 4TH DECEMBER, 1879.

Mr. Lahmann.
4th Dec., 1879.

HON. MR. LAHMANN, M.L.C., examined.

280. *The Chairman.*]—You are a member of the Upper House, and you were also Chairman of the County Council of Westland when this line of railway was first proposed?—Yes, when the survey of the line was taken.

281. You know the locality through which the railway is to be taken?—I do.

282. Do you know anything about the distance as laid down in the original plan?—I think it is about twenty-two miles.

283. What will the distance be along the route of the proposed deviation?—I can hardly say the distance.

284. Would you say that it was good available country for railway-construction purposes?—Yes, I should think so. There does not appear to be many engineering difficulties in the way of making a railway line.

285. There are not many engineering difficulties you think?—I think not.

286. Are you aware that there is a line of tramway between Greymouth and Kumara?—Yes.

287. And there are no engineering difficulties along that line?—None whatever. The only engineering difficulties that do exist are along the route between Kumara and Stafford Town.

288. I need scarcely ask you anything about the probable cost of making such a line?—I could hardly tell you anything about that.

289. In regard to population, you know of your own knowledge there is but a limited population between Greymouth and Hokitika along the beach?—Yes, I am aware the population is but limited.

290. And round the other way, how does the population stand there?—Of course, there are centres of population on that route. There are centres of population at Kumara, Waimea, and other places where mining is carried on.

291. What about the probable amount of passenger traffic between Greymouth and Kumara, and Hokitika and Kumara?—Well, I can hardly answer that question. The returns from the tramway would be a better criterion of the passenger traffic than any estimate that I could give.

292. *Mr. Bunny.*] The tramway runs three times per day each way, besides which, there is a coach running mornings and evenings?—Perhaps so. I cannot say exactly.

293. *The Chairman.*] What do you know of the district along the proposed route—I mean the route inland?—My opinion is that it is the only means for making a line by way of the Kumara.

294. But what is your opinion of the district as regards the probable amount of traffic?—I consider the supplies would be sent up to the mining districts along the line by rail. These would no doubt be forwarded by rail, and, besides, the passenger traffic would be considerable—sufficient in my opinion to make the line pay.

295. That is your opinion?—That is my opinion.

296. What is your opinion as to the permanency of the districts—the Waimea, Kumara, Greenstone, Stafford, &c. Do you think these places are likely to be worked out soon?—Speaking from past experience I should say it would take a good many years to work these places out. Besides, there is a good deal of country in the immediate neighbourhood which has never been tried yet.

297. Is there plenty of timber—good available timber—available, say, for sleeper purposes in the district?—Yes. The timber at the Kumara alone would afford a good deal of traffic for the railway. I may just add that it is my firm opinion that a railway between Hokitika and Greymouth cannot be made a profitable investment without the proposed deviation to Kumara and other centres of population situated inland.