



NEW ZEALAND
GOVERNMENT GAZETTE,
PROVINCE OF CANTERBURY.

Published by Authority.

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By His Honor's command,

H. G. GOULAND, Provincial Secretary.

Vol. I.]

THURSDAY, MAY 1, 1854.

[No. X.

Provincial Secretary's Office,
Christchurch, April 20, 1854.

HIS HONOR THE SUPERINTENDENT is pleased to direct the publication of the following Report for general information.

By command of His Honor,
H. G. GOULAND,
Provincial Secretary.

REPORT

Of the Lyttelton and Christchurch Road Commission.

Christchurch, April 7, 1854.

SIR,

1. We have the honor to inform you that in accordance with your detailed instructions of the 19th ult., accompanying the "Lyttelton and Christchurch Road Commissioners' Ordinance," we have carefully examined the country between Port Victoria and the capital, and beg to lay before you the result of our labours.

2. Four modes of communication between the Sea Port and the interior have come under our consideration :

1st, The construction of a harbor at the estuary of the Avon and Heathcote Rivers.

2nd, An open road over the hills which surround Port Victoria.

3rd, A road through those hills by means of a tunnel.

4th, A railway through the same hills by the same means.

3. The first of these proposals we at once rejected. It would require the expenditure of a very large sum of money for its completion, and on examining the soundings, we found that the shallowness of water in Sumner Bay would preclude the possibility of forming a harbor which, according to the tenor of our instructions, would allow of the largest vessels engaged in the English and Colonial trade, discharging in security. Independently of this objection, the time required in the execution of such works is so great, and at the same time the success of all engineering operations for the improvement of bar harbors is so doubtful, that we could not take upon ourselves the responsibility of recommending so costly an undertaking.

4. We cannot therefore recommend any expenditure of public money upon such a harbor; but we may here beg to suggest that it might materially facilitate the transport of heavy goods by water, and encourage the establishment of steam navigation, if the passage of the Sumner bar were improved by filling up the eastern opening in the reef, thereby forcing the whole of the stream to discharge itself through one definite channel.

5. With respect to the second proposal, viz., an open road over the hills which surround Port Victoria, four plans presented themselves to our notice :

1st, A line passing from Lyttelton to Cass's Bay, crossing the main ridge

behind Raupaki, and descending into the Plains near the Rev. Mr. Willock's.

2nd, A line staked out in 1849 by the Surveyors of the Canterbury Association, commencing near the Hospital in Lyttelton—contouring the hills to the North of the town—passing over the present Bridle Path summit, and descending to the Plains by the second spur, west of the Bridle-path valley.

3rd, The Bridle Path.

4th, The line of the Sumner road as at present laid out.

6. After carefully considering the respective merits of these several plans, we have decided on rejecting the first three. They all present, *in common*, one great objection, which is that the summit to be crossed would be no less than 1090 feet in height: but, in addition to this, the difficult nature of the ground to be traversed on the south face of the hills in the two former cases, and the steepness of the gradient (1 in 5) in the case of the latter, would render them altogether so objectionable, that we could not recommend such an outlay of money upon them as would be necessary for the construction of a proper dray road.

The Bridle Path, however, is and must continue to be so great a convenience both to horsemen and foot passengers, as well as to persons driving stock between the Port and the Plains, that we beg to recommend the expenditure of a sum of £500 in widening, metalling, and improving it generally in the most difficult and dangerous parts of the road.

7. The Sumner road, as at present laid out, has alone, under this head, in any degree met with our approval. We are of opinion, that though it undoubtedly would, in many places, be very difficult of construction, and the cost of maintenance afterwards might be considerable, yet the fact that it crosses the hills at an elevation 440 feet lower than either of the other proposed lines, that its gradients are easy, and that a considerable portion of the work has already been completed, renders it the best line of the kind which could be selected. The estimated cost is £31,778, and the time required for its completion two years. (See Appendix, A.)

8. The third mode of communication which we have examined, viz., a road through the hills by means of a tunnel, may be regarded as a modification of the second line; it may therefore be convenient to lay before your Honor the result of our examination of this proposal, and then proceed to compare its advantages with those offered by the Sumner road.

9. We found that there were only two lines worthy of consideration.

The 1st, winding up the spurs at the

back of Lyttelton to a tunnel 600 yards in length, at the head of the gully descending into Dampier's bay, at an elevation of 520 feet above the sea, and descending the western slope of the bridle-path valley to the Plains. The second, following the line of the Sumner Road to Polhill's Bay, thence contouring the hills at an easy gradient to a tunnel 200 feet below the summit of Evan's Pass and 350 yards in length, opening into the Sumner valley and descending its western slopes at a gradient of 1 in 17, until it reaches the level about the Rev. Mr. Cotterill's section, and thence running along the level below the hills until it again joins the Sumner Road."

10. A comparison between these two lines led us to reject the former. Its only recommendation would be that it is somewhat shorter than the other; but this advantage would be more than counterbalanced by the greater length of the tunnel, and the unsatisfactory nature of the ground which the approach to the tunnel would necessarily traverse. With regard to the latter, all that may be said of the Sumner Road as to those portions between Lyttelton and Polhill's Bay on the one side of the hills, and the Heathcote Ferry and Sumner valley on the other, would apply equally to it. But it will be observed that the alteration of the Sumner road line so as to bring a road through a tunnel 200 feet below the summit of Evan's pass will remove all the main difficulties of the old line. Instead of running round the face of the rocks above Gollan's Bay towards Lyttelton, nearly a mile of most expensive and difficult work will be avoided by passing completely below these rocks: the labour of draught will be materially lessened by reducing the height to be surmounted, and, generally speaking, over the whole length of this portion of the line, the work would be most satisfactory, both as to stability and probable cost of maintenance.

11. A report equally favourable may be made of the road on the Sumner side of the hills.

The main feature of this proposal, viz., the tunnel, may, at first sight, appear the most objectionable part of the whole plan. We find, however, on examining into its details, that supposing the work to be carried on, by three shifts of men, during the whole twenty-four hours, seven months would be sufficient for its completion. Its length would not cause any great inconvenience to passengers from want of light in the interior, and we have every reason to believe that no serious difficulties would be encountered in the course of its construction.

13. The whole line of road, were an adequate supply of labour at command, might be opened for carts within eighteen months

from the time of its commencement, at an estimated cost of £25,731, and we are of opinion that, for a dray road, it is by far the best which could be selected. (See Appendix B.)

14. With respect to the last proposal, viz., a line of railway, we feel some doubt as to the extent to which our instructions warrant our consideration of any plan which does not bring the towns of Lyttelton and Christchurch into direct communication with each other. Looking merely at the general interests of the whole settlement, we are unanimously of opinion that the most advantageous mode of communication between the harbour and the capital would be by a line of railway, commencing at a deep water jetty at Gollan's bay, alongside of which vessels of the largest size could discharge and receive cargoes without the use of lighters, thence passing by a tunnel three quarters of a mile long under Evan's pass into Sumner valley; from Sumner passing through the cliffs overhanging the present sea wall by a second tunnel 660 yards in length, thence following very nearly the line laid out for the Sumner Road as far as the Ferry, where it would turn southward to avoid crossing the navigable part of the Heathcote, and cross that river opposite Dr. Earle's section, entering Christchurch on the south side of the town, the station being placed on the Town Reserves. If this line were constructed, the communication between Lyttelton and Gollan's bay would be by a tram road to be worked by horses or locomotives as might be thought most advisable.

15. The comparative shortness of the tunnels on this line, and the facilities it would afford for the shipping of minerals and agricultural produce from the Plains, as well as the advantage to the settlement of being able to bring steamers of the largest class alongside a railway wharf, form so many arguments in favour of its construction, that we feel we should be neglecting our duty were we not to call the attention of the Government to it. But considering that our instructions limit us to the question of the best means of connecting Christchurch and Lyttelton, rather than that of the best communication between the Plains and the shipping, we have not thought it right to incur the expense of making a detailed survey of the line, or of going into the question of estimate.

16. The only other line of railway which we can recommend is shewn by the accompanying Plan and Section. It commences at the old Custom House, and passes under the hills by a tunnel one and a half miles long, which would end near the house on Mr. Cookson's section, commonly known as Martin's, thence descending the western

slope of the Bridle Path Valley it crosses the Heathcote at the north-west corner of Dr. Earle's section, and terminates on the Town Reserve on the south of Christchurch.

17. The length of this line would be $6\frac{1}{4}$ miles, the curves and gradients would be favourable, and the works present no engineering difficulties except on the Lyttelton side, where the formation of the Station ground and the first five chains of the tunnel, through sandy clay, would be attended with heavy expense. With the exception just named we anticipate no difficulty in the tunnel works: but owing to the abrupt rise and height of the hills, which would render it impossible to commence at several points at once by means of shafts, the work would take four years to complete. The cost we have computed for a single line throughout, at £155,356. (See Appendix, C.)

18. It will be seen then that there are only two lines of communication which fulfil the requisite conditions, and which we feel justified in recommending, The one an open Road passing by a Tunnel through Evan's Pass, the other a railway running direct from Christchurch to Lyttelton. But when we recollect that the District which is dependent on Port Victoria for the export of its produce contains, within the Block, 1,600,000 acres—500,000 acres of which are fit for tillage, the uncertainty of the rate at which it will be bought up for cultivation, and the consequent doubtful rate of increase of immigration and agricultural produce, we feel it impossible to decide which of the two measures is best proportioned to the extent of the present and future wants of Canterbury. At the same time we are of opinion that if the Government can meet the outlay necessary for the formation of a railway, the tendency of such a measure, by removing the chief obstacle to the advancement of the settlement, would be to promote a very extensive immigration of purchasers, who may now be deterred by the reports of the difficulties of the hill road, and the dangers of the navigation.

19. As far as mere access to the Port is required, a good road twelve miles and a half long, practicable for horsemen or carts, would be a great accommodation to those possessing horse or bullock teams: wines, spirits, tea, sugar, and other articles liable to damage or pilfering on shipboard, might be conveyed by this road, and part of the wool would probably be carted, rather than sent by water. But the comparative smallness of the loads that a pair of horses or team of bullocks could bring over a road rising 440 feet in one and a quarter miles would preclude the possibility of the cost of carriage being materially reduced by it: bulky produce, such as potatoes would still

be sent by water, and for the conveyance of coal, should the working of our coal-field be undertaken, it would be useless. On the other hand, a line of railway presents the greatest facilities for the transaction of business. With three trains each way daily, the journey being performed in 20 minutes, parties would go to the Port to transact business in person which might require three days to complete by correspondence, and goods of every description could be conveyed with economy, certainty, and despatch, and the increased facility of shipping agricultural produce would promote cultivation for the Australian market and create a further demand for rural land; the land revenues of the Province, as well as the Customs, would consequently be augmented and due encouragement afforded for the working of the coal-field.

20. In England passenger trains are run at a cost of three shillings per mile, assuming the expense here to be double what it is in England, the cost of running a train to Port would not exceed forty shillings. But the engine would be capable of taking 1 carriage containing 18 passengers and 5 or 6 waggons of merchandize containing 18 tons, or in six journeys 108 passengers, and 108 tons of goods daily, at a cost of twelve pounds. This considerably exceeds the present wants of the settlement. The goods landed and shipped at Christchurch Quay from 1st April, 1853 to 1st April, 1854, did not exceed 2200 tons, or about 7 tons per diem. Even this amount of goods at 10s. per ton, and an allowance of 34 passengers going each way in the course of the day at two shillings and sixpence per head, would defray the expenses of working the railway, but before the opening of the line the amount of wool would be trebled, and the agricultural produce increased in even a greater ratio. Thus with this increase of

traffic, together with that which would certainly follow the opening of the railway, an actual revenue would be derived which would continue to augment with the progress of the Colony.

21. What this progress may be within even the next two years, it is impossible for us to calculate. The fact that a railway is in progress might induce capital to flow in from Australia for the purchase of our Waste Lands; large funds might thus be placed at our disposal more than sufficient to liquidate the cost of the railway, and we might be enabled, by a continued stream of emigration, to procure labour for the tillage of much larger tracts of land.

22. We have thus endeavoured to point out the respective advantages of the two modes of communication, and leave the selection between them to the Provincial Government: should they be of the opinion that a railway would be too costly an undertaking to warrant their attempting it, or that it would be more than so young a settlement should venture upon, we recommend the completion of the cart-road by a Tunnel through Evan's Pass, together with the improvements of the Bar pointed out in the commencement of our report. These works we consider will be quite within the power of the Province, with the aid of an increased supply of labour. But should the plan of a railway be adopted there can be no doubt it would be most advisable to endeavour to find some English Contractor who would undertake the whole work.

We have the honor to be, Sir,
Your obedient servants,

(signed) W. B. BRAY, Chairman.
H. I. CRIDLAND,
E. DOBSON,
R. I. S. HARMAN,
EDWARD JOLLIE.

To His Honor the Superintendent.

APPENDIX A.

SUMNER ROAD (OLD LINE) 16 FEET IN WIDTH.

ESTIMATE.

Lyttelton to Evan's Pass.

	£.	s.	d.
Completion of road to Compton's Bay	1,950	0	0
Excavation	9,369	0	0
Drainage and Culverts	1,550	0	0
Parapet walls	1,168	0	0
Metalling Road	1,533	0	0
	15,570	0	0

Evan's Pass to Sumner.

Excavation	5,769	0	0
Drainage and Culverts	1,175	0	0
Parapet wall	84	0	0
Metalling Road	1,280	0	0
	8,308	0	0

Sumner to the Heathcote Road.

Completion of Sea wall	1,000	0	0
Excavations	2,040	0	0
Embankments	600	0	0
Metalling Road	1,760	0	0
	5,400	0	0

Bridge over the River Heathcote

2,500 0 0

31,778 0 0

(Signed)

W. B. BRAY, Chairman.

APPENDIX B.

SUMNER ROAD (NEW LINE) 16 FEET IN WIDTH.

ESTIMATE.

Lyttelton to Evan's Pass.

	£.	s.	d.
Completion of Road to Compton's Bay	1,950	0	0
Excavation	1,835	0	0
Drainage and Culverts	1,550	0	0
Metalling Road	1,533	0	0
	6,868	0	0

Tunnel under Evan's Pass, 12 feet wide

7,000 0 0

Evan's Pass to Sumner.

Excavation	1,793	0	0
Drainage	890	0	0
Metalling Road	1,280	0	0
	3,963	0	0

Sumner to Heathcote Ferry.

Completion of Sea wall	1,000	0	0
Excavation	2,040	0	0
Embankments	600	0	0
Metalling Road	1,760	0	0
	5,400	0	0

Bridge over the River Heathcote

2,500 0 0

25,731 0 0

(Signed)

W. B. BRAY, Chairman.

APPENDIX C.

LYTTELTON AND CHRISTCHURCH RAILWAY.

ESTIMATE.

	A	B	P
Land required for the railway, and the stations at Lyttelton and Christchurch	44	3	24
	£	s.	d.
Fencing	1,379	0	0
Earthwork	7,522	0	0
Culverts	600	0	0
Bridges	2,200	0	0
Wharfing at Lyttelton	3,300	0	0
Tunnel, 12 feet wide	57,320	0	0
Crossings and Road Diversions	1,000	0	0
Permanent way (single track)	16,250	0	0
Stations	8,000	0	0
	£97,571	0	0
Rolling Stock	6,000	0	0
	£103,571	0	0
Contingencies, 50 per cent.	51,785	0	0
	£155,356	0	0
Total	£155,356	0	0

(Signed)

W. B. BRAY, Chairman.