Department of Public Works; Railway Branch

CHIEF ENGINEER'S OFFICE,

Brisbane 17th June 1886

COMMISR. FOR RAILWAYS QUEENSLAND
09,446
C.E.S.
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Memo

Plan Editor in Plan Book No 27 3

Plan. Engineer no action at present 23/6/87

In compliance with instructions, I have the honor to submit, for the information of the Honble the Secretary for Public Works, the following report on the proposed railway between Brisbane and Cleveland, and accompany the same by a Map to facilitate reference.

Route

Various trial surveys were made, from which two lines have been selected as the most favorable, not only upon engineering grounds, but, also, in view of the traffic to be derived from present and prospective settlement. Between Woolloongabba - the starting point - and Cooparoo

The

Commissioner for Railways

Brisbane

Cooparoo, the survey is common to both routes but at that point the lines diverge, the one taking a comparatively direct course, and the other following down the Brisbane River to Lytton and along the shores of the Bay to Cleveland.

Direct Route. From Cooparoo this line follows, generally, the direction of the old Cleveland road as far as Belmont. about a mile and a half beyond this it turns to the left through the Grassdale paddocks, and after crossing Tingalpa Creek, two miles below the township of Capalaba, runs parallel to the shores of the Bay at a distance of about three quarters of a mile therefrom, past Wellington point and Burnett's Saw Mills to Cleveland, where it terminates in a reserve on the flat to the left of the Main road near its junction with the Cross road to Redland Bay on the outskirts of the township. The through distance from Woolloongabba by this route is 17 miles 53 chains.

Coastal Route. From the point of divergence at Cooparoo the line turns down the

the watershed of Normans Creek thence
crosses the New Cleveland Road a short distance
beyond the Bulimba Divisional Board's Office,
passes through the important settlement of
Hemmant, close to Gibson's Sugar Mill, and
upon reaching a point within 2¼ miles
of the Lytton Battery curves to the right,
approaching within half a mile of Wynnum.
After this ~~[illegible]~~ the line skirts the shores
of Waterloo Bay, passing at the back of
Manly and Lota and after crossing
Tingalpa Creek joins the direct line at a
point 6 miles from Cleveland. The
through distance from Woolloongabba to
Cleveland by this route is 21 miles 11
chains being 3 miles 38 chains longer
than the direct line.

Besides the two principal
lines just described, an alternative survey
was made by an intermediate route leaving
the Coastal line near Bulimba passing
through the township of Tingalpa and joining
the direct line on the West side of Tingalpa
Creek. No advantage, however, was gained
by this over either of the other routes from

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a construction point of view, nor did it possess any special merit in regard to the accommodation of settlement. It was therefore decided after the personal inspection made by the Minister and myself, to restrict the selection to the two lines above mentioned and prepare comparative estimates, etc, on that basis.

Curves and Gradients

The ruling grade adopted is 1 in 50, but the maximum length, which occurs on that part of the line common to both routes, is only 30 chains. Between Coopanoo and Cleveland the maximum length of 1 in 50 is nearly the same on both routes and does not exceed 22 chains.

The minimum curve used is 8 chains radius.

In respect to curves and gradients, generally, it will be seen from the following figures that the Coastal route has rather the advantage though the difference is not, in my opinion, sufficient

sufficient to have any marked effect on the cost of working either line.

Comparative Table of Curves and Gradients in percentage of length of lines

	Direct line	Coastal line
Curves of 10 chains radius and under	15 per cent.	12.9 per cent
Total curvature	25.85 " " .	28.00 " "
Grades of 1 in 50	19.60 " " .	19.10 " "
Grades of 1 in 100 and steeper	50.30 " "	44.8 " "

Although for purposes of estimate and comparison the ruling gradient of 1 in 50 has been adopted I am decidldly of opinion that as the principal traffic to be anticipated on this line is a passenger one, and the question of speed therefore important, it would not be advisable to introduce any steeper grade than 1 in 60, and this I believe can be done without very materially increasing the cost

Works

The character of the works generally will be easier on the Coastal as Compared with the direct line - more especially

especially as regards earthworks and bridges. On the former, the earthworks are estimated at £670 and on the latter £700 per mile, whilst for bridges the estimate amounts to £1,000 per mile on the Coastal line, and £1300 per mile on the direct.

Accommodation of present and prospective settlement

In considering the merits of the two routes in respect to the accommodation of the present settlement it must, I think, be admitted by any one acquainted with the district that the Coastal line traverses the most important centres of population such as Bulimba, Hemmant Wynnum and the embryo settlements on the shores of Manley & Lota Waterloo Bay whilst the direct route after passing Coorparoo, which will be equally accommodated by either line, passes through a sparsely populated country, the only settlement of any consequence being at Belmont and Capalaba.

As regards prospective sources of traffic a railway constructed by either

either route would doubtless induce a large amount of suburban settlement, but apart from this the Country traversed by the Coastal route already contains many old established settlements and is, moreover, better calculated to support a large population than that on the direct line. It may therefore, I think, be fairly concluded that the former holds out more prospect of developing a remunerative traffic than the latter.

Estimated cost

As it is undecided yet whether the line will start from Woolloongabba or at some point on the proposed new line from the South Brisbane Branch to a terminus at Melbourne street, I have not included this part in the estimates which have been prepared, but for purposes of comparison have merely calculated the cost of the two lines between Cooparoo and Cleveland.

These

These estimates are as follows:-

Direct Line	£79,399
Coastal "	£89,962

The cost per mile by the two routes is respectively:-

Direct line	£4,740
Coastal "	" 4,488

Lytton Branch

In order, however, to arrive at a fair conclusion as to the respective merits of the two routes there is one point which should not be lost sight of, that, sooner or later, it will be absolutely necessary to connect Lytton with Brisbane by rail, not only on account of the importance of the settlement in its vicinity but for strategical purposes. To do so from the Coastal line would be an easy matter involving a short branch only 2 miles in length, over level ground, but if the direct line were adopted a branch nearly 8 miles long

would be required through far less favorable country.

Including therefore, this Branch the total length of line ultimately to be constructed in each case would be as under :-

Direct Line	25 miles	33 chains
Coastal "	23 "	11 "

or 2¼ miles in favor of the Coastal route.

Land

With a view to facilitate comparative valuations being made of the land which will be required for railway purposes by both routes plans have been prepared shewing approximately the area to be resumed from private owners and will be furnished as soon as the requisite Books of Reference have been completed.

Conclusions

A strong argument would exist in favor of adopting the direct

direct route were the traffic to be anticipated between Brisbane and Cleveland itself of such importance as to warant the construction of a railway specially for its accommodation, or, was it at all likely that the line would be extended to any considerable distance beyond that township. Seeing, however, that the projected railway must depend in a great measure for its paying capability upon the suburban and local traffic to be derived from the district through which it runs, I have no hesitation in stating my opinion that the Coastal line is most likely to meet these requirements, and creat a remunerative traffic, and, in view of the importance of providing railway communication with Lytton, I recommend that the railway should be constructed by that route.

Henry C. Stanley
M. Inst. C.E.
Chief Engineer