# Public Works (1897) Department.

CONCERNS BOTH BRITISH INDIA
AND INDIAN STATES.

G.O., No. 112 R

DATED 20. February 1897

23/2/97

[Despatch Abstract.]

Shoranur-Cochin Railway: Govt of India letter stating that further considerable reductions are feasible in the estimates for the proposed —, but that until the construction of this branch has been decided upon it seems premature to undertake a realignment & the preparation of further revised estimates. Comt to the Agent & Manager, Madras Railway.

T.C. 23/2/97

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RAILWAY.

# Government {1897} of Madras.

## PUBLIC WORKS.

*Recd.* } 1897. *Enclosures*

*Regd.* } *Spare copies*

**G.O., No. 112 R., 20th February 1897.**

**FEBRUARY.**

### Shoranur-Cochin Railway

Government of India letter stating that further considerable reductions are feasible in the estimates for the proposed —, but that until the construction of this branch has been decided upon, it seems premature to undertake a re-alignment and the preparation of further revised estimates, communicated to the Agent and Manager, Madras Railway.

GOVERNMENT OF MADRAS.

## PUBLIC WORKS DEPARTMENT.

### Railway.

Read the following papers :—

From the Assistant Secretary to the Government of India, Public Works Department (Railway Construction), to the Officiating Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, dated Calcutta, 13th December 1895, No. 1552 R.C.

In continuation of letter, No. 1551 R.C., dated 13th December 1895, I am directed to say that the Government of India agree generally that very large reductions should be possible in the estimates, as submitted with your letter, No. 775 R., dated 18th November 1895, of the cost of the construction of the proposed railway from Shoranur to Cochin when the line is carefully located and a ruling grade of 1 in 100 is adopted instead of 1 in 150.

2. Before expressing, however, any definite opinion on the project, the Government of India, I am to say, would wish to be put in possession of the full views of the Board of the Madras Railway Company both on the plans and estimates which have been prepared by their officers and in regard to the method of raising the necessary capital for carrying out the line should the company desire to make it as an integral part of the Madras Railway system.

3. As pointed out in the case of the Calicut-Cannanore Railway, the estimated cost of land for the Shoranur-Cochin line, viz., Rs. 22,907 per mile, is abnormally high and requires looking into.

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From the Officiating Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, to the Secretary to the Government of India, Public Works Department, Calcutta, dated 21st February 1896, No. 146 R.

In reply to your No. 1552 R.C., dated 13th December 1895, I am directed to refer you to the documents forwarded with my letter, No. 145 R., dated 21st February 1896, which give the full views of the Board of the Madras Railway Company as desired in paragraph 2 of your letter.

2. As regards paragraph 3, I am to say that the valuation of the land for the Shoranur-Cochin line, which will run almost entirely through the Native States of Cochin and Travancore, was not entirely furnished by the revenue officials under the Madras Government but by the Dewans of Cochin and Travancore, respectively, and there is no reason to reject their valuation.

3. Under the explanations now given I am directed to urge that the approval of the Government of India may be given if the prospects of the Shoranur-Cochin Branch are considered sufficiently good, and that it may be communicated to the Board of Directors through the Secretary of State.

4. It is assumed that the financial details will be settled in England directly between the Secretary of State and the Board of Directors.



From the Officiating Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, to the Secretary to the Government of India, Public Works Department, Calcutta, dated Madras, 9th December 1896, No. 1029 R.

With reference to correspondence ending with my letter, No. 146 R., dated 21st February 1896, I am directed to forward copy of a revised estimate for the Shoranur-Cochin Railway compiled by the Chief Engineer, Madras Railway, and forwarded with his letter, No. C/6718/1317, dated 16th October 1896 (copy attached), together with a note by the Consulting Engineer for Railways, Madras.

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Enclosures.

From the Acting Chief Engineer, to the Acting Agent and Manager, Madras Railway Company, dated Madras, 16th October 1896, No. C/6718/1317.

Referring to your letter, No. 8810/1725 of 19th February last, and the first paragraph, page 3, of the accompanying Board's letter, I beg to forward herewith a statement showing the original and revised estimate figures under various conditions for the Shoranur-Cochin Branch Railway.

2. The earthwork and land quantities have been recalculated under Mr. Percy's supervision, and the remaining items were revised by Mr. Otto and checked by Mr. Percy under my directions. The results are as follows :—

Using the Madras Railway type of permanent-way and retaining fencing throughout, the total cost is reduced to Rs. 1,11,20,761, or a rate of Rs. 1,52,339 per mile.

3. If Government type permanent-way with timber sleepers similar to that now being laid on the Madras-Bezwada Railway is adopted, the total cost will be Rs. 1,03,99,050, or per mile Rs. 1,42,453 and if in addition fencing be omitted, the cost will be still further reduced to Rs. 1,01,69,259, or Rs. 1,39,305 per mile.

4. I cannot recommend either of the reductions named in paragraph 3, if the line is to be made and worked by this company, as if wooden sleepers be used, the renewals will be costly, and the line is sure to need fencing, running as it does through a densely-populated and well-cultivated country.

5. The accompanying detailed memorandum shows the manner in which each sub-head has been revised and reduced ; and it will be observed that the width of cuttings has been taken at 20 feet, which is quite sufficient, instead of 26 feet, the Government of India standard width, by which a considerable reduction in earthwork and land has been effected.

6. The lengths of station sidings have been reduced considerably, and all accommodation cut down to a minimum ; the lengths of through sidings have not been reduced below Government standard dimensions, passenger platforms are only 1 foot high above rail level. The cutting down has been carried if anything too far I think, and it is hardly safe to rely on less expenditure than Rs. 1,53,000 a mile, but much will depend on the price of English material and exchange at the time of construction.

7. Assuming that the more direct line *viâ* Alwaye is made, the total distance between Shoranur and Ernakolum will be reduced to 64 miles as shown in the accompanying statement, and the revised estimate cost will be, retaining Madras Railway permanent-way and fencing, Rs. 1,52,339 per mile, or a total of Rs. 97,49,696, reduced to Rs. 1,42,453 per mile, or a total of Rs. 91,76,992, if Government type permanent-way be used.

8. It is desirable to point out that the revised estimates submitted for both the Calicut-Cannanore and Shoranur-Cochin lines include rolling stock, amounting to Rs. 6,77,220= Rs. 11,478 per mile for the former, and Rs. 8,42,920=Rs. 11,547 per mile in the latter estimate.

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Memorandum showing in detail the manner in which each item of Mr. Dallas' Original Estimate has been dealt with in the Revised Estimate of the Shoranur-Cochin Extension.

I. *Preliminary Expenses.*—Preliminary expenses remain unaltered. The original estimate was Rs. 26,000. The revised estimate is Rs. 26,000.

II. *Land.*—The original land estimate was prepared with cuttings 26 feet wide, slopes 2 to 1, and banks 20 feet wide, slopes 2 to 1, the ruling gradient was also 1 in 150. In the revised estimate cuttings are taken 20 feet wide, slopes 1½ to 1, and banks 20 feet wide, slopes 2 to 1, the ruling gradient is also 1 in 100. The original estimate was Rs. 20,90,199. The revised estimate is Rs. 14,11,350.

III. (1) *Earthwork.*—The original estimate was prepared with cuttings 26 feet wide, slopes 2 to 1, banks 20 feet wide, slopes 2 to 1 and ruling gradient 1 in 150. Rough stone pitching and turfing for banks was allowed throughout. The revised estimate is prepared with cuttings 20 feet wide, slopes 1½ to 1, banks 20 feet wide, slopes 2 to 1 and a ruling gradient of 1 in 100. Rough stone pitching except in tanks and turfing for banks is dispensed with. The original estimate was Rs. 38,29,258 and the revised estimate is Rs. 23,13,432.

IV. (1) *Large Bridges.*—The original estimate for large bridges is with piers on double 12 feet wells, 60 feet girders, provision for cart traffic at all bridges and a rate of exchange of Rs. 19 per pound sterling; also 64 spans of 60 feet each were allowed. In the revised estimate 55 spans of 60 feet each are provided. Provision for cart traffic is made at three bridges only, and the rate of exchange for iron work taken at Rs. 17-8-0 per pound sterling. The original estimate was Rs. 14,73,730, the revised estimate is Rs. 12,26,728.

(2) *Minor Bridges.*—As the banks have been reduced, the minor bridges will similarly be reduced, only absolutely essential minor bridges are estimated for. The original estimate was Rs. 7,01,047, the revised estimate is Rs. 4,71,277.

V. (1) *Fencing.*—In the revised estimate for fencing, the rate of exchange is reduced from Rs. 19 to Rs. 17-8-0 per pound. The original estimate was Rs. 2,40,908, revised estimate is Rs. 2,22,251. If, however, fencing is only provided round station yards, the cost will be Rs. 31,932.

(2) *Road crossings.*—This item remains the same, original estimate Rs. 93,822, revised estimate Rs. 93,822. If the fencing be omitted, level crossing gates will only be required at stations. Then the cost for this item will be Rs. 54,350.

(3) *Mile and Gradient Post.*—This estimate remains unaltered, original and revised estimates, Rs. 2,589.

VI. *Electric Telegraph.*—Estimate remains unaltered, original estimate Rs. 32,050, revised estimate Rs. 32,050.

VII. (1) *Ballast.*—In this estimate no provision has been made for wastage. The Madras Railway district rates with a slight increase have been accepted, and the length of sidings has been reduced from 18·055 miles to 11·476 miles (see tabular statement attached). The original estimate was Rs. 9,26,281 and the revised estimate is Rs. 3,00,574.

(2) *Permanent-way.*—In this estimate, the rate of exchange has been reduced from Rs. 19 to Rs. 17-8-0 per pound. Price of rails has risen fully one pound per ton since framing of original estimate which increase in price has been allowed for in the revised estimate. The length of the sidings has been reduced from 18·055 miles to 11·476 miles, original estimate Rs. 34,28,715, revised estimate Rs. 29,68,481. If, however, flat footed steel rails 75 lb. per yard on timber sleepers be used (Government type of permanent-way as used on the Madras-Bezwada Railway) instead of the Madras Railway type, the cost of this item will be reduced to Rs. 22,46,770.

VIII. (1) *Station and Offices.*—This estimate has been carefully revised and only such items as are absolutely necessary on the first completion of the line are allowed for (see list attached showing buildings provided for at each station), a list is also attached of existing types of building on the Madras Railway taken as standards for similar buildings on the Shoranur-Cochin extension—passenger platforms at 1 foot and goods platforms 3 feet 6 inches above rail level. The original estimate was Rs. 3,25,025 and the revised estimate, Rs. 1,57,745.

(2) *Workshops and Store.*—This estimate is reduced from Rs. 11,928 to Rs. 4,578.

(3) *Staff Quarters.*—This estimate also is carefully revised and only such items are provided for as are absolutely necessary on the opening of the line for traffic. A list showing staff quarters, &c., provided for at each station is attached. The original estimate was Rupees 1,79,760 and the revised estimate is Rs. 91,660.

(4) *Station Machinery.*—This estimate has been revised, and only such items as are necessary on the opening of the line for traffic have been retained. Statement attached showing machinery provided for at each station; original estimate, Rs. 2,78,623, revised estimate, Rupees 1,87,220.

IX. (1) *Engineering Plant.*—No provision was made in the original estimate for Engineering plant for the construction of the large bridges. In the revised estimate, a sum of Rupees 1,50,000 has been provided for this purpose, and Rs. 70,000 for Engineering plant and tools generally; original estimate, Rs. 73,730, revised estimate, Rs. 2,20,000.

(4) *Station and Office Furniture.*—This estimate is also carefully revised and reduced. The original estimate is Rs. 23,410 and revised estimate, Rs. 15,270.

XI. (1 and 2) *Rolling Stock.*—This item remains unaltered, original estimate, Rs. 8,42,920.

XII. *General Charges.*—General charges bear a very moderate percentage to the total estimate and as this estimate has been carefully framed, it is left unaltered. The original estimate was Rs. 5,32,814 and revised estimate is Rs. 5,32,814.



SHORANUR-COCHIN SURVEY.

*Original and Revised Estimates—General Abstract.*

| — | Mr. Dallas' original estimate. | Present revised estimate. | Revised estimate using Government type of permanent-way. | Revised estimate using Government type of permanent-way and omitting fencing. |
|---|---|---|---|---|
| | RS. | RS. | RS. | RS. |
| Preliminary expenses .. .. .. .. | 26,000 | 26,000 | 26,000 | 26,000 |
| Land .. .. .. .. .. | 20,90,199 | 14,11,350 | 14,11,350 | 14,11,350 |
| Earthwork .. .. .. .. .. | 38,29,258 | 23,13,432 | 23,13,432 | 23,13,432 |
| Large bridges .. .. .. .. .. | 14,73,730 | 12,26,728 | 12,26,728 | 12,26,728 |
| Minor bridges .. .. .. .. .. | 7,01,047 | 4,71,277 | 4,71,277 | 4,71,277 |
| Fencing .. .. .. .. .. .. | 2,40,908 | 2,22,251 | 2,22,251 | 31,932 |
| Road crossings .. .. .. .. .. | 93,822 | 93,822 | 93,822 | 54,350 |
| Mile and gradient post .. .. .. .. | 2,589 | 2,589 | 2,589 | 2,589 |
| Electric telegraph .. .. .. .. .. | 32,050 | 32,050 | 32,050 | 32,050 |
| Ballast .. .. .. .. .. | 9,26,281 | 3,00,574 | 3,00,574 | 3,00,574 |
| Permanent-way .. .. .. .. .. | 34,28,715 | 29,68,481 | 22,46,770 | 22,46,770 |
| Stations and offices .. .. .. .. .. | 3,25,025 | 1,57,745 | 1,57,745 | 1,57,745 |
| Workshop and store building .. .. .. | 11,928 | 4,578 | 4,578 | 4,578 |
| Staff quarters .. .. .. .. .. | 1,79,760 | 91,660 | 91,660 | 91,660 |
| Station machinery .. .. .. .. .. | 2,78,623 | 1,87,220 | 1,87,220 | 1,87,220 |
| Engineering plant .. .. .. .. .. | 73,730 | 2,20,000 | 2,20,000 | 2,20,000 |
| Station and office furniture .. .. .. .. | 23,410 | 15,270 | 15,270 | 15,270 |
| Rolling-stock .. .. .. .. .. | 8,42,920 | 8,42,920 | 8,42,920 | 8,42,920 |
| General charges .. .. .. .. .. | 5,32,814 | 5,32,814 | 5,32,814 | 5,32,814 |
| Grand Total .. | 1,51,12,809 | 1,11,20,761 | 1,03,99,050 | 1,01,69,259 |
| Length of line 73 miles—Rate per mile .. .. | 2,07,025 | 1,52,339 | 1,42,453 | 1,39,305 |
| Alternative line between miles 43 and 64 passing through Alwaye, length of line 64 miles—Total Cost .. | .. | 97,49,696 | 91,76,992 | 89,15,520 |
| Cost per mile .. | .. | 1,52,339 | 1,42,453 | 1,39,305 |

TABULAR statement showing how sidings have been reduced in the revised estimate.

| | — | As per Mr. Dallas' estimate. Sidings. Class of station. | As per Mr. Dallas' estimate. Sidings. Length of siding in miles. | Proposed reduction. Sidings. Class of station. | Proposed reduction. Sidings. Length of siding in miles. |
|---|---|---|---|---|---|
| 1 | Shoranur .. .. .. .. | Junction .. | 4·301 | Junction .. | 4·301 |
| 2 | Mullurcurray .. .. .. | 3rd .. | 0·664 | 3rd Special .. | 0·314 |
| 3 | Wadakancheri .. .. .. | 2nd .. | 1·134 | 3rd .. | 0·464 |
| 4 | Mulavathakavu .. .. .. | 3rd .. | 0·664 | 3rd Special .. | 0·314 |
| 5 | Trichur .. .. .. .. | 1st .. | 2·423 | 2nd .. | 0·734 |
| 6 | Ullur .. .. .. .. | 3rd .. | 0·664 | 3rd Special .. | 0·314 |
| 7 | Pudukad .. .. .. .. | 3rd .. | 0·664 | 3rd .. | 0·464 |
| 8 | Ahtur .. .. .. .. | 3rd .. | 0·664 | 3rd Special .. | 0·314 |
| 9 | Shalacoodee .. .. .. | 3rd .. | 0·664 | 3rd .. | 0·464 |
| 10 | Angamali .. .. .. .. | 3rd .. | 0·664 | 3rd Special .. | 0·314 |
| 11 | Chengal Ferry .. .. .. | 3rd .. | 0·664 | 3rd .. | 0·464 |
| 12 | Perrambayur .. .. .. | 3rd .. | 0·664 | 3rd Special .. | 0·314 |
| 13 | Keelamad .. .. .. | 2nd .. | 1·134 | 3rd .. | 0·464 |
| 14 | Eddapilly .. .. .. .. | 3rd .. | 0·664 | 3rd Special .. | 0·314 |
| 15 | Ernacolam .. .. .. | 1st .. | 2·423 | 1st .. | 1·923 |
| | Total miles .. | | 18·055 | | 11·476 |

NOTE.—Second and third class station sidings have been reduced by 500 feet in the revised estimate.

## LIST of Staff quarters provided for at each Station with their estimated cost.

| Name of building. | Shoranur Junction. | Mullurcurray, 3rd class. | Wadakancheri, 2nd class. | Mulavathakavu, 3rd class. | Trichur, 1st class. | Ullur, 3rd class. | Pudukad, 3rd class. | Ahtur, 3rd class. | Shalacoodee, 3rd class. | Angamali, 3rd class. | Chengal Ferry, 3rd class. | Perrambayur, 3rd class. | Keelamad, 2nd class. | Eddapilly, 3rd class. | Ernacolum. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| Station Masters' quarters .. .. | 2,097 | 953 | 1,500 | 953 | 2,097 | 953 | 953 | 953 | 953 | 953 | 953 | 953 | 1,500 | 953 | 2,097 |
| Assistant station Masters' quarters. | 2,097 | .. | .. | .. | 2,097 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2,097 |
| Menials' quarters, 4 units .. | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 |
| Sweeper huts .. .. .. | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| Drivers' running room .. .. | 3,024 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3,024 |
| Chuttram for Native Firemen .. | 1,000 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,000 |
| Carriage Examiner's quarters .. | 1,205 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,205 |
| Locomotive Staff, 6 units .. .. | 1,623 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,623 |
| Permanent-Way Inspector's quarters and office .. .. .. | 5,501 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5,501 |
| Guards' barracks .. .. | 4,154 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4,154 |
| Guards' running room .. .. | 3,024 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3,024 |
| Signallers' quarters .. .. | 2,723 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2,723 |
| Inspecting Locomotive Foreman's quarters room attached to running room .. .. .. | 1,000 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,000 |

## LIST of Station Buildings and office on the Shoranur-Cochin Extension.

| Description. | Shoranur. | Mullurcurray. | Wadakancheri. | Mulavathakavu. | Trichur. | Ullur. | Pudukad. | Ahtur. | Shalacoodee. | Angamali. | Chengal Ferry. | Perrambayur. | Keelamad. | Eddapilly. | Ernacolum. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station building .. .. .. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Passenger platform, 1′ above R.L. .. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Road approaches .. .. .. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Native latrine .. .. .. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Palisade fencing .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Goods platform 3′ 6″ above R.L. .. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Goods shed .. .. .. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Goods godown .. .. .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| European latrine .. .. .. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Salt godown .. .. .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Gates .. .. .. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |



## LIST of Machinery provided at each station.

| | Ashpits. | Water columns. Number. | Water columns. Diameter. | Piping. Length. | Piping. Diameter. | Water tanks. Capacity. | Wells. Number. | Wells. Diameter. | Water lifts. Tanks. | Water lifts. Hand draft. | Points and crossings complete. 1 in 12. | Points and crossings complete. 1 in 8½. | Scotch blocks. | Buffer stops. | Distant signals. | Platform and goods weighing machine. 1 ton. | Platform and goods weighing machine. 5 cwts. | Dating presses. | Engine shed (temporary.) Area. | Engine shed (temporary.) Loco. ashpit. | Engine shed (temporary.) Turntable. | Hydrant engine shed. | Fuel stages. | Fuel sheds. | Cranes for jetties. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number. | Diameter. | Length. | Diameter. | Capacity. | Number. | Diameter. | Tanks. | Hand draft. | 1 in 12. | 1 in 8½. | | | | 1 ton. | 5 cwts. | | Area. | Loco. ashpit. | Turntable. | | | | |
| | | Ins. | Ft. | Ins. | | | | Ft. | | | | | | | | | | | | | | | | | |
| Shoranur .. .. | 1 | 2 | 8 | 810 | 8 | 2 × 1,000 | 1 | 12 | 1 | .. | 17 | 9 | 4 | 3 | 1 | 1 | 1 | 1 | 2,520 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mullurcurray .. .. | .. | .. | .. | .. | .. | .. | 1 | 6 | .. | 1 | 3 | .. | 2 | 2 | 1 | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| Wadakancheri .. .. | .. | .. | .. | .. | .. | .. | 1 | 6 | .. | 1 | 3 | .. | 4 | 3 | 1 | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| Mulavathakavu .. .. | .. | .. | .. | .. | .. | .. | 1 | 6 | .. | 1 | 3 | .. | 2 | 2 | 1 | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| Trichur .. .. | 1 | 2 | 8 | 810 | 8 | 1 × 1,000 | 1 | 12 | 1 | .. | 6 | 2 | .. | 3 | 1 | 1 | 1 | 1 | 2,620 | 1 | 1 | 1 | 1 | 1 | 1 |
| Ullur .. .. | .. | .. | .. | .. | .. | .. | 1 | 6 | .. | 1 | 3 | .. | 2 | 2 | 1 | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| Pudukad .. .. | .. | .. | .. | .. | .. | .. | 1 | 6 | .. | 1 | 3 | .. | 4 | 3 | 1 | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| Ahtur .. .. | .. | .. | .. | .. | .. | .. | 1 | 6 | .. | 1 | 3 | .. | 2 | 2 | 1 | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| Shalacoodee .. .. | .. | .. | .. | .. | .. | .. | 1 | 6 | .. | 1 | 3 | .. | 4 | 3 | 1 | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| Angamali .. .. | .. | .. | .. | .. | .. | .. | 1 | 6 | .. | 1 | 3 | .. | 2 | 2 | 1 | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| Chengal Ferry .. .. | .. | .. | .. | .. | .. | .. | 1 | 6 | .. | 1 | 3 | .. | 4 | 3 | 1 | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| Perrambayur .. .. | .. | .. | .. | .. | .. | .. | 1 | 6 | .. | 1 | 3 | .. | 2 | 2 | 1 | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| Keelamad .. .. | .. | .. | .. | .. | .. | .. | 1 | 12 | 1 | .. | 6 | 2 | .. | 3 | 1 | 1 | 1 | 1 | 2,620 | 1 | 1 | 1 | 1 | 1 | 1 |
| Eddapilly .. .. | .. | .. | .. | .. | .. | 1 × 1,000 | 1 | 6 | .. | 1 | 3 | .. | 2 | 2 | 1 | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| Ernacolum .. .. | 1 | 2 | 8 | 810 | 8 | 2 × 1,000 | 1 | 12 | 1 | .. | 6 | 2 | 4 | 3 | 1 | 1 | 1 | 1 | 2,620 | 1 | 1 | 1 | 1 | 1 | 1 |

Buildings and Staff Quarters taken as standards for the Shoranur-Cochin Extension.

| Estimated Cost. Rs. | *Building for which types are used on Shoranur-Cochin Extension.* |
|---|---|
| 1,990 | Station buildings for Mullurcurray, Mulavathakavu, Ullur, Pudukad, Ahtur, Angamali, Chengal Ferry, Perrambayur and Eddapilly. |
| 310 | Native latrines for all the stations. |
| 709 | Goods platforms for all the stations. |
| 6,179 | Goods-sheds for Shoranur, Trichur and Ernacolum. |
| 1,062 | Salt godowns for Shoranur, Trichur, Keelamad and Ernacolum and goods godowns for Wadakancheri, Shalacoodee and Perrambayur. |
| 318 | European latrines for Shoranur, Trichur, Keelamad and Ernacolum. |
| 953 | Station Master's quarters for Mullurcurray, Mulavathakavu, Ullur, Pudukad, Ahtur, Shalacoodee, Angamali, Chengal Ferry, Perrambayur and Eddapilly. |
| 1,500 | Station Master's quarters for Wadakancheri and Keelamad. |
| 2,097 | Do. do. for Shoranur, Trichur and Ernacolum. |
| 918 | Menials' quarters for all the stations. |
| 3,024 | Running room for Shoranur and Ernacolum. |
| 1,000 | Chuttram for Native Firemen for Shoranur and Ernacolum. |
| 1,205 | Carriage Examiner's quarters for do. do. |
| 1,623 | Locomotive Staff, 6 units for do. do. |
| 5,501 | P. W. Inspector's quarters & office for do. do. |
| 4,154 | Guards' barracks for do. do. |
| 2,723 | Signaller's quarters for do. do. |
| 1,296 | |
| 19,713 | Station building for Shoranur and Ernacolum. |
| 6,323 | Station building for Trichur. |
| 2,758 | |

(Signed) E. W. STONEY,
Acting Chief Engineer.

List of existing types of Madras Railway Station Buildings.

*Madras Railway Type.*

Station house, Mankarai, plan No. 3101 ... ... ...

Devankundi native latrine, plan No. 3325 ... ... ...
Goods platform, Ennur ... ... ... ...
Goods-shed, Tadpatri, No. 2805 ... ... ... ...
Sulur Goods godown, No. 2456 ... ... ... ...

European latrine, Kamasamudram, No. 1984 ... ... ...
Station Master's house, Edakkolam, No. 3328 ... ... ...

Double Station and Assistant Station Master's house, Nandalur ... ...
Station Master's bungalow, Podanur, plan No. 2148 ... ... ...
Three huts for Policemen at Bangalore, No. 3638 ... ... ...
Ennur running room ... ... ... ...
Chuttram for Native Firemen, Nandalur ... ... ... ...
Carriage Examiner's bungalow, Bowringpet, No. 3619 revised ... ...
Six Menials' quarters, Sankaridrug, No 3651 ... ... ...
Permanent-way Inspector's bungalow, Calicut, No. 2229 ... ... ...
Double Gurad's Barracks, Podanur, No. 3621 ... ... ...
Signaller's bungalow, Podanur, plan No. 2224 ... ... ...
Guard's and Driver's running room, Arcot-Ranipet Survey ... ... ...

*New Plans and Estimates by Mr. Otto.*

1st Class Station building ... ... ... ... ... ...
2nd ,, ... ... ... ... ... ...
3rd ,, ... ... ... ... ... ...

16th October 1896.



*Note on Revised Estimate of the Shoranur-Cochin Railway.*

The principal reductions have been effected as shown in round figures below:—

| — | Cost in lakhs. Original estimate. | Cost in lakhs. Revised estimate. | Saving or addition. |
|---|---|---|---|
| | Rs. | Rs. | Rs. |
| Land ... ... ... .. ... | 21 | 14 | 7 |
| Earthwork ... ... ... ... | 38 | 23 | 15 |
| Bridgework, Major ... ... ... | 14½ | 12 | 2½ |
| ,, Minor .. ... ... | 7 | 4¾ | 2¼ |
| Ballast ... ... ... ... ... | 9¼ | 3 | 6¼ |
| Permanent-way ... ... ... | 34 | 22 | 12 |
| Stations, &c. ... ... ... ... | 3¼ | 1½ | 1¾ |
| Staff quarters ... ... ... ... | 1¾ | 1 | ¾ |
| Station machinery ... ... ... | 2¾ | 1¾ | 1 |
| Plant ... ... ... ... ... | ¾ | 2¼ | + 1½ |
| Total ... | 151 | 104 | 47 |

The remarks made in the note on the revised estimate of the Calicut-Cannanore Railway apply also to this estimate.

On the assumption that further reductions amounting to 15 per cent. of the revised estimate would be made, the cost of this railway could be reduced to Rs. 1,20,000 per mile.

Madras,
9th December 1896.

(Signed) F. D. FOWLER,
*for* Consg. Engineer for Railways.

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From the Secretary to the Government of India, Public Works Department (Railway Construction), to the Officiating Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, dated Calcutta, 29th January 1897, No. 188 R.C.

I am directed to acknowledge the receipt of your letter, No. 1029 R., dated 9th December 1896, forwarding a revised estimate of the cost of the proposed Shoranur-Cochin Railway as compiled by the Chief Engineer, Madras Railway, together with a note thereon by the Consulting Engineer for Railways, Madras.

2. It is observed that the Consulting Engineer is of opinion that, on the assumption that further reductions aggregating 15 per cent. of the revised estimate amounting to Rs. 1,03,99,050 would be made, the cost of this line could be reduced to Rupees 1,20,000 per mile.

3. It would appear that the reductions in the revised estimates are reductions of figures only. The Government of India believe that further considerable reductions are feasible by using grades of 1/100 and curves of 1,200 feet radius; but until the construction of this branch has been decided upon, it seems premature to undertake a re-alignment and the preparation of further revised estimates.

ORDER—No. 112 R., dated 20th February 1897.

Communicated to the Agent and Manager, Madras Railway, for information.

(True Extract.)

Offg. Under Secretary to Government,
Railway Branch.

To the Agent and Manager, Madras Railway.
" Examiner, Guaranteed Railway Accounts.

Exd. T. K. Naraina Aiyangar.

All communications should be addressed to the Secretary.

*No.* 1552 R.C.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

RAILWAY CONSTRUCTION.

To

The Joint Secretary to the Government of Madras,

Public Works Department, Railway Branch.

Calcutta, the 13th December 1895.

Sir,

In continuation of letter No.1551 R.C., dated 13th December 1895, I am directed to say that the Government of India agree generally that very large reductions should be possible in the estimates, as submitted with your letter No.775 R., dated 18th November 1895, of the cost of the construction of the proposed railway from Shoranur to Cochin when the line is carefully located and a ruling grade of 1 in 100 is adopted instead of 1 in 150.

2. Before expressing, however, any definite opinion on the project, the Government of India, I am to say, would wish to be put in possession of the full views of the Board of the Madras Railway Company both on the plans and estimates which have been prepared by their officers and in regard to the method of raising the necessary capital for carrying out the line should the Company desire to make it as an integral part of the Madras railway system.

3. As pointed out in the case of the Calicut-Cannanore railway, the estimated cost of land for the Shoranur Cochin line, viz., Rs.22,907 per mile

is

P. W. CURRENT No. 10144

is abnormally high and requires looking into.

I have the honour to be,

Sir,

Your most obedient servant,

G Ashburner

Assistant Secretary.

Recd: 18.12.95

Documents accompanying:-

Nil.

13/12

R. Form No. 12.

2P.

No. 146 R

Government of Madras.

**PUBLIC WORKS DEPARTMENT,**

RAILWAY BRANCH.

To

The Secy. to the Govt. of India,

P. W. Department.

Calcutta.

21st February 1896.

Sir,

In reply to your No. 1552 R.C., dated 13th December 1895, I am directed to refer you to the documents forwarded with my letter No. 145 dated 21st February 1896, which give the full views of the Board of the Madras Railway Company as desired in para 2 of your letter.

2. As regards para 3 I am to say that the valuation of the land for the Shoranur-Cochin line which will run almost entirely through the native States of Cochin and Travancore was not entirely furnished by the Revenue officials under the Madras Government but by the Dewan's of Cochin and Travancore respectively and there is no reason to reject their valuation.

3. Under the explanations now given I am directed to urge that the approval of the Government of India may be given if the prospects of the Shoranur-Cochin Branch are considered sufficiently good and -- that it may be communicated to the Board of Directors through the Secretary of State.

4. It is assumed that the Financial details will be settled in England directly between the Secretary of State and the -- Board of Directors.

Fmu R.
15/2

B/- No. 146. R. dated 21.2.96
Document accomp.
-Nil-
Fair desp'd in R. office
on 21.2.96

Print

4SP.

MADRAS RAILWAY COMPANY,
CHIEF ENGINEER'S OFFICE,
MADRAS, *16th October* 1896.

No. $\frac{C/6718.}{1317.}$

## Proposed Shoranur-Cochin Extension.

## Revised Estimate.

THE ACTING AGENT AND MANAGER.

DEAR SIR,

Referring to your letter, No. 8810/1725, of 19th February last, and the first para. page 3 of the accompanying Board's letter, I beg to forward herewith a statement showing the original and revised estimate figures under various conditions for the Shoranur-Cochin Branch Railway.

2. The earthwork and land quantities have been recalculated under Mr. Percy's supervision, and the remaining items were revised by Mr. Otto and checked by Mr. Percy under my directions. The results are as follows :—

Using the Madras Railway type of Permanent-way and retaining fencing throughout, the total cost is reduced to Rs. 111,20,761, or a rate of Rs. 1,52,339 per mile.

3. If Government type Permanent-way with timber sleepers similar to that now being laid on the Madras-Bezwada Railway is adopted, the total cost will be Rs. 103,99,050, or per mile Rs. 1,42,453, and if in addition fencing be omitted, the cost will be still further reduced to Rs. 101,69,259, or Rs. 1,39,305 per mile.

4. I cannot recommend either of the reductions named in para. 3, if the line is to be made and worked by this Company, as if wooden sleepers be used, the renewals will be costly, and the line is sure to need fencing, running as it does through a densely-populated and well-cultivated country.

5. The accompanying detailed memorandum shows the manner in which each sub-head has been revised and reduced ; and it will be observed that the width of cuttings has been taken at 20 feet, which is quite sufficient, instead of 26 feet, the Government of India standard width, by which a considerable reduction in earthwork and land has been effected.

6. The lengths of station sidings have been reduced considerably, and all accommodation cut down to a minimum ; the lengths of through sidings have not been reduced below Government Standard dimensions, passenger platforms are only 1 foot high above rail level. The cutting down has been carried if anything too far I think, and it is hardly safe to rely on less expenditure than Rs. 1,53,000 a mile, but much will depend on the price of English material and exchange at the time of construction.

7. Assuming that the more direct line *via* Alwaye is made, the total distance between Shoranur and Ernakolum will be reduced to 64 miles as shown in the accompanying statement, and the revised estimate cost will be, retaining Madras Railway Permanent-way and Fencing, Rs. 1,52,339 per mile, or a total of Rs. 97,49,696, reduced to Rs. 1,42,453 per mile, or a total of Rs. 91,76,992, if Government type Permanent-way be used.

8. It is desirable to point out that the revised estimates submitted for both the Calicut-Cannanore and Shoranur-Cochin lines include rolling stock, amounting to Rs. 6,77,220 =Rs. 11,478 per mile for the former, and Rs. 842,920=Rs. 11,547 per mile in the latter estimate.

Yours faithfully,
E. W. STONEY,
*Ag. Chief Engineer.*

7

# Shoranur-Cochin Survey.

*Memorandum showing in detail the manner in which each item of Mr. Dallas' Original Estimate has been dealt with in the Revised Estimate of the Shoranur-Cochin Extension.*

**I. Preliminary Expenses.**—Preliminary expenses remain unaltered. The original estimate was Rs. 26,000. The revised estimate is Rs. 26,000.

**II. Land.**—The original land estimate was prepared with cuttings 26 feet wide, slopes 2 to 1, and banks 20 feet wide, slopes 2 to 1, the ruling gradient was also 1 in 150. In the revised estimate cuttings are taken 20 feet wide, slopes 1½ to 1, and banks 20 feet wide, slopes 2 to 1, the ruling gradient is also 1 in 100. The original estimate was Rs. 20,90,199. The revised estimate is Rs. 14,11,350.

**III. (1) Earthwork.**—The original estimate was prepared with cuttings 26 feet wide, slopes 2 to 1, banks 20-feet wide, slopes 2 to 1 and ruling gradient 1 in 150. Rough stone pitching and turfing for banks was allowed throughout. The revised estimate is prepared with cuttings 20 feet wide, slopes 1½ to 1, banks 20 feet wide, slopes 2 to 1 and a ruling gradient of 1 in 100. Rough stone pitching except in tanks and turfing for banks is dispensed with. The original estimate was Rs. 38,29,258 and the revised estimate is Rs. 23,13,432.

**IV. (1) Large Bridges.**—The original estimate for large bridges is with piers on double 12 feet wells, 60 feet girders, provision for cart traffic at all bridges and a rate of exchange of Rs. 19 per pound sterling; also 64 spans of 60 feet each were allowed. In the revised estimate 55 spans of 60 feet each are provided. Provision for cart traffic is made at three bridges only, and the rate of exchange for iron work taken at Rs. 17-8-0 per pound sterling. The original estimate was Rs. 14,73,730, the revised estimate is Rs. 12,26,728.

**IV. (2). Minor Bridges.**—As the banks have been reduced, the minor bridges will similarly be reduced, only absolutely essential minor bridges are estimated for. The original estimate was Rs. 7,01,047, the revised estimate is Rs. 4,71,277.

**V. (1). Fencing.**—In the revised estimate for fencing, the rate of exchange is reduced from Rs. 19 to Rs. 17-8-0. per pound. The original estimate was Rs.2,40,908, revised estimate is Rs. 2,22,251. If, however, fencing is only provided round station yards, the cost will be Rs. 31,932.

**V. (2). Road Crossings.**—This item remains the same, original estimate Rs. 93,822, revised estimate Rs. 93,822. If the fencing be omitted, level crossing gates will only be required at stations. Then the cost for this item will be Rs. 54,350.

**V. (3) Mile and Gradient Post.**—This estimate remains unaltered, original and revised estimates, Rs. 2,589.

**VI. Electric Telegraph.**—Estimate remains unaltered, original estimate, Rs. 32,050, revised estimate, Rs. 32,050.

**VII. (1) Ballast.**—In this estimate no provison has been made for wastage. The Madras Railway district rates with a slight increase have been accepted, and the length of sidings has been reduced from 18·055 miles to 11·476 miles; see tabular statement attached. The original estimate was Rs. 9,26,281 and the revised estimate is Rs. 3,00,574.

**VII. (2) Permanent-way.**—In this estimate, the rate of exchange has been reduced from Rs. 19 to Rs. 17-8-0 per pound. Price of rails has risen fully one pound per ton since framing of original estimate which increase in price has been allowed for in the revised estimate. The length of the sidings has been reduced from 18·055 miles to 11·476 miles, original estimate Rs. 34,28,715, revised estimate, Rs. 29,68,481. If however flat footed steel rails 75 lbs per yard on timber sleepers be used (Government type of permanent-way as used on the Madras-Bezwada Railway) instead of the Madras Railway type, the cost of this item will be reduced to Rs. 22,46,770.

**VIII. (1) Station and Offices.**—This estimate has been carefully revised and only such items as are absolutely necessary on the first completion of the line are allowed for; see list attached showing buildings provided for at each Station; a list is also attached of existing types



of building on the Madras Railway taken as standards for similar buildings on the Shoranur-Cochin Extension. Passenger platforms at 1 foot and goods platforms 3 feet 6 inches above rail level. The original estimate was Rs. 3,25,025 and the revised estimate, Rs. 1,57,745.

**VIII. (2). Workshops and Store.**—This estimate is reduced from Rs. 11,928 to Rs. 4,578.

**VIII. (3). Staff Quarters.**—This estimate also is carefully revised and only such items are provided for as are absolutely necessary on the opening of the line for traffic. A list showing staff quarters, etc., provided for at each station is attached. The original estimate was Rs. 1,79,760 and the revised estimate is Rs. 91,660.

**VIII. (4). Station Machinery.**—This estimate has been revised, and only such items as are necessary on the opening of the line for traffic have been retained. Statement attached showing machinery provided for at each station; original estimate, Rs. 2,78,623, revised estimate, Rs. 1,87,220.

**IX. (1). Engineering Plant.**—No provision was made in the original estimate for Engineering plant for the construction of the large bridges. In the revised estimate, a sum of Rs. 1,50,000 has been provided for this purpose, and Rs. 70,000 for Engineering plant and tools generally; original estimate, Rs. 73,730, revised estimate, Rs. 2,20,000.

**IX. (4). Station and Office Furniture.**—This estimate is also carefully revised and reduced. The original estimate is Rs. 23,410 and revised estimate, Rs. 15,270.

**XI. (1 and 2). Rolling Stock.**—This item remains unaltered, original estimate, Rs. 8,42,920.

**XII. General Charges.**—General charges bear a very moderate percentage to the total estimate and as this estimate has been carefully framed it is left unaltered. The original estimate was Rs. 5,32,814 and revised estimate is Rs. 5,32,814.

E. W. STONEY,
*Ag. Chief Engineer.*

16*th October* 1896.

*Shoranur-Cochin Survey, Original and Revised Estimates.*

## General Abstract.

| — | Mr. Dallas' Original Estimate. | Present Revised Estimate. | Revised Estimate using Govt. type of permanent-way. | Revised Estimate using Govt type of permanent-way and omitting Fencing. |
|---|---|---|---|---|
| | Rs. | Rs. | Rs. | Rs. |
| Preliminary Expenses ... ... ... | 26,000 | 26,000 | 26,000 | 26,000 |
| Land ... ... ... ... | 20,90,199 | 14,11,350 | 14,11,350 | 14,11,350 |
| Earthwork ... ... ... ... | 38,29,258 | 23,13,432 | 23,13,432 | 23,13,432 |
| Large Bridges ... ... ... ... | 14,73,730 | 12,26,728 | 12,26,728 | 12,26,728 |
| Minor Bridges ... ... ... ... | 7,01,047 | 4,71,277 | 4,71,277 | 4,71,277 |
| Fencing ... ... ... ... | 2,40,908 | 2,22,251 | 2,22,251 | 31,932 |
| Road Crossings ... ... ... ... | 93,822 | 93,822 | 93,822 | 54,350 |
| Mile and Gradient Post ... ... ... | 2,589 | 2,589 | 2,589 | 2,589 |
| Electric Telegraph ... ... ... | 32,050 | 32,050 | 32,050 | 32,050 |
| Ballast ... ... ... ... | 9,26,281 | 3,00,574 | 3,00,574 | 3,00,574 |
| Permanent-way ... ... ... ... | 34,28,715 | 29,68,481 | 22,46,770 | 22,46,770 |
| Stations and Offices ... ... ... | 3,25,025 | 1,57,745 | 1,57,745 | 1,57,745 |
| Workshop and Store Building ... ... | 11,928 | 4,578 | 4,578 | 4,578 |
| Staff Quarters ... ... ... ... | 1,79,760 | 91,660 | 91,660 | 91,660 |
| Station Machinery ... ... ... | 2,78,623 | 1,87,220 | 1,87,220 | 1,87,220 |
| Engineering Plant ... ... ... | 73,730 | 2,20,000 | 2,20,000 | 2,20,000 |
| Station and Office Furniture ... ... | 23,410 | 15,270 | 15,270 | 15,270 |
| Rolling-stock ... ... ... ... | 8,42,920 | 8,42,920 | 8,42,920 | 8,42,920 |
| General Charges ... ... ... | 5,32,814 | 5,32,814 | 5,32,814 | 5,32,814 |
| Grand Total ... | 151,12,809 | 111,20,761 | 103,99,050 | 101,69,259 |
| Length of Line 73 miles—Rate per mile ... | 2,07,025 | 1,52,339 | 1,42,453 | 1,39,305 |
| Alternative line between miles 43 and 64 Alwaye, Length of line 64 miles ... passing through Total Cost ... | | 97,49,696 | 91,76,992 | 89,15,520 |
| Cost per mile ... | | 1,52,339 | 1,42,453 | 1,39,305 |

E. W. STONEY,
*Ag. Chief Engineer.*

16*th October* 1896.

# Shoranur-Cochin Survey.

*Tabular Statement Showing how sidings have been reduced in the revised estimate.*

| | | As per Mr. Dallas' Estimate. | | Proposed reduction. | |
|---|---|---|---|---|---|
| | | Sidings. | | Sidings. | |
| | | Class of Station. | Length of siding in miles. | Class of Station. | Length of siding in miles. |
| 1 | Shoranur ... ... ... | Junction ... | 4·301 | Junction ... | 4·301 |
| 2 | Mullurcurray ... ... ... | 3rd ... | 0·664 | 3rd Special ... | 0·314 |
| 3 | Wadakancheri ... ... ... | 2nd ... | 1·134 | 3rd ... | 0·464 |
| 4 | Mulavathakavu ... ... ... | 3rd ... | 0·664 | 3rd Special ... | 0·314 |
| 5 | Trichur ... ... ... ... | 1st ... | 2·423 | 2nd ... | 0·314 |
| 6 | Ullur ... ... ... ... | 3rd ... | 0·664 | 3rd Special ... | 0·734 |
| 7 | Pudukad ... ... ... | 3rd ... | 0·664 | 3rd Special ... | 0·314 |
| 8 | Ahtur ... ... ... ... | 3rd ... | 0·664 | 3rd ... | 0·464 |
| 9 | Shalacoodee ... ... ... | 3rd ... | 0·664 | 3rd Special ... | 0·314 |
| 10 | Angamali ... ... ... | 3rd ... | 0·664 | 3rd ... | 0·464 |
| 11 | Chengal Ferry ... ... ... | 3rd ... | 0·664 | 3rd Special ... | 0·314 |
| 12 | Perrambayur ... ... ... | 3rd ... | 0·664 | 3rd ... | 0·464 |
| 13 | Keelamad ... ... ... | 3rd ... | 0·664 | 3rd Special ... | 0·314 |
| 14 | Eddapilly ... ... ... | 2nd ... | 1·134 | 3rd ... | 0·464 |
| 15 | Ernacolum ... ... ... | 3rd ... | 0·664 | 3rd Special ... | 0·314 |
| | | 1st ... | 2·423 | 1st ... | 1·923 |
| | Total Miles | | 18·055 | | 11·476 |

Note.—2nd and 3rd class station sidings have been reduced by 500 feet in the revised estimate.

16*th October* 1896.

E. W. STONEY,
*Ag. Chief Engineer.*

# Shoranur-Cochin Survey.

*List of Staff Quarters provided for at each Station with their estimated cost.*

| Name of building. | Shoranur Junction. | Mullurcurray 3rd Class. | Wadakancheri 2nd Class. | Mulavathakavu 3rd Class. | Trichur 1st Class. | Ullur 3rd Class. | Pudukad 3rd Class. | Ahtur 3rd Class. | Shalacoodee 3rd Class. | Angamali 3rd Class. | Chengal Ferry 3rd Class. | Perrambayur 3rd Class. | Keelamad 2nd Class. | Eddapilly 3rd Class. | Ernacolum. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rs. | | | | | | | | | | | | | | |
| Station Masters' quarters ... | 2,097 | 953 | 1,500 | 953 | 2,097 | 953 | 953 | 953 | 953 | 953 | 953 | 953 | 1,500 | 953 | 2,097 |
| Asstt. do. ... ... | 2,097 | ... | ... | ... | 2,097 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 2,097 |
| Menials' quarters 4 units ... | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 | 918 |
| Sweeper huts ... ... | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| Drivers' Running Room ... | 3,024 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 3,024 |
| Chutram for Native firemen ... | 1,000 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1,000 |
| Carriage Examiner's quarters ... | 1,205 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1,205 |
| Loco. Staff 6 Units ... ... | 1,623 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1,623 |
| P. W. Inspector's Quarters and office. | 5,501 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 5,501 |
| Guards' Barracks ... ... | 4 154 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 4.154 |
| Guards' Running Room ... | 3,024 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 3,024 |
| Signallers' Quarters ... ... | 2,723 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 2,723 |
| Inspecting Locomotive Foreman's Quarters Room attached to Running Room. | 1,000 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1,000 |

16*th October* 1896.

E. W. STONEY,
*Ag. Chief Engineer.*



*List of Station Buildings and Office on the Shoranur-Cochin Extension.*

| Description | Shoranur. | Mullurcurray. | Wadakancherri. | Mullavathakavu. | Trichur. | Ullur. | Pudukad. | Ahtur. | Shalacoodee. | Angamali. | Chengal Ferry. | Perrambayur. | Keelamad. | Eddapilly. | Ernacolum. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station building ... ... ... | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Passenger platform, 1' above R. L. ... | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Road approaches ... ... ... | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Native latrine ... ... ... | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Palisade fencing ... ... ... | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Goods platform 3' 6" above R. L. ... | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Goods shed ... ... ... ... | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Goods godown ... ... ... | 1 | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| European latrine ... ... ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 |
| Salt godown ... ... ... ... | 1 | ... | ... | 1 | 1 | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... |
| Gates ... ... ... ... | 1 | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | 1 | ... | 1 |
| | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

16*th October* 1896.

E. W. STONEY,
*Ag. Chief Engineer.*

## Shoranur Cochin Survey.

*List of Machinery provided at each station.*

| | Ashpits. | Water Columns. Number. | Water Columns. Diameter. | Piping. Length. | Piping. Diameter. | Water Tanks Capacity. | Wells. Number. | Wells. Diameter. | Water Lifts. Tanks | Water Lifts. Hand draft. | Points and Crossings complete. 1 in 12. | Points and Crossings complete. 1 in 8½. | Sco cis Blocks | Buffer Stops. | Distant Signals. | Platform and Goods Weighing Machine. 1 Ton. | Platform and Goods Weighing Machine. 5 Cwts. | Dating Presses. | Engine shed (Tempo.ary.) Area. | Engine shed (Tempo.ary.) Loco Ashpit. | Engine shed (Tempo.ary.) Turntable | Hydrant Engine Shed | Fuel Stages. | Fuel Sheds. | Cranes for Jetties. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shoranur ... | 1 | 2 | 8″ | 810′ | 8″ | 2×1000 | 1 | 12′ | 1 | ... | 17 | 9 | 4 | 3 | 1 | 1 | 1 | 1 | 2,520 | 1 | 1 | 1 | 1 | 1 | ... |
| Mullurcurray ... | ... | ... | ... | ... | ... | ... | 1 | 6′ | ... | 1 | 3 | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Wadakancherri ... | ... | ... | ... | ... | ... | ... | 1 | 6′ | ... | 1 | 8 | ... | 2 | 2 | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Mulavathakavu ... | ... | ... | ... | ... | ... | ... | 1 | 6′ | ... | 1 | 3 | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Trichur ... | 1 | 2 | 8″ | 810′ | 8″ | 1×1000 | 1 | 12′ | 1 | ... | 6 | 2 | 4 | 3 | 1 | 1 | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Ullur ... | ... | ... | ... | ... | ... | ... | 1 | 6′ | ... | 1 | 3 | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Pudukad ... | ... | ... | ... | ... | ... | ... | 1 | 6′ | ... | 1 | 3 | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Ahtur ... | ... | ... | ... | ... | ... | ... | 1 | 6′ | ... | 1 | 3 | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Shalacoodee ... | ... | ... | ... | ... | ... | ... | 1 | 6′ | ... | 1 | 3 | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Angamali ... | ... | ... | ... | ... | ... | ... | 1 | 6′ | ... | 1 | 3 | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Chengal Ferry ... | ... | ... | ... | ... | ... | ... | 1 | 6′ | ... | 1 | 3 | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Perrambayur ... | ... | ... | ... | ... | ... | ... | 1 | 6′ | ... | 1 | 3 | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Keelamad ... | 1 | 2 | 8″ | 810′ | 8″ | 1×1000 | 1 | 12′ | 1 | ... | 8 | ... | 2 | 2 | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Eddapilly ... | ... | ... | ... | ... | ... | ... | 1 | 6′ | ... | 1 | 3 | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... |
| Ernacolum ... | 1 | 2 | 8″ | 810′ | 8″ | 2×1000 | 1 | 12′ | 1 | ... | 6 | 15 | 4 | 3 | 1 | 1 | 1 | 1 | 2,520 | 1 | 1 | 1 | 1 | 1 | 1 |

16*th October* 1896.

E. W. STONEY,
*Ag. Chief Engineer.*

## Shoranur-Cochin Survey.

*List of existing types of Madras Railway Station Buildings and Staff Quarters taken as standards for the Shoranur-Cochin Extension.*

| *Madras Railway Type.* | Estimated Cost. Rs. | *Building for which types are used on Shoranur-Cochin Extension* |
|---|---|---|
| Station house, Mankarai, Plan No. 3101 ... ... ... | 1,990 | Station buildings for Mullurcurray, Mulavathakavu, Ullur, Pudukad, Ahtur Angamali, Chengal Ferry, Perrambayur and Eddapilly. |
| Devankundi native latrine, Plan No. 3325 ... ... ... | 310 | Native latrines for all the stations. |
| Goods platform, Ennur ... ... ... ... | 790 | Goods platforms for all the stations. |
| Goods shed, Tadpatri, No. 2805 ... ... ... ... | 6,179 | Goods sheds for Shoranur, Trichur and Ernacolum. |
| Sulur Goods godown, No. 2456 ... ... ... ... | 1,062 | Salt godowns for Shoranur, Trichur, Keelamad, and Ernacolum and Goods godowns for Wadakancherri, Shalacoode and Perrambayur. |
| European latrine, Kamasamudram, No. 1984 ... ... ... | 318 | European latrines for Shoranur, Trichur, Keelamad and Ernacolum. |
| Station Master's house, Edakkolam, No. 3328 ... ... ... | 953 | Station Master's quarters for Mullurcurray, Mulavathakavu, Ullur, Pudukad Ahtur, Shalacoodee, Angamali, Chengal Ferry, Perrambayur, and Eddapilly. |
| Double Station and Assistant Station Master's house, Nandalur ... | 1,500 | Station Master's quarters for Wadakancherri and Keelamad. |
| Station Master's bungalow, Podanur, Plan No. 2148 ... ... | 2,097 | do for Shoranur, Trichur, and Ernacolum. |
| Three huts for Policemen at Bangalore, No. 3638 ... ... | 918 | Menials' quarters for all the stations. |
| Ennur running room ... ... ... ... ... | 3,024 | Running room for Shoranur and Ernacolum. |
| Chuttram for Native Firemen, Nandalur ... ... ... | 1,000 | Chuttram for Native Firemen for Shoranur and Ernacolum. |
| Carriage Examiner's bungalow, Bowringpet, No. 3619 Revised ... | 1,205 | Carriage Examiner's quarters for do. do. |
| Six Menials' quarters, Sankaridrug, No. 3651 ... ... ... | 1,623 | Loco. Staff, 6 units for do. do. |
| P. W. Inspector's bungalow, Calicut, No. 2229 ... ... ... | 5,501 | P. W. Inspector's quarters & office for do. do. |
| Double Guard's Barracks, Podanur, No. 3620 ... ... ... | 4,154 | Guards' barracks for do. do. |
| Signaller's bungalow, Podanur, Plan, No. 2224 ... ... ... | 2,723 | Signaller's quarters for do. do. |
| Guard's and Driver's running room, Arcot-Ranipet Survey ... | 1,296 | |
| *New Plans and Estimates by Mr. Otto.* | | |
| 1st Class Station Building ... ... ... ... ... | 19,713 | Station building for Shoranur and Ernacolum. |
| 2nd „ „ „ ... ... ... ... ... | 6,323 | Station building for Trichur. |
| 3rd „ „ „ ... ... ... ... ... | 2,758 | |

16*th October* 1896.

E. W. STONEY,
*Acting Chief Engineer.*

ENC. No. 2 TO E. R's C. No. 4980 OF 1896
LETTER No. 1010 13.11.96
FROM AM

R. FORM No. 12.

No. 1029.R

Government of Madras.

PUBLIC WORKS DEPARTMENT,
RAILWAY BRANCH.

His Excellency the Governor
The Hon'ble Mr. Bliss. C.S.I.
The Hon'ble Mr. Grose. C.S.I.

To

THE SECY. TO THE GOVT. OF INDIA,
P. W. DEPARTMENT.
Calcutta.

Madras, the 9th Dec 1896 November 1896.

SIR,

With reference to correspondence ending with my letter No. 146 R., dated 21st February 1896, I am directed to forward copy of a revised estimate for the Shoranur-Cochin Railway compiled by the Chief Engineer Madras -- Railway and forwarded with his letter No. C/6718/1317 dated 16th October 1896 -- (copy attached) together with a note by the Consulting Engineer for Railways, Madras.

R.

Documents accompanying:-
(1) Revised Estimate referred to with letter No. C/6718/1317 of 16.10.96
(2) Note by the Cons. Engr.

Prel

Note on Revised Estimate of the
Shoranur-Cochin Railway.

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The principal reductions have been effected as shown in round figures in the margin.

The remarks made in the note on the revised estimate of the Calicut-Cannanore Railway apply also to this estimate.

On the assumption that further reductions amounting to 15% of the revised estimate would be made the cost of this railway could be reduced to Rs. 1,20,000 per mile.

T.R. 27/11

Madras
9.12.96

Shoranur-Cochin.

| | Cost in lakhs | | Saving or addition |
|---|---|---|---|
| | Original Este: | Revised Este: | |
| Land -- | 21 | 14 | 7 |
| Earth work | 38 | 23 | 15 |
| Bridge work Major | 14½ | 12 | 2½ |
| " Minor | 7 | 4¾ | 2¼ |
| Ballast -- | 9¼ | 3 | 6¼ |
| Permanent Way | 34 | 22 | 12 |
| Stations &c | 3¼ | 1½ | 1¾ |
| Staff Qrs: | 1¾ | 1 | ¾ |
| Stn:Machinery | 2¾ | 1¾ | 1 |
| Plant | ¾ | 2¼ | +1½ |
| Totals | 151 | 104 | 47 |

18f
No. 1029. dated 9.12.96.

# Public Works (1897) Department.

CURRENT No. 1217

**Order**

Circulated to
H.E. the Governor
Hon: Mr H. W. Bliss C.S.E
Hon: Mr J. Grose C.S.E.

[illegible] 9/2/97
[illegible]

1. Seen.
2. I [illegible] the Govt. of India wish to [illegible] this line until the Calicut-Cannanore line is done.

A.E.H 12.2.97

Seen
[illegible]
13/2/97

J.G.
15/2/97

*From*
The Govt. of India
P.W.D.

*No.* 188 RC

*Dated* 29th January 1897
*Received* 3.2.97
*Enclosures*
*Spare copies*

SUBJECT.

Shoranur Cochin Ry.

Orders on the revised Estimate of the cost of the proposed —

H.E. 10.2.97
R. 13.2.97
H.W.B. 13.2.97
R. 17.2.97

2

BACK PAPERS.

| G.O. | No. | Department. | Date. |
|---|---|---|---|
| | | | |

FURTHER PAPERS.

| G.O. | No. | Department. | Dat |
|---|---|---|---|
| | | | |

All communications should be addressed to the Secretary.

Print

90

No. 188 R.C.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

RAILWAY CONSTRUCTION.

To

The Joint Secretary to the Government of Madras,
Public Works Department, Railway Branch.

Calcutta, the 29th January 1897.

Sir,

I am directed to acknowledge the receipt of your letter No.1029 R., dated 9th December 1896, forwarding a revised estimate of the cost of the proposed Shoranur-Cochin Railway as compiled by the Chief Engineer, Madras Railway together with a note thereon by the Consulting Engineer for Railways, Madras.

2. It is observed that the Consulting Engineer is of opinion that on the assumption that further reductions aggregating 15 per cent of the revised estimate amounting to Rs.1,03,99,050 would be made, the cost of this line could be reduced to Rs.1,20,000 per mile.

3. It would appear that the reductions in the revised estimates are reductions of figures only. The Government of India believe that further considerable reductions are feasible by using grades of $\frac{1}{100}$ and curves of 1200 feet radius, but until the construction of this branch has been decided upon it seems premature to undertake a realignment

and

and the preparation of further revised estimates.

I have the honour to be,

Sir,

Your most obedient servant,

W. W. Binet Colonel, R.E.,

Secretary.

Documents accompanying:-

Nil.

Ctd

M.L.M.

(R.) Form No. 3.

A A/- No. 112. R dated 20. 2. 97

PUBLIC WORKS DEPARTMENT,

RAILWAY BRANCH.

# PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following

Letter from the Govt: of India P.W.D. — } H.E. No: 1552 R.C. d/ 13th Decr 1895

Letter to — do — " — " — 146 R d/ 21st Feby: 1896

Letter to — do — " — " — 1029 R d/ 9th Decr: 1896

Letter from — do — " — " — 188 R.C. d/ 29th Jany 97

10 P. Communicated to the Agent & Manager Madras Railway for information.

[illegible] 16/2/97

[illegible] R

M's copy to A.M

To The Agent & Man: M. Ry & [illegible] despd 20/2/97

— " — Ex Gr Rly [illegible]: 9/3/97

[illegible] 18/2/97