Public Works (1898) Department.

Railway Branch

G.O., No. 245-460 Ry

DATED 12th Feby. 1898.

Print over

Contd

100/
37 Copies attached
to the Despatch
31 & 32

[Despatch Abstract.]

Extension of the Nilgiri Railway to Coïmbatore

Ordered that the report and estimate &c
the proposed — be forwarded to the Govt
of India, together with a note by the Cons. Engr
for Rys, Madras

Forwarding the report & estimate
of the proposed — together with a note by
The Cons. Engr for Rys. Madras

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RAILWAY.

Government {1898} of Madras.

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Letter, No. 246 Ry., 12th February 1898.

FEBRUARY.

Extension of the Nilgiri Railway from Coonoor to Ootacamund

Forwarding the report and estimate of the proposed — together with a note thereon by the Consulting Engineer for Railways, Madras.

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Railway.

Read the following papers:—

From—The Agent and Chief Engineer, Nilgiri Ry.
To—The Consulting Engineer for Rys.
Dated—Coonoor, 25th January 1898, No. 1912.

I have the honour to intimate that I have this day despatched to you the complete project for the extension of this railway to Ootacamund.

Twelve copies of the printed estimate have been sent by book post and the working plan and section by parcel post.

From—The Agent and Manager, Madras Ry.
To—The Secretary to the Board of Directors, Madras Ry.
Dated—Madras, 3rd February 1898, No. 2347.

Working of the Nilgiri Railway.

With reference to the correspondence with the Nilgiri Railway Company, which accompanied your letter of the 29th October last, I beg to report that I have been in communication with Mr. Weightman, the Agent and Chief Engineer of that Company, with respect to an agreement for working the line of railway between Méttupálaiyam and Coonoor.

Twelve printed copies of the proposed agreement are now forwarded for the information and guidance of the Board, together with twelve type-written copies of Mr. Weightman's letter addressed to me on the 29th January 1898.

Mr. Weightman in his letter takes objection to only two clauses in the proposed agreement, viz., paragraph 13 (v) and paragraph 17 (*a*); but in conversation with Mr. Weightman, I have understood him to say that the proposed contribution to the Provident fund, referred to in paragraph 21, viz., the payment of 1 per cent. from the *net* earnings of the line as a subscription to the Provident fund, must be approved by the Directors of the Nilgiri Railway in London.

Paragraph 22 was included in the agreement at Mr. Weightman's request when I met him at Méttupálaiyam on the 17th December 1897 and when he stated his objection to paragraph 13 (v).

It will be for the Boards of the two railways to determine which of these two clauses shall remain in the agreement. Both are of course not wanted.

I am unable to relieve the Nilgiri Railway of the direct charge for interest on joint buildings at Méttupálaiyam, referred to in paragraph 17 (*a*), and here again the final decision must rest with the two Boards. In accordance with the arrangements agreed to at a meeting of the officers of the two Companies, held on the 15th June 1892 (*see* G.O., No. 2675 R. of 11th November 1892, forwarded to the Board with letter, No. 2070), it was decided that the Nilgiri Railway should work into the Madras Railway station at Méttupálaiyam instead of building a station of its own; and, to adapt the station then existing to the requirements of a joint station, the platforms were extended and the rooms of the station enlarged. The expense of building the Méttupálaiyam station, and carrying out the changes agreed to at this meeting, was incurred by the Madras Railway, and the Nilgiri Railway share of this

expenditure should now, it seems to me, be paid in cash if the rent agreed to at the meeting is objected to. To charge the rent to Abstract G, as proposed by Mr. Weightman, would result in the Madras Railway bearing the whole of the interest charge upon the capital expenditure at Méttupálaiyam station, and such an arrangement might be objected to by the Government, seeing that the Government was represented at the meeting of the 15th June 1892.

I am advised by Mr. Weightman that up to date a 2nd-class fare has not been sanctioned for passengers travelling on the Nilgiri Railway. I am of opinion that, as a matter of form, a maximum rate of 6 annas a mile should be agreed to, even if we do not, on the opening of the railway, attempt to carry 2nd-class passengers.

It is understood that the agreement will be signed in England, and not in this country, as soon as the consent of the Secretary of State has been obtained to the arrangements proposed by the two Companies.

Enclosure.

NILGIRI RAILWAY.

Draft of a Working Agreement between the Nilgiri Ry. Co. and the Madras Ry. Co.

Memorandum of Agreement made this day of eighteen hundred and ninety-eight between the Nilgiri Ry. Co. and the Madras Ry. Co. for the working and maintenance of the Nilgiri Railway by the Madras Ry. Co.

1. Throughout this Agreement, unless otherwise stated or unless there is something repugnant in the context, the following terms are to have the meanings set opposite to each of them, respectively, namely:— Interpretation clause.

(*a*) Traffic includes everything that is carried over the Nilgiri Railway. Traffic.

(*b*) Coaching traffic includes passengers, horses, carriages, dogs, parcels, luggage and all that is booked at what are commonly known as coaching rates. Coaching traffic.

(*c*) Goods traffic includes coal, minerals, material and merchandise of all kinds, also cattle, sheep, &c., and all that is booked at what are commonly known as goods rates. Goods traffic.

(*d*) Telegraph receipts include all sums received for telegrams for the State and private parties. Telegraph receipts, &c.

(*e*) Capital expenditure includes all expenditure of all kinds which would, under the rules in force from time to time on the Madras Railway, be charged to the Capital account. Capital expenditure.

(*f*) Revenue expenditure includes all expenditure of all kinds which would, under the rules in force from time to time on the Madras Railway, be charged to the Revenue account. Revenue expenditure.

(*g*) Stations include sidings, platforms (where provided), points, sheds, tank-houses, wells, water-columns, signals, approaches, roads, buildings for traffic purposes, dwellings for the Traffic station staff, furniture, fittings, lamps, and other appliances that are required for working traffic, &c., at stations. Stations.

(*h*) Locomotive premises include running sheds, repairing shops, and all other appliances necessary for maintaining rolling-stock in working order. Locomotive premises.

(*i*) Rolling-stock includes brake vans, water-tanks, all goods and coaching vehicles and all locomotive engines which are necessary for working the traffic of the Nilgiri Railway. Rolling-stock.

(*k*) The term "Nilgiri Railway" includes all stations, locomotive premises, dwellings for the staff, rolling-stock, and the whole of the permanent-way, which form part of the complete undertaking of the Nilgiri Railway Company. Nilgiri Railway.

(*l*) Local traffic and telegraph receipts are those which relate to traffic and telegrams which do not pass off the Nilgiri Railway, and include the receipts for traffic and telegrams between Méttupálaiyam and any station of the Nilgiri Railway. Local traffic & telegraph receipts.

(*m*) Through traffic and telegraph receipts are the share of the receipts due to the Nilgiri Railway for traffic and telegrams which pass between stations of the Nilgiri Railway and stations of the Madras and other Railways beyond the Madras Railway. Through traffic and telegraph receipts.

(*n*) Gross receipts include the Nilgiri Railway share of all local and through traffic and telegraph receipts, all amounts received for rent and all other sums received by the Madras Railway on account of the Nilgiri Railway—including advertisement and refreshment room receipts, and including also any sums received from Government under its guarantee to make the minimum gross earnings up to Rs. 2,00,000 (two lakhs of rupees) per annum. Gross Receipts.

2. The Nilgiri Railway, as hereinbefore defined with permanent-way, station buildings, furniture, fittings, sheds, sidings, locomotive engines and rolling-stock of all kinds, and all other conveniences necessary for working the traffic to and from the Coonoor terminus of the Nilgiri Railway will be taken charge of by the Madras Railway Company on the first day of eighteen hundred and ninety-eight and from that date it is, during the period of this Agreement Madras Railway to work the Nilgiri Railway

(*see* clause 3), to continue to be worked by the Madras Railway Company as part of its own undertaking, in all respects as if it actually belonged to the Company, subject only to the same control of Government through the Consulting Engineer to the Government of Madras as is provided for in the agreement entered into between the Nilgiri Railway and the Secretary of State, the intention being that for working purposes the Nilgiri Railway is to be considered and dealt with exactly as if it were the property of the Madras Railway Company, except as to the provision of funds for Capital expenditure and as to the maintenance and renewal of the permanent-way, &c., and cost of Home establishment, which are specially provided for in clauses (5) five (6) six and (7) seven, respectively.

Period of agreement.

3. This agreement is to remain in force for a period of three years from the date on which the line is opened for public traffic: after the expiration of the three years the agreement will continue in force subject to any alteration of terms and conditions which may mutually be agreed upon by the two Boards of Directors, and subject to six months' notice on either side, such notice, however, only to expire on the 30th June or 31st December of any year.

Land.

4. The Nilgiri Railway Company will obtain from Government any land that may at any time be required for the use or extension of the Nilgiri Railway system. Application for extra land required will be submitted in all cases by the Madras Railway direct to the Government Consulting Engineer.

Capital funds.

5. The Nilgiri Railway Company will provide all necessary funds that may be required for Capital expenditure, and when such Capital works are to be undertaken by the Madras Railway Company, the estimated cost thereof is to be deposited in advance with the Madras Railway Company. All expenditure on Capital account is to be subject to the sanction of the Government, and no expenditure on capital works estimated to exceed Rs. 5,000 shall be incurred without the previous sanction of the Board of Directors of the Nilgiri Railway Company.

Engineering maintenance.

6. The Engineering maintenance, including the repair and renewal of all buildings, bridges, cuttings and embankments, permanent-way and all other expenditure chargeable according to Government Orders to the Abstract A, form of Revenue account, will be undertaken at the sole cost of the Nilgiri Railway Company, but the Engineering staff shall be, in all respects, subject to the orders and control of the Agent and Manager of the Madras Railway Company. Abstract A will be submitted periodically to the Government Examiner of Accounts, Madras.

6-A. Estimates for work in connection with maintenance to be submitted in advance half-yearly to the Nilgiri Board in London, and in the event of objections being raised to any proposed expenditure, the question to be referred, if necessary, to the Consulting Engineer for Railways, Madras.

Home establishment.

7. The cost of the Home establishment as chargeable by Government Orders under Abstract E of the Revenue Accounts, items 1st sub-heads 1, 2, 3 and 4, will be borne by the Nilgiri Railway Company.

Passenger fares.

8. The following passenger fares shall be chargeable between Méttupálaiyam and stations on the Nilgiri Railway:—

1st Class—A maximum mileage rate of 10 annas.
2nd Class— Do. do.
3rd Class—A maximum mileage rate of one anna.
Luggage and parcels—A maximum mileage rate of one anna per maund per mile.
Other coaching rates will be charged as shown in published time-tables and circulars.

Goods rates.

9. The following goods rates will be charged for all classes of goods-traffic:—

From Mettupálaiyam upwards—a maximum rate of $4\frac{1}{2}$ pies per maund per mile.
From Coonoor downwards—a maximum rate of $2\frac{1}{4}$ pies per maund per mile.

Terminal charges.

9-A. Terminal charges will be levied at the rates in force from time to time on the Madras Railway.

Alteration of rates both passenger and goods.

10. Subject to the above-mentioned maximum rates, the Madras Railway Company shall have the power to alter the rates as found to be desirable for the encouragement of traffic.

Carriage of mails.

11. Government mails shall be carried over the Nilgiri Railway under the terms of the agreement between the Nilgiri Railway Company and the Secretary of State.

Carriage of revenue stores.

12. The Madras Railway Company agree to carry over its own line and over the Nilgiri Railway any materials required for Revenue works upon the Nilgiri Railway at double the rates, but under the same arrangements, as are in force for material required for Revenue works on its own line.

Responsibility for accidents, &c.

13. The Madras Railway will be responsible to the public for all accidents, losses or damages of all kinds upon the Nilgiri Railway except as follows:—

Accidents or losses—

(i) Caused by the failure of way or works owing to defective construction, or so long as the Nilgiri Railway maintains its own Engineering staff;
(ii) Owing to mechanical or other failure of method or system on which rolling-stock ascends or descends gradients on the Nilgiri Railway;

(iii) Owing to defective construction of rolling-stock; and
(iv) Owing to extraordinary casualties from exceptional rainfall, or damages by floods, land slips, bursting of tanks, rivers, or other irrigation works;

For which exceptions the Nilgiri Railway Company will be financially responsible to the public, as well as for the repair or replacement of all way and works, rolling-stock, and for any accident or damage that the Madras Railway could not have prevented.

(v) The Nilgiri Railway will be responsible for loss through delay in the event of the rolling-stock and equipment being found to be insufficient when working has commenced.

Provision of staff, stores, &c.

14. The Madras Railway Company shall provide the necessary staff, stores, &c., required for the working of all descriptions of traffic between Mettupálaiyam station and the terminal station of the Nilgiri Railway.

Control of traffic.

15. The Madras Railway Company shall have entire control of the train and traffic arrangements of the Nilgiri Railway and shall, during the continuance of this agreement. cause to be run upon the Nilgiri Railway as many trains and at such times as the traffic shall from time to time require: at least one train shall be run daily throughout the entire length in each direction.

Telegraph lines and block instruments.

16. The Government Telegraph Department will provide and maintain the necessary lines of telegraph required for working, and the rent charged by the Government will be debited against revenue. The Madras Railway will decide whether block instruments shall be hired from Government or if it will provide Winter's instruments at a rental not exceeding the rate charged by Government for similar instruments.

Mettupálaiyam joint station.

17. The necessary expenditure to render the station buildings at Mettupálaiyam available for use as a joint station will be at all times undertaken by, and at the cost of, the Madras Railway: interest upon the total cost of the joint station premises, at the rate of $7\frac{1}{2}$ per cent. per annum, will be charged to the two railways in proportion to the amount of their local and interchanged traffic at Mettupálaiyam.

The weight of coaching traffic shall be reckoned according to the following scale:—

For each passenger of every class	1 cwt.	
,, ,, child	56 lb.	
,, ,, horse or each head of horned cattle	$\frac{1}{2}$ ton.	
,, ,, sheep, calf, goat, pig, dog or other small animal.	56 lb.	
,, ,, parcel	actual weight.	
,, ,, carriage of any size	$\frac{1}{2}$ ton.	

17. (*a*) The payment of the Nilgiri Railway Company of their proportion of the interest on cost of joint buildings shall be in addition to the proportion of gross earnings for ordinary working expenses to be charged by the Madras Railway under clause 19.

Accounts.

18. The Madras Railway Company shall record and keep in a proper manner full and particular accounts of all its transactions and correspondence in any way relating to or affecting the Nilgiri Railway or the business thereof or any of the matters or things included or referred to in this agreement, so as at all times to exhibit fully and truly the state of its affairs in relation thereto, in the same manner as prescribed in the contracts between the Secretary of State for India and the two railways.

(*b*) The gross receipts of the Nilgiri Railway as hereinbefore defined are to be collected and treated as the receipts of the Madras Railway Company. The balance, after deducting the payments as defined in clauses 19 and 20 of this agreement, is to be paid over to the Nilgiri Railway Company as soon as the accounts for each half-year shall have been made up and passed by the Government of Madras.

(*c*) A full statement of accounts shall be furnished by the Madras Railway Company half-yearly to the Nilgiri Railway Company, and the former Company will also furnish weekly a statement of traffic earnings of the latter railway.

Remuneration to the Madras Railway for working the Nilgiri line.

19. The charge to be made by the Madras Railway Company for working the Nilgiri Railway (including all revenue charges, excepting those for maintenance and home establishment excluded under clauses 6 and 7) shall be 30 per cent. of the gross earnings—see clause 1 sub-head (*n*): provided that if the Madras Railway Company's actual expenditure in working the Nilgiri line show a saving upon this proportion of 30 per cent. of gross earnings, then the Madras Railway Company agree to surrender half the said saving to the Nilgiri Railway Company; but if such actual charges show the expenses to be over the 30 per cent. of gross earnings, the Nilgiri Railway Company agrees to share the excess in equal proportions up to the point at which the payment to the Madras Railway Company would amount to 35 per cent. of gross earnings as a maximum.

Maintenance of Nilgiri Railway.

20. (*a*) The Madras Railway Company will maintain the Nilgiri Railway and its engines and rolling-stock in the same state of efficiency as that in which they were handed over to the company.

(*b*) The precise conditions of the Nilgiri Railway, both as regards way and works and its equipment, when handed over to the Madras Railway Company are specified in the schedule to be annexed to this agreement. A detailed inventory of the Nilgiri Railway as made over to the Madras Railway shall be prepared by the Nilgiri Railway and accepted and kept by the Madras Railway Company as part of the accounts.

Provident Institution.

21. A sum amounting to 1 per cent. of net earnings shall be retained by the Madras Railway Company for contribution to the funds of the Company's Provident institution.

Engines, rolling-stock and other equipment.

22. Before the railway is open for traffic the Agent and Manager of the Madras Railway shall, in consultation with the Engineer-in-Chief of the Nilgiri Railway, decide whether a sufficiency of engines and rolling-stock (with the necessary duplicate parts), buildings and quarters and general appliances and equipment have been provided.

Government inspection of line, and rolling-stock.

23. The Nilgiri Railway as defined in clause I (*k*) shall be inspected and passed by the Government officials before being opened for traffic, and periodically thereafter as Government decides.

Madras Railway's rules and regulations to apply.

24. All the general and subsidiary rules and regulations for the working and management of the Madras Railway in force during the term of this agreement shall, so far as they are applicable to a branch line, be brought into operation on the Nilgiri Railway.

Arbitration.

25. In the event of any difference of opinion arising upon any of the terms of this agreement between the respective Companies, the matter shall be referred through the Government of Madras to the Government of India, who shall decide from time to time as to responsibility for loss or damage, under this agreement, and whose decision shall be final and binding upon both parties.

Note by the Consulting Engineer for Rys., Madras, dated 12th Feb. 1898.

The Nilgiri Railway extension from Coonoor to Ootacamund.

The first proposal to extend the Mettupálaiyam-Coonoor Railway to Ootacamund came from the late Mr. R. Woolley in May 1892. This Government supported him to the extent of pressing the Government of India to provide the money estimated at 15 lakhs (see G.O., No. 1638 R., dated 1st July 1892). Later on the Nilgiri Railway Company (Mr. Woolley) undertook to make the survey on certain conditions. This we recommended to the Government of India in our No. 1903-R.P.W., dated 6th August 1892.

2. In their No. 956 R.C. of 29th August 1892, the Government of India refused to provide money for the purpose, as the funds at their disposal were required for other works of greater importance. They, however, agreed in their letter, No. 1411 R.C., dated 23rd December 1892, to allow the Company to make the survey on the condition that, in the event of Government making the line or giving it to another Company, they were to be recouped.

3. On the 7th June 1893 with his No. 42, the Secretary, Nilgiri Railway Company, sent us a rough plan and section of the extension surveyed by Mr. Weightman. This Government expressed approval of the alignment in our No. 29/O. of the 18th July 1893, leaving it to the Nilgiri Railway Company (see subsequent letter, No. 34/O. of 28th July 1893) to make the survey or not as they pleased. Now came the collapse of the old Company and the rise of the new one out of its ashes. This caused a delay of $3\frac{1}{2}$ years.

4. With his No. 818, dated 1st December 1896, the Agent and Chief Engineer of the *new* Nilgiri Railway Company (the old Company being defunct), sent us a copy of his letter to the Government of India, No. 820, dated the 1st December 1896, in which he stated that his Board, learning that the Government of Madras was in favour of seeing the extension put in hand as soon as possible, and being sensible of the importance of starting the new work before the staff of the old is dispersed, would be glad to know whether any assistance in raising the capital, estimated at 18 lakhs, might be expected, and if so of what sort, a subsidy, or a guarantee of interest.

5. In forwarding this letter to the Government of India, with our No. 3 R., dated the 4th January 1897, we expressed a wish to see the line put in hand at an early date, and recommended that assistance should be given to it, preferably in the form already given to the Mettupálaiyam-Coonoor line. We said that we could not recommend any definite sum, as statistics though being collected were not yet available.

6. The Government of India replied in their No. 214 R.C., dated 3rd February 1897, to the effect that, before promising any assistance, they must consider the matter at the Railway Conference of 1897, and must have statistics. Then some correspondence occurred between the Company's Agent, this Government and the Government of India about the making of the survey and its cost, which resulted in the Government of India's letter to us, No. 569 R.C., dated the 8th April 1897, in which they confirmed our having sanctioned the making of the survey by the Company; but they said that terms for construction, agency, &c., could not be dealt with until the results of the survey had been received, and until the project had been considered at the Conference of 1897.

7. But, in the meanwhile, definite proposals had been received from the Nilgiri Railway Company about making the extension. These proposals are contained in the Board's letter to their Agent, No. 43, dated the 5th March 1897, which reached us under cover of the Agent's No. 1123, dated the 5th April 1897. We submitted these proposals to the Government of India with our No. 279 R., dated the 23rd April 1897, with an expression of this Government's strong support.

8. The Government of India replied in their No. 912 R.C., dated the 3rd June 1897, that they were unable to entertain or even consider any proposals involving a greater guarantee than 3 per cent. They promised, however, to consider, at the August Conference, any revised offer from the Company, based on branch line terms, and supported by proper estimates and traffic statistics.

9. On our sending this decision to the Company the Agent, with his letter No. 1365, dated the 25th July 1897, asked us to forward to the Government of India his letter dated the 10th of July 1897, in which revised proposals were put forward. These revised proposals are those which are at present before the Government of India. They are as follows:—

(*a*) That, after the line is open for traffic, Government give a 3 per cent. guarantee on the rupee capital as shown in the Company's Indian books.
(*b*) That surplus net profits be equally divided between Government and the Company.
(*c*) That interest be paid out of capital at 3 per cent. during construction.
(*d*) That Government provide land free.
(*e*) That rates and fares already sanctioned for the existing line be applicable to the extension also, and that the terms contained in the branch line resolution about purchase, Government supervision, &c., be agreed to.

These revised proposals we sent forward to the Government of India with our No. 504 R., dated the 27th July 1897, and meanwhile we have been placing all available statistics of traffic at the disposal of the Agent.

10. Now the Agent has at last sent us in his complete project, together with an estimate of traffic, with his letter, No. 1912, dated the 25th January 1898. The net result is that, if interest during construction be omitted, a line of the general description given in my inspection report contained in G.O., No. 900 R., dated the 4th November 1897, can apparently be built for Rs. 18,63,000, or for Rs. 1,58,550 per mile. The Agent estimates gross receipts at Rs. 1,68,800 and net earnings at Rs. 84,400, or sufficient to pay interest on the capital outlay at the rate of 4·96 per cent. It would require net earnings to the extent of Rs. 55,890 to pay the 3 per cent. guarantee which the company ask for, so that if the Agent's estimates of cost and of traffic are correct, the Government share of surplus earnings would be about Rs. 14,000 per annum, to compensate for the cost of land to be given free, the loss of Land Revenue which I understand is practically *nil*, and the risk incurred in giving the guarantee.

11. I shall now examine the several items of the probable cost of the line.

12. *Interest during construction.*—From page 23, I find that the Agent estimates that it will take two years to finish the line. Taking the expenditure in the four successive half-years at one share for the first and the last, and two shares for the two middle halves, we get interest during construction amounting to Rs. 56,500. This must be added to the amount of Mr. Weightman's estimate, raising the sum to be provided as Company's capital to Rs. 19,19,000.

13. *Land.*—The Company ask that land be provided free by Government. The Agent makes no estimate of the cost of land. Indeed it is, perhaps, too early for such an estimate to be of much use. If it works out to be the 11/17th part of the cost of land for the existing Nilgiri Railway, and perhaps the rice lands at foot of the latter may be set off against tea lands at top of the former, Rs. 1,30,000 will apparently cover the cost of it. But, at this very early stage, it is really impossible to make a better estimate. It may cost 2 lakhs.

14. *Preliminary expenses.*—I presume that the Rs. 10,000 set down for this item is practically actuals. They asked for Rs. 15,000 when hoping to be paid for the survey by Government.

15. *Formation.*—I have had various conversations about this with Mr. Weightman and my impression is that his anxiety about the possibility of the estimate for his present line being insufficient has made him careful to err if anything on the safe side in preparing the new estimate. During my last inspection, certain improvements suggested themselves which will doubtless result in economy, and these improvements the Agent has promised to carry out, but then on the other hand there is always the chance of unexpected trouble in wet cuttings which it is difficult to allow for. I think that the Rs. 5,53,173 may be accepted.

16. *Bridge work.*—This has been carefully estimated and the Rs. 1,54,315 ought to suffice.

17. *Fencing.*—Most of the Rs. 41,383 allowed for this item is for road crossings. It will be fully required.

18. *Ballast.*—The estimate is based on actual rates on the finished part of the line and ought to be well done for Rs. 59,537.

19. *Permanent-way.*—Mr. Weightman's estimate of this item is a careful one. It has been based upon actuals for the lower portion of the line. There may be a saving in the rupee cost of the material if the rupee stands about 1*s.* 4*d.* But on the other hand there are contingencies in the laying of the rack which are difficult to foresee, and I do not think the rate for laying is too high. The amount Rs. 4,79,801 may stand.

20. *Stations and buildings.*—The cost of the terminal building at Ootacamund, and its goods accommodation, is estimated at Rs. 41,000, but at so important a terminus, in a hill station, for the use to a great extent of European traffic, it will undoubtedly be wanted. There has been a good deal of public feeling about bringing an ugly station building into the heart of the settlement, and the Company are right to provide for a decent-looking and convenient building. The cost of the other stations does not seem extravagant. The total Rs. 1,59,580 may therefore stand.

21. *Plant.*—For this Rs. 15,000 has been provided and will probably suffice.

22. *Rolling-stock.*—The provision of 2 engines, 4 carriages of sorts, 8 trucks and 2 brakes does not seem extravagant. The estimate of cost is based on that of rolling-stock which has already arrived and been erected on the lower section. Rs. 1,36,720 may stand.

23. *General charges.*—The estimate Rs. 1,33,200 contemplates the completion of the railway in two years, which seems sufficient.

24.—*The traffic estimate.*—As compared with an actual count of traffic for eight months, and an estimate for four months, amounting to about 9,200 tons up and 4,800 tons down, Mr. Weightman has estimated for 12,000 tons up and 5,000 tons down. Thus he assumes that not only will traffic somewhat improve, which is reasonable enough, but also that his railway will at once get the whole of it and keep it. This seems to me to be somewhat too sanguine an estimate for the first three or four years; though I have little doubt but that it will be more than fully realized later on. There will doubtless at first be the keenest competition on the part of carts and tongas, especially as the road is left free and uninterfered with. Mr. Weightman is less sanguine in his estimate of his passenger traffic. He expects to catch about half of it, and this I think is reasonable enough. He will certainly catch the whole of the high-class passenger traffic. As regards goods, there is no doubt but that as the Nilgiris get more accessible, traffic will increase. Even if we assume that at first the

railway will get only 5,000 tons up and 2,000 down, this with the passenger traffic will be just enough to cover the 3 per cent. guarantee, which is all that directly concerns Government provided that working expenses amount to no more than 50 per cent. of receipts.

25. The question of the working expenses of the Mettupálaiyam-Coonoor section is just now under discussion between the Agent, Nilgiri Railway, and the Agent, Madras Railway. The draft terms when agreed to will require to be confirmed by both Boards before being submitted to Government, whose approval is necessary if the Madras Railway Company are to undertake the work. So far as these negotiations have gone, they point to the probability of the Madras Railway Company working the Nilgiri Railway at 30 per cent. of receipts *plus* actual cost of maintenance.

26. There is great risk of the actual cost of maintenance being very high in such a country and for such a line, at least for the first two or three years. The risk is not so great on the section above Coonoor as on the lower section; and by the time the upper section is open, two years' experience of the cost of working the lower section will probably be available. It is not easy to estimate what maintenance may cost, but 10 men per mile ought to be a strong enough gang during the rains, and 6 men during the rest of the year; say an average of 75 rupees per mile per month, or Rs. 10,000 per annum. This would only be about 8½ per cent. for labour. Another Rs. 10,000 per annum for superior and inferior supervision, and a little over for materials and contingencies, will bring actual cost of maintenance to only 20 per cent. of gross receipts estimated at the lower figure, and to only about 12 per cent. of Mr. Weightman's figure.

27. I think therefore that, if the Madras Railway Company work the extension for 30 per cent. *plus* actuals for maintenance, the risk of loss to Government will be very slight; and well worth while, in consideration of the large and inevitable saving in the cost of keeping up the present metalled road.

28. I take it that the tonga competition will be the first to cease, and that will at once mean that the condition of the cart road surface need not be maintained at so high a standard. Next, half or three-quarters of the cart traffic will gradually leave the road, so there will be less wear and tear. I find from Public Works G.O., No. 3545 W., dated the 17th December 1897, that the maintenance of this road costs Rs. 2,000 per mile; or Rs. 58,000 per annum, for the whole 29 miles from Mettupálaiyam to Ootacamund. Perhaps half of this or more may be saved.

Order—No. 245 Ry., dated 12th February 1898.

The Government of India will be addressed.

[Here enter No. 246 Ry., dated 12th February 1898.]

(True Extract.)

Francis J. E. Spring,
Joint Secretary.

To the Consulting Engineer for Railways.
„ Examiner, Guaranteed Railway Accounts.

Exd. T. K. Narayana Aiyangar.

NILGIRI RAILWAY COMPANY,

LIMITED.

EXTENSION TO OOTACAMUND.

REPORT AND ESTIMATE.

W. J. WEIGHTMAN, M.I.C.E.
Agent and Chief Engineer.

COONOOR,
November 30th, 1897.

LAWRENCE ASYLUM PRESS—OOTY BRANCH.

NILGIRI RAILWAY.

EXTENSION TO OOTACAMUND.

REPORT TO ACCOMPANY ESTIMATE.

1. The distance between Coonoor and Ootacamund is 11½ miles, the difference of level being 1606·20 feet: the country traversed, instead of being a long continuous valley as it is between Coonoor and Mettapolliam, is intersected by a series of ridges radiating from Dodabetta (the highest point of the Nilgiris), and running more or less at right angles to the general direction of a line joining the two places.

The ghat road has surmounted these ridges by rising up to a height of 7492 feet and then falling to 7200 feet, the level of Ootacamund: the chief consideration in deciding on the route for the Railway was to choose one which would as far as possible avoid this undesirable rise and fall of 292 feet.

The ridges above referred to cannot be avoided and must be crossed by any road or railway joining Coonoor and Ootacamund: the first thing to be done therefore was to run levels along them in order to fix upon the lowest and most favourable points for crossing them and then to investigate the country between each two successive ridges.

2. The first important ridge is that known as the Half Way Ridge (mile 4¾): it stretches from Dodabetta to the fork at the junction of the Coonoor, and Kartairy Rivers: the existing road crosses at a level of 6874 feet: the lowest point of the saddle was however found to be about ⅓ of a mile to the West at a reduced level of 6738 feet and this is the point selected for the Railway crossing.

The second ridge stretches from Dodabetta through Craigmore to the Lawrence Asylum: the present road cuts through it at Craigmore, at a level of 7492 feet; it is proposed to take the Railway through at a point 1¼ miles to the South-West (Lawrence Asylum saddle) which is 284 feet lower.

The third important ridge is that stretching from Dodabetta through Elk Hill to Cairn Hill: the road passes through in a cutting (called the Aqueduct cutting) about 80 feet deep in very treacherous soil, at a level of 7486; it is proposed to take the Railway through the Manjinikorai Saddle in a 52 feet cutting at a level of 7300·53 feet: this will be the highest point of the Railway; thence it will fall 81 feet to Ootacamund.

It will thus be seen that the proposed route has its summit 192 feet *lower* than the highest point of the route followed by the road, a very decided advantage.

3. Reconnaissances and flying levels showed that it was possible to get a line passing through these obligatory points with a ruling grade of 1 in 25 throughout, to be worked by adhesion: accordingly such a line was laid out, and complete plans and sections were prepared.

This line however turned out to be much heavier than had been anticipated; in fact it did not "fit" the country in the slightest, and did not admit of advantage being taken of the comparatively easy valleys lying between successive ridges.

4. Further consideration also pointed out that there was nothing to be gained by limiting the extension to an adhesion line: on the contrary there were very great objections to it, as it would necessitate a separate class of engine to work it; six coupled tanks weighing not less than 40 tons would be necessary to take on from Coonoor the same train brought up by the Rack Engines, and the trouble and expense of having two classes of engines for a journey of only 28 miles are obvious.

5. It was accordingly decided to abandon the 1 in 25 line and to set out an entirely new line (passing of course through the same obligatory points) of the same character as that between Mettapollium and Coonoor, that is, with adhesion grades not exceeding 1 in 40 interspersed with sections of rack line with grades not exceeding 1 in $12\frac{1}{2}$, thus enabling the same engine and train to work right through to Ootacamund.

It has in this way been possible to follow the configurations of the ground, and to use such grades as the ground has dictated: the result being a line consisting of $3\frac{3}{4}$ miles of rack and $7\frac{3}{4}$ miles of adhesion.

6. The plans and estimates of this line accompany this report: the whole route has been inspected by the Consulting Engineer for Railways to the Government of Madras and, with some slight modifications, has been approved by him. His report containing full particulars of the line is contained in G. O. No. 900-R., of November 4th, 1897.

7. The site for the Ootacamund Railway Station has been definitely decided upon by His Excellency the Governor in Council: it will be at Metoocherry, the most central and convenient of all the many sites which have been suggested.

8. Annexed to this report is an appendix showing in detail the actual traffic passing between Coonoor and Ootacamund as counted at the Half-Way House for eight months, March to October, (both months inclusive).

Adding half as much again to make up for the remaining four months, we get figures which may be taken to represent as nearly as can be the total traffic for the year.

9. Comparing this with the figures given by me on July 10th, 1897, it will be found that my estimate of up goods traffic is somewhat excessive, that of down goods is approximately correct, while I have very considerably under-estimated the passenger traffic.

Taking these facts into consideration and allowing for the increase which inevitably follows the opening of a Railway, I think the estimate of gross earnings contained in my above quoted letter will not be found to be excessive.

10. It has not been thought necessary to go into any engineering details, as the line will be exactly similar to that already constructed between Coonoor and Mettapollium, all the details of which have already been approved by successive Consulting Engineers: as on the existing portion, the line will be laid with 50 lb. steel flat footed rails on pyngadu sleepers and be in all other respects similar.

COONOOR,
November 30th, 1897.

W. J. WEIGHTMAN, M.I.C.E.,
Agent and Chief Engineer.

Appendix A.

NILGIRI RAILWAY.

EXTENSION TO OOTACAMUND.

Actual Count of Road Traffic made at the Half-way House.

March—October 1897.

Months.	Goods up, Maunds.	Goods down, Maunds.	Cattle, &c., for sale, No.	Passengers up,* No.	Passengers down,* No.
March 1897 ...	20,882	8,532	7,195	12,563	14,749
April ,, ...	26,445	10,092	7,367	12,235	10,356
May ,, ...	22,974	6,167	10,206	9,607	7,721
June ,, ...	21,046	10,887	8,436	6,864	7,447
July ,, ...	20,159	11,659	7,689	6,547	6,232
August ,, ...	19,135	13,479	8,108	5,606	6,000
September ,, ...	15,591	14,569	6,681	5,362	5,620
October ,, ...	19,254	11,467	5,860	5,713	5,765
Total 8 months...	1,65,486	86,852	61,542	64,497	63,890
Add for 4 more months.	82,743	43,426	30,771	32,248	31,945
Total for 1 year...	2,48,229 =9193 tons	1,30,278 =4826 tons	92,313	96,745	95,835

* Excluding those in charge of goods.

COONOOR,
November 30th, 1897.

Appendix B.

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

REVISED ESTIMATE OF TRAFFIC.

		Rs.
I. Passengers—		
1st class up ...	3,000 @ Rs. 4-0	12,000
,, down	3,000 ,, 3-0	9,000
2nd class up ...	6,000 ,, 1-8	9,000
,, down	6,000 ,, 1-0	6,000
3rd class up ...	40,000 ,, 0-8	20,000
,, down	40,000 ,, 0-8	20,000
II. Goods—		
12,000 tons up ...	at Rs. 5-0	60,000
5,000 ,, down	,, 4-0	20,000
III. Mails—		
At Rs. 400 per mensem	... ...	4,800
IV. Parcels, Excess Luggage, &c.—		
1,000 tons at Rs. 8-0	... ...	8,000
	Rs. ...	1,68,800
	Deduct working expenses at 50 per cent ...	84,400
	Net earnings Rs. ...	84,400

Appendix C.

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

CURVE ABSTRACT.

Angle of Curvature or Radius.	Number of each.	Total Length.	
17^0 ·28 (R=328 feet)	93	2·15	
14^0 ·19 (R=400 ,,)	2	0·20	
8^0 ·0 (R=716 ,,)	3	0·25	
Total...	98	2·60	
Ratio of Curve to length of Line...	.....	.....	$22\frac{1}{2}$ per cent.

Appendix D.

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

GRADIENT ABSTRACT

Inclination.	Number of each.	Total Length Miles.	Percentage of total length of Line.
1 in 12½ Rack	6	2·68	23·30
1 in 12½ to 1 in 25 Rack	3	0·72	6·20
1 in 25 to 1 in 30 do.	1	0·09	0·70
1 in 30 to 1 in 40 adhesion	1	0·90	7·82
1 in 40 to 1 in 50 do.	6	1·93	16·78
1 in 50 to 1 in 100 do.	2	1·23	10·60
Level	10	3·99	34·60
			100·00

Appendix E.

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

BRIDGE ABSTRACT.

Type of Bridge.		No of spans.	Waterway, feet.
Class.	Spans.		
Pipe ...	18 inch	43	59
Slab drain ...	5 feet	10	50
Rail opening ...	6 feet	20	120
Arch ...	10 feet	1	10
Girders ...	20 feet single spans	9	180
	,, 2 spans with 28 feet girders 1 span (see below).	2	40
	28 feet single spans	2	56
	,, with 2 spans 20 feet (see above) ...	1	28
	,, 4 spans with 60 feet girders (see below) ...	4	112
	,, do. do. ...	4	112
	60 feet with 4 spans of 28 feet (see above) ...	2	120
			887

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

ABSTRACT ESTIMATE OF COST.

No.	Main Head of Account.	Sub-head.	Amount Sub-heads.	Total Main-heads	Cost per mile.
I	Preliminary expenses.	1. Survey expenses ...	2,000		
		2. Plant	1,000		
		3. Establishment ...	7,000	10,000	851·06
II	Land ...	.....	...	...	...
III	Formation ...	1. Earthwork ...	4,59,996		
		2. Tunnels ...	Nil		
		3. Retaining walls ...	93,177	5,53,173	47,078·55
IV	Bridgework ...	1. Major Bridges ...	1,14,315		
		2. Minor do. ...	40,000	1,54,315	13,133·19
V	Fencing ...	1. Fencing ...	1,000		
		2. Road crossings ...	39,383		
		3. Mile & gradient posts.	1,000	41,383	3,521·96
VI	Electric Telegraph ...	.....	...	...	...
VII	Ballast and Permanent way.	1. Ballast ...	59,537		
		2. Permanent way ...	4,79,801	5,39,401	45,906·47
VIII	Station and Buildings	1. Station and Offices ...	57,000		
		2. Workshops ...	20,000		
		3. Staff Quarters ...	57,580		
		4. Station Machinery ...	25,000	1,59,580	13,581·27
IX	Plant	1. Engineering ...	7,000		
		2. Locomotive ...	4,000		
		3. Carriage & wagon ...	1,000		
		4. S. & O. Furniture ...	3,000	15,000	1,276·60
X	Ferries, &c. ...	Nil	...	...	...
XI	Rolling Stock ...	1. Locomotive ...	1,20,200		
		2. Carriage & wagon ...	1,36,720	2,56,920	21,865·53
XII	General Charges ...	1. Direction ...	Nil		
		2. Engineering ...	1,22,400		
		3. Stores ...	2,400		
		4. Audit & Accounts ...	6,000		
		5. Medical & Sanitation.	2,400	1,33,200	11,336·17
		Grand Total Rs ..	...	18,62,972	1,58,550·70

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

III. FORMATION.

1.—EARTHWORK.

ABSTRACT OF QUANTITIES.

Mile.	Soft Earth cft.	Hard Earth cft.	Soft Rock cft.	Hard Rock cft.
1	9,89,320	5,57,060	1,88,750	2,15,250
2	12,69,430	44,250	28,050	3,07,220
3	11,01,650	1,71,750	70,300	2,93,100
4	7,01,152	5,10,675	32,500	32,500
5	9,80,085	2,78,325	———	1,27,600
6	8,59,405	7,32,735	1,30,875	50,125
7	1,15,850	13,22,680	1,99,900	2,51,400
8	2,07,035	5,19,040	28,875	4,27,275
9	31,59,872	7,28,790	11,250	5,65,388
10	2,24,058	11,53,230	5,99,225	3,02,500
11	12,90,075	2,96,075	———	———
11·58	2,51,560	1,74,051	———	———
Total quantities of each...	111,49,492	64,88,661	12,89,725	25,72,358

Cubic feet.

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

III. FORMATION.

1.—EARTHWORK.

ABSTRACT OF COST.

Classification.	Total quantity of each.	Rate per $^{0}/_{00}$ cft.	Cost of each.
	cft.		Rs.
Soft Earth ...	111,49,492	8/	89,195
Hard Earth ...	64,88,661	15/	97,330
Soft Rock ...	12,89,725	40/	51,589
Hard Rock ...	25,72,358	70/	1,80,065
Total...	215,00,22[illegible]	...	4,18,179
	Contingencies at 10 per cent.		41,817
	Grand Total ...		Rs. 4,59,996

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

III. FORMATION.

3.—RETAINING WALLS.

DETAILED ESTIMATE.

No.	Chainage.	Length.	Mean Height.	Cost.	Remarks.
	1.—Dry Stone Retaining Wall.				
			feet.	Rs.	
1	12·60 to 13·50	90	2·0	630	
2	14·20 ,, 15·00	40	4·0	400	
3	23·50 ,, 25·20	170	4·0	1,700	
4	81·90 ,, 83·60	170	1·5	600	
5	114·50 ,, 115·50	100	8·0	1,100	
6	311·20 ,, 313·00	180	5·0	2,000	
7	342·80 ,, 343·20	40	1·5	720	
8	349·80 ,, 350·80	100	5·0	700	
9	353·50 ,, 354·80	120	8·0	1,000	
10	363·80 ,, 371·20	700	5·0	4,320	
11	378·90 ,, 382·10	300	5·0	1,800	
12	386·80 ,, 389·50	250	7·0	2,000	
13	395·80 ,, 398·80	300	2·0	900	
14	400·50 ,, 401·50	100	8·0	1,400	
15	406·50 ,, 407·70	120	1·0	360	
16	428·50 ,, 431·40	290	3·0	1,500	
17	438·20 ,, 439·60	140	1·0	50	
18	457·20 ,, 460·10	40	2·0	160	
19	471·40 ,, 475·30	400	4·0	2,000	
20	495·10 ,, 496·10	100	2·0	400	
21	531·20 ,, 535·50	430	9·0	4,300	
				Rs. 28,040.	
	2.—Masonry Retaining Walls.				
				Rs.	
1	250·00 to 340·00	90	12·0	3,800	
2	15·00 ,, 16·20	120	11·0	7,200	
3	41·50 ,, 42·70	120	10·0	6,800	
4	86·40 ,, 88·10	120	30·0	10,800	
5	115·50 ,, 117·20	170	15·0	8,700	
6	283·70 ,, 285·80	150	20·0	9,000	
7	371·20 ,, 372·90	190	12·0	4,000	
8	373·50 ,, 376·60	200	10·0	10,400	
				Rs. 60,700.	

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

III. FORMATION.

3.—RETAINING WALLS.

ABSTRACT OF COST.

	Rs.	
Dry Stone Walls	28,040	
2nd Class Masonry Walls	60,700	
Total Rs...	88,740	
Contingencies @ 5 % ...	4,437	Rs. 93,177.

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

IV. BRIDGE WORK.

1. MAJOR BRIDGES.

ABSTRACT ESTIMATE.

No.	Chain.	Description.	Excavation.	Concrete.	Founds.	Superstructure.	2nd Class Masonry.	Timber.	Ashlar.	Filling or pitching.	Iron work.	Total.	Remarks.
1	27·00	1 span 28 ft. ... / 2 spans 20′ Gr. ...	4000 cft. at Rs. 15/- =Rs. 60/-	1000 cft. at Rs. 25/- =Rs. 250/-	1700 cft. at Rs. 50/- =Rs. 850/-	7800 cft. at Rs. 50/- =Rs. 3,900/-	5600 cft. at Rs. 30/- =Rs. 1,680/-	80 cft. at Rs. 2/8 =Rs. 200/-	120 cft. at R.s 2/8 =Rs. 300/-	8000 cft. at Rs. 3/- =Rs. 240/-	1·28′ Gr. at Rs. 1,200/- =Rs. 1,200/- / 2·20′ Gr. at Rs. 500/- =Rs. 1,000/-	Rs. 9,680	
2	50·00	1 span 28′ ft. Gr. ...	2000 cft. at Rs. 15/- =Rs. 30/-	200 cft. at Rs. 25/- =Rs. 50/-	200 cft. at Rs. 50/- =Rs. 100/-	800 cft. at Rs. 50/- =Rs. 400/-	.....	40 cft. at Rs. 2/8 =Rs. 100/-	12 cft. at Rs. 2/8 =Rs. 30/-	400 cft. at Rs. 3/- =Rs. 12/-	1·28′ Gr. at Rs. 1,200/- =Rs. 1,200/-	1,922	
3	174·00	1 span 20′ Gr. ...	2000 cft. at Rs. 15/- =Rs. 30/-	200 cft. at Rs. 25/- =Rs. 50/-	800 cft. at Rs. 50/- =Rs. 400/-	4500 cft. at Rs. 50/- =Rs. 2,250/-	9600 cft. at Rs. 30/- =Rs. 2,880/-	30 cft. at Rs. 2/8 =Rs. 75/-	12 cft. at Rs. 2/8 =Rs. 30/-	6000 cft. at Rs. 3/- =Rs. 180/-	1·20′ Gr. at Rs. 500/- =Rs. 500/-	6,395	
4	202·00	1 span 20′ Gr. ...	2000 cft. at Rs. 15/- =Rs. 30/-	200 cft. at Rs. 25/- =Rs. 50/-	500 cft. at Rs. 50/- =Rs. 250/-	2300 cft. at Rs. 50/- =Rs. 1,150/-	5000 cft. at Rs. 30/- =Rs. 1,500/-	30 cft. at Rs. 2/8 =Rs. 75/-	12 cft. at Rs. 2/8 =Rs. 30/-	4000 cft. at Rs. 3/- =Rs. 120/-	1·20′ Gr. at Rs. 500/- =Rs. 500/-	3,705	
5	225·00	1 span 20′ Gr. ...	2000 cft. at Rs. 15/- =Rs. 30/-	200 cft. at Rs. 25/- =Rs. 50/-	700 cft. at Rs. 50/- =Rs. 350/-	3400 cft. at Rs. 50/- =Rs. 1,700/-	6000 cft. at Rs. 30/- =Rs. 1,800/-	30 cft. at Rs.2/8 =Rs. 75/-	12 cft. at Rs. 2/8 =Rs. 30/-	5000 cft. at Rs. 3/- =Rs. 150/-	1·20′ Gr. at Rs. 500/- =Rs. 500/-	4,085	
6	244·00	1 span 20′ Gr. ...	2000 cft. at Rs. 15/- =Rs. 30/-	200 cft. at Rs. 25/- =Rs. 50/-	800 cft. at Rs. 50/- =Rs. 400/-	3700 cft. at Rs. 50/- =Rs. 1,850/-	5400 cft. at Rs. 30/- =Rs. 1,620/-	30 cft. at Rs. 2/8 =Rs. 75/-	12 cft. at Rs. 2/8 =Rs. 30/-	5000 cft. at Rs. 3/- =Rs. 150/-	1·20′ Gr. at Rs. 500/- =Rs. 500/-	4,705	
7	309·00	1 span 20′ Gr. ...	2000 cft. at Rs. 15/- =Rs. 30/-	200 cft. at Rs. 25/- =Rs. 50/-	800 cft. at Rs. 50/- =Rs. 400/-	3700 cft. at Rs. 50/- =Rs. 1,850/-	5400 cft. at Rs. 30/- =Rs. 1,620/-	30 cft. at Rs. 2/8 =Rs. 75/-	12 cft. at Rs. 2/8 =Rs. 30/-	5000 cft. at Rs. 3/- =Rs. 150/-	1·20′ Gr. at Rs. 500/- =Rs. 500/-	4,705	
8	337·00	1 span 20′ Gr. ...	2000 cft. at Rs. 15/- =Rs. 30/-	200 cft. at Rs. 25/- =Rs. 50/-	800 cft. at Rs. 50/- =Rs. 400/-	3700 cft. at Rs. 50/- =Rs. 1,850/-	5400 cft. at Rs. 30/- =Rs. 1,620/-	30 cft. at Rs. 2/8 =Rs. 75/-	12 cft. at Rs. 2/8 =Rs. 30/-	5000 cft. at Rs. 3/- =Rs. 150/-	1·20′ Gr. at Rs. 500/- =Rs. 500/-	4,705	
9	359·00	1 span 20′ Gr. ...	2000 cft. at Rs. 15/- =Rs. 30/-	200 cft. at Rs. 25/- =Rs. 50/-	500 cft. at Rs. 50/- =Rs. 250/-	2500 cft. at Rs. 50/- =Rs. 1,250/-	2500 cft. at Rs. 30/- =Rs. 750/-	30 cft. at Rs. 2/8 =Rs. 75/-	12 cft. at Rs. 2/8 =Rs. 30/-	4000 cft. at Rs. 3/- =Rs. 120/-	1·20′ Gr. at Rs. 500/- =Rs. 500/-	3,055	
10	414·00	1 span 20′ Gr. ...	2000 cft. at Rs. 15/- =Rs. 30/-	200 cft. at Rs. 25/- =Rs. 50/-	450 cft. at Rs. 50/- =Rs. 225/-	2000 cft. at Rs. 50/- =Rs. 1,000/-	2000 cft. at Rs. 30/- =Rs. 600/-	30 cft. at Rs. 2/8 =Rs. 75/-	12 cft. at Rs. 2/8 =Rs. 30/-	3500 cft. at Rs. 3/- =Rs. 105/-	1·20′ Gr. at Rs. 500/- =Rs. 500/-	2,615	
11	423·00	1 span 20′ Gr. ...	2000 cft. at Rs. 15/- =Rs. 30/-	200 cft. at Rs. 25/- =Rs. 50/-	550 cft. at Rs. 50/- =Rs. 275/-	2700 cft. at Rs. 50/- =Rs. 1,350/-	2500 cft. at Rs. 30/- =Rs. 750/-	30 cft. at Rs. 2/8 =Rs. 75/-	12 cft. at Rs. 2/8 =Rs. 30/-	6000 cft. at Rs. 3/- =Rs 180/-	1·20′ Gr. at Rs. 500/- =Rs. 500/-	3,240	
12	452·00	1 span 60 ft. ... / 4 span 28 ft. ... Gr.	5000 cft. at Rs. 15/- =Rs. 75/-	400 cft. at Rs. 25/- =Rs. 100/-	3800 cft. at Rs. 50/- =Rs. 1,900/-	24000 cft. at Rs. 50/- =Rs. 12,000/-	6000 cft. at Rs. 30/- =Rs. 1,800/-	130 cft. at Rs. 2/8 =Rs. 325/-	150 cft. at Rs. 2/8 =Rs. 375/-	1100 cft. at Rs. 3/- =Rs. 330/-	1·60′ Gr. = Rs. 5,500/- / 2·28′ Gr. = Rs. 4,800/-	27,205	
13	497·00	1 span 60 ft. ... / 4 span 28 ft. ... Gr.	5000 cft. at Rs. 15/- =Rs. 75/-	400 cft. at Rs. 25/- =Rs. 100/-	3800 cft. at Rs. 50/- =Rs. 1,900/-	24000 cft. at Rs. 50/- =Rs. 12,000/-	6000 cft. at Rs. 30/- =Rs. 1,800/-	130 cft. at Rs. 2/8 =Rs. 325/-	150 cft. at Rs. 2/8 =Rs. 375/-	1100 cft. at Rs. 3/- =Rs. 330/-	1·60′ Gr. = Rs. 5,500/- / 2·28′ Gr. = Rs. 4,800/-	27,205	
14	515·00	1 span 28 ft. ...	2000 cft. at Rs. 15/- =Rs. 30/-	200 cft. at Rs. 25/- =Rs. 50/-	800 cft. at Rs. 50/- =Rs. 400/-	4400 cft. at Rs. 50/- =Rs. 2,200/-	6500 cft. at Rs. 30/- =Rs. 1,950/-	40 cft. at Rs. 2/8 =Rs. 100/-	12 cft. at Rs. 2/8 =Rs. 30/-	3000 cft. at Rs. 3/- =Rs. 90/-	1 span at Rs. 1,200/- =Rs. 1,200 -	6,050	
											Total Rs ..	1,08,872	
											Contingencies 5 % ...	5,448	
											Grand Total Rs ..	1,14,315	

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

IV. BRIDGE WORK.

2.—MINOR BRIDGES.

ABSTRACT ESTIMATE.

No.	Chainage.	Description.	Cost.	Remarks.
			Rs.	
1	7·00	18 inch pipe	160	
2	10·00	5 feet slab drain	450	
3	14·40	18 inch pipe	280	
4	20·20	do	280	
5	30·30	do	160	
6	44·50	do	160	
7	65·00	do	160	
8	68·50	do	160	
9	76·00	6 feet rail opening... ...	850	
10	82·50	do	850	
11	86·00	do	850	
12	91·00	do	850	
13	98·00	18 inch pipe	850	
14	105·00	do	280	
15	115·50	do	160	
16	132·00	5 feet slab drain	330	
17	137·00	18 inch pipe	2,400	
18	143·00	do	240	
19	149·00	do	500	
20	153·00	do	430	
21	155·00	do	600	
22	179·50	do	900	
23	190·00	do	470	
24	195·00	do	160	
25	210·00	6 feet rail opening... ...	470	
26	220·00	do	510	
27	228·00	18 inch pipe	510	
28	237·00	do	160	
29	267·00	do	250	
30	271·00	do	260	
31	279·50	do	330	
32	285·00	6 feet rail opening... ...	160	
33	288·00	18 inch pipe	510	
34	291·00	5 feet slab drain	200	
35	294·00	do	450	
36	299·00	18 inch pipe	450	
37	303·00	5 feet slab drain	240	

2.—MINOR BRIDGES.—(*Continued.*)

No.	Chainage.	Description.	Cost.
			Rs.
38	312·00	5 feet slab drain	800
39	317·00	18 inch pipe	160
40	327·50	6 feet rail opening... ...	510
41	333·50	do	510
42	348·50	18 inch pipe	240
43	350·00	6 feet rail opening... ...	740
44	354·00	18 inch pipe	470
45	364·50	6 feet rail opening... ...	800
46	372·00	5 feet slab drain	1,800
47	380·00	6 feet rail opening... ...	800
48	384·50	18 inch pipe	160
49	388·00	6 feet rail opening... ...	1,000
50	396·50	18 inch pipe	240
51	402·00	6 feet rail opening... ...	1,000
52	407·00	18 inch pipe	160
53	412·00	do	250
54	428·00	do	360
55	438·00	do	160
56	445·50	6 feet rail opening... ...	850
57	459·00	do	850
58	472·00	18 inch pipe	270
59	481·50	6 feet rail opening... ...	740
60	490·00	do	740
61	495·50	do	740
62	502·00	18 inch pipe	200
63	534·00	5 feet slab drain	1,500
64	539·00	6 feet rail opening... ...	740
65	548·00	18 inch pipe	160
66	555·00	5 feet slab drain	1,500
67	562·00	18 inch pipe	370
68	567·00	do	880
69	573·00	do	270
70	577·00	do	160
71	582·00	do	160
72	592·00	6 feet arch	1,770
73	593·00	18 inch pipe	200
74	593·50	6 feet rail opening... ...	760
		Total Rs...	40,000

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

V. FENCING.

2. ROAD CROSSINGS.

No.	Chain.	Description.	Excavation or Metalling.	Concrete.	1st Class Masonry.		2nd Class Masonry.	Ashlar.	Timber and iron work.	Girders.	Buckleplate and Sundries.	Cost.	Remarks.
					Foundn.	Superstructure.						Rs.	
A	57·00	Under Bridge 20 feet Girder.	2000 cft. at Rs. 15/- = Rs. 30/-	700 cft. at Rs. 25/- = Rs. 175/-	200 cft. at Rs. 50/- = Rs. 100/-	2800 cft. at Rs. 50/- = Rs. 1,400/-	4800 sft. at Rs. 30/- = Rs. 1,440/-	12 cft. at Rs. 2/8 = Rs. 30/-	30 cft. at Rs. 2/8 = Rs. 75/-	1·20′ Gr. at Rs. 500/- = Rs. 500/-	.....	3,750	
B	124·00	Under Bridge 20 feet Girder.	2000 cft. at Rs. 15/- = Rs. 30/-	700 cft. at Rs. 25/- = Rs. 175/-	200 cft. at Rs. 50/- = Rs. 100/-	2800 cft. at Rs. 50/- = Rs. 1,400/-	4800 sft. at Rs. 30/- = Rs. 1,440/-	12 cft. at Rs. 2/8 = Rs. 30/-	30 cft. at Rs. 2/8 = Rs. 75/-	1·20′ Gr. at Rs. 500/- = Rs. 500/-	.....	3,750	
C	254·00	Overway Bridge Rolled Beams.	1600 cft. Metalling at 5 % = Rs. 80/-	800 cft. at Rs. 25/- = Rs. 200/-	200 cft. at Rs. 50/- = Rs. 100/-	3000 cft. at Rs. 50/- = Rs. 1,500/-	2000 cft. at Rs. 30/- = Rs. 600/-	20 cft. at Rs. 2/8 = Rs. 50/-	T. iron and gas pipe railings = Rs. 60/-	5 Rolled Beams at Rs. 120/- each = Rs. 600/-	4500 lbs. at Rs. 12/8 per cwt. = Rs. 502/-	3,092	
D	435·00	Overway Bridge Rolled Beams.	1600 cft. Metalling at 5 % = Rs. 80/-	800 cft. at Rs. 25/- = Rs. 200 -	200 cft. at Rs. 50/- = Rs. 100/-	6000 cft. at Rs. 50/- = Rs. 3,000/-	2400 cft. at Rs. 30/- = Rs. 720/-	60 cft. at Rs. 2/8 = Rs. 150 -	T. iron and gas pipe railings = Rs. 60/-	5 Rolled Beams at Rs. 120/- each = Rs. 600/-	4500 lbs. at Rs. 12/8 per cwt. = Rs. 502/-	5,412	
E	505·00	Overway Bridge Rolled Beams.	1600 cft. Metalling at 5 % = Rs. 80/-	800 cft. at Rs. 25/- = Rs. 200/-	200 cft. at Rs. 50/- = Rs. 100/-	7500 cft. at Rs. 50/- = Rs. 3,750/-	3000 cft. at Rs. 30/- = Rs. 900/-	60 cft. at Rs. 2/8 = Rs. 150/-	T. iron and gas pipe railings = Rs. 60 -	5 Rolled Beams at Rs. 120/- each = Rs. 600/-	4500 lbs. at Rs. 12/8 per cwt. = Rs. 502/-	6,342	
F	543·00	Overway Bridge Rolled Beams.	1600 cft. Metalling at 5 % = Rs. 80/-	800 cft. at Rs. 25/- = Rs. 200/-	200 cft. at Rs. 50/- = Rs. 100/-	6000 cft. at Rs. 50/- = Rs. 3,000/-	2400 cft. at Rs. 30/- = Rs. 720/-	60 cft. at Rs. 2/8 = Rs. 150 -	T. iron and gas pipe railings = Rs. 60/-	5 Rolled Beams at Rs. 120/- each = Rs. 600/-	4500 lbs. at Rs. 12/8 per cwt. = Rs. 502/-	5,412	
G	563·00	Under Bridge 20 feet Girder.	2000 cft. Excavation at Rs. 15/- = Rs. 30/-	700 cft. at Rs. 25/- = Rs. 175/-	200 cft. at Rs. 50/- = Rs. 100/-	2800 cft. at Rs. 50/- = Rs. 1,400/-	4800 cft. at Rs. 30/- = Rs. 1,440/-	12 cft. at Rs. 2/8 = Rs. 30/-	30 cft. Timber at Rs. 2/8 = Rs. 75/-	1·20′ Gr. at Rs. 500/- = Rs. 500/-	.....	3,750	
H	...	Six level crossings at	Rs. 1,000/- each	.....	.....	.....	.....	.....	.....	... ...	.....	6,000	
											Total Rs...	37,508	
											Contingencies 5 % ...	1,875	
											Grand Total Rs...	39,383	

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VII. BALLAST AND PERMANENT WAY.

1.—BALLAST.

ABSTRACT ESTIMATE.

Adhesion portion, length 9¾ miles—		Rs.	
Walls, 87,500 cft. @ 4/	...Rs. 3,500		
Ballast 568,500 cft. @ 6/	... ,, 35,110	38,610	
Rack portion, length 3½ miles—			
Walls 120,250 cft. @ 4/	...Rs. 4,810		
Ballast (large) 83,250 cft. @ 4/	... ,, 3,330		
Ballast (small) 166,500 cft. @ 6/	... ,, 9,990	18,130	
Total Rs....		56,740	
Contingencies 5 %...		2,837	Rs. 59,577

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VII. BALLAST AND PERMANENT WAY.

2.—PERMANENT WAY.

ABSTRACT ESTIMATE.

Items.		Cost.	
		Rs.	
9¾ Miles, Adhesion material @ 13,707/		133,643	
3½ ,, Rack ,, ,, 43,707/		152,975	
20660 Adhesion sleepers ,, ,, 4/ each		82,640	
7400 Rack do. ,, 5/ ,, ...		37,000	
9¾ Miles laying Adhesion ,, 1500/		14,625	
½ ,, ,, Rack ,, 3000/		10,500	
8 Rack Entrance tongues ,, 600/		4,800	
		4,36,183	
Add Contingencies @ 10 % ...		43,618	4,79,801

Note.

Length of Main Line adhesion	...8¼ miles.	
,, ,, (Rack)	...3½ ,,	
	11¾ ,,	
,, Sidings	...1½ ,,	
	Total 13¼ miles.	

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VII. BALLAST AND PERMANENT WAY.

2.—PERMANENT WAY.

Details.			Cost.	
A.—Cost per mile of Adhesion.				
(1) *English Expenditure*—			£	
78½ tons Rails (50 lbs. per yard)	@ £ 5	per ton	392·5	
4·0 „ Spikes	„ £11	„	44·0	
6·8 „ Fish plates	„ £ 7	„	47·6	
1·0 „ Fish bolts	„ £12	„	12·0	
90·3 „ Freight and insurance	„ £ 2	„	180·6	
Total English expenditure...			676·7	
Equal to @ Rs. 16/- £1				Rs. 10,988
(2) *Indian Expenditure*—			Rs.	
90·3 tons Landing charges @ 5/- per ton ...			451·5	
„ „ Railway freight „ 25/- „ ...			2,257·5	
Total Rs...				2,719
Total cost per mile...				... Rs. 13,707
B.—Cost per mile of Rack.			Rs.	
Adhesion part as above			13,707·00	
Rack part			30,000·00	
Total cost per mile...				... Rs. 43,707

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VIII. STATION AND BUILDINGS.

1.—STATION AND OFFICES.

Description.				Amount.	Total.
				Rs.	
Station Building, Ootacamund				30,000	
Do. do. Wellington				4,000	
Do. do. Arvenghaut				4,000	
Do. do. Kaiti				4,000	
Do. do. Lawrence Asylum				4,000	
Goods shed, Ooty			Rs. 5,000		
Goods platform, Ooty			„ 3,000		
Latrine „			„ 1,000		
Approach road „			„ 2,000	11,000	
Total cost Rs...				...	57,000

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VIII. STATION AND BUILDINGS.

1.—STATION AND OFFICES.

DETAILED ESTIMATE, OOTY STATION BUILDING.

No.	Details.	Quantities.	Rate.	Amount.
		cft.	Rs.	Rs.
1	Excavation and filling	50,000	10/- %	500
2	Dry stone filling	5,000	2/8 %	125
3	Random rubble (dry)	1,600	3/8 ,,	56
4	Do. do.	1,000	6/- ,,	60
5	Do. in lime in founds	16,000	25/- ,,	4,000
6	Do. in lime in superstructure... ...	12,000	15/- ,,	3,360
7	Do. in mud	200	10/- ,,	20
8	Coursed rubble in lime, 1st Class	12,000	45/- ,,	5,400
9	Brickwork in do.	2,000	30/- ,,	600
10	Archwork in stone	500	90/- ,,	450
11	Do. in brick	100	50/- ,,	50
12	Do. in concrete blocks	400	75/- ,,	300
13	Lime concrete	125	24/- ,,	30
14	Cement do.	500	60/- ,,	300
15	Ashlar	148	-/14/- ft.	130
16	Stone Slabs...	200	65/- %	130
17	Lime plastering	16,000	5/- ,,	800
18	Pointing	7,000	6/- ,,	420
19	Tiled flooring on 3'' concrete	1,600	45/- ,,	720
20	Woodwork	360	3/4 ,,	975
21	Doors and windows	1,500	1/12 ,,	2,625
22	Roof trusses (16' span)...	8	60/- ,,	480
23	Do. (15' span)...	2	53/- ,,	106
24	Roofing Mangalore tiles on corrugated iron ...	7,800	55/- ,,	4,290
25	Iron stair case	2	200/- ,,	400
26	Painting	...	200	200
27	Rails and Ironwork	10	...	600
28	Eaves Boards	...	...	300
29	Gutters	...	...	300
30	Draining and levelling ground	...	...	600
	Rs.	...	...	28,522
	Contingencies 5 % ...	...	...	1,478
	Total Cost Rs....	...	...	30,000

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VIII. STATION AND BUILDINGS.

3.—STAFF QUARTERS.

Items.	Amount.	Total.
	Rs.	
6 Blocks Guards' and Drivers' Quarters @ Rs 4,000 each...	24,000	
3 Do. Clerks' Quarters @ Rs. 3,600 each	10,800	
5 Do. Menials' Quarters @ Rs. 2,600 ,, ...	13,000	
6 Permanent way Gang Huts @ Rs. 1,630 each ...	9,780	
Total cost Rs... ...		57,580

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VIII. STATION AND BUILDINGS.

3.—STAFF QUARTERS.

ABSTRACT ESTIMATE OF GUARDS' & DRIVERS' QUARTERS.

Details.	Quantity.	Rate.	Cost.
Excavation of founds	1200 cft.	10/- $^0/_{00}$	12
2nd class masonry	1200 ,,	25/- ,,	300
Brick in mud	3800 ,,	18/- ,,	684
Do. in lime	200 ,,	40/- $^0/_0$	80
Plastering in lime	4800 sft.	5/- ,,	240
Whitewash	4800 ,,	1/4/ ,,	12
Woodwork	160 cft.	3/4 cft.	520
Boarded floors	640 sft.	-/5/	200
Doors and windows	400 ,,	1/4	500
Concrete flooring	500 ,,	15/- $^0/_0$	75
Corrugated iron roofing	2000 ,,	33/-	600
			3,283
Contingencies... ...		...	117
Total Rs... ...		...	3,400
Add Servants' Quarters... ...		...	600
Grand Total Rs... ...		...	4,000

6 such quarters at Rs. 4,000 = Rs. 24,000

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VIII. STATION AND BUILDINGS.

3.—STAFF QUARTERS.

ABSTRACT ESTIMATE OF CLERKS' QUARTERS.

Quantities.	Items.	Rate.	Cost.
1,573 cft.	Earthwork—founds	10/- $^0/_{00}$	15
3,774 ,,	Rubble in mud mortar	15/- $^0/_0$	594
1,300 ,,	Masonry in lime	40/- ,,	520
60 ,,	Cornice	-/8 ,,	30
24 rft.	Steps	1/- rft.	24
7,400	Plastering in lime	5/- $^0/_0$	370
1,600	Flooring	14/- ,,	224
102	Woodwork	3/4 cft.	332
2,480	Mangalore tiling	25/-	620
80 rft.	Ridge tiling	-/4/-	20
364	Doors and windows	1/2	410
7,400	Whitewashing	-/4/-	18
5	Rails	10/-	50
	Rs...	...	3,427
	Contingencies...	...	173
	Total Rs...	...	3,600

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VIII. STATION AND BUILDINGS.

3.—STAFF QUARTERS.

MENIALS' QUARTERS.

Quantities.	Items.	Rate.	Cost.
5,600 cft.	Excavation	10/- °/₀₀	56
1,500 ,,	Stone in mud	15/- °/₀	225
3,750 ,,	Brick in do.	18/- ,,	675
6,000 sft.	Plastering in lime	5/- ,,	300
1,200	Concrete in floors	14/- ,,	168
6,000	Whitewashing	-/4 ,,	15
67 cft.	Roof timber	3/4 cft.	218
250 sft.	Doors and windows	1/2	281
1,825	Mangalore tiling	25/-	456
82 rft.	Cornice	-/8	41
6	Stone steps (Cuddapah)	3/-	18
55	Ridge tiles (extra)	-/5/-	14
6	Rails	...	30
	Rs...	...	2,477
	Contingencies...	...	123
	Total Rs...	...	2,600

5 such at Rs. 2,600 = Rs. 13,000

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VIII. STATION AND BUILDINGS.

3.—STAFF QUARTERS.

ABSTRACT ESTIMATE OF PERMANENT WAY GANG HUT.

No.	Description.	Quantity.	Rate.	Unit.	Cost.		
			Rs.		*Rs.*	*a.*	*p.*
1	Earthwork	547·94	10/-	1,000	5	7	7
2	3rd class Rubble in mud... ...	3276·57	10/-	100	327	10	6
3	Ground bricks in do.	306·25	20/-	...	61	4	0
4	Do. do. mortar	158·25	30/-	...	47	7	7
5	Woodwork (cube)	27·50	3/4	cft.	89	6	0
6	Do. (square)	121·00 sft.	1/-	sft.	121	0	0
7	Roofing in Calicut tiles	1788·50	25/-	100	447	2	0
8	Ridging in do.	85·50	-/6/ lft.	lft.	32	1	0
9	Concrete flooring	864·00	24/-	100	207	5	9
10	Pointing	1393·13	3/8	..	48	12	2
11	Color washing	1393·13	-/4/-	...	3	7	9
12	Plastering	2908·50	5/-	...	145	6	10
13	Split stone slabs in mud... ...	36·00	-/8/-	cft.	18	0	0
					1,554	7	2
	Contingencies at 5 °/₀	...	...	...	75	8	10
	Total Rs...	...	...	...	1,630	0	0

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VIII. STATION AND BUILDINGS.

4. STATION MACHINERY.

ABSTRACT ESTIMATE.

		Rs.	
20 sets points and crossings at Rs. 300	... ...	6,000	
4 Water tanks	,, 1,000	4,000	
1 Engine shed	... ...	6,000	
2 Ash pits	,, 500	1,000	
2 Carriage examining pits at Rs. 750	... ...	1,500	
Signals	... ...	1,500	
Water tanks, &c. at Ooty ...	... ...	1,500	
Pipes, &c.	... ...	3,000	
Buffer stops, &c. ...	... ...	500	
	Total Rs...	25,000	
			Rs. 25,000

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

IX. PLANT.

ABSTRACT ESTIMATE.

		Rs.	
1. Engineering ...	... ...	7,000	
2. Locomotive ...	... ...	4,000	
3. Carriage and wagon	... ...	1,000	
4. Station andOffice furniture	... ...	3,000	
	Total Rs ...	15,000	
			Rs. 15,000

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

XI. ROLLING STOCK.

Detail.		Cost.	
		Rs.	
1. *Locomotive*—			
Cost of each Locomotive	£3,500		
Freight, &c.	£ 100		
	£3,600=	57,600	
Carriage landing and erection		2,500	
Total cost of each ...		60,100	
Cost of 2 Engines ...		.....	Rs. 1,20,200
2. *Carriage and Wagon*—			
English Cost—			
2 First class	at £950 each=£1,900		
2 Composite	„ 825 „ = 1,650		
2 Brake vans	„ 570 „ = 1,140		
8 Lowsided trucks	„ 310 „ = 2,480		
	£7,170		
Add freight, &c.	500		
	£7,670		
	£7,670 at 16=	Rs. 1,22,720	
Carriage and erection at 1,000/- each...		14,000	
			Rs. 1,36,720

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

XII. GENERAL CHARGES.

Detail.	Per mensem.	Total.
1. *Direction*—	Nil.	
2. *Engineering*—		
Salaries and allowances—		
Engineer-in-Chief	1,500	
2 Executives @ 700/-	1,400	
2 Upper Subordinates @ 200/-	400	
4 Lower do. „ 50/-	200	
Office Staff	200	
Petty menials	200	
T. A. & E. C. A.	800	
Office rent	50	
Stationery and Drawing material ...	250	
Contingencies	100	
Total per mensem ...	5,100	
For 24 months ...	.....	1,22,400
3. *Stores*...	100	
4. *Audit and Accounts*	250	
5. *Medical and Sanitation*	100	
Total per mensem ...	450	
For 24 months ...	.....	10,800
Grand Total Rs...	.....	1,33,200

The Nilgiri Railway,

No. 1912.

Coonoor, 25th January 1898.

FROM

THE AGENT AND CHIEF ENGINEER,

NILGIRI RAILWAY,

COONOOR.

510
27.1.98

To

The Consulting Engineer
for Railways
Madras.

Sir,

I have the honor to intimate that I have this day despatched to you the complete project for the Extension of this Railway to Ootacamund.

12 Copies of the Printed Estimate have been sent by Book Post and the working plan and Section by Parcel Post.

I have the honor to be
Sir
Your most obedt: Servt

L. J. Woeikof

AGENT AND

MADRAS RAILWAY COMPANY,
MADRAS, *3rd February* 1898.

No. 2347.

To

JULIAN BYRNE, ESQ.,
Secretary,
Madras Railway Company,
LONDON.

SIR,

WORKING OF THE NILGIRI RAILWAY.

With reference to the correspondence with the Nilgiri Railway Company, which accompanied your letter of the 29th October last, I beg to report that I have been in communication with Mr. Weightman, the Agent and Chief Engineer of that Company, with respect to an agreement for working the line of railway between Mettupalaiyam and Coonoor.

Twelve printed copies of the proposed agreement are now forwarded for the information and guidance of the Board, together with twelve type-written copies of Mr. Weightman's letter addressed to me on the 29th January 1898.

Mr. Weightman in his letter takes objection to only two clauses in the proposed agreement, *viz.*, para. 13 (v) and para. 17 (*a*); but in conversation with Mr. Weightman, I have understood him to say that the proposed contribution to the Provident Fund, referred to in para. 21, *viz.*, the payment of 1 per cent. from the *net* earnings of the line as a subscription to the Provident Fund must be approved by the Directors of the Nilgiri Railway in London.

Para. 22 was included in the agreement at Mr. Weightman's request when I met him at Mettupalaiyam on the 17th December 1897 and when he stated his objection to para. 13 (v).

It will be for the Boards of the two Railways to determine which of these two clauses shall remain in the agreement. Both are of course not wanted.

I am unable to relieve the Nilgiri Railway of the direct charge for interest on joint buildings at Mettupalaiyam, referred to in para. 17 (*a*), and here again the final decision must rest with the two Boards. In accordance with the arrangements agreed to at a meeting of the officers of the two Companies, held on the 15th June 1892,—see G. O. No. 2675 R. of 11th November 1892, forwarded to the Board with letter No. 2070—it was decided that the Nilgiri Railway should work into the Madras Railway Station at Mettupalaiyam instead of building a station of its own, and to adapt the station then existing to the requirements of a joint station, the platforms were extended and the rooms of the station enlarged. The expense of building the Mettupalaiyam Station and carrying out the changes agreed to at this meeting, was incurred by the Madras Railway, and the Nilgiri Railway share of this expenditure should now, it seems to me, be paid in cash if the rent agreed to at the

meeting is objected to. To charge the rent to Abstract G., as proposed by Mr. Weightman, would result in the Madras Railway bearing the whole of the interest charge upon the capital expenditure at Mettupalaiyam Station, and such an arrangement might be objected to by the Government, seeing that the Government was represented at the meeting of the 15th June 1892.

I am advised by Mr. Weightman that up to date a 2nd class fare has not been sanctioned for passengers travelling on the Nilgiri Railway. I am of opinion that, as a matter of form, a maximum rate of 6 annas a mile should be agreed to, even if we do not, on the opening of the Railway, attempt to carry 2nd class passengers.

It is understood that the agreement will be signed in England and not in this country, as soon as the consent of the Secretary of State has been obtained to the arrangements proposed by the two Companies.

I have the honor to be,
Sir,
Your most obedient servant,

LOUIS S. MOSS,
Agent and Manager.

Enc. to No. 1 to F. R. C. No. 857 of 1898
Letter No. 134 C. dt. 16. 2. 98
From Agt

NILGIRI RAILWAY

WORKING AGREEMENT

BETWEEN

THE NILGIRI RAILWAY COMPANY, LD.

AND THE

MADRAS RAILWAY COMPANY.

—:o:—

Memorandum of Agreement MADE THIS .....DAY OF..... EIGHTEEN HUNDRED AND NINETY- .....between the NILGIRI RAILWAY COMPANY, (LIMITED), and the MADRAS RAILWAY COMPANY for the working and maintenance of the NILGIRI RAILWAY by the MADRAS RAILWAY COMPANY.

Interpretation Clause.

1. Throughout this Agreement, unless otherwise stated or unless there is something repugnant in the context, the following terms are to have the meanings set opposite to each of them respectively, namely :—

Traffic

(*a*) Traffic includes everything that is carried over the Nilgiri Railway.

Coaching Traffic.

(*b*) Coaching Traffic includes passengers, horses, carriages, dogs, parcels, luggage and all that is booked at what are commonly known as coaching rates.

Goods Traffic.

(*c*) Goods Traffic includes coal, minerals, material and merchandize of all kinds, also cattle, sheep, &c., and all that is booked at what are commonly known as goods rates.

Telegraph receipts &c.

(*d*) Telegraph receipts include all sums received for telegrams for the State and private parties.

Capital Expenditure.

(*e*) Capital expenditure includes all expenditure of all kinds which would under the rules in force from time to time on the Madras Railway be charged to the Capital account.

Revenue Expenditure.

(*f*) Revenue expenditure includes all expenditure of all kinds which would under the rules in force from time to time on the Madras Railway be charged to the Revenue account.

Stations.

(*g*) Stations include sidings, platforms (where provided), points, sheds, tank-houses, wells, water-columns, signals, approaches, roads, buildings for traffic purposes, dwellings for the Traffic Station Staff, furniture, fittings, lamps, and a

other appliances that are required for working traffic, &c., at Stations.

Locomotive Premises. (*h*) Locomotive premises include running sheds, repairing shops, and all other appliances necessary for maintaining rolling stock in working order.

Rolling Stock. (*i*) Rolling stock includes brake vans, water-tanks, all goods and coaching vehicles and all locomotive engines which are necessary for working the traffic of the Nilgiri Railway.

Nilgiri Railway (*k*) The term "Nilgiri Railway" includes all stations, locomotive premises, dwellings for the staff, rolling stock, and the whole of the permanent-way which form part of the complete undertaking of the Nilgiri Railway Company.

Local Traffic and Telegraph receipts. (*l*) Local traffic and telegraph receipts are those which relate to traffic and telegrams which do not pass off the Nilgiri Railway and include the receipts for traffic and telegrams between Mettupalaiyam and any station of the Nilgiri Railway.

Through Traffic and Telegraph receipts. (*m*) Through traffic and telegraph receipts are the share of the receipts due to the Nilgiri Railway for traffic and telegrams which pass between stations of the Nilgiri Railway and stations of the Madras and other Railways beyond the Madras Railway.

Gross Receipts. (*n*) Gross receipts include the Nilgiri Railway share of all local and through traffic and telegraph receipts, all amounts received for rent and all other sums received by the Madras Railway on account of the Nilgiri Railway—including advertisement and refreshment room receipts and including also any sums received from Government under its guarantee to make the minimum gross earnings up to Rs. 2,00,000 (two lacs of rupees per annum).

Madras Railway to work the Nilgiri Railway. 2. The Nilgiri Railway as hereinbefore defined with permanent way, station buildings, furniture, fittings, sheds, sidings, locomotive engines and rolling stock of all kinds, and all other conveniences necessary for working the traffic to and from the Coonoor terminus of the Nilgiri Railway will be taken charge of by the Madras Railway Company on

the first day of ..... eighteen hundred and ninety-..... and from that date it is, during the period of this Agreement (see clause 3) to continue to be worked by the Madras Railway Company as part of its own undertaking in all respects as if it actually belonged to the Company subject only to the same control of Government through the Consulting Engineer to the Government of Madras as is provided for in the agreement entered into between the Nilgiri Railway and the Secretary of State, the intention being that for working purposes the Nilgiri Railway is to be considered and dealt with exactly as if it were the property of the Madras Railway Company, except as to the provision of funds for Capital expenditure and as to the maintenance and renewal of the permanent way, &c., and cost of home establishment, which are specially provided for in Clauses (5) five (6) six and (7) seven respectively.

Period of agreement. 3. This agreement is to remain in force for a period of 3 years from the date on which the line is opened for public traffic: after the expiration of the three years the agreement will continue in force subject to any alteration of terms and conditions as may mutually be agreed upon by the two Boards of Directors and subject to six months' notice on either side, such notice, however, only to expire on the 30th June or 31st December of any year.

Land. 4. The Nilgiri Railway Company will obtain from Government any land that may at any time be required for the use or extension of the Nilgiri Railway system. Application for extra land required will be submitted in all cases by the Madras Railway direct to the Government Consulting Engineer.

Capital Funds. 5. The Nilgiri Railway Company will provide all necessary funds that may be required for Capital expenditure and when such Capital works are to be undertaken by the Madras Railway Company, the estimated cost thereof is to be deposited in advance with the Madras Railway Company. All expenditure on Capital account is to be subject to the sanction of the Government and no expenditure on Capital Works estimated to exceed Rs. 5,000 shall be incurred without the previous sanction of the Board of Directors of the Nilgiri Railway Company.

Engineering Maintenance. 6. The Engineering maintenance, including the repair and renewal of all buildings, bridges, cuttings and embankments, permanent way and all other expenditure chargeable according to

Government Orders to the Abstract A form of Revenue Account, will be undertaken at the sole cost of the Nilgiri Railway Company, but the Engineering staff shall be in all respects subject to the orders and control of the Agent and Manager of the Madras Railway Company. Abstract A will be submitted periodically to the Government Examiner of Accounts, Madras.

6. (*a.*) Estimates for work in connection with maintenance to be submitted in advance half-yearly to the Nilgiri Board in London, and in the event of objections being raised to any proposed expenditure, the question to be referred, if necessary, to the Consulting Engineer for Railways, Madras.

Home Establishment

7. The cost of the Home Establishment as chargeable by Government Orders under Abstract E of the Revenue Accounts, items 1st sub-heads 1, 2, 3 and 4 will be borne by the Nilgiri Railway Company.

Passenger Fares.

8. The following passenger fares shall be chargeable between Mettupalaiyam and Stations on the Nilgiri Railway :—

1st Class—A maximum mileage rate of 10 As.

2nd Class— Do. Do.

3rd Class—A maximum mileage rate of 1 A.

Luggage and parcels—A maximum mileage rate of one anna per maund per mile.

Other Coaching rates will be charged as shown in published time-tables and circulars.

Goods Rates.

9. The following goods rates will be charged for all classes of goods-traffic :—

From Mettupalaiyam upwards—a maximum rate of 4½ pies per maund per mile.
From Coonoor downwards—a maximum rate of 2¼ pies per maund per mile.

Terminal Charges.

9. (*a.*) Terminal charges will be levied at the rates in force from time to time on the Madras Railway.

Alteration of Rates both Passenger and Goods.

10. Subject to the above-mentioned maximum rates the Madras Railway Company shall have the power to alter the rates as found to be desirable for the encouragement of traffic.

Carriage of Mails

11. Government Mails shall be carried over the Nilgiri Railway under the terms of the agreement between the Nilgiri Railway Company and the Secretary of State.

Carriage of Revenue Stores.

12. The Madras Railway Company agree to carry over its own line and over the Nilgiri Railway any materials required for revenue works upon the Nilgiri Railway at double the rates but under the same arrangements as are in force for material required for Revenue works on its own line.

Responsibility for accidents, &c.

13. The Madras Railway will be responsible to the public for all accidents, losses or damages of all kinds upon the Nilgiri Railway except as follows :—

Accidents or losses :—

(i) Caused by the failure of way or works owing to defective construction, or so long as the Nilgiri Railway maintains its own Engineering Staff ;

(ii) Owing to mechanical or other failure of method or system on which rolling stock ascends or descends gradients on the Nilgiri Railway ;

(iii) Owing to defective construction of rolling stock ; and

(iv) Owing to extraordiary casualties from exceptional rainfall, or damages by floods, land slips, bursting of tanks, rivers, or other irrigation works,

for which exceptions the Nilgiri Railway Company will be financially responsible to the public, as well as for the repair or replacement of all way and works, rolling stock, and for any accident or damage that the Madras Railway could not have prevented.

(v) The Nilgiri Railway will be responsible for loss through delay in the event of the rolling stock and equipment being found to be insufficient when working has commenced.

Provision of Staff, Stores, &c.

14. The Madras Railway Company shall provide the necessary staff, stores, &c., required for the working of all descriptions of traffic between Mettupalaiyam station and the terminal station of the Nilgiri Railway.

Control of Traffic.

15. The Madras Railway Company shall have entire control of the train and traffic arrangements of the Nilgiri Railway and shall during the continuance of this Agreement cause to be run upon the Nilgiri Railway as many trains and at such times as the traffic shall from time to time require : at least one train shall be run daily throughout the entire length in each direction.

Telegraph lines and block instruments.

16. The Government Telegraph Department will provide and maintain the necessary lines of telegraph required for working and the rent charged by the Government will be debited against revenue. The Madras Railway will decide whether Block Instruments shall be hired from Government or if it will provide Winter's Instruments at a rental not exceeding the rate charged by Government for similar instruments.

Mettupalaiyam Joint Station.

17. The necessary expenditure to render the Station Buildings at Mettupalaiyam available for use as a joint station will be at all times undertaken by, and at the cost of, the Madras Railway: interest upon the total cost of the joint station premises at the rate of 7½ per cent. per annum will be charged to the two Railways in proportion to the amount of their local and interchanged traffic at Mettupalaiyam.

The weight of coaching traffic shall be reckoned according to the following scale:—

For each passenger of every class	...	1 cwt.
„ „ child	... ...	56 lbs.
„ „ horse or each head of horned cattle	... ...	½ ton.
„ „ sheep, calf, goat, pig, dog or other small animal	...	56 lbs.
„ „ parcel	... ...	actual weight.
„ „ carriage of any size	...	½ ton.

17. (*a.*) The payment of the Nilgiri Railway Company of their proportion of the interest on cost of joint buildings shall be in addition to the proportion of gross earnings for ordinary working expenses to be charged by the Madras Railway under Clause 19.

Accounts.

18. The Madras Railway Company shall record and keep in a proper manner full and particular accounts of all its transactions and correspondence in any way relating to or affecting the Nilgiri Railway or the business thereof or any of the matters or things included or referred to in this agreement, so as at all times to exhibit fully and truly the state of its affairs in relation thereto, in the same manner as prescribed in the Contracts between the Secretary of State for India and the two Railways.

(*b.*) The gross receipts of the Nilgiri Railway as hereinbefore defined are to be collected and treated as the receipts of the Madras Railway Company. The balance, after deducting the payments as defined in Clauses 19 and 20 of this agreement, is to be paid over to the Nilgiri Railway Company as soon as the accounts for

each half year shall have been made up and passed by the Government of Madras.

(*c.*) A full statement of account shall be furnished by the Madras Railway Company half-yearly to the Nilgiri Railway Company and the former Company will also furnish weekly a statement of traffic earnings of the latter Railway.

Remuneration to the Madras Railway for working the Nilgiri line.

19. The charge to be made by the Madras Railway Company for working the Nilgiri Railway (including all Revenue charges, excepting those for Maintenance and Home Establishment excluded under Clauses 6 and 7) shall be 30 per cent. of the gross earnings (see Clause 1 sub-head (*n*)): provided that if the Madras Railway Company's actual expenditure in working the Nilgiri line show a saving upon this proportion of 30 per cent. of gross earnings, then the Madras Railway Company agree to surrender half the said saving to the Nilgiri Railway Company, but if such actual charges show the expenses to be over the 30 per cent. of gross earnings, the Nilgiri Railway Company agrees to share the excess in equal proportions up to the point at which the payment to the Madras Railway Company would amount to 35 per cent. of gross earnings as a maximum.

Maintenance of Nilgiri Ry.

20. (*a.*) The Madras Railway Company will maintain the Nilgiri Railway and its engines and rolling stock in the same state of efficiency as that in which they were handed over to the Company.

(*b.*) The precise conditions of the Nilgiri Railway, both as regards way and works and its equipment, when handed over to the Madras Railway Company are specified in the Schedule to be annexed to this agreement. A detailed inventory of the Nilgiri Railway as made over to the Madras Railway shall be prepared by the Nilgiri Railway and accepted and kept by the Madras Railway Company as part of the accounts.

Provident Institution.

21. A sum amounting to 1 per cent. of net earnings shall be retained by the Madras Railway Company for contribution to the funds of the Company's Provident Institution.

Engines, Rolling stock and other equipment.

22. Before the Railway is open for traffic the Agent and Manager of the Madras Railway shall in consultation with the Engineer-in-chief of the Nilgiri Railway decide whether a sufficiency of Engines and rolling stock (with the necessary

duplicate parts), buildings and quarters and general appliances and equipment have been provided.

Government inspection of line, rolling stock, &c.

23. The Nilgiri Railway as defined in Clause I (*k*) shall be inspected and passed by the Government officials before being opened for traffic, and periodically thereafter as Government decides.

Madras Railway's Rules and Regulations to apply.

24. All the General and Subsidiary Rules and Regulations for the working and management of the Madras Railway in force during the term of this agreement shall, so far as they are applicable to a branch line, be brought into operation on the Nilgiri Railway.

Arbitration.

25. In the event of any difference of opinion arising upon any of the terms of this agreement between the respective Companies, the matter shall be referred through the Government of Madras to the Government of India, who shall decide from time to time as to responsibility for loss or damage, under this Agreement, and whose decision shall be final and binding upon both parties.

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From Acc

LAWRENCE ASYLUM PRESS, MADRAS.

H.E. The Governor
The Hon Sir H. Blair K.C.I.E.
" " Mr Grose C.I.S.

(I had intended to get this Note typewritten hence its pattern showing etc. I send it as it is, to save time, with apologies.) Flag D

JM Flag F

In the Ooty Station site is marked a road leading across the Lake Road at the N. end of the willow round to for 2 chains and more along the willow round itself. I don't think this will do at all. The station site should be quite clear of the willow round and Lake Road. Flag H

BS Flag J

Flag K

H.E. 4/Feb/98
L. 2. 98
M. 10.2.98

Secy Govt Confl No. 510 of 98

Nilgiri Railway extension
Common to Ootacamund

SERIAL No. 92

The first proposal to extend the Metupollium Common R. to Ootacamund came from the N.R. Worlly in May 92. The Govt. supported him to the extent of giving the Govt. of India to provide the money estimated at 15 Lakhs. See G.O. 1638-R. dated 1st July 92. Later on the Nilgiri R.C. (Mr Worlly) undertook to make the survey on certain conditions. This the Govt. of India in our No. 1903. R.P.W. of 6th Aug 92 we recommended to

2.- In their No. 956 R.C. of 17th August 92 the Govt. of India replied to provide the money for the purpose as the funds at their disposal were required for other works of greater importance. (They) in their letter No. 1411 R.C. of 23.12.92 however agreed to allow the Company to make the survey, on the condition that ~~it take the place of the No 2 Govt.~~ in the event of Govt. making the line & giving it to another Company, they were to be recouped.

3.- On the 7th June 93, with his No. 42 the Secretary Nilgiri R.C. submitted a rough plan & section of the extension surveyed by the Magistrate. This Govt. approved of the alignment in their No. 296-0 of the 18th Feb 93, leaving it to the N.R.C. (as the subsequent letter No. 32-0 of 28th Feb 93.) to make the survey & not on the plan followed.

4.- I notice that at this time the Willow Round site which has been connected since with my name, was selected by the then Lt H. Station, guided by the Hon Mr Gunthie. — concerned in, my subsequent first sight of Round for west sit. by Lord Wenlock.

5.- Was canvas the colleagues of the old Company. — the price of the new one out of its assets. This

caused a delay of 3½ years.

6.- With Li 818 dated 1st Dec. 96. the Agent of Chief Engineer of the Nilgiri R.C. (the old Company being defunct) sent us a copy of his letter to the Govt of India No. 820. dated the 1st Dec. 96. in which he stated that his Board, learning that the Govt of India was in favour of acting the extension just in hand as soon as possible, and being sensible of the importance of starting the new work before the staff of the old is dispersed, would be glad to know whether any assistance in raising the Capital, estimated at 18 Lakhs, might be expected, and if so of what sort, a Subsidy, or a guarantee of interest.

7.- In forwarding this letter to the Govt of India, with our No. 3-R. dated the 4th Jan 97. we expressed a wish to see the line just in hand at an early date, and recommended that assistance, if possible in the form already given to the Metropolitan Common line, should be given for the extension. We said that we could not recommend any definite sum, as statistics, though being collected, were not yet available.

8.- The Govt of India replied, in No. 214. R.C. dated the 3rd Feb. 97. to the effect that before promising any assistance they must consider the matter at the Railway Conference of 1897. and must have statistics.

9.- There some correspondence ensued between the Company's Agent, the Govt. & the Govt of India about

Flag L

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We submitted these proposals to the Govt of India with our No. 279-R. dated the 23rd April 97. with an expression of this Govt's strong support.

the working of the Survey and its cost, which results in the Govt of India's letter to us No. 569. R.C. dated the 8th April 1897. in which they confirmed our having sanctioned the making of the survey of the Company. But they said that terms for construction, &c, could not be dealt with until the results of the Survey had been received and the project had been considered at the Conference of 1897.

10.- But in the meanwhile we had at last received definite proposals from the Nilgiri R.C. about making the extension. These proposals are contained in the Board's letter to this Agent No. 43. dated the 5th March which reached us and were received under cover of the Agent's No. 1123. dated the 5th April 97.

In our letter No. 279-R. dated the 23rd April 97. forwarding these proposals, we summarised them as follows.

11.- The terms proposed by the Company may briefly be summarised as follows. That £125,000 be raised, of which £50,000 shall be shares and £75,000 Debentures. That Govt. give a guarantee of 3½ per cent on the paper value of the entire amount. That the debenture holders receive out of the proper guarantee a sterling guarantee of 3 per cent. That the balance of the proper guarantee be distributed or divided amongst the holders of the £50,000 worth of shares. That out of the gross receipts of 3½ per cent, any amount short of Government

that the net earnings of the extension be applied 1st to the payment of the guarantee
2nd to making up the £50,000 shareholders dividend to 3½ per cent sterling,
3rd any surplus to be divided between Govt. & the Co.

There are also provisions as to the position of rolling stock between the old & new sections, as well as for buildings & stores, & for the apportionment of earnings & working expenses. Provision are also made for the termination of the contract & for notice & form.

We strongly support the Company's proposals,

~~[illegible]~~

Indian applied, in their No 912. R.C. dated the 3rd June 97, that they were unable to entertain or even consider any proposal involving a greater guarantee than 3 per cent. They promised however to consider, at the Durbar Conference, any revised offer from the Company, based on a branch line terms, & supported by proper estimates & traffic statistics.

13. On our sending this decision to the Company the Agent, with his letter 1365 dated the 25th July 97 asked us to forward to the Govt of India his letter to [illegible] dated 10th July 97. in which revised proposals were put forward. These revised proposals are those which are at present before the Govt. of India. They are as follows.

(a) That interest be paid out of capital at 3 per cent during construction.
(b) That Government provide land free.
(c) That after the line is open for traffic Govt.

Flag T

Flag U

Flag V

Flag W

Flag X

Rest Rupees mile, total
Rs
for 7 Years

Practically nil
Rs

guarantee on the proper expected earnings of the Company's Indian branches.

(2) That surplus net profits be equally divided between Govt. & the Company.

(3) That plans & plans already sanctioned for the existing line be applicable to the extension also, & that the terms contained in the Branch line Rules about purchase, Govt. supervision &c. be agreed to.

These revised proposals we sent forward to India with our 504. R. dated the 27th July 97, and

Meanwhile we have been placing at the Agent's disposal all available statistics of traffic & the despatch of

14. Now the Agent has at last sent us in his completed project, together with an estimate of traffic, with his letter No. 1912. dated the 25th Jan 98.

The net result is that the line, of the general description given in my enquiries report contained in G.O. No. 900. R. dated the 4th Nov. 1897, can be built for Rs 18.63,000, & for Rs 1.58.550 per mile.

11. The Agent estimates gross receipts at Rs. 1.68.800 earnings, & net earnings at Rs 84,400 which are sufficient to pay interest on the capital at the rate of 4.96 per cent. It would require net earnings to the extent of Rs 55.890 to pay the three per cent guarantee which the Company ask for, so that if the Agent's estimates of cost and traffic are correct, the Government share of surplus earnings would be about Rs 14,000 per annum, to compensate for the cost of land to be given free, the loss of land revenue and the risk incurred in giving the guarantee.

I shall now examine the several items of the probable cost of the line.

Interest during construction. From para 23 I find that the Agent estimates that it will take 2 years to finish the line. Taking the expenditure in the years succeeding July 1900 as shown for the first and the last and two thirds for the two middle halves, we get interest during construction amounting to Rs 56.500. This must be added to the amount of Mr Wightman's estimate, raising the sum to be provided as Company Capital to Rs. 19.19.000 ~~Lakhs~~.

16.- Land. The Company asks that land be provided free by Government. The Engineer-in-Chief makes no estimate of the cost of land. Indeed it is perhaps too early for such an estimate to be of much use. If it works out to be then $\frac{11}{17}$ths part of the cost of land for the existing Nilgiri railway, and perhaps this piece land at foot of the latter may be set off against ten land at top of the former, Rs. 1.30.000 will apparently cover the cost of it. But at this very early stage it is really impossible to make a better estimate. It may cost 2 lakhs.

17.- Preliminary Expenses. I presume that the Rs 10,000 set down for this item is practically actual. They asked for Rs 15000 when laying the point for the survey by Government.

18.- Formation. I have had much conversation about this with Mr Wightman, and my impression is that his anxiety about the possibility of the estimate for his present line being insufficient has caused him if anything to err on the safe side in preparing the new estimate. During my last inspection certain improvements suggested themselves which will doubtless result in economy, but then on the other hand there is always the chance of unexpected trouble in wet cuttings which it is difficult to allow for. I think that the Rs 5.53.173 may be accepted.

19.- Bridgework. This has been carefully estimated and the Rs. 1.54.315 ought to suffice.

20.- Fencing. Most of the Rs 41.383 shown for this item is for road crossings. It will be fully required.

21.- Ballast. The estimate is based on actual rates on the finished part of the line and ought to be well done for Rs. 59.537.

22.- Permanent Way. Mr Wightman's estimate of this item is a careful one. It has been based upon actual for the lower portion of the line. There may be a saving in the upper part of the material if the rupee stands about 1.5. 4.d. But on the other hand there are contingencies in the laying of the track which are difficult to foresee. and I do not think the rate for laying is too high. The amount Rs 4.79.801 may stand.

and then represent the light he proposed to carry out.

Station & Building. The cost of the terminal building & its goods accommodation at Ootacamund [illegible] Rs 41,000. but as important a Terminus, & a Hill station, for the use to a great extent of European traffic. it will probably be wanted. There has been Defiicity Terminus and to the nearest wood & corrugated iron shanty & it was quite good enough. But there has been a good deal of Public feeling about bringing an ugly station building at the heart of the settlement. & the Company are right to provide for a decent looking & convenient building. The cost of the other stations does not seem extravagant. The total Rs 1.59.580 may therefore stand.

Rs 41000 seems fair enough as a very moderate estimate of the cost of the Ooty station WS

24.- Plant. For this Rs 15,000 has been provided & will probably suffice.

Rolling Stock. The provision of 2 engines, 4 carriages of sorts. 8 trucks & 2 brakes does not seem extravagant. The estimate of cost is based on that of rolling stock which has already arrived & been erected on the lower section Rs. 1.36.720 may stand.

25.- General Charges. The estimate Rs. 1.33.200 contemplates the completion of the railway in two years, which seems sufficient.

I should think that the Railway would at once get & keep most of the Goods traffic & all the superior passenger traffic. The 3rd cl: passenger traffic is more doubtful.

WS

26.- The Traffic Estimate. An engineer's count of traffic with an actual for eight months & an estimate for four months amounting to about 9200 tons up & 4800 tons down. The Magistrate's estimate for 12000 tons up & 5000 tons down. There is reason that not only will traffic somewhat improve, which is reasonable enough, but also that the railway will at once get the whole of it & keep it. That he will at once get the whole of the traffic or even three fourths of it seems not to me to be for two sanguine an estimate. There will doubtless, at first at least, [illegible] for four or five years. In the present condition & the cost of carts & tongas, especially as the road is left free & uninterfered with. The Magistrate is less sanguine in his estimate of his passenger traffic. He expects to catch about half of it, & this I think is reasonable enough.

27.- But as regards goods there is no doubt but that as the Nilgiris get more accessible traffic will increase. Still it can scarcely fair to assume that at first the Railway will get more than 5000 tons up & 2000

But even with this large reduction of probable traffic what is left is just enough to cover the 3% guarantee, which is all that strictly concerns Government. Provided that working expenses amount to not more than 50 per cent of receipts.

23.- The question of the working expenses of the Nilgiri Common section is just now under discussion between the Agent Nilgiri R. and the Agent Madras R.. The draft terms when agreed to will require to be confirmed by both Boards before being submitted to Government, whose approval is necessary if the Madras R. G. are to undertake the work [illegible]. So far as these negociations have gone they point to the probability of the Madras R. G. working the Nilgiri R. at 30 per cent of receipts plus actual cost of maintenance.

25.- There is great risks of the actual cost of maintenance being very high in such a country and for such a line. at least for the first two or three years. The risk is not to great on the section above Coonoor as on the lower section. and by the time the upper section is open two years experience of the cost of working the lower section will probably be available. It is not easy to estimate what maintenance may cost. but 10 miles per mile ought to be a strong enough gang during the rains and six men during the rest of the year. Say an average of 75 rupees per mile per month, or Rs 10,000 per annum. This would only be about 8½ per cent for labour. Another Rs 10,000 per annum for superior and inferior supervision, and a little more for materials and contingencies will bring actual cost of maintenance to say 20 per cent of gross receipts estimated at the lower figure, and to only about 12 per cent of the Nilgiri figure.

28.- I think therefore that if the Madras R.C. work the extension for 30 per cent plus actuals for maintenance the risk of loss to Government will be very slight, and well worth while in consideration of the large and inevitable saving in the cost of keeping up the present unbroken break.

30.- I take it that the cart competition will be the first to cease, and that will at once mean that the condition of the cart road surfaces need not be maintained at so high a standard. Next half or three quarters of the cart traffic will gradually leave the road, so there will be less wear and tear. I do not know in the least what the saving of road maintenance may amount to, but I suppose fully half - lakhs per annum.

31.- We may now send the plans and Estimate forward to the Govt. of India, with reference to previous correspondence, with a Note, on the above lines, of the Con. Engr. for Railways, with an expression of the wish of this Government that the Company should be encouraged to make the proposed extension. We may say that this Govt. believes that the risks in the 3% guarantee asked for, will be very slight, and express a hope that the terms proposed by the Company may be accepted.

32.- I tried to have an argument on the saving to be secured in the freight of Government stores passengers and stores, but could make nothing out of it.

I find from P.W.G.O. 3545-W. dated 7th Dec 97 that maintenance cost Rs 2000 per mile per annum or for 29 miles of road Rs 58000 per annum that is right up to Doty.

7KS 11/2/98

There were some enquiries about this some months ago in the P.W.D.- The saving therein anticipated was on the whole length of road from Doty to Mettapolem

WS

R. Papers obtained from this office + put up. Please see fly A.

I think this course may be followed.

A.H 4.2.98

WS

JG 10/2/98

Rs 1000 to Rs 1200 per annum would, so far as I can see, cover the whole of it.

33.- May or June is I understand the best time for putting such an enterprise as this on the London market. So there is not a bit too much time to get it through.

yes. A.H 4.2.98

WS 9/2/98

7KS.

2/2/98

A.R.

The Note of Con. Engr. which will accompany our letter forwarding the Doty extension project to the Govt. of India, will consist of the above note altered as per pencil alterations and omissions typewritten fair please.

7KS

11/2/98

AR

Make print from of all dispatches

7KS

The Nilgiri Railway extension from
Coonoor to Ootacamund.

The first proposal to extend the
Metupalayam
Metapollium Coonoor Railway
came
to Ootacamund came from the la
Mr R. Wooley in May 1892, this Gov
ment supported him to the ex
of pressing the Government of In
to provide the money estimated
15 lakhs, See G.O. No 638 R dat
1st July 1892. Later on the Nilgiri
way Company (Mr Wooley) under
to make the survey on certain
ditions. This he recommend
the Government of India
ours No 1903 R. P. W. dated 6th Aug
their
2. In this No 956 R. C of 29th
1892 the Government of India re
to provide money for the pur
as the funds at their disposa
required for other works

importance. They however agreed in their Letter No 1241 R.C. dated 23rd December 1892, to allow the Company to make the Survey on the Condition that in the event of Government making the line or giving it to another Company, they were to be recouped.

3. On the 7th June 1893, with his No 42 the Secretary Nilgiri Railway Company sent us a rough plan and section of the extension, Surveyed by Mr Weightman. This Government expressed approval of the alignment in our No 29/0 of the 18th July 1893, leaving it to the Nilgiri Railway Company (see subsequent letter No 34/0 of 8th July 1893) to make the Survey or not as they pleased.)

Now came the Collapse of the Company and the rise of the new one out of its ashes. This caused a delay of 3½ years. With his 818 dated 1st December 1896, the Agent and Chief Engineer of the new Nilgiri Railway Company (the old Company being defunct)

Para 4/.

defunct) sent us a Copy of his letter to the Government of India No 820 dated the 1st December 1896, in which he stated that his Board, learning that the Government of Madras was in favour of seeing the extension put in hand as soon as possible, and being sensible of the importance of starting the new work before the staff of the old is dispersed would be glad to know whether any assistance in raising the Capital, estimated at 18 Lakhs, might be expected, and if so of what sort, a subsidy, or a guarantee of interest.

5. In forwarding this letter to the Government of India, with our No 3 R. dated the 4th June 1897, we expressed a wish to see the line put in hand at an early date, and recommended that assistance should be given to it preferably in the form already given to the Metupalayam Mettupalayam Coonoor line. We said that we could not recommend any definite sum, as statistics

January

though being Collected, were not yet available.

6. The Government of India replied in their No 214 R.C. dated 3rd February 1897. to the effect that before promising any assistance they must consider the matter at the Railway Conference of 1897, and must have statistics. Then some Correspondence occurred between the Company's Agent this Government, and the Government of India about the making of the Survey and its Cost, which resulted in the Government of India's letter to us, No 569 R.C. dated 8th April 1897. in which they Confirmed our having sanctioned the making of the Survey by the Company. But they said that terms for Construction, Agency &c could not be dealt with until the result of the survey had been received and until the project had been Considered at the Conference of 1897.

7. But in the meanwhile definite proposals had been received from the Nilgiri Railway Company about making the extension. These proposals are Contained in the Board's letter to this Agent No 43, dated the 5th March 1897, which reached us under Cover of the Agent's No 1123, dated the 5th April 1897. We submitted these proposals to the Government of India with our No 279 R, dated the 23rd April 1897, with an expression of this Government's strong support.

8. The Government of India replied in their No 912 R.C, dated the 3rd June 1897, that they were unable to entertain or even Consider any proposals involving a greater guarantee than 3 per cent. They promised however to Consider, at the August Conference any revised offer from the Company, based on branch line terms, and supported by proper estimates and traffic statistics.

9. On our sending this decision to the Company the Agent, with his

letter 1365, dated the 25th July 1897 asked us to forward to the Government of India his letter dated the 10th of July 1897, in which revised proposals were put forward. These revised proposals are those which are at present before the Government of India They are as follows.

(a) That after the line is open for traffic Government give a 3% guarantee on the rupee Capital as shown in the Company's Indian books.

(b) That surplus net profits be equally divided between Government and the Company.

(c) That interest be paid out of Capital at 3 per cent during Construction.

(d) That Government provide land free.

(e) That rates and fares already sanctioned for the existing line be applicable to the extension also, and that the terms contained in the Branch Line Resolution about purchase, Govt. supervision &c, be agreed

to. These revised proposals we put forward to the Government of India with our 504 R, dated the 27th July 1897, and meanwhile we have been placing ~~at the disposal of the Agents~~ all available statistics of traffic at the disposal of the Agents.

10. Now the Agent has at last sent us in his complete project together with an estimate of traffic, with his letter No 1912. dated the 25th January 1898. The net result is that if interest during construction be omitted, a line of the general description given in my inspection report contained in G.O. No 900 R, dated the 4th November 1897, can apparently be built for Rs 18,63,000, or for Rs 1,58,550 per mile. The Agent's estimates gross receipts at Rs 1,69,800 and net earnings at Rs 84,400 or sufficient to pay interest on the capital outlay at the rate of 4.96 per cent. It would require net earnings to the extent of Rs 55,890 to pay the three per cent guarantee which the Company ask for, so that if the Agent's estimates of

Cost and of traffic are correct, the Government share of surplus earnings would be about Rs 14,000 per annum, to compensate for the cost of land to be given free, the loss of land revenue which I understand is practically nil, and the risk incurred in giving the guarantee.

12. I shall now examine the several items of the probable cost of the line.

13. Interest during construction. From page 23 I find that the agent estimates that it will take two years to finish the line. Taking the expenditure in the four successive half years at one share for the first and the last two and two shares for the middle halves, he get interest during Construction amounting to Rs 66,500. This must be added to the amount of Mr Weightman's estimate, raising the sum to be provided as Company's Capital to Rs 19,19,000.

14. Land. The Company ask that land be provided free by Government. The Engineer-in-Chief makes no estimate of the Cost of land. Indeed it is perhaps too early for such an estimate to be of much use. If it works out to be the 11/17th part of the cost of land for the existing Nilgiri Railway, and perhaps the rice lands at foot of the latter may be set off against the lands at top of the former, Rs 1,30,000 will apparently cover the cost of it. But at this very early stage it is really impossible to make a better estimate. It may cost 2 lakhs.

15. Preliminary Expenses. I presume that the Rs 10,000 set down for this item is practically actuals. They asked for Rs 15,000 when hoping to be paid for the survey by Government.

16. Formation. I have had various conversations about this with Mr Weightman and my impression is that his anxiety about the possibility of the estimate for his present line being insufficient has made him careful to err if anything on the safe side in preparing the new estimate. During my last inspection certain improvements-

suggested themselves which will doubtless result in economy, and these improvements the Agent has promised to carry out, but then on the other hand there is always the chance of unexpected trouble in wet cuttings which it is difficult to allow for. I think that the Rs 5,53,173 may be accepted.

17. Bridgework. This has been carefully estimated and the Rs 1,52,315 ought to suffice.

18. Fencing. Most of the Rs 41,383 allowed for this item is for road crossings. It will be fully required.

19. Ballast. The estimate is based on actual rates on the finished part of the line and ought to be well done for Rs 59,537.

20. Permanent way. Mr Weightman's estimate of this item is a careful one. It has been based upon actuals for the lower portion of the line. There may be a saving in the supra cost of the material if the supra stands about

about 15. 4d. But on the other hand there are contingencies in the laying of the rack which are difficult to foresee, and I do not think the rate for laying is too high. The amount Rs 4,79,801 may stand.

21. Stations and Buildings. The cost of the terminal building and its good accommodation at Ootacamund but is estimated at Rs 41,000, but also as important a terminus, in a hill station, for the use to a great extent of European traffic, it will undoubtedly be wanted. There has been a good deal of public feeling about bringing an ugly station building into the heart of the settlement, and the Company are right to provide for a decent looking and convenient building. The cost of the other stations does not seem extravagant. The total Rs 1,59,580 may therefore stand.

22. Plant. For this Rs 15,000 has been provided and will probably suffice.

23. Rolling Stock. The provision of

2 engines, 4 Carriages of sorts, 9 trucks and 2 brakes does not seem extravagant. The estimate of Cost is based on that of rolling stock which has already arrived and been erected on the lower section Rs 1,36,720, may stand.

24. General Charges. The estimate Rs 1,33,200 Contemplates the Completion of the railway in two years, which seems sufficient.

25. The Traffic Estimate. As compared with an actual Count of traffic for eight months and an estimate for four months amounting to about 9,200 tons up and 4,800 tons down, Mr Weightman has estimated for 12,000 tons up and 5000 tons down. Thus he assumes that not only will traffic somewhat improve, which is reasonable enough, but also that this railway will at once get the whole of it and keep it. This seems to me to be somewhat too sanguine an estimate for the first three or four years, though I have little doubt but that

that it will be more than fully realized later on. There will doubtless at first be the keenest competition on the part of Carts and bullocks, especially as the road is left free and uninterfered with. Mr Weightman is less sanguine in his estimate of his passenger traffic. He expects to Catch about half of it, and this I think is reasonable enough. He will certainly catch the whole of the higher class passenger traffic. As regards goods there is no doubt but that as the Nilgiris get more accessible, traffic will increase. Even if we assume that at first the railway will get only 5000 tons up and 2000 down (this with the passenger traffic will be) just enough to cover the 3% guarantee, which is all that directly Concerns Government provided that working expenses amount to no more than 50 per cent of receipts.

26. The question of the working expenses of the Metapolliam (Mettupalaiyam) Coonoor section is just now under discussion between the Agent Nilgiri Railway

and the Agent Madras Railway. The draft terms when agreed to will require to be confirmed by both Boards before being submitted to Government, whose approval is necessary if the Madras Railway Company are to undertake the work. So far as these negociations have gone they point to the probability of the Madras Railway Company working the Nilgiri Railway at 30 per cent of receipts plus actual cost of maintenance.

27. There is great risk of the actual cost of maintenance being very high in such a Country and for such a line, at least for the first two or three years. The risk is not so great as on the section above Coonoor or on the lower section, and by the time the upper section is open two years experience of the cost of working the lower section will probably be available. It is not easy to estimate what maintenance may cost, but 10 men per mile ought to be a strong enough

gang during the rains and six men during the rest of the year, say an average of 75 rupees per mile per month, or Rs 10,000 per annum. This would only be about 8½ per cent for labour, another Rs 10,000 per annum for superior and inferior supervision, and a little over for materials and Contingencies will bring actual cost of maintenance to only 20 per cent of gross receipts estimated at the lower figure, and to only about 12 per cent of Mr Weightman's figure.

28. I think therefore that if the Madras Railway Company work the extension for 30 per cent plus actuals for maintenance the risk of loss to Government will be very slight, and well worth while in Consideration of the large and inevitable saving in the cost of stepping up the present metalled road.

29. I take it that the Conga Competition will be the first to cease, and that will at once mean that the Condition of the cart road surface need not

be maintained at so high a standard. Next half or three quarters of the cart traffic will gradually leave the road, so there will be less wear and tear.

I quid from S. W. G. O. No 3575 S. W. dated the 17th December 1897, that the maintenance of the road costs Rs 2,000 per mile, or Rs 58,000 per annum for the whole 29 miles from Mettupalayam to Ootacamund. Perhaps half of this or more may be saved.

Francis. J. E. Spring,
Cons: Engr for Rys, Madras.
12/2/98

S. W. Department.

Ry: Branch

A/ No. 245. Ry dated 12/2/98

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following

Letter from the Agent & Chief Engr Nil Ry, No 1912 of 25th Janry: '98
Letter from the Agent & Manager, Nilgiry to the Secy of the Govt No 2347 of 3rd Feby 1898
with endorsement
Note by the Cons: Engr for Rys. —"—"— of 12th Feby: 1898

The Government of India will be addressed.

FWS
R
10/2

To
The Agent & Ch. Engr Nil. Ry
— " — Cons: Engr for Rys
— " — Ex. Gr. Of Agencies
— " — Accountant Genl:

[P. W. 40 / 1,000—14-10-97.]

R FORM No. 12.

No. 246. Ry

A

Government of Madras.

PUBLIC WORKS DEPARTMENT,

RAILWAY BRANCH.

To

THE SECY. TO THE GOVT. OF INDIA,

P. W. DEPARTMEN

Calcutta

Madras the 12th February 189

SIR,

In continuation of correspondence
with my letter No. 504-R. dated the 27th Jan
on the subject of the proposed extension of the
Nilgiri Railway, a further distance of 11½ M
from Coonoor to Ootacamund, I am now dir
to forward for favour of orders a copy of a le
No. 1912. dated the 25th Jan. 98. from the
in Chief N. G. Co. with its enclosures. These
consist of a printed Report and Estimate.
a Roll of Plans. It has not been consid
necessary to call for and send forward the
drawings; the Plans in due course be exam
further in detail if the general scheme is
and the money raised. Details of the actual
of the line is Ootacamund itself practically agreed to, but not the
2. I am directed to forward, also, a copy
a Note upon the Estimate of the Co. Engi
for Railways with this Govt. and to req

t a copy of the offici Magnetic report which went
t you with my No. 901-R. dated 4th Nov. 97. I am
also to forward, with this, for ready reference, a copy of the
Agent's M.R. letter to his Board, No 2347. dated the 3rd Feb. 98. giving terms of
~~of the first of his ... copy of the~~ draft agreement
between the Madras and Nilgiri Railway Company
for the working of the Nilgiri - Common section.
Similar terms will, if agreed to, be doubtless extended to
the working of the proposed Ootacamund extension.

3. - The terms for the promotion of the extension, as just proposed
by the Nilgiri R. C. in their Agent's letter which accompanied
my No. 504-R. dated the 27th July 97, have been carefully
considered by H.E. the Governor in Council, in the light of
the construction estimate now just proposed, of traffic statistics
which are mostly given at page 3 of the Agent's letter
report, and of the anticipated Saving ~~in maintenance~~ in the upkeep
of the section on which an annual expenditure of Rs 2000
per mile on 29 miles is now incurred. In the result of his
consideration I have been directed to strongly recommend that
the Company's latest proposals be accepted, and that
they be enabled to raise the necessary capital, estimated,
inclusive of interest during construction, at Rs 14,19,000.
This Government is of opinion that the risk in the guaranty
of a 3% guarantee will be very slight.

4. - H.E. The Governor in Council is informed that the early season
is the best time for floating such a scheme upon the London Market, and
as that does not leave very much time for deliberation, I am desired to
express a hope that no little delay as possible may occur in dealing with the
present proposals.

Documents accompg:
1- Letter from the Agent, M.R. No. 2347 of 3/2/98 with Enclosures
2 - Report & Estimate
3- Board of Railway
4 - Letter from the Agent, M.R. dated 19/12 ay 25/1/98
5 - Note by S/R

Seen WD 19/2/98

Recorded on 12/2/98