Public Works (1898) Department.

RAILWAY BRANCH.

G.O., No. 281-82. dy

DATED 21st Feby 1898.

[Despatch Abstract.]

Report + Estimate of the Extension of the Nilgiri Railway to Kotagiri

Ordered that 40 additional Copies of the same be forwarded to the Govt. of India.

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242

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FORM No. 7.

MADRAS. 11 February 1898

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.

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

COONOOR,
November 30th, 1897.

NILGIRI RAILWAY. **Appendix A.**

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° ·28 (R=328 feet)	93	2·15	
14° ·19 (R=400 ,,)	2	0·20	
8° ·0 (R=716 ,,)	3	0·25	
Total...	98	2·60	
Ratio of Curve to length of Line...	.....	.....	22½ 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...	215,00,236	...	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 Rs 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/-	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	
6	244·00	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/-	4,685	
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	467·00	1 span 60 ft. ... / 4 span 28 ft. ... Gr.	5000 cft. at Rs. 15/- =Rs. 78/-	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	280	
14	105·00	do	160	
15	115·50	do	330	
16	132·00	5 feet slab drain	2,400	
17	137·00	18 inch pipe	240	
18	143·00	do	500	
19	149·00	do	430	
20	153·00	do	600	
21	155·00	do	900	
22	179·50	do	470	
23	190·00	do	160	
24	195·00	do	470	
25	210·00	6 feet rail opening... ...	510	
26	220·00	do	510	
27	228·00	18 inch pipe	160	
28	237·00	do	250	
29	267·00	do	260	
30	271·00	do	330	
31	279·50	do	160	
32	285·00	6 feet rail opening... ...	510	
33	288·00	18 inch pipe	200	
34	291·00	5 feet slab drain	450	
35	294·00	do	450	
36	299·00	18 inch pipe	240	
37	303·00	5 feet slab drain	800	

2.—MINOR BRIDGES.—(*Continued.*)

No.	Chainage.	Description.	Cost.	Remarks.
			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... ...	300	
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.
					Founds.	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 cft. 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 cft. 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 °/₀ = 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 °/₀ = 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	508·00	Overway Bridge Rolled Beams.	1600 cft. Metalling at 5 °/₀ = 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 °/₀ = 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 °/₀ ...	1,875	
											Grand Total Rs...	39,383	

NILGIRI RAILWAY.

OOTACAMUND EXTENSION.

VII. BALLAST AND PERMANENT WAY.

1.—BALLAST.

ABSTRACT ESTIMATE.

			Rs.
Adhesion portion, length $9\frac{3}{4}$ miles—			
Walls, 87,500 cft. @ 4/	...Rs.	3,500	
Ballast 568,500 cft. @ 6/	... ,,	35,110	38,610
Rack portion, length $3\frac{1}{2}$ 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.	
$9\frac{3}{4}$ Miles, Adhesion material @ 13,707/		133,643	
$3\frac{1}{2}$,, Rack ,, ,, 43,707/		152,975	
20660 Adhesion sleepers ,, ,, 4/ each		82,640	
7400 Rack do. ,, 5/ ,, ...		37,000	
$9\frac{3}{4}$ Miles laying Adhesion ,, 1500/		14,625	
$\frac{1}{2}$,, ,, 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	...$8\frac{1}{4}$	miles.
,, ,, (Rack)	...$3\frac{1}{2}$	,,
	$11\frac{3}{4}$	,,
,, Sidings	...$1\frac{1}{2}$	,,
	Total $13\frac{1}{4}$	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/- %₀₀	12
2nd class masonry	1200 ,,	25/- ,,	300
Brick in mud	3800 ,,	18/- ,,	684
Do. in lime	200 ,,	40/- %	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/- %	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/- %₀₀	15
3,774 ,,	Rubble in mud mortar	15/- %	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	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/- %	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 %				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		
		Rs.	
£7,670 at 16=		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.
		Nil.	
1. *Direction*—			
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		800	
T. A. & E. C. A.		50	
Office rent		250	
Stationery and Drawing material ...		100	
Contingencies		5,100	
Total per mensem ...		.....	1,22,400
For 24 months ...		100	
3. *Stores*...		250	
4. *Audit and Accounts*		100	
5. *Medical and Sanitation*		450	
Total per mensem ...		.....	10,800
For 24 months ...		.....	1,33,200
Grand Total Rs...			

BACK PAPERS.

Form No. 7.

MADRAS, 11th February 1898.

To

Agent, ~~S. I. R.~~ and Chief Engr
Nilgiri Railway
Coonoor

No. 419 Reply No 1797, dated 14/2/98

SIR,

Referring to your letter No. 1912 dated 25th Jan 1898, forwarding 12 printed copies of the project estimate for constructing the extension of the Nilgiri Railway to Ootacamund, I have the honour to request that, as under the Rules for the preparation of Railway Projects, 60 copies have to be sent to the Government of India, you will be good enough to supply the 48 copies with 70 additional copies

Reminders.

Subject.

the Estimate in question
which includes 10 Abs
Copies for the use of the
Office.

[illegible] 11/2/98

Despatched 11/2/98

RECEIVED 16 FEB 1898 CONSULTING ENGINEER FOR RAILWAYS MADRAS

No. 1967.

The Nilgiri Railway,

Coonoor, 14th February 1898.

FROM

THE AGENT AND CHIEF ENGINEER,

NILGIRI RAILWAY,

COONOOR.

C. No. 836 Recd. 16.2.98

To

The Consulting Engineer
for Railways
Madras.

Sir,

In reply to your No. 419 of February 11th 1898 I beg to forward by parcel post 50 additional copies of Report and Estimate, all I have available.

2. The number required by Government of India is I think 36 not 60.

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

[signature]

AGENT AND CHIEF ENGINEER.

Under the Rules for the preparation of Project [Prep D & C] 60 copies of Report are required for those which have received only 6th above only 10 copies to be sent with a Note that the remaining copies will be forwarded when [illegible] for [illegible] prepared & reported on but to be furnished with less

Herewith expenses to Estimate: Secd
50 Copies to Madras instead of 60 [illegible] 16/2/98

FORM No. 7.

MADRAS, 18th February 1898.

To

Agent, ~~S. I. R.~~ Ch Engr
Nilgiri Ry
2 Drafts

No. 503 Reply No , dated

SIR,

Reminders.

With reference
to your letter No 1969 dated
14th February 1898, I have
the honor to ~~—~~ invite atten-
tion to ~~—~~ Corrigendum to the
Rules for the preparation
of Railway Projects of 2/9/95
communicated to you vide
GO. No 629 Rly 30th ~~—~~ idem under
which the number of copies
of the reports & tabulated
details of railway projects
required to be sent by Rudra
is to be and not 36.

Subject.

G.S. 17/2/98

Form No. 3.

PUBLIC WORKS DEPARTMENT.

RAILWAY BRANCH.

187 No. 281 Ry. dated 21/2/98.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ again the following

Proceedings of the Madras Government, P.W.D., Ry Branch
No. 246 Ry dated 12th February, 1898.

Read also the following

Letter from the Agent and Chief Engineer, Nilgiri Ry
No. 1967 dated 14th February, 1898

Order

The Government of India will be addressed.

DR.

To Lt. C. No. 282 Ry, dated 21/2/98.

The Secretary to the
Govt of India, P.W.D

Sir,

I am directed to forward herewith forty copies of the Report and Estimate of the Extension of the Nilgiri Ry to Ootacamund, in addition to the ten copies forwarded with my letter No. 246 Ry dy 12th February 1898, making in all

50

50 instead of 60 copies as required by the "Rules for the preparation of Railway Projects," and to state that owing to a misapprehension on the part of the Agent and Chief Engineer, who is interested, Nilgiri Ry., that only 36 copies are required by the Government of India, that Officer now states that no more copies are available.

17/2/98

Despatched on 22/2/98

Documents accompg

40 copies of the report & Estimate referred to.

6

17/2/98