Revenue (1897) Department.

MISCELLANEOUS SERIES.

G.O., No. 4722

DATED 8 Sept

[Despatch Abstract.]

Communicating to the Board of Revenue Proceedings, Public Work Department, ordering that the report, plans and estimate of the Arcot-Ranipet Branch of the Madras Railway be forwarded to the Govt. of India.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

RAILWAY.

Government {1897} of Madras.

PUBLIC WORKS.

GOVERNMENT OF MADRAS
12 SEP 97
PUBLIC DEPARTMENT

Recd. } 1897. *Enclosures*

Regd. } *Spare copies*

trade ... It is proposed ... nion w...

G.O., No. 466 R., 15th July 1897.

... ras.

JULY.

To the Board of Revenue

Arcot-Ranipet Branch

Ordered that the report, plans and estimate of the — of the Madras Railway be forwarded to the Government of India with a letter.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Railway.

Read the following papers:—

Read—letter from the Collector and District Magistrate, North Arcot, to the Secretary to the Commissioners of Land Revenue, dated 17th April 1895, No. 10.

ENCLOSURES.

PETITION from the Residents and Merchants of Wallajapet, Ranipet and Arcot, to the Chief Secretary to Government, Fort St. George, dated Ranipet, 16th April 1895.

We have the honour to bring to your notice the great disadvantage which we, the residents and merchants of Wallajapet, Ranipet and Arcot, are put to by the Madras Railway running at a distance of from 6 to 8 miles from our towns. In the survey of the railway more regard was paid to political or other considerations than to commercial requirements, and, in avoiding large towns such as ours by the distances above mentioned, much traffic, which now goes by carts, would have been carried over the Madras Railway system.

Of the large traffic between Wallajapet, Ranipet, Arcot and Vellore scarcely any goes by rail. This is but one of the many instances which might be quoted in proof of the faulty [illegible] alignment of the line from a commercial standpoint. To send goods by rail several tr[illegible]shipments from cart to train and train to cart are necessary, thus causing dam[illegible] to goods which is now avoided by employing country carts, and which we would readil[illegible] Railway Company's revenue, if our at less cost to ourselves, and to the benefit of the Madras towns were connected with the main line.

Feeder lines have, we believe, been a success every[illegible]here, and in asking you to construct one from Arcot station to Arcot town through Wallaja[illegible]et and Ranipet we are confident it will not prove an exception. In addition to the traffic [illegible]s of Timery and Arnee and divert to the Madras the large sugar [illegible] grain growing [illegible] which now finds an outlet at Kalambur on the South Indian [illegible] new industry in the shape of a sugar factory is being started at Ranipet, which of itself will bring a traffic of over 100 tons per day.

In conclusion we would invite your attention to the census returns which show that in the last decade the population of Arcot and Wallajapet taluks has increased by close upon 70,000. The population of the towns in the immediate vicinity of the branch line asked for is 40,154. A large passenger traffic may therefore be calculated upon. We beg you will give our petition your early and careful attention.

Estimate of Traffic referred to.

	Tons per annum.
Inwards—	
Dry hides and skins	1,200
Tanning bark	1,800
Chillies	600
Salt	7,000
Piece-goods and sundries	7,000
Sugar works	28,700
Outwards—	
Ground-nuts	7,000
Grain	7,500
Oil cake	2,000
Oils, tanned hides, &c.	10,000
Sugar works	13,400
Total ...	86,200

Railway maunds 2,327,400.

Resolution—No. 2005, dated 22nd April 1895.

Submitted to Government.

(True Extract.)

(Signed) R. C. C. CARR,
Acting Secretary.

Endorsement No. 1692, Revenue.

Transferred to the Public Works Department (Railway).

(Signed) G. STOKES,
Ag. Secretary to Government.

29th April 1895.

From the Agent and Manager, Madras Railway Company, to the Secretary, Madras Railway Company, London, dated Madras, 18th April 1895, No. 2192.

* * * * *

7. I forward herewith for the information of the Board copy of a numerously signed petition addressed to the Madras Government, praying for the construction of a branch line from Arcot station to Arcot town through Walajapet and Ranipet. I also enclose copy of a letter from the Chief Engineer submitting a plan and estimate of the proposed line, as well as copy of a communication from the Traffic Manager furnishing notes and figures on the traffic prospects. The line should not in my opinion be extended across the river at first or until the trade between Arcot station, Walajapet and Ranipet has been tested.

Proposed branch line from Arcot station to Ránipéttai and Walajapet.

8. It is probable that the Government may address us shortly on the subject of the petition. The branch line in my opinion would be a valuable feeder to the South-West main line.

From the Consulting Engineer for Railways, to the Agent and Manager, Madras Railway, dated Madras, 24th April 1895, No. 1365.

With reference to paragraph 7 of your letter, No. 2192, dated 18th April 1895, to your Board, I have the honour to request that I may be furnished with information on the subject.

From the Agent and Manager, Madras Railway, to the Consulting Engineer for Railways, Madras, dated 2[illegible]th April 1895, No. 8314/414.

Referring to your letter, No. 13[illegible], dated the 24th instant, I have the honour to inform you that a copy of the petition addressed to the Madras Government praying for the construction of a branch line from Arcot station to Arcot town was furnished to me and transmitted to the Board by the last mail, no copy having been retained in this office. I enclose copies of the letters from the Traffic Manager and the Chief Engineer dealing, respectively, with the traffic prospects and cost of construction of the proposed line.

ENCLOSURES.

From the Traffic Manager, to the Agent and Manager, Ráyapuram, dated Madras, 26th February 1895, C. No. 1261 A. and M./23809.

[Your No. 8314/1534, dated 20th February 1895.]

On the 26th January I visited Arcot town, passing through Wallajapet and Ranipet in connection with the application for a branch line to the Ránipéttai Sugar Factory, but I was unable to send you a copy of my notes on the proposed branch until I had obtained certain maintenance figures from the Chief Engineer. I now have the pleasure to forward a copy of my notes and three statements A, B and C of the approximate financial results from such a branch. If we take Nellikuppam as an example the line should have brilliant prospects.

Notes on an application for a branch line from Arcot station to Ranipet.

The application for this branch line emanates from the Directors of the Commercial Bank, I understand, on account of the Arcot sugar works. The Arcot sugar works and distillery are being financed by the Commercial Bank and managed by Mr. Thorburn; and as approximately two-thirds at least of the goods traffic which may be expected to be carried over such a branch (if constructed) would be on behalf of these works, the extent of their traffic will decide whether such a project would give a satisfactory return on the necessary outlay. I passed through Wallajapet, Ranipet and Arcot on the 21st instant, but did not traverse the length of the proposed route as this can only be done on horse back or on foot, and I had not then the time to spare for commenting upon the proposed alignment, the chief object of my journey being the sugar factory at Ranipet.

2. At these works I was shown the foundations which are already laid for a new building to accommodate new machinery designed to double the output to commence with. This machinery, Mr. Thorburn informed me, has been ordered from England and should be fitted up in the new building and working before the end of 1895. October is named as the date for completion. Six months later according to the Manager the works will be in "full swing."

3. They are designed to turn out at the commencement 20 tons of refined sugar per day.

4. To manufacture 20 tons of refined sugar 46 tons of jaggery are required and this will, for a considerable time, come from Palghat, as large stocks are already being brought up in that district and stored, so that there need be no necessity for the machinery to stand idle for want of raw material on which to work.

5. To keep the machinery going 50 tons of wood or 25 tons of coal per day will be required.

6. At present 3 tons of molasses per day are being forwarded to Salem.

7. Also 40,000 gallons of spirit rum, commonly called arrack like the native commodity.

7.-A As shown on statement "A" attached the total receipts on this traffic would estimate of Rs. 9,509-2-0 for a period of 12 months.

8. Taking the South-West line passenger figures as a basis the receipts [illegible] a total of might be taken as Rs. 15,396 for the 7 miles and the goods traffic over t[illegible] should undoubtedly run across the river bed into Arcot town, for Rs. 30,000 (*vide* statement of foot passengers passing between Ranipet and Arcot, also between [illegible]ipet and there should be a good local passenger traffic between those places.

9. If th[illegible] there seven three towns would, in all probability, supply a very much larger area of the surWalla[illegible] country with grain and other merchandise if a railway passed through them; but, as [illegible] in the traffic canvasser's report of 20th August 1894, there is no particular production at the places themselves as far as weight is concerned.

11. At the last census the populations of the three towns were in 1891—

Wallajapet	10,485
Ranipet	8,000
Arcot	10,928

12. There is a large quantity of refined sugar imported into India from Mauritius and consequently there is an excellent market and a large profit to be made on sugar locally manufactured.

13. The Nellikuppam sugar factory has grown rapidly and from a population of 5,000 this has grown with the sugar industry to 35,000.

14. The South Indian receipts at Nellikuppam station have increased to a lakh and a half per annum for jaggery treacle and sugar traffic only.

15. The Directors of the Commercial Bank are said to look forward to the establishment of a large industry at Ranipet if railway facilities are given and the "works" will probably be turned into a company.

16. Statement "B" attached shows the approximate financial results of 7 miles of our south-west line on a capital of 4 lakhs, the estimated cost of this branch—*vide* paragraphs 7(*a*) and 8.

17. Statement "C" shows the approximate financial results based on the actual figures taken from Arcot station.

18. There is no reason, as far as I can see, why the Ranipet sugar industry should not grow as rapidly as did that of Nellikuppam.

A.

		Rs.	A.	P.
Refined sugar 6,000 tons or 163,333 maunds at 10 pies rate for 7 miles.	@ 2·59 pies per maund =	2,203	4	8
Jaggery 15,000 tons or 408,333 maunds at Palghat mileage 4·53 for 7 miles	@ 1.18 pies per maund =	2,509	8	9
Molasses 1,000 tons or 27,222 maunds at Salem mileage 6·02 for 7 miles.	@ 1 pie per maund =	141	12	6
Wood, fuel, 15,000 tons or 4,08,333 maunds at Ambur mileage 6·80 pies for 7 miles	@ 1·76 pies per maund =	3,743	0	10
Spirits, country, 480,000 gallons (10 lb. a gallon) or tons 2,142-17 or 58,333 maunds at 13·61 pies rate for 7 miles	@ 3 pies per maund =	911	7	3
	Total ...	9,509	2	0

B.

	Rs.	Rs.
Actual local coaching receipts of 7 miles the south-west line		15,396
Goods traffic at actual rates to and from the Ranipet Sugar Works (*vide* Traffic Manager's notes after visiting Ranipet, *vide* statement A)	9,510	
Estimated goods traffic (over the 7 miles) for the public generally	5,094	
	——	14,604
Total ...		30,000

Cost of working 7 miles is ·0028 of the remainder of system. Madras Railway earnings Rs. 1,03,92,255. Expenditure Rs. 53,19,183 Percentage of expenditure on the earnings is Rs. 51·2.

New line earnings Rs. 30,000. Expenditure Rs 15,360. Percentage of expenditure on the earnings is Rs. 51·2.

Receipts for 7 miles are ·0028 of the remainder of system.

Profit per cent. on a capital of 4 lakhs of rupees per annum is Rs. 3·7.

C.

	Rs.
Actual coaching traffic dealt with at Arcot calculated as for 7 miles.	25,747
Actual goods traffic dealt with at Arcot for 7 miles calculated at the average goods rate or 10 pies	9,990
Total ...	35,737

Cost of working 7 miles is ·0037 of the remainder of system. Madras Railway earnings Rs. 1,03,92,255. Expenditure Rs. 53,19,183. Percentage of expenditure on the earnings is Rs. 51·2.

New line earnings Rs. 35,737. Expenditure Rs. 19,620. Percentage of expenditure on the earnings is Rs. 54·9.

Receipts for 7 miles are ·0034 of the remainder of system.

Profit per cent. on a capital of 4 lakhs of rupees per annum is Rs. 4·0.

From the Chief Engineer, Madras Railway Company, to the Agent and Manager, dated 27th September 1894, No. 207/989 C.

[Plan and estimate of proposed branch line from Arcot station through Walajanagar and Ranipet to Arcot town.]

In compliance with your letter, No. 8314/6983 of 13th August 1894, I forward herewith an approximate estimate (Rs. 4,25,115) with plan and section of the proposed branch (7 miles long) from Arcot station to Arcot town passing through Walajanagar and Ranipet. The above figure gives the cost per mile as Rs. 60,731 including the value of land.

2. The proposed branch is necessarily somewhat tortuous, owing to the positions of Walajanagar and Ranipet in relation to the existing station at Arcot.

The distances are as follows:—

	MILES.
Arcot station to Walajanagar	3½
Walajanagar to Ranipet	2½
Ranipet to Arcot town	1
Total	7

In the alignment, curves of ½ mile radius and a ruling gradient of 1 in 100 have been secured; the average heights of bank and cutting are 8 feet and 3½ feet, respectively, and owing to the proximity of tanks and irrigated land a considerable amount of waterway will be necessary involving the construction of several bridges of 20 feet and 30 feet spans.

3. Provision has been made for a third-class station at Walajanagar, Ranipet and Arcot town and it is presumed that this will suffice at the outset. The cost of these, including the necessary junction arrangements at Arcot station, is estimated to cost Rs. 36,000.

4. It is not proposed to construct a bridge across the Pálár river (here half a mile wide), but to lay the line in the bed of the river close to, and on the upstream side of, the substantial masonry causeway already constructed by Government for the accommodation of carts. By covering the track in this position with broken stone, the permanent-way would be fully protected during floods, which would simply flow over the rails rendering the road impassable for short intervals during which the trains would have to stop at Ranipet as a temporary terminus. This interruption to traffic, it is anticipated, will not last for more than two or three days at a time, and the inconvenience will not be found serious.

5. As it is understood that no additional engines or rolling stock will be required for working this short branch, no provision under this head has been made. Fencing also has been omitted from the estimate as it is assumed that trains will run during the day only. Excluding the price of land, which will be provided free, the actual cost to the Company of the branch may be taken as Rs. 4,00,000 or Rs. 57,000 per mile approximately.

PROPOSED Line from Arcot Station to Arcot Town *viâ* Walajanagar and Ranipet.

Heads of accounts.	Total cost in rupees. Sub-heads. Total cost.	Sub-heads. Rate per mile.	Main heads. Total cost.	Main heads. Rate per mile.	Notes.
	RS.	RS.	RS.	RS.	
I. Preliminary expenses	..	..	2,800	400	
1. Survey expenses	2,800	400	..	..	
2. Plant					
3. Establishment					
II. Land	27,613	4,281	27,613	4,281	(6·45 miles).
III. Formation	..	..	80,211	11,459	
1. Earthwork	53,836	10,353	..	..	5·20 mile, average bank 8 feet.
2. Cutting laterite	18,875	15,100	..	..	1¼ mile only, average cutting 5½ feet.
3. Road diversion	7,500	5,000	..	..	1½ mile.

Proposed Line from Arcot Station to Arcot Town *viâ* Walajanagar and Ranipet—*cont.*

Heads of accounts.	Total cost in rupees. Sub-heads. Total cost.	Sub-heads. Rate per mile.	Main heads. Total cost.	Main heads. Rate per mile.	Notes.
	RS.	RS.	RS.	RS.	
IV. Bridge work	..	..	72,920	10,403	
1. Large bridges	14,500	26,364	..	..	0·55 mile only Pálár river bed; owing to dry weather traffic, no bridge is required and the permanent-way will be laid on a bed of dry rubble stone across bed of river.
2. Minor bridges	58,320	9,042	..	..	
V. Fencing	..	..	1,873	268	
1. Fencing	..	..	..	..	
2. Road crossing	1,600	229	..	..	Owing to day train service only, fencing is not required.
3. Mile and gradient post and boundary stones.	273	39	..	..	
VI. Electric Telegraph	2,380	340	2,380	340	
VII. Ballast and Permanent-way ..	..	..	1,81,125	25,875	
1. Ballast	29,645	4,235	..	..	Ballast consists of fine laterite and sand.
2. Permanent-way	1,51,480	21,640	..	..	
VIII. Stations and buildings ..	..	..	36,000	5,143	
1. Stations, offices and widening platform of Arcot station.	36,000	5,143	..	..	Three third-class stations at Rs. 10,000 each and widening platform of Arcot station, Rs. 6,000.
2. Staff quarters					
3. Station and machinery ..					
IX. Plant	..	..	12,250	1,750	
1. Engineering					
2. Locomotive	12,250	1,750	..	..	
3. Carriage and wagon ..					
4. Station and office furniture.					
X. Ferries, &c.	..	..	..	..	
1. Ferries	..	..	..	..	
2. Floating bridges ..	..	..	..	..	
XI. Rolling stock	..	..	..	..	
1. Locomotive	..	..	..	..	
2. Carriage and wagon ..	..	..	..	..	
XII. General charges	..	..	8,043	1,149	
1. Direction					
2. Engineering					
3. Stores	8,043	1,149	..	..	
4. Audit and accounts ..					
5. Medical and sanitation ..					
Total expenditure ..	..	..	4,25,115		
Length in miles ..	..	..	7·00		
Total rate per mile ..	..	..	60,731		

From the Under Secretary to the Government of India, Public Works Department (Railway Construction), to the Officiating Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, dated Calcutta, the 1st March 1897, No. 352 R.C.

With reference to the correspondence ending with Government of India letter, No. 24 R.C., dated 6th January 1897, I am directed to enquire when the results of the survey of the Arcot-Ranipet branch carried out in 1895-96 may be expected, as well as the results of the further survey recommended by the Consulting Engineer for Railways, Madras, and to request that the submission of the project may be expedited.

Endorsement No. 934.

Copy forwarded to the Agent and Manager, Madras Railway, for favour of early report, with reference to G.O., No. 28 R., dated 14th January 1897.

(Signed) F. D. FOWLER,
Offg. Consulting Engineer for Railways.

11th March 1897.

Reminder from the Secretary to the Government of India, Public Works Department (Railway Construction), dated Simla, the 13th April 1897, No. 352/1 R.C.

Extract from Agent's letter to Board, Madras Railway, dated 15th April 1897, No. 2304.

* * * * *

16. *Arcot-Ranipet Branch.*—I beg to forward a report (with plan) from the Acting Chief Engineer on the alignment which has been finally decided as the best for the proposed Arcot-Ranipet branch, about 4¼ miles in length. It will be observed that owing to recent modifications authorised in standard dimensions, the Acting Chief Engineer has been able to reduce the quantity of earth-work and bridging; and by using second-hand rails, the estimated cost per mile is now given as Rs. 56,715; or taking round numbers, it is calculated that the branch, including the short siding into the Distillery and Sugar Works can be constructed and equipped for Rs. 2,50,000, with the prospect of a return of over 7 per cent.

In paragraph 22 of your letter, No. 920, the Board state that they are prepared to construct this branch as part of the Madras Railway system, and propose to provide the necessary capital out of the Company's sterling borrowing powers by the issue of 3 per cent. debentures. Before, however, application can be made to Government to ascertain if the above terms will be accepted, it will be necessary first to obtain the Board's sanction and approval to the proposed outlay of Rs. 2,50,000. This, it is requested, may be communicated to me by telegraph by the words "Arcot construction sanctioned," if approved; or "Arcot not sanctioned," if not approved. This request is made to enable this project to be submitted in a complete form to the Government of India Conference by the 15th May next as prescribed by that Government.

Telegram from the Consulting Engineer for Railways, Madras, to the Agent and Manager, Madras Railway, dated 26th April 1897, No. 5-C.

From the Officiating Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, to the Secretary to the Government of India, Public Works Department, dated Ootacamund, 27th April 1897, No. 293 R.

With reference to your letter, No. 352-R.C., dated 1st March 1897, and subsequent reminder requesting early submission of the project for the construction of the Arcot-Ranipet Branch Railway, I am directed to state that the information required will be sent early next month when the Agent and Manager expects to receive his Board's reply on the subject.

From the Officiating Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, to the Secretary to the Government of India, Public Works Department, dated Ootacamund, 30th April 1897, No. 318 R.

In continuation of my letter, No. 293 R., dated the 27th instant, I am directed to forward a copy of a letter from the Agent and Manager, Madras Railway Company, No. 8314-401, dated the 27th April 1897, with its enclosures.

The enclosures consist of a report, No. 514-C., dated 13th April 1897, by the Company's Officiating Chief Engineer on the proposed short branch line to the Pálár river bank at Ranipet, just opposite Arcot City, together with a plan and an estimate of its cost.

The Agent still awaits his Board's sanction to the project, and as soon as I learn of their having replied to him I shall wire you the result.

Meanwhile it is thought advisable to send forward the information now available, in the belief that it will probably serve your present purpose, viz., the discussion of the scheme at the coming Conference. Should the proposed branch commend itself to the Board and to the Government of India it shall in due course, when ready, be sent forward in the prescribed project shape.

I am desired to add that, as regards this and all other projects for railway extension in this Presidency, the Government of India are being addressed in a separate letter in which the views of this Government, as to the advisability or otherwise of undertaking each of the projects, shall in due course be communicated.

ENCLOSURES.

From the Acting Agent and Manager, Madras Railway Company, to the Consulting Engineer for Railways, dated Madras, 27th April 1897, No. 8314/401.

With reference to your endorsement, No. 934, dated 11th March 1897, on letter from the Government of India, No. 352 R.C. of the 1st idem, I have the honour to forward herewith 90 copies of the report from the Acting Chief Engineer on the proposed branch line from Arcot to Ranipet, about 4¼ miles in length, together with eight copies of the plan. It will be observed that the estimated cost per mile is now given as Rs. 56,715 or the total cost of the branch is in

round numbers estimated at Rs. 2½ lakhs of rupees, with the prospect of a return of over 7 per cent. I have submitted copies of the report to my Board with the request that their sanction to it may be communicated to me by telegraph.

From the Acting Chief Engineer, to the Acting Agent and Manager, Madras Railway Company, dated Madras, 13th April 1897, No. 514 C.

Arcot-Ranipet Surveys.

In accordance with the request contained in your No. $\frac{8314}{3917}$ of 10th current, I beg to submit the following report on the Arcot-Ranipet Surveys.

2. During the past two years several projects for the extension of the Madras Railway to Ranipet on the north bank of the Pálár river have been investigated but, owing to the large outlay which their construction would involve, only three of the several schemes—distinguished in this report as Branch A, Branch B and Branch C—are practicable.

3. Branch A is a proposal for a line leaving Arcot station at the east end proceeding south to Walajanagar and then running west to a terminus at Ranipet, the total length of the line being 6·02 miles and the estimated cost, including a provision of Rs. 88,000 for rolling stock, Rs. 6,83,559 or Rs. 1,13,544 per mile.

4. Branch B is a scheme for a direct line from Arcot station to Ranipet as suggested by Mr. Hodson, when Consulting Engineer for Railways to the Government of Madras. The length of this branch would be only 4·17 miles, but the earthwork would be heavy and the cost of bridging considerable. Comparative estimates for this route are shown in the statement attached, the 1st includes rolling stock and new rails and amounts to Rs. 4,60,693 or Rupees 1,10,478 per mile; the 2nd omits rolling stock, and certain portions of the station machinery stated by the Locomotive Superintendent and Acting Traffic Manager to be unnecessary and allows for the road being laid with second-hand rails. The latter estimate is thereby reduced to Rs. 3,43,137 or Rs. 82,287 per mile.

5. Branch C is a route, proposed by Mr. E. W. Stoney when Acting Chief Engineer, possessing material advantages over each of the projects referred to above. The line runs along the watershed following closely the existing public road from Arcot station to Ranipet and, owing to this very favourable alignment, the earthwork is exceedingly light and the bridging, with the exception of 1—20 feet and 1—30 feet opening, is confined to small culverts and pipe drains.

The length of this line is 4·35 miles, the ruling gradient being 1 in 100 and the sharpest curve 1,200 feet radius.

The banks will be constructed to a top width of 16′-6″, the Government of India having recently issued revised standard dimensions which permit of banks being reduced from 20 feet to this width at formation level.

The gauge of the line will be 5′-6″ and the permanent-way will consist of 20 feet iron double-headed rails (second hand) weighing 84 lb. per lineal yard with new pot sleepers, tie bars, cotters and gibs. An ample supply of sand ballast is available at the Poiney river at 71¼ miles on the Madras Railway, moorum gravel also being procurable in the vicinity of the proposed line.

6. There will be two stations only—the Junction at Arcot and the new station at Ranipet. At the former only such additions and alterations will be made to the existing Madras Railway station as will enable it to be used for the two lines and will be required for the proper interchange of traffic. On the opening of the proposed branch most of the passenger and goods traffic now received at Arcot station will be transferred to Ranipet and it will therefore be possible to remove some of the sidings and dismantle a portion of the buildings at the former station and utilize the materials for the new works.

At Ranipet it is intended to construct a permanent station house, platform 600 feet in length, goods godown and loading platform, quarters for the station staff and the siding accommodation necessary to deal with the whole of the traffic anticipated. If approved, the proprietors of the Arcot Sugar Works also desire to construct at their own cost the siding into their works shown on the plan accompanying this report.

7. The [illegible] estimate for this branch is Rs. 2,46,712 or Rs. 56,715 per mile and assuming that the following figures, given by the Acting Traffic Manager in his letter, No. C/1261 A. and M. of 15th March 1897, of probable traffic returns are correct:—

(1) Actual coaching traffic dealt with at Arcot calculated as for 5 miles—$\frac{5}{7}$ of Rs. 25,747 = Rs. 18,391

(2) Actual goods traffic *exclusive of that appertaining to the Sugar Works*—$\frac{5}{7}$ of Rs. 8,618 = Rs. 6,156

(3) Goods traffic in connection with the Sugar Works guaranteed by Mr. Thorburn (*vide* his letter, No. S/2814, dated 23rd November 1896) ... ... Rs. 15,000

Total Gross Earnings ... Rs. 39,547

Less—Working expenses at 51·2 of earnings, as on the Madras Railway ... ... Rs. 20,248

Net Receipts ... Rs. 19,299

the net earnings calculated at Rs. 19,299 would give a return of 7·82 per cent. on the Capital outlay.

8. A comparative statement showing abstracts of the estimates for the three branches, and plan and section of Branch C are attached.

(Signed) H. J. THOMPSON, M.I.C.E.,
Acting Chief Engineer.

Arcot-Ranipet Extension 5′ 6″ Gauge.

Comparative Statement showing Abstracts of Estimates.

Alternative Routes.

Head of Accounts.	Branch A, 6·02 miles.		Branch B (Proposed by Mr. Hodson). Original estimate 4·17 miles.		Branch B (Proposed by Mr. Hodson). Revised estimate omitting rolling-stock, &c., 4·17 miles.		Branch C (Proposed by Mr. Stoney). Estimate, 4·35 miles.	
Preliminary expenses. ..	1,678	Department with Public Works Department Circular No. 5, Railway of 1892. All the Permanent-way materials are taken as new.	1,164	Department with Public Works Department Circular No. 5, Railway of 1892. All the Permanent-way materials are	1,164	Department on the 7th new pots, ive station d in Traffic Locomotive	1,214	accordance Receiv- sts of 2nd tock omit- ggestions February
Land	40,787		20,502		20,502		4,284	
Formation	1,20,203		95,094		92,341		30,022	
Bridge work	1,04,055		34,652		34,652		13,957	
Fencing	37,255		1,481		1,481		1,481	
Road crossing ..			7,809		7,809		3,408	
Mile and Gradient Posts ..			160		160		207	
Electric Telegraph	5,217		3,250		3,250		2,934	
Ballast	51,574		20,423		17,463		17,598	
Permanent-way	1,65,697		1,40,227		1,24,428		1,35,271	
Stations and offices	18,810		10,390		10,390		10,390	
Workshop and Store buildings.	814		404		404		404	
Staff Quarters	8,392		5,063		2,071		2,071	
Station Machinery	20,649		13,956		8,904		8,904	
Plant, Engineering	2,142		2,142		2,142		2,142	
Station and office furniture ..	3,885		1,575		1,575		1,575	
Rolling-stock	88,000		88,000		..		..	
General charges	14,401		14,401		14,401		10,800	
Total ..	6,83,559		4,60,693		3,43,137		2,46,712	
Rate per mile ..	1,13,544		1,10,478		82,287		56,715	

MADRAS,
13th April 1897.

(Signed) H. J. THOMPSON, M.I.C.E.,
Acting Chief Engineer.

From the Consulting Engineer for Railways, Madras, to the Agent and Manager, Madras Railway Company, dated Ootacamund, 30th April 1897, No. 7/O.

I have the honour to acknowledge the receipt of your letter No. 8314/401, dated the 27th April 1897, and to inform you that a copy of your letter and of its enclosures has gone forward to the Government of India so that it may be considered at the coming Conference. I shall be glad to be informed by wiro of your Board's views as soon as you receive them.

Meanwhile will you be good enough to put Mr. Stoney's 2½ lakhs project into the regular project form furnished by the Government of India, with such modifications of his figures as are necessitated by your entering the Arcot station, as indicated in the latest map and as agreed to at our verbal discussion on the subject.

From the Acting Agent and Manager, Madras Railway Company, to the Consulting Engineer for Railways, dated Madras, 10th May 1897, No. 8314/450.

With reference to your letter, No. 7/O., dated 30th ultimo, I have the honour to inform you that as desired in paragraph 1 of your letter, I advised you by telegraph this morning that I had received from the Board a telegram informing me that the Arcot construction had been sanctioned. This telegram I understand to mean that they approve of Mr. Stoney's proposals for the construction of the Arcot-Ranipet branch at an estimated expenditure of Rs. 2,50,000. Will you kindly advise the Government of India of the receipt of this sanction from the Board?

The estimate is being prepared in the regular project form for the information of Government as desired by you.

From the Officiating Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, to the Secretary to the Government of India, Public Works Department, dated Ootacamund, 12th May 1897, No. 338 R.

In continuation of my letter No. 318 R., dated the 30th April 1897, on the subject of the Arcot Branch, Madras Railway, I am desired to forward, for the information of the Government of India, a copy of a telegram, dated 10th May, from the Agent, Madras Railway Company, intimating that the Board have sanctioned the branch.

2. The opinion of this Government in regard to the proposed branch has been communicated to you in paragraph 5 of my letter No. 332 R., dated the 10th May 1897.

3. This Government will be glad to learn of the Government of India's general approval of the adoption of the cheapest scheme, viz., that proposed in the last column of page 5 of the enclosure to the Madras Railway Company's Agent's No. 8314/401 of April 27th, which reached you under cover of my letter above referred to.

4. Meanwhile the Agent has been requested to put this last scheme into regular project shape with full details showing his proposals for entering Arcot station.

5. As regards the provision of funds for this short branch, I am to say that it seems scarcely worth while to incur the trouble and expense involved in the levying of the Separate Revenue accounts which will be necessary if it be decided that it must come under the new, or what may be called the Calicut-Cannanore term.

ENCLOSURE.

Telegram from the Acting Agent and Manager, Madras Railway Company, to the Consulting Engineer for Railways, dated Rayapuram, 10th May 1897.

Have received Board's telegram sanctioning construction of Arcot-Ranipet branch. Letter follows.

From the Under Secretary to the Government of India, Public Works Department (Railway Construction), to the Officiating Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, dated Simla, the 22nd May 1897, No. 855 R.C.

With reference to your letter No. 318 R., dated 30th April 1897, forwarding an approximate estimate for the Arcot-Ranipet branch, I am to point out that if the length of the line be taken as 5 miles for charge and the passenger fares 1½ pies per mile and the goods rates 12 pies per ton, 470,809 passengers and 67,699 tons of goods would have to be carried to work up to the estimated earnings of Rs. 18,391 and Rs. 21,156, respectively.

2. As the outwards and inwards traffic at Arcot in 1896 (from the Madras Railway revenue statistics) amounted to 318,498 passengers and 925,300 maunds (34,270 tons) of goods, I am to ask that the traffic estimate may be reconsidered and this large increase justified, the method of calculation being also explained.

3. It would *primâ facie* appear more probable that a portion at least of the passengers would continue to walk to the junction.

No. 46/O., 4th June 1897.

Copy forwarded to Agent and Manager, Madras Railway, for favour of remarks with reference to his letter, No. 8314/401, dated 27th April 1897.

From the Acting Agent and Manager, Madras Railway Company, to the Consulting Engineer for Railways, dated Madras, 1st June 1897, No. 8314/523.

With reference to paragraph 2 of your letter No. 7/O., dated 30th April 1897, I have the honour to submit the plan and estimate of the Arcot-Ranipet branch in the regular form prescribed by the Government of India.

2. The documents accompany this letter consist of —

Index plan and section to scale of 1 inch to 1 mile.
Plan and section to the scale of 400 feet to 1 inch.
Plan showing junction arrangements at Arcot to the scale of 100 feet to 1 inch.
} Bound up in one book.
Ninety copies of the report and estimate of the cost of construction.

3. I shall be glad to be favoured with the early instructions of Government conveying sanction for the construction of this branch, to which the Board have accorded their approval, which is communicated in paragraph 13 of the Secretary's letter No. 953 of 7th May 1897, a copy of which is attached for your information.

ENCLOSURE.

Extract from a letter from the Secretary, No. 953, dated 7th May 1897.

13. *Arcot-Ranipet Line.*—Adverting to paragraph 16 of No. 2304, with which you forward a report (with plan) from the Acting Chief Engineer on the proposed Arcot-Ranipet line, I am directed to say that the Board entirely approve the direct and simple alignment now fixed upon by Mr. Stoney—it follows closely the public road, is understood to form almost a surface line, and is estimated to cost Rs. 57,000 a mile. At this rate the whole expenditure for the 4½ miles will amount to about to 2½ lakhs.

Subject to the approval of Government, the Board sanction the construction of this short branch as part of the system of the Madras Railway.

As to the provision of the necessary funds for its construction, the amount to be provided will not exceed £16,000. This Capital can be raised by the issue of Guaranteed Debentures. The question of exchange is of insignificant importance, and it is improbable that the Government will desire the same terms to be carried out at those agreed upon for the Calicut-Cannanore Extension, or that the Company will be required to keep separate Capital and Revenue accounts for so small an affair. At the same time the Board are quite prepared to consider any proposals the Government may think fit to make in this direction.

The following telegram was this day sent to you with reference to the above:—

"Arcot construction sanctioned."

(True Extract.)

(Signed) H. C. WEST,
Acting Agent and Manager.

From the Consulting Engineer for Railways, Madras, to the Agent and Manager, Madras Railway Company, dated Ootacamund, 10th June 1897, No. 54/O.

I beg to acknowledge the receipt of your letter, No. 8314/523, dated the 1st June 1897, submitting the Arcot-Ranipet project and in reply to remark as follows.

2. I return the tracings and shall be glad if you can see your way to alter the Arcot junction arrangements as roughly sketched in pencil (with 300 feet curves for 1 in 8½ crossings, or nearest). The object of this alteration is that the facing points far out on the main line in the Madras direction may be got rid of, and that vehicles may be easily shunted and marshalled from the branch to any one of the main line sidings with the minimum of block to the main line traffic. If the temple must be left intact your Chief Engineer will doubtless be able so to arrange things. All that I specify for is that the points on to the main line may be trailing as shown in pencil, and as new as may be to the present last facing points.

3. The siding which I have marked A in pencil seems to me to be objectionable. A few hundred feet of piping from the tanks to a water column on this branch ought to obviate the necessity of branch engines crossing over by that route and so fouling the main line. This branch engine could apparently do all shunting necessary on the main line sidings ready for the branch traffic to be taken in charge by the main line engines, and this can apparently be all stone *viâ* the last cross over as shown in pencil near the temple.

4. Signals will need corresponding alteration, and I shall be glad of a memorandum of the necessary modification of the estimate, as well as of the probable cost of a small branch engine shed, which will apparently be needed. If, as seems probable, it is your intention to work the branch with a tank engine, no turn-table will be necessary.

5. It seems to me that hereafter the branch terminus must be called Arcot, and that the junction, a place in the future of very minor importance might be called Ammur junction.

From the Acting Agent and Manager, Madras Railway Company, to the Consulting Engineer for Railways, dated Madras, 18th June 1897, No. 584.

In reply to your endorsement No. 46/O., dated 4th June 1897, on letter from the Government of India, No. 855 R.C., dated 22nd May 1897, I have the honour to forward herewith copy of a letter, dated 15th instant, with enclosures from the Company's Traffic Manager in which the information called for is furnished.

I would refer you to this office letter, No. 8314/414 of the 29th April 1895, in reply to your No. 1365 of the 24th idem.

ENCLOSURES.

From the Acting Traffic Manager, Madras Railway Company, to the Acting Agent and Manager, Rayapuram, dated Madras, 15th June 1897, No. A. 6/1261/29701 A. and M.

With reference to your endorsement No. 8314 of 11th instant, on Memorandum No. 46 O., dated 4th June 1897, from the office of the Consulting Engineer covering copy of letter from the Government of India, Public Works Department, No. 855 R.C., dated 22nd May 1897, to the Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, I beg to inform you that the figures shown in paragraph 1 of the Government of India's letter, viz., Rs. 18,391 and Rs. 21,156 for passenger and goods traffic, respectively, are based upon the statement C which accompanied Mr. Read's notes sent you with this office letter of 26th February 1895 and which relate to the period from 1st July 1893 to 30th June 1894, revised however to include the goods traffic guaranteed by the Arcot Sugar Works. I attach a statement (A) showing in detail how the figures were arrived at.

2. As regards paragraph 2 of the Government of India's letter I find in taking the 1896 figures and working them out on the same basis, that a sum of Rupees 39,028 is arrived at or practically the same as the figures quoted. The figures are shown in detail in statement (B) enclosed.

3. The passenger fare taken has been 2 pies per mile that being the present third-class fare. Our experience of Coimbatore and Palghat, which are branches under much the same conditions, does not show that any considerable proportion of the passengers walk from the junction. I think the figures of Rs. 15,000 for the sugar factory traffic is well within the mark and when railway communication to their door is provided, it will probably be largely increased

STATEMENT A.

As per statement C enclosed with letter of 26th February 1895.

(*Period 1st July* 1893 *to 30th June* 1894.)

	Rs.	Rs.
1. Actual coaching traffic dealt with at Arcot calculated as for 7 miles.	25,747	
2. Actual goods traffic dealt with at Arcot for 7 miles calculated at the average goods rate or 10 pies.	9,990	
Total ...	35,737	

Details.

1. First-class passengers 141 at 12 pies per mile for 7 miles ...	62	
Second-class passengers 494 at 6 pies per mile for 7 miles ...	108	
Third-class passengers 350,774 at 2 pies per mile for 7 miles ...	25,577	
Total ... No. 351,409	25,747	
2. Total weight of goods traffic in and out of Arcot station, 27,400 tons at 10 pies per ton per mile for 7 miles	9,990	

Revised Figures.

	Rs.	Rs.
1. Actual coaching traffic dealt with at Arcot calculated as for 5 miles $\frac{5}{7}$ of ...	25,747	18,391
2. Actual goods traffic dealt with at Arcot as per statement in other column ...	9,990	
Less actual sugar works traffic 3,762 tons at 10 pies per ton per mile for 7 miles ...	1,372	
As for 5 miles $=\frac{5}{7}$ of	8,618	6,156
3. Goods traffic for sugar works guaranteed		15,000
		39,547

STATEMENT B.

(*Period 1st January* 1896 *to 31st December* 1896.)

Total number of passengers to and from Arcot station.

		Rs.	Rs.
First-class number	621 at 12 pies per mile	...	194
Second-class number	1,082 at 6 pies per mile	...	169
Third „ „	3,16,795 at 2 pies per mile	...	16,500
Total No. ...	318,498		16,863

Weight of goods traffic in and out dealt with at Arcot.

	Rs.
Total tonnage of goods	34,270
Less sugar works traffic	6,757
Actual goods traffic exclusive of that belonging to the sugar works 27,513 tons at 10 pies per mile for 5 miles	7,165
Goods traffic for the sugar works guaranteed	15,000
Total ...	39,028

From the Under Secretary to the Government of India, Public Works Department (Railway Construction), to the Officiating Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, dated Simla, the 11th June 1897, No. 982 R.C.

With reference to your letter No. 338 R., dated 12th May 1897, I am directed to convey the general approval of the Government of India to the adoption of the cheaper scheme proposed for the construction of the Arcot-Ranipet branch of the Madras Railway, viz., for the line 4·35 miles long at a cost of Rs. 2,46,712 being at the rate of Rs. 56,715 per mile.

2. I am to request that, in submitting this scheme for a cheap line in regular project shape, care may be taken that the traffic statistics asked for in Government of India letter, No. 855 R.C., dated 22nd May 1897, may be accurate and reliable and accepted by the Government of Madras before being furnished to the Government of India.

3. The question asked in paragraph 5 of your letter will be considered on receipt of the views of the Board of Directors on the subject.

From the Consulting Engineer for Railways, to the Agent and Manager, Madras Railway, dated Ootacamund, 30th June 1897, No. 80/O.

With reference to your letter, No. 584, dated 18th June 1897, and enclosures, I have the honour to remark that the sugar works traffic, estimated at Rs. 15,000, is said to be "guaranteed."

In your Traffic Manager's letter, which formed an enclosure to your letter, No. 8314/414, dated 29th April 1895, it is stated that the application for the branch line emanated from the Directors of the Commercial Bank on behalf of the Arcot Sugar Works. But it is nowhere stated that either of these bodies had agreed to guarantee any particular sum.

Further, statement A which accompanied your 8314/414 puts the sugar traffic to be expected at Rs. 9,509 instead of Rs. 15,000 as stated in your letter under reply. I shall be glad if you will give me full information as to the nature and amount of the guarantee above-mentioned and of its legal value, if any.

I may add that a letter has been received from the Government of India approving generally of the cheaper scheme for the branch. I now await your reply to this present letter as well as to my No. 54/O., dated the 10th June 1897.

From the Acting Agent and Manager, Madras Railway, to the Consulting Engineer for Railways, dated Madras, 1st July 1897, No. 8314/615.

Adverting to your letter, No. 54/O., dated 10th June 1897, I have the honour to return the tracings of the Arcot-Ranipet extension, the plan of the Arcot Junction station having been revised in accordance with your request.

2. In re-submitting these plans the Acting Chief Engineer writes as follows:—

"With regard to these alterations I may say that the small temple shown on the plan is still used for the purposes of worship and it is very improbable that its demolition would be sanctioned. By slightly reducing the width of the island platform at the east end, the temple can be avoided, and this arrangement has been adopted in the revised plan submitted.

"The Acting Traffic Manager has agreed to the removal of the cross-over road included in the original plan to connect the main line and branch at the west end of the station, although he considers it possible that this connection may ultimately be found necessary to facilitate interchange of traffic.

"On reference to the plan it will be seen that, if the west cross-over were retained on arrival of a branch train, the engine could run ahead with the goods wagons and back them down the main line to a storage siding at the west end of the station, pick up its return load and back over the west cross-over direct on to the passenger vehicles at the branch platform, whilst in the absence of the western connection a long shunt has to be effected to get the return load of goods wagons round the passenger carriages.

"With regard to the engine shed, the Locomotive Superintendent stated that it was not necessary but I have now, as requested by the Consulting Engineer, provided for an engine shed with ash-pit and water column.

"The shed would be of the same type as that at Bowringpet, but with brick in lieu of zinc walls to reduce cost. It would accommodate two tank engines, it being proposed to use this class of engine for working the branch.

"With regard to the question of cost, the total estimate may remain unaltered, the savings on account of earthwork and bridges at the east end of the station practically covering the entire cost of the engine shed as follows:—

		Rs.
Savings—		
Earthwork		2,644
Bridges		4,980
	Total ...	7,624
Additions—		
Extending 12-feet bridge		1,799
Two 18-inch pipe drains		278
Engine shed, 70 feet in length, with ash-pit		5,395
Water column and piping		422
	Total ...	7,894
	Deduct Savings ...	7,624
	Difference ...	270"

3. I would suggest that the name Arcot Junction be retained until such time as the branch is extended to Arcot town.

4. I shall feel much obliged by your informing me if the plans now meet with your approval and, if so, I request that the sanction of the project by Government may be communicated to me at an early date.

From the Acting Agent and Manager, Madras Railway, to the Officiating Consulting Engineer for Railways, dated Madras, 2nd July 1897, No. 8314/621.

In reply to your letter, No. 80/O., dated 30th ultimo, I have the honour to inform you that since my letter, No. 8314/414, dated 29th April 1895, was written Mr. G. Thorburn, Agent, the Arcot Sugar Works and Distilleries, wrote on the 23rd November 1896 to the Company's Acting Chief Engineer with reference to the probable receipts of the branch line as follows:—

"I know my principals are willing to guarantee your Company a traffic of Rs. 15,000 (fifteen thousand rupees) per annum for a siding on to the main line, bringing it any way you please."

ORDER—No. 466 R., dated 15th July 1897.

Ordered that the report, plans, sections and estimate of the Arcot-Ranipet branch of the Madras Railway be forwarded to the Government of India with the following letter.

[Here enter No. 467 R., dated 15th July 1897].

(True Extract.)

F. Foulkes

Under Secretary to Government,
Railway Branch.

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

Exd. W. D'Moss.

When given for copying ____
When copied ____ } 189
When examined ____
When signed ____

READ AGAIN G.O., No. DATED
189

ENCLOSURES TO C. No.

ORDER OF GOVERNMENT	.. .. ..	A	A	A	A	A	A	A
LETTER OF GOVERNMENT.								
STATEMENT WITH DITTO.								
PAPERS NOT FILED UP, BEING MEANT FOR DESPATCH IN ORIGINAL.								

N.B.—
A = Copy in full.
B = Not to be copied.
P = Copy abstract only.
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