28th October 1884, No. 963 I., Public Works.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

From J. W. RUNDALL, Esq., Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated Bezváda, 18th March 1884, No. 1088 N.L.

I have the honor to forward, herewith, the completion estimates for the Pennér anicut system, which amount to Rs. 1,75,000 under I. Works.

2. The works proposed are fully described in the accompanying report.

3. There is some difficulty in preparing a correct capital account of the system as the figures relating to expenditure on current sanctions given by the Executive Engineer differ from those recorded by the Examiner and printed in the administrative accounts for 1882-83. The Executive Engineer's accounts give a total of Rs. 5,162 more than the Examiner's.

4. The classification adopted by the Examiner differs altogether from the classification approved by you and embodied in the printed list of component works. I have, taking the Executive Engineer's figures, re-classified all the sanctioned works and prepared a statement showing the expenditure under the correct main and sub heads. I have forwarded copies of this revised classified abstract to the Examiner, with a view to his correcting the Executive Engineer's figures and furnishing you with a correctly classified capital account.

5. According to the revised narrative statement 1, page 11, expenditure to the extent of Rs. 1,69,656 has been incurred over and above the authorised sanctions of the Government of India.

6. The detail of this sum by departmental heads are shown below.

—	Expenditure.	Sanction.	Requiring Sanction.
	RS.	RS.	RS.
I. Works	11,14,339	10,77,387	36,952
II. Establishment	2,78,585	1,59,073	1,19,512
III. Tools and plant	27,858	22,746	5,112
IV. Suspense account	8,080	...	8,080
	14,28,862	12,59,206	1,69,656

As regards the excess on works, the comparative statements prepared by the Executive Engineer show that there is an excess of Rs. 25,559 on the anicut extension. His accounts also show an excess of Rs. 17,456 on the estimate of Sarvapalli project, but from this, I conclude that, the sum of Rs. 5,162 will have to be deducted.

7. I have prepared the required forecast statements, and have forwarded copies of them, together with extracts from my report regarding water-supply, cultivation, and anticipated returns, to the Collector of Nellore. If the Collector accepts my figures, I have asked him to sign and forward the statements to you. Copies of these forecast statements are also sent herewith.

8. As stated in the report, it is proposed to sell the right of occupancy of certain tanks. The Collector of Nellore considers that Rs. 15 per acre may be realised. I have not made any deduction from capital outlay in the forecast statements on this account, as the statements do not provide for such entries being exhibited.

9. From forecast statement No. IV it will be seen that, supposing the works now estimated for be completed in 1888-89, and the full increase in cultivation be reached

in 1892-93, the work will, by the end of 1898-99, have repaid Rs. 9,27,296 to the treasury in addition to all charges. If the sum on which interest is charged were diminished each year by the surplus of revenue over charges, it would probably be shown that the whole capital expenditure had been repaid long before the date to which the forecast statement is carried.

10. I regret the delay which has occurred in preparing these estimates. I received those relating to the Nellore anicut and its subsidiary works in December last; the subsequent delay has occurred in compiling the estimates for the Nellore tank supply channel ordered by you in January last. I have made a few alterations in Captain Henderson's proposed arrangements, which are explained in the report. I send up Captain Henderson's original reports, in case you wish to refer to them.

ENCLOSURES.

List of plans and estimates, &c., connected with the Pennér anicut system completion estimate, to accompany Superintending Engineer's letter, No. 1088 M., dated 18th March 1884, to the Chief Engineer for Irrigation.

Description.	ENCLOSURES TO LETTER QUOTED ABOVE.				DETAINED IN THE SUPERINTENDING ENGINEER'S OFFICE.		
	Plans.	Detailed estimate.	Abstract estimate.	Statements.	Plans.	Detailed estimate.	Number on estimates.
General plan of delta	1	...	...	...	...	...	...
Plan of part of Pennér delta	1	...	...	...	...	...	...
Longitudinal and cross sections. Main canal ..	1	...	2	...	...	1	53
Longitudinal and cross sections. Sarvapalli canal.		1	2	...	...	...	53/10
Plan of shutter with screw gearing for main head-sluice	1	1	2	...	...	...	53/1
Mileage statement	...	...	...	1	...	...	...
Regulator at head of Jaffer Sahib's canal ...	...	...	1	...	1	1	53/2
Mileage statement	...	...	...	1	...	...	...
New regulator at workshop	...	...	2	...	1	1	53/4
New bridge and regulator at Ranganaikulupet	...	...	2	...	1	1	53/5
Stonehousepet bridge	...	...	1	...	1	1	53/6
Iron girder accommodation bridge proposed to be built at Kondiapálem	...	...	3	...	2	2	53/7
Culvert proposed to be built at Kondiapálem	...	...	1	...	1	1	53/8
Surplus sluice enlarging	...	...	2	...	1	1	53/9
Compensation for land	...	...	1	...	...	...	53/3
Mileage statement	...	...	...	1	...	...	...
Bridge near Tallapudi	...	...	1	...	1	1	53/11
Weir at Mulumudi	...	...	2	...	...	...	53/13
New regulator at head of Nellore tank supply channel	...	...	2	...	1	1	53/14

List of plans and estimates, &c., connected with the Pennér anicut system, &c.—*cont.*

Description.	ENCLOSURES TO LETTER QUOTED ABOVE.				DETAINED IN THE SUPERINTENDING ENGINEER'S OFFICE.		
	Plans.	Detailed estimate.	Abstract estimate.	Statements.	Plans.	Detailed estimate.	Number on estimates.
Weir below head of river channel No. 2 ...	...	...	1	...	...	...	53/15
Weir on rock at head of new cut	...	...	1	...	...	...	53/16
Removing and rebuilding left wing of weir No. 4	...	...	1	...	...	1	53/17
Providing shutters and screw gearing for Nellore tank head-sluice	...	...	1	...	1	1	53/18
Lowering Nellore tank west weir from 66·14 to 64·5 and providing new post and shutters	...	...	1	...	...	1	53/19
Nellore tank supply channel longitudinal and cross sections	6	1	2	...	...	...	53/20
Mile and bench mark stones	...	...	1	...	...	...	53/21
Compensation for land	...	...	1	...	...	...	53/12
Mileage statement	...	...	...	1	...	...	...
Bridge over Kodur channel	...	...	1	...	1	1	53/22
Do. on Vullur channel	...	...	1	...	1	1	53/23
Sarvapalli channel head-sluice	...	...	1	...	1	1	53/24
Surplus weir	1	1	2	...	...	...	53/25
Mileage statement	...	...	...	1	...	...	...
Compensation for land for drain	...	...	1	...	...	...	53/26
Longitudinal and cross sections of main drain	3	1	2	...	...	...	53/27
Classified abstract	...	...	...	1	...	...	...
Forms of Forecast on Estimates of Financial Prospects.							
Forms Nos. I and II	...	...	...	1	...	...	...
Form No. III	...	...	...	1	...	...	...
Do. IV	...	...	...	1	...	...	...
Capital account No. 2	...	...	...	1	...	...	...
Statement showing the amount of the estimate by main and sub heads	...	...	...	1	...	...	...
Superintending Engineer's report with four appendices, A, B, C, D.	...	...	...	5	...	...	...
Specification report of Nellore tank supply channel	...	...	...	1	...	...	...
Specification report of Pennér anicut system	...	...	...	1	...	...	...
Executive Engineer's reports	...	...	...	2	...	...	...
Total ...	14	5	41	20	14	17	...

Report on completion estimates of the Pennér anicut system, by the Superintending Engineer, II Circle, dated Bezváda, 18th March 1884.

The estimates now submitted are for carrying out all work known to be required in connection with the above system.

2. The works comprising the system consisted originally of the anicut near Nellore, and the channels and tanks supplied by its means. The history of the works is to be found in the narrative printed with proceedings of Madras Government, No. 1012 I., of 15th December 1882.

3. The reasons which led to the inclusion in the system of the Nellore tank are detailed in paragraphs 16 and 17 of this narrative. The order finally deciding on the Nellore tank being a part of the system is No. 835 I. of 19th October 1882.

4. The accounts of the system have now been revised to exhibit the financial results of this arrangement, and have been published with proceedings of Madras Government, No. 903 I., of 13th November 1883. In the present estimates, such works as are required to complete the tank and its supply channel have been included.

5. The works for which estimates are now forwarded will be described *seriatim*.

6. *Head Works : Rs.* 1,43,751.—This sum represents the actual cost of the extension of the anicut, after it had been damaged by the flood of October 1874. The original estimate of the cost of the extension was Rs. 1,24,470, of which Rs. 1,15,610 were for I. Works, and Rs. 8,860 for III. Tools and Plant. The total expenditure amounted to Rs. 1,56,793, of which Rs. 1,41,170 were for works and Rs. 15,623 for tools and plant.

G.O., No. 1738, of 19th June 1875.

7. There was therefore a total excess of Rs. 32,323 above the original sanction. The actual cost of the work, including Rs. 2,582 carried out on separate sanction, has been embodied in the capital account, but no further expenditure on capital account is proposed in connection with the anicut.

8. (2) *Main Canals and Branches—Main Canal.*—Providing shutters with screw gearing to the main head-sluice, Rs. 10,315.

9. For reasons which will be described under water-supply, the sill of the head-sluice will be raised 1 foot. The estimates of 1867 allowed for lowering the sill of the original head-sluice 2 feet and for constructing an additional head-sluice, which was provided with screw gearing shutters; but the original main head-sluice is still left with clumsy and unworkable baulk shutters, put up thirty years ago. The consequence is that scarcely any regulation of this main head-sluice is possible during heavy freshes. The shutters proposed to be fixed are of Major Brockman's pattern, and similar to those recently fixed for the head-sluice at the Sangam anicut.

10. *Main Canal Improvements, Rs.* 7,500.—The principal work required to this canal is due to the work not having been carried out to proper level in working out the estimate of 1867. The canal is to have a fall of 1 in 6,666 (= 0-9½ inches per mile) and a bottom width of 75 feet. The discharge with various depths of water is given in the accompanying table (appendix A).

11. *Jaffer Sahib's Canal : Alterations to Regulator, Rs.* 2,360.—This is the only work proposed in connection with this canal. The estimate provides for lowering the floor of the regulator from + 30·97 to 30·19 owing to its having been originally constructed too high; also for fitting the work with screw shutters and adding aprons.

12. *Sarvapalli Canal : New Regulator, Rs.* 2,700.—This work is necessary to enable water to be given by turns to the Kistnapatam canal during low freshes. At present, for want of a regulator across the Sarvapalli canal, an extra supply cannot be turned into the Kistnapatam canal. It is very necessary to have the power of distribution to each canal by itself, either in case of a short supply or of water not being required on any particular canal. The work is simple in design and fitted with screw shutters.

13. *New Bridge and Regulator at Ranganaikulupet.*—The construction of a bridge for the convenience of the inhabitants of Ranganaikulupet, an important suburb of Nellore, was ordered in G.O., No. 427, Public Works, of 18th October 1873, but has not hitherto been estimated for. The design now prepared is for a bridge and regulator combined. The regulator is required for distribution between the Jaffer Sahib's canal and the Sarvapalli canal, at present it is impossible to supply the former and keep the latter closed. A regulator is essential, and the combined bridge and regulator is much needed.

14. *Stonehousepet Bridge, Rs.* 370.—In consequence of mistakes in level in carrying out the work on the estimate of 1867, the floor of this bridge was placed nearly 2 feet higher than it was intended to be. With level and bed-fall now given to the canal, it will still be 1·59 feet too high, and has to be lowered to that extent. The work being founded on wells, it is not advisable to put in a masonry flooring, for fear that the baling necessary to lay the masonry might cause settlement in the wells. The estimate therefore provides for demolishing the inverts, and laying a dry stone flooring packed at the proper level, and adding an apron of 10 feet in rear. The work will require care in execution, but can, I believe, be safely carried out.

15. *Kondiapálem Bridge.*—The construction of a bridge at this point was long since promised to the ryots whose land was cut off by the excavation of the canal. Light lattice girders with 9 feet roadway have been designed. A girder bridge is allowed, in preference to an arch, as the surrounding ground is low, and the approaches would be high and expensive. A small culvert required in the approaches has also been provided.

16. *Surplus Sluice enlarging, Rs.* 8,578.—The whole of the surplus of the Nellore tank east weir falls into the Sarvapalli canal, and the sluices estimated for in 1867 (five vents of 2½ feet) are quite insufficient to pass the volume to be discharged. On every occasion when the tank east weir has discharged heavily the canal has been badly breached. It is therefore proposed to enlarge the sluices by the construction of seven more vents of 4 feet, fitted with screw shutters. The sluice will then be capable of discharging 3,980 cubic feet per inch with a head of 6 feet; the calculated discharge off the 26 square miles catchment basin of the tank being 3,949 cubic feet per second.

17. The sluice discharges into the main drain, which will be described hereafter.

18. *L. Earthwork, Rs.* 25,450.—The work proposed for this canal consists principally in correcting the mistakes made in the original execution of the work. The canal was never carried down to its proper bed-level, and the revetment was both scamped in execution and a large excess in actual quantity was overpaid. The matter is recorded in proceedings of the Madras Government, No. 2473, of 8th October 1873.

19. The whole of the revetment will have to be taken down and rebuilt to the proper level.

20. The canal has been laid out to give the required discharge with a velocity of 2½ inches per second. No widening will be necessary but the canal has to be brought down to correct bed-level. Below the proposed regulator at the workshops, the canal is wider than is necessary to carry the ordinary F.S., but it cannot be reduced as it has to carry flood water from the Nellore tank.

21. *Kistnapatam Canal : Bridge near Tallapudi, Rs.* 876.—This is the only work newly proposed on this canal, and will supply a long-admitted want.

22. (2-*A*) *Tanks and Reservoirs.*—The works under this head are included in consequence of the Nellore tank having been brought into the system. Hitherto there has been only a capital expenditure of Rs. 14,699 under this head for the construction of the west weir of the tank.

23. The works now proposed in connection with the tank supply channel are the provision of a regulator near the present head of the channel from the Pennér, the construction of embankments, and of surplus weirs to pass land floods into the river.

24. *Tank Supply Channel.*—This is proposed to be improved from the lower head, below which the drainage of 90 square miles of country passes into or across it. In consequence of the want of proper escapes in the left bank of the supply channel, constant breaches occur and the tank receives but little of the land drainage, which should be a valuable source of supply.

25. The regulator proposed at the river head will not be fitted with shutters, for, as river floods cannot be excluded at the surplus weirs, it would be no use to have shutters, but the regulator will exclude a large quantity of flood water, and will thus keep the channel more free from silt.

26. The escape weirs are to be the ordinary type of flush crested escape, and will have crests 5 feet above the bed of the channel.

27. The Executive Engineer proposed to raise the floor of the existing head-sluice at the east end of the tank 2 feet, but this, I think, would be a mistake. The supply reaching the tank depends almost entirely on the discharge of the short reach of new channel above the head-sluice. I have therefore increased the fall in this channel so that, with 5 feet of water flowing down, the discharge will amount to 736 cubic feet per second, and the head-sluice floor will be raised only 1 foot, its level being + 59·05.

28. The alteration of the line of the supply channel immediately above the tank head-sluice was ordered by the Officiating Chief Engineer for Irrigation at his inspection in January last, as the present channel is very tortuous and dangerously near the river's edge.

29. The embankments, as designed by the Executive Engineer, will be made 6 feet on top and 4½ feet above the flood of 1882, which was the highest recorded at the Nellore anicut; but the river floods will flow in and out by the masonry escapes, which have been designed of sufficient lengths to pass the maximum land flood with a depth of 3 feet going over.

30. (3) *Distributaries—Jaffer Sahib's Canal.*—The only work proposed is the construction of an accommodation bridge on the Kodur channel, a branch of Jaffer Sahib's canal.

31. *Sarvapalli Canal.*—An accommodation bridge is proposed across the Valluru channel at a cost of Rs. 1,046.

32. Improvements costing Rs. 1,220 are proposed to the Sarvapalli channel head-sluice. The original sluice, included in estimate of 1867, seems to have been designed quite irrespective of the duty it was to perform. It is much too large. It is now proposed to close four out of the existing eight vents, and to fit those which are retained with screw shutters. At present

it is fitted with baulk shutters, although screw shutters are shown in the design for the work printed in Madras Irrigation Series No. 2.

33. For the Sarvapalli tank, a second surplus weir is proposed at a cost of Rs. 13,080. The present length of escape is only 170 feet, which is quite insufficient and incapable of discharging even ordinary floods. Up to this time, it has not been possible to fill the Sarvapalli reservoir early in the season, although freshes might be favorable, for fear that subsequent local rainfall might breach the tank. The escape, as designed, consists of 15 bays of 10 feet. The shutters to lift by screws. An arched roadway is necessary for local traffic. The discharge from the weir will pass into the main drain.

34. (4) *Drainage and Protective Works—Main Drain, Rs.* 32,400.—This drain, which commences at the surplus sluices at the end of the Sarvapalli canal, has been dug to a somewhat irregular section. It is now proposed to excavate it to 25 feet bottom width from the surplus sluices to the infall of Sarvapalli tank surplus, and 40 feet below this, up to tide water. The bed-fall will be 1·97 per mile. The drain will be sufficiently large to carry ordinary floods within soil; extraordinary floods will, as heretofore, pass over the country, but no works will be damaged and a wider embanked drain is unnecessary.

35. A sum of Rs. 4,064 has been added to the estimates for unforeseen works in accordance with recent practice in the case of Productive Public Works estimates. I trust the entry may be approved.

36. *Water-supply.*—With the estimates of 1867, the late Mr. R. Smith forwarded statements of the river supply which are printed in No. 2 of the Madras Irrigation Series. The tables are not extended far enough, as they do not give the number of days that there would be less than 6 feet in the Main canal.

37. In 1867 it was proposed to lower the sill of the head-sluice and the bed of Main canal at the head 2 feet. The sluice sill was lowered, but the canal was never dug down to the proper level, and several of the masonry works on the canals were built too high. Recent experience and an examination of the water registers show that it is unnecessary to place the sluice sill so low. From actual calculation of quantities, I have also demonstrated that the cheapest method of completing the Main and Sarvapalli canals is to place the head-sluice sill 1 foot above its present level, *i.e.*, 1 foot instead of 2 feet lower than the level prior to the estimates of 1867.

38. In order to illustrate the sufficiency of the proposed arrangements, I have worked out the volume which would be delivered by the Main canal during the worst year yet known (except the famine year, 1876), viz., 1863, and find that, with 9 feet to 6 feet in the canal, for the number of days shown in Mr. R. Smith's table, 392,261 millions of cubic yards would be obtained—sufficient for an area of 65,445 acres. Besides which, there would be the further discharge of those days when there would be from 2 feet to 6 feet of water in the channel, and this would probably amount to an almost equal volume.

39. Captain Henderson has prepared statements of the water-supply for six years, from 1877 to 1882 inclusive, appendix B, and also a statement, appendix D, showing the volume passed to waste over the anicut during each year of the same period. These have been years of exceptionally good supply. The available supply calculated from the average of these years with canal and sluice as now proposed, appendix C, is 1,127 million cubic yards, or sufficient for 186,000 acres.

40. *Cultivation.*—The statements published with G.O., No. 903 I., of 13th November last, give complete information as to the area of cultivation in past years and the revenue derived from the project.

41. The following exhibits the actual and probable ultimate area under each canal:—

—	Cultivated, 1882-83.	Probable increase.	Probable ultimate area.
	ACRES.	ACRES.	ACRES.
Jaffer Sahib's canal	32,884	1,200	34,084
Kistnapatam do.	8,200	1,300	9,500
Sarvapalli do.	16,373	3,300	19,673
Total from anicut ...	57,457	5,800	63,257
Nellore tank	6,845	...	6,845
Total ...	64,302	5,800	70,102

42. When the Sarvapalli project was submitted in 1867, it was stated that the irrigated area would be 64,000 acres. The area now allowed for under the anicut channels is somewhat less

than this, viz., 63,257 acres. It is to be observed that, while it was then anticipated that the cultivation under the Sarvapalli canal would amount to 30,000, and under the two other canals to 34,000 acres, the cultivation under the former canal has not yet exceeded 17,000 acres; whereas under the two other canals it is as much as 41,000 acres, *i.e.*, very much in excess of what was anticipated. The moderate increase of acres 3,300 now allowed for under the Sarvapalli canal may be exceeded, but as much of the land commanded by the reservoir is of poor quality, and the increase of wet cultivation has hitherto been slow, it is considered safe to calculate only on a moderate increase.

Paragraph 6 of Mr. R. Smith's report of 3rd April 1867.

43. As regards the Nellore tank, Mr. Wilson's statements show that the cultivation has varied from 8,506 acres, as a maximum, to 6,629, as a minimum. The average area irrigated and charged as such during the last twenty-three years is 7,047 acres.

44. *Return on proposed expenditure.*—Out of the total increase under the anicut channels of acres 5,800, it is assumed that 3,800 acres will be obtained by the abandonment of the following shallow tanks and the cultivation of their beds:—

Jaffer Sahib's canal—
1. Punnar.
2. Indukurpet, small.
3. Pottapudi, small.
4. Varigunda, small.

These have a total area of about 1,200 acres.

Kistnapatam canal—
1. Bramadevam Buddi.
2. Pynapuram, small.
3. Pidathapolur (part of).
4. Tallapudi

These have a total area of about 1,300 acres.

Sarvapalli canal—
1. Narikellapalli.
2. Ipur Kamini.
3. Pudiparti.

These have an area of about 1,300 acres.

45. The total area to be obtained by the abandonment of shallow tanks is therefore 3,800 acres.

46. It will probably be fair to assume that Rs. 15 per acre can be obtained. By this means a sum of Rs. 57,000 can be obtained as a set-off against the capital expenditure.

47. The Collector of Nellore considers the rate of Rs. 15 per acre a fair assumption.

48. *Forecast statements.*—The statements required by the Government of India, prescribed in their circular, No. VI, Public Works, of 18th March 1882, have been prepared and are herewith forwarded.

49. From Mr. Wilson's accounts it appears that the average revenue on waste brought in is Rs. 4-15-2 per acre. It would therefore be fair to assume that Rs. 4-8-0 can be realised from the 5,800 of assumed increase; this would yield in round numbers Rs. 26,000. This sum has been assumed as the additional indirect revenue. Besides this, Mr. Wilson's accounts show that there is a sum of Rs. 5,456 to be added for the gradual imposition of increased rates under the settlement. The total increase may therefore be assumed in round numbers as Rs. 30,000, and this is the figure which has been entered in statement No. III.

50. I am not sure how the anticipated refund of capital expenditure to be derived from the sale of tank beds is to be exhibited in the forecast statements.

51. It is probable that these receipts will be realised as shown below, and these should, I suppose, be treated as deductions from capital in each year, and interest on half the amount be also deducted. But in the absence of positive instructions, I leave any correction required on this account to be carried out in the office of the Chief Engineer for Irrigation.

Estimate of refunds of capital by sale of tank beds.

	RS.
1886-87	3,000
1887-88	7,500
1888-89	7,500
1889-90	10,500
1890-91	10,500
1891-92	10,500
1892-93	7,500
Total ...	57,000

52. In statement No. IV, I have, in accordance with the administrative accounts and the practice followed by Mr. Wilson (see synopsis of the financial results given in paragraph 2 of his letter printed with G.O., No. 903 I., of 30th November 1883), calculated the interest charges on the total direct capital outlay. As, however, 14 per cent. of the capital outlay, both direct and indirect, had, at the end of 1882-83, been recovered, statement IV under-estimates the true amount of profit which will be derived by the State from this system.

53. Mr. Wilson's accounts, so frequently referred to, show that the project has hitherto paid well, and the small amount of additional capital expenditure required, viz., Rs. 2,22,582, will, by making the works more complete and by supplying an additional area, soon be recouped.

(Signed) J. W. RUNDALL.
Superintending Engineer, II Circle.

APPENDIX A.

PENNER ANICUT SYSTEM.

Main Canal.

Bed width ... ... 75 feet.
Side slopes ... ... 1½ to 1.
Fall ... ... 1 in 6,666 or ·00015.

Discharges calculated by Bazin's formula for different depths in Main Canal. $V = C\sqrt{r.s.}$

Depth in Main Canal.		Velocity in cubic feet per second.	Discharge in cubic feet per second.	Remarks.
FT.	IN.			
0	6	·306	11·6	
1	0	·573	43·8	
1	6	·811	94 0	
2	0	1·03	160·3	
2	6	1·22	240·5	
3	0	1·4	335·	
3	6	1·53	417·	
4	0	1·73	560·	
4	6	1·87	689·	
5	0	2·01	830·	
5	6	2·11	966·	
6	0	2·26	1,142·	
6	6	2·38	1,314·	
7	0	2·5	1,492·	Ordinary supply.
7	6	2·6	1,683·	
8	0	2·7	1,882·	
8	6	2·8	2,090·	
9	0	2·9	2,306·	Maximum supply.

APPENDIX B.

PENNER ANICUT SYSTEM.

Supply of Water in Main Canal for 6 Years, from 1877 to 1882 inclusive.

Depth of Water.		1877.	1878.	1879.	1880.	1881.	1882.	Total.	Average.	—
		Number of Days.	Number of Days.	Number of Days.	Number of Days.	Number of Days.	Number of Days.			
FT.	IN.									
1	6	9	2	0	26	14	28	79	13	
2	0	14	5	0	12	34	34	99	16½	
2	6	16	21	6	6	20	14	83	14	
3	0	0	9	19	17	9	7	61	10	
3	6	43	23	26	26	21	18	157	26	
4	0	16	14	9	13	11	12	75	12½	
4	6	8	0	13	17	21	9	68	11	
5	0	37	31	44	77	18	23	230	38	
5	6	13	15	32	2	24	24	110	18	
6	0	30	23	3	2	44	43	145	24	
6	6	38	19	48	9	25	25	164	27	
7	0	9	7	34	43	37	24	154	26	
7	6	18	27	54	29	17	12	157	26	O.F.S.L.
8	0	42	40	43	22	8	7	162	27	
8	6	12	21	20	6	4	5	68	11	
9	0	19	59	17	20	2	5	122	20	M.S.

APPENDIX C.

PENNER ANICUT SYSTEM.

Average supply of Water to Main Canal after proposed Improvements are carried out.

Depth in Main Canal.		Average number of days.	Discharge in millions of cubic feet.	Total.	Remarks.
FT.	IN.				
2	0	16½	229		
2	6	14	291		
3	0	10	289		
3	6	26	1,180		
4	0	12½	605		
4	6	11	655		
5	0	38	2,725		
5	6	18	1,502		
6	0	24	2,368		
6	6	27	3,065		
7	0	26	3,372	16,281	Equivalent to 603 million cubic yards, sufficient for 1,00,000 acres.
7	6	26	3,780		
8	0	27	4,390		
8	6	11	1,987		
9	0	20	3,989	14,146	Equivalent to 1,127 million cubic yards, sufficient for 1,86,000 acres.
				30,427	

APPENDIX D.

PENNER ANICUT SYSTEM.

Amount of Water passed over Anicut to waste for 6 Years, from 1877 to 1882 inclusive.

Depth on Anicut Crest.		Discharge in cubic feet per second.	1877.		1878.		1879.		1880.		1881.		1882.	
			Number of days.	Millions of cubic feet.	Number of days.	Millions of cubic feet.	Number of days.	Millions of cubic feet.	Number of days.	Millions of cubic feet.	Number of days.	Millions of cubic feet	Number of days.	Millions of cubic feet.
FT.	IN.													
0	6	2,995	18	4,658	48	12,421	93	24,065	65	16,820	51	13,197	42	10,868
1	0	7,800	19	12,805	29	19,544	24	16,174	16	10,783	13	8,761	10	6,739
1	6	13,908	25	30,041	25	30,041	22	26,436	13	15,621	16	19,226	15	18,025
2	0	21,050	10	18,187	14	25,462	12	21,825	6	10,912	5	9,094	5	9,094
2	6	29,125	5	12,582	9	22,648	3	7,549	8	20,131	6	15,098	7	17,615
3	0	38,032	9	29,574	8	26,288	1	3,286	5	16,430	4	13,144	4	13,144
3	6	47,693	6	24,724	10	41,207	1	4,121	1	4,121	2	8,242	3	12,362
4	0	58,054	5	25,079	9	45,143	1	5,016	3	15,048	1	5,016	1	5,016
4	6	69,073	2	11,936	4	23,872	..	..	1	5,968	1	5,968	1	5,968
5	0	80,712	2	13,947	3	20,921	..	..	1	6,974	..	..	1	6,974
5	6	92,939	1	8,030	2	16,060	..	..	1	8,030	..	..	..	..
6	0	1,05,720	..	..	1	9,134	..	..	1	9,134	..	..	1	9,134
6	6	1,19,050	..	..	1	10,286	..	..	..	..	..	..	1	10,286
7	0	1,32,890	..	..	1	11,482	..	..	1	11,482	..	..	..	..
7	6	1,47,240	..	..	1	12,722	..	..	..	..	..	..	..	..
12	6	3,14,990	..	..	..	..	..	..	..	..	..	..	2	54,430
Total ..		..	..	1,91,563	..	3,27,231	..	1,08,472	..	1,51,454	..	97,746	..	1,79,655

Formula used is, $D = 3{\cdot}33\, h \sqrt{h + 035\, u^2}$
where h = depth on crest.
U = mean velocity of approach = 2½ feet per second.
D = discharge for 1 foot of length.
Length of anicut 2122 feet.

BEZVÁDA,
18th March 1884.

(Signed) J. W. RUNDALL,
Superintending Engineer, II Circle.

From J. GROSE, Esq., Collector of Nellore, to the Chief Engineer for Irrigation, dated 28th August 1884, No. 4303.

With reference to your letter, No. 37 N.L., dated 26th July 1884, I have the honor to state as follows.

2. The expected increase in cultivation under Sarvapalli project derivable from the abandonment of tanks has been calculated in consultation with the Executive Engineer, Captain Henderson, as specified below.

	ACRES.
Jaffer Sahib's channel	1,200
Kistnapatam do.	485
Sarvapalli canal	1,300
Total ...	2,985

3. On the completion of the project a further extent of 2,100 acres, which is now lying waste under the marginally-noted works, is also likely to be brought under the plough. That portion which appertains to the Sarvapalli tank will only be taken up shortly, but that which appertains to the Nellore tank will be cultivated soon after water is available.

	ACRES.
Sarvapalli tank	1,500
Nellore tank	600
Total ...	2,100

4. It would appear from page 6 of G.O., No. 903 I., dated 13th November 1883, that the average assessment *plus* water-rate on the waste brought under cultivation from fasli 1270 to 1292 will be Rs. 4-15-2. For the purposes of this report, the assessment is calculated at Rs. 4-8-0 per acre, and this may be considered safe.

5. Referring to paragraph 8 of my predecessor's letter, No. 1883, dated 14th April 1884, I have the honor to inform you that, on reconsideration, I think the value of 1 acre of tank-bed land may be taken at Rs. 15 instead of at Rs. 10 as already stated in the letter quoted. This rate has been fixed with reference to the average realised at sales of similar lands of late years.

From the same Officer, dated 9th October 1884, No. 5123.

I have the honor to state, with reference to your letter, No. 47 N.L., dated 4th September, that the rate on the lands under the Sarvapalli canal and the Nellore tank should be reduced to Rs. 4-8-0 per acre.

2. The forecast statements were returned before the receipt of this letter.

From the same Officer, dated 21st October 1884, No. 5365.

I have the honor to return, herewith, duly countersigned, the revised estimate received with your letter, No. 57 N.L., dated 18th instant.

No. 166 I.

Note by the Chief Engineer for Irrigation.

An account of the Pennér anicut system has been given in the "narrative" printed with G.O., No. 1012 I., dated 15th December 1882, and a very brief description of the works is therefore necessary here. The anicut was built across the Pennér near the town of Nellore to supply old native channels on the south of the river, and was commenced in 1853 and completed in 1855. In 1857 the anicut was breached, and in 1858, after repairs had been executed, nearly two-thirds of it were again carried away. Colonel Cotton was then sent to report on the works, and submitted rough estimates for restoring the anicut and improving the channels supplied by it. Detailed estimates were subsequently submitted and separately sanctioned. In 1867 a project was submitted for the improvement of irrigation under the Sarvapalli channel supplied by the anicut, and this was sanctioned by the Secretary of State in 1868, but further expenditure being found necessary a revised estimate was called for; this was being prepared by Mr. R. Smith when that officer unfortunately died, and the papers were missing for some time; then all further work was stopped by the famine, and it is only lately that the officer in charge of the division has been able to take up the subject, and the difficulty of getting correct accounts of past expenditure and ascertaining the revenue anticipated in communication with the Revenue officers has delayed the submission of complete estimates. In 1874, the north wing of the anicut was carried away in an unprecedented flood, and it was then determined to lengthen the anicut; a revised estimate, amounting to Rs. 2,07,245, for direct charges, was accordingly submitted to the Government of India on the 16th December 1876, sanction to which was deferred until complete estimates were submitted.

2. The Nellore tank, which is situated above the anicut and supplied by channels from the river, lies immediately above the area commanded by the anicut channels, and the irrigation from it was so mixed up with the anicut irrigation that, after considerable correspondence, it has been decided to consider the tank and irrigation under it as a part of the system.

3. The anicut supplies a main canal 1,980 feet long, from which the Jaffer Sahib's canal takes off, which runs almost directly towards the sea and supplies two branches, called the Labur channel and the Idur branch; it then continues as the Sarvapalli channel up to a little over 2 miles from head, where the Kistnapatam channel takes off and runs parallel to the road leading from Nellore to Kistnapatam on the coast; beyond this the Sarvapalli channel is continued till it falls into the large Sarvapalli tank. The surplus of the Nellore tank falls into the channel and is passed into the main drain, a little below the point where the Vulluru channel takes off; below the sluices into the main drain is a sluice or regulator to supply the Sarvapalli tank.

4. In G.O., No. 22 I., dated 9th January 1882, which was submitted to the Government of India, is given a statement showing the amount of existing sanctions; the following shows amounts of these sanctions, expenditure incurred, and expenditure required to complete the works:—

—	Works.	Establishment.	Tools and Plant.	Suspense Account.	Total.
	RS.	RS.	RS.	RS.	RS.
Existing sanctions—					
Outlay on works completed (old outlay)	5,26,117	1,24,393	13.886	...	6,64,396
Estimates sanctioned by Government of India ...	5,27,710	34,680	8,860	...	5,71,250
Estimates sanctioned by Government of Madras ...	23,560	...	...	...	23,560
Total ...	10,77,387	1,59,073	22,746	...	12,59,206
Expenditure incurred to end of 1883-84—					
Old outlay	5,26,117	...	...	...	...
Since expended	5,88,222	...	...	...	...
Total ...	11,14,339	2,78,585	27,858	8,081	14,28,863
Deduct receipts on Capital Account.	...	...	...	...	1
Net Total ...	...	...	...	...	14,28,862
Further proposed expenditure ...	1,79,483	41,051	8,974	8,081	2,21,427
Deduct receipts on Capital Account.	...	...	...	...	37,500
Net Total ...	...	...	...	...	1,83,927

5. The total of the estimates as now submitted is as follows :—

Direct Charges.

	RS.
Works ...	12,93,822
Establishment ...	3,19,636
Tools and Plant ...	36,832
	16,50,290
Deduct receipts on Capital Account ...	37,501
Total ...	16,12,789

Indirect Charges.

	RS.	
Capitalized abatement of Land Revenue—		
Actuals to end of 1883-84 ...	1,77,098	
Estimated further charges ...	2,500	
		1,79,598
Leave and pension allowances—		
Actuals to end of 1883-84 ...	59,199	
Estimated further outlay ...	5,747	
		64,946
Total ...		2,44,544
Total, Direct and Indirect Charges ...		18,57,333

6. The financial results of the system for 1883-84 are as follows :—

		ACRES.
Area irrigated, 1st crop ...		62,832
Do. 2nd „ ...		887
		RS.
Capital outlay (including indirect charges) ...		16,65,159
Receipts in Public Works Department ...		255
Do. in Civil Department ...	1,30,146	
Deduct collection charges at 7·2 per cent. ...	9,370	
		1,20,776
Total ...		1,21,031
Total working expenses ...	49,758	
Deduct old maintenance charges ...	23,142	
		26,616
Balance ...		94,415
Interest charges ...		57,154
Surplus Revenue ...		37,261

or 2·24 per cent. on outlay.

7. The anticipated results after 16 years are as follows :—

	ACRES.
Area irrigated, 1st crop ...	69,385
Do. 2nd „ ...	1,000
	RS.
Capital outlay—Direct charges ...	16,12,789
Do. Direct and indirect charges ...	18,57,333

Receipts.

	RS.
Direct by Public Works Department ...	300
Indirect by Civil Department ...	1,50,700
Total ...	1,51,000
Deduct charges, both direct and indirect ...	20,000
Net receipts ...	1,31,000

i.e., 8·1 per cent. on direct outlay, or 7·0 per cent. direct and indirect outlay.

The estimate of indirect revenue is made up of the following items :—

	RS.
Indirect revenue for 1883-84 ...	1,30,146
Do. due to extension of irrigation, 5,085 acres at 4-8-0 rupees per acre ...	22,883
113 acres, 2nd crop ...	146
Gradual imposition of increased rates under the settlement ...	5,456
Total ...	1,58,631
Deduct collection charges at 5 per cent. ...	7,931
Net Total ...	1,50,700

The forecast statements have been countersigned by the Collector, who states that the
assessment is calculated at Rs. 4-8-0 per acre, in order to err on the side of safety,
though Mr. Wilson's statements, printed in G.O., No. 904 I., 13th November 1883,
showed that the average assessment, *plus* water-rate on waste land cultivated, amounted
to Rs. 4-15-0 an acre. The Collector also gives an opinion that the tank beds which
are to be sold may be expected to realise 15 rupees an acre. A deduction at this rate
has accordingly been made from the capital expenditure proposed.

8. The growth of irrigation is shown in statement of financial results which is
prepared by Mr. Wilson and submitted yearly for the information of the Government
of India. The irrigation which in 1860-61 was first crop 32,897 acres and second crop
18 acres has extended steadily, until in 1883-84 it was 62,832 acres first crop and 887
acres second crop. It is estimated that the works now provided for being carried out,
the irrigation will continue to extend gradually, until in 1896-97 it has reached
69,385 acres first crop and 1,000 acres second crop. The Collector, in communication
with the Executive Engineer, has estimated that about 3,000 acres of this increase
will be taken up on abandonment of the tank beds and about 2,000 for cultivation of
waste lands under the Sarvapalli and Nellore tanks. The forecast statements have been
revised in communication with the Collector since the date of the Superintending
Engineer's report, and the figures therefore do not quite agree with those given by
the Superintending Engineer.

9. The statements furnished by the Superintending Engineer in appendices to his
report based on the observations recorded of water in the river in past years show
that the average supply is far in excess of the quantity required for the irrigation of
the area expected to be taken up, and in the worst year yet known, with the exception
of the famine year, 1876, there would be a sufficient supply.

10. The works to be undertaken to complete the system have been discussed with
the Superintending Engineer and Executive Engineer, and the arrangements are gene-
rally approved of, and believed to be suitable. The principal work to be done is the
provision of proper shutters to the head sluice, the excavation of the main channel and
Sarvapalli channel so as to give a proper fall, revetting the banks where the soil is not
firm, the construction of regulators below the offtakes of the Jaffer Sáhib's and Kistna-
patam channels, the enlargement of the surplus sluices discharging into the main
drain, the excavation of the main drain to proper section throughout, the construction
of an additional surplus weir to the Sarvapalli tank, the improvement of the supply
channel to the Nellore tank, and the construction of some bridges, the necessity for
which has been acknowledged.

11. The proposed raising of the head sluice sill and consequent fall proposed to be
given to the main and Sarvapalli channels is considered the most suitable arrangement ;
the only difficulty here will be the lowering of the floor of the Stonehousepetta bridge,
but this, it is believed, may be overcome. The gearing to be adopted for the head
sluice shutters is that invented by Major Drake-Brockman, R.E. Similar shutters are
being worked very satisfactorily at the Godávari and Kistna anicuts.

12. The new regulators should have ample waterway, so that full advantage may be taken of low freshes; for some distance from the head the canal receives no drainage, but lower down the surplus of the Nellore tank falls in, and in case of the river embankment breaching, as it has done on several occasions, the flood-water finds its way down into the channel, and there must be no unnecessary check on the flow. The enlargement of the surplus weir at head of main drain will enable a large quantity of water to be passed off, and it may be possible to send more through the Sarvapalli tank, the new weir to which will enable a large quantity to be passed through the tank; it is therefore considered that the four vents of the Sarvapalli channel head sluice, that is, the sluice immediately below the surplus into the main drain, proposed to be closed, should be left as they are with baulk shutters, or, if these are found to leak too much, fitted with plank shutters which could be raised in case of emergency.

13. The only other work requiring to be noticed is the Nellore tank supply channel. The arrangements considered necessary here were discussed on the spot with the Superintending Engineer and Executive Engineer. The supply channel to the tank comes from a long distance up the river and has three open heads, and, as the channel approaches the tank, it is liable to be submerged by high river floods as well as breached by cross drainage, and is thus a constant source of expenditure. The principle on which it is proposed to work is to exclude high river floods by an embankment, allow ample escapes for cross drainage over which the river would be allowed in high floods to back up, but to prevent the flood-water coming down on the tank head sluice by a regulator or bar of masonry which would limit the quantity sent down. By altering the line of the channel in the lower portion there will be some excavation through a rocky ridge which will form the desired bar.

The designs as submitted however will, it is considered, need some modification. The regulator at head must be of sufficient dimensions to pass the full supply of the channel when the water is low; the floor of the tank head sluice should not be raised at all, but the channel should be curved a little more towards the river so as to bring it nearer the end of the rocky ridge and give the same bed fall with less rock cutting. It may be advisable to increase No. 3 weir to 300 feet, which being on rock would cost very little. As these modifications will add nothing to the estimates as now submitted, it has not been thought necessary to delay for revision which may be done afterwards.

14. In recommending the estimates as now submitted for sanction some remark is necessary regarding the delay that has taken place in completing them. Putting together in a complete shape old estimates, tracing old expenditure and fitting in new work is more troublesome than working out a new project; the Executive Engineer in charge of the division who was thoroughly conversant with the subject was the proper person to do the work, but the ordinary work of the division left him little leisure to attend to it; it was, however, anticipated that the estimates would be ready last year, and the Government of India was informed accordingly. Subsequently the Nellore tank supply channel had to be further examined and estimates prepared, and then there was unavoidable delay in reference to the Revenue authorities. No effort has been spared to hasten the completion of the work.

Ootacamund,
4th October 1884.

(Signed) J. O. HASTED, Col., R.E.,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

Enclosures.

Classified Abstract Estimate of Works of the Pennér Anicut System which remain to be carried out.

Sub-head. 1	Names of Works. 2	Amount of Estimate for individual Work. 3	Total of Sub-heads. 4	Total for each Canal or Distributary. 5	Total of each Main Head. 6	Remarks. 7
	(2) Main Canals and Branches.	RS.	RS.	RS.	RS.	
	Main Canal.					
D. Regulators.	Providing shutters with screw gearing for main head sluice	10,315	10,315			
L. Earthwork...	Main canal improvements.	7,500	7,500	17,815		
	Jaffer Sáhib Canal.					
D. Regulators.	Regulator at head of Jaffer Sáhib canal	2,360	2,360	2,360		
	Sarvapalli Canal.					
B. Land ...	Compensation for land ...	200	200			
D. Regulator...	New regulator at Workshop.	2,700	2,700			
G. Bridges ...	New bridge and regulator at Runganaikulupet ...	8,680				
Do. ...	Stonehousepet bridge ...	390				
Do. ...	Iron girder accommodation bridge proposed to be built at Kondiapallem ...	5,269				
Do. ...	Culvert proposed to be built at Kondiapallem ..	265	14,604			
H. Escapes ...	Surplus sluice enlarging ...	8,578	8,578			
L. Earthwork...	Sarvapalli canal improvements	25,450	25,450	51,532		
	Kristnapatam Canal.					
G. Bridges ...	Bridge near Tállupúdi ...	876	876	876		
	Total (2) Main Canals and Branches ...	...	...	...	72,583	
	(2A) Tanks and Reservoirs.					
B. Land ...	Compensation for land for Nellore tank supply channel	500	500			
C. Works ...	Weir at Mulinnudi No. 1 ... ... 300′	4,500				
Do. ...	New regulator at head of Nellore tank supply channel	9,000				
Do. ...	Weir below head of river channel No. 2 ... 200′	2,000				
Do. ...	Weir on rock at head of new cut ... ... 200′	1,000				
Do. ...	Removing and rebuilding left wing of weir No. 4.	520				

Classified Abstract Estimate of Works of the Pennér Anicut System, &c.—*cont.*

Sub-head.	Names of Works.	Amount of Estimate for individual Work.	Total of Sub-heads.	Total for each Canal or Distributary.	Total of each Main Head.	Remarks.
1	2	3	4	5	6	7
	(2A) TANKS AND RESERVOIRS—*cont.*	RS.	RS.	RS.	RS.	
C. Works ...	Providing shutters and screw gearing for Nellore tank head sluice ...	1,540				
Do. ...	Lowering Nellore tank west weir from 66·14 to 64·5 and providing new post and shutters ...	980	19,540			
L. Earthwork..	Nellore tank supply channel	29,026	29,026			
O. Miscellaneous.	Mile and bench mark stones	265	265	49,331		
	Total, (2A) Tanks and Reservoirs ...	...	...	...	49,331	
	(3) DISTRIBUTARIES. *Jaffer Sáhib Canal.*					
C. Works ...	Bridge over Kodúr channel	1,276	1,276	1,276		
	Sarvapalli Canal.					
C. Works ...	Bridge on Vallur channel near Kalivelapalem ...	1,046				
Do. ...	Sarvapalli channel head sluice	1,220	2,266			
N. Tanks and Reservoirs.	Surplus weir	13,080	13,080	15,346		
	Total, (3) Distributaries ...	...	...	...	16,622	
	(4) DRAINAGE AND PROTECTIVE WORKS.					
B. Land ...	Compensation	300	300			
L. Earthwork...	Improvements to main drain	32,100	32,100	32,400		
	Total, (4) Drainage and Protective Works ...	...	...	...	32,400	
	Total ...	...	...	...	1,70,936	
	Unforeseen works ...	...	...	...	8,547	
	Grand Total ...	...	...	...	1,79,483	

CLASSIFIED Abstract Estimate of the Pennér Anicut Completion Estimates.

Main Head.	Sub-head.	OUTLAY TO END OF 1883-84.								FURTHER OUTLAY.							TOTAL.							
		Head Works.	Main Canal.	Jaffer Sáhib's Canal.	Kistnapatam Canal.	Sarvapalli Canal.	Nellore Tank.	Drains.	Total.	Main Canal.	Jaffer Sahib's Canal.	Kistnapatam Canal.	Sarvapalli Canal.	Nellore Tank.	Drains.	Total.	Head Works.	Main Canal.	Jaffer Sahib's Canal.	Kistnapatam Canal.	Sarvapalli Canal.	Nellore Tank.	Drains.	Total.
		RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
	Old outlay	..	..	..	..	..	..	..	5,26,117	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5,26,117
(1) Head Works ..	C. Works	1,43,751	..	..	..	..	..	..	1,43,751	..	..	..	..	..	..	..	1,43,751	..	..	..	..	..	..	1,43,751
(2) Main Canals and Branches.	A Preliminary expenses.	..	..	..	..	315	..	..	315	..	..	..	..	..	..	..	..	..	..	..	315	..	..	315
	B. Land	..	428	..	..	3,712	..	..	4,140	..	..	..	200	..	..	200	..	438	..	..	3,912	..	..	4,340
	D. Regultators ..	..	6,894	5,081	1,189	..	..	..	13,164	10,315	2,360	..	2,700	..	..	15,375	..	17,209	7,441	1,189	2,700	..	..	28,539
	G. Bridges	..	..	..	..	13,383	..	..	13,383	..	..	876	14,604	..	..	15,480	..	..	..	876	27,987	..	..	28,863
	H. Escapes	..	..	..	..	6,748	..	..	6,748	..	..	..	8,578	..	..	8,578	..	..	..	..	15,326	..	..	15,326
	L. Earthwork	..	3,306	..	824	61,721	..	..	65,851	7,500	..	..	25,450	..	..	32,950	..	10,806	..	824	87,171	..	..	98,801
	O. Miscellaneous ..	..	..	..	..	5,620	..	..	5,620	..	..	..	..	..	..	..	..	..	..	..	5,620	..	..	5,620
	Total ..	1,43,751	10,628	5,081	2,013	91,499	..	..	1,09,221	17,815	2,360	876	51,532	..	..	72,583	1,43,751	28,443	7,441	2,889	1,43,031	..	..	3,25,555
(2A.) N. Tanks and Reservoirs.	B. Land	..	..	..	..	..	..	..	..	..	..	..	..	500	..	500	..	..	..	..	..	500	..	500
	C. Works	..	..	..	..	..	14,699	..	14,699	..	..	..	..	19,540	..	19,540	..	..	..	..	..	34,239	..	34,239
	L. Earthwork	..	..	..	..	..	..	..	..	..	..	..	..	29,026	..	29,026	..	..	..	..	..	29,026	..	29,026
	O. Miscellaneous ..	..	..	..	..	..	..	..	..	..	..	..	..	265	..	265	..	..	..	..	..	265	..	265
	Total ..	..	..	..	..	..	14,699	..	14,699	..	..	..	..	49,331	..	49,331	..	..	..	..	..	64,030	..	64,030
(3) Distributaries ..	B. Land	..	..	..	..	29,074	..	..	29,074	..	..	..	..	..	..	..	..	..	..	..	29,074	..	..	29,074
	C. Works	..	..	..	..	63,776	..	..	63,776	..	1,276	..	2,266	..	..	3,542	..	..	1,276	..	66,042	..	..	67,318
	L. Earthwork	..	..	..	..	1,18,597	..	..	1,18,597	..	..	..	..	..	..	..	..	..	..	..	1,18,597	..	..	1,18,597
	N. Tanks and Reservoirs.	..	..	..	..	97,236	..	..	97,236	..	..	..	13,080	..	..	13,080	..	..	..	..	1,10,316	..	..	1,10,316
	Total ..	..	..	..	..	3,08,683	..	..	3,08,683	..	1,276	..	15,346	..	..	16,622	..	..	1,276	..	3,24,029	..	..	3,25,305
(4) Drainages and Protective Works.	B. Land	..	..	..	..	..	..	..	..	..	..	..	..	..	300	300	..	..	..	..	..	..	300	300
	L. Earthwork	..	..	..	..	..	..	11,868	11,868	..	..	..	..	..	32,100	32,100	..	..	..	..	..	..	43,968	43,968
	Total ..	..	..	..	..	..	..	11,868	11,868	..	..	..	..	..	32,400	32,400	..	..	..	..	..	..	44,268	44,268
Total for all main heads.	....	1,43,751	10,628	5,081	2,013	4,00,182	14,699	11,868	5,88,222	17,815	3,636	876	66.878	49,331	32,400	1,70,936	1,43,751	28,443	8,717	2,889	4,67,060	64,030	44,268	7,59,158
Unforeseen works ..	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8,547	..	..	..	..	..	..	..	8,547
Total for works ..	....	..	..	..	..	..	..	..	11,14,339	..	..	..	..	..	..	1,79,483	..	..	..	..	..	..	..	12,93,822
Establishment	....	..	..	..	..	..	..	..	2,78,585	..	..	..	..	..	..	41,051	..	..	..	..	..	..	..	3,19,636
Tools and Plant ..	....	..	..	..	..	..	..	..	27,858	..	..	..	..	..	..	8,974	..	..	..	..	..	..	..	36,832
Suspense account ..	....	..	..	..	..	..	..	..	8,081	..	..	..	..	..	..	— 8,081	..	..	..	..	..	..	..	..
Total ..	....	..	..	..	..	..	..	..	14,28,863	..	..	..	..	..	..	2,21,427	..	..	..	..	..	..	..	16,50,290
Deduct Receipts on Capital Account	....	..	..	..	..	..	..	..	1	..	..	..	..	..	..	37,500	..	..	..	..	..	..	..	37,501
Net Total ..	....	..	..	..	..	..	..	..	14,28,862	..	..	..	..	..	..	1,83,927	..	..	..	..	..	..	..	16,12,789
Indirect Charges ..	Capitalized abatement of Land Revenue ..	..	..	..	..	..	..	..	1,77,098	..	..	..	..	..	..	2,500	..	..	..	..	..	..	..	1,79,598
	Leave and Pension Allowances	..	..	..	..	..	..	..	59,199	..	..	..	..	..	..	5,747	..	..	..	..	..	..	..	64,946
	Total, Indirect Charges..	..	..	..	..	..	..	..	2,36,297	..	..	..	..	..	..	8,247	..	..	..	..	..	..	..	2,44,544
	Grand Total ..	..	..	..	..	..	..	..	16,65,159	..	..	..	..	..	..	1,92,174	..	..	..	..	..	..	..	18,57,333

(Signed) J. O. HASTED, Colonel, R.E.,
Chief Engineer for Irrigation.

Penner Anicut System. Nellore Division.

No. I.—Summary of the Estimated Direct Charges to Capital Account.

Year.	Works.	Establishment.	Tools and Plant.	Suspense Account.	Total.	Deduct Receipts on Capital Account.	Net Total.
1	2	3	4	5	6	7	8
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Actual outlay to end of 1883-84 ..	11,14,339	2,78,585	27,858	8,081	14,28,863	1	14,28,862
Estimated outlay for 1884-85	..	..	..	..	..	..	..
Do. do. for 1885-86	30,000	6,900	4,000	— 2,000	38,900	..	38,900
Do. do. for 1886-87	50,000	11,500	2,000	— 2,000	61,500	..	61,500
Do. do. for 1887-88	40,000	9,200	2,000	— 2,000	49,200	* 13,500	35,700
Do. do. for 1888-89	40,000	9,200	974	— 2,081	48,093	* 12,000	36,093
Do. do. for 1889-90	19,483	4,251	..	..	23,734	* 12,000	11,734
Total ..	12,93,822	3,19,636	36,832	..	16,50,290	37,501	16,12,789

* Sale-proceeds of tank beds.

No. II.—Summary of the Estimated Indirect Charges to Capital Account excluding Interest.

Year.	Capitalized Abatement of Land Revenue.	Loss by Exchange on Payments in England.	Leave and Pension Allowances.	Total.
1	2	3	4	5
	RS.	RS.	RS.	RS.
Actual charges to end of 1883-84	177,098	..	59,199	2,36,297
Estimated charges for 1884-85	..	..	..	..
Do. do. for 1885-86	1,250	..	966	2,216
Do. do. for 1886-87	1,250	..	1,610	2,860
Do. do. for 1887-88	..	..	1,288	1,288
Do. do. for 1888-89	..	..	1,288	1,288
Do. do. for 1889-90	..	..	595	595
Total ..	1,79,598	..	64,946	2,44,544

No. III.—Estimate of growth of Irrigation and Revenue Receipts and Charges.

Year.	Irrigated Area at end of year.		Revenue Receipts and Charges.					
			Revenue due to Work.			Charges both Direct and Indirect.	Net Revenue due to Work.	
	First Crop.	Second Crop.	Direct Receipts.	Indirect Revenue exclusive of Collection Charges.	Total.		Including Indirect Revenue.	Excluding Indirect Revenue.
1	2	3	4	5	6	7	8	9
	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	
Actuals to end of 1883-84 ..	62,832	887	2,548	15,76,604	15,79,152	1,77,972	14,01,180	As all water rates are collected in the Revenue Department they are shown under "Indirect Revenue;" if they are excluded, there is no net revenue.
Estimate for 1884-85	64,300	900	200	1,20,000	1,20,200	17,700	1,02,500	
Do. 1885-86	64,300	1,000	200	1,21,000	1,21,200	17,700	1,03,500	
Do. 1886-87	65,200	1,000	200	1,24,000	1,24,200	17,700	1,06,500	
Do. 1887-88	66,200	1,000	200	1,30,000	1,30,200	17,700	1,12,500	
Do. 1888-89	67,200	1,000	200	1,34,000	1,34,200	17,700	1,16,500	
Do. 1889-90	68,000	1,000	200	1,37,000	1,37,200	18,000	1,19,200	
Do. 1890-91	68,500	1,000	200	1,40,000	1,40,200	18,000	1,22,200	
Do. 1891-92	68,800	1,000	300	1,44,000	1,44,300	18,500	1,25,800	
Do. 1892-93	69,000	1,000	300	1,45,000	1,45,300	18,500	1,26,800	
Do. 1893-94	69,100	1,000	300	1,46,000	1,46,300	19,000	1,27,300	
Do. 1894-95	69,200	1,000	300	1,47,000	1,47,300	19,500	1,27,800	
Do. 1895-96	69,300	1,000	300	1,48,000	1,48,300	20,000	1,28,300	
Do. 1896-97	69,385	1,000	300	1,49,000	1,49,300	20,000	1,29,300	
Do. 1897-98	69,385	1,000	300	1,50,000	1,50,300	20,000	1,30,300	
Do. 1898-99	69,385	1,000	300	1,50,700	1,51,000	20,000	1,31,000	
Do. 1899-1900.. ..	69,385	1,000	300	1,50,700	1,51,000	20,000	1,31,000	
Total ..	..	..	6,648	38,13,004	38,19,652	4,77,972	33,41,680	

(Signed) J. GROSE,
Collector.

(Signed) A. S. RUSSELL,
for Chief Engineer for Irrigation.

No. IV.—Estimate of Net Financial Results of 10 years after the probable date of completion of the Work.

Year.	Direct Capital Outlay during the year.	Direct Capital Outlay to end of the year.	Simple Interest at 4 per cent. on Capital Outlay to end of the previous year *plus* half Outlay during the year.	Net Revenue including Indirect Revenue, Column 8 of Table No. III.	Simple Interest less Net Revenue.	Net Revenue less simple Interest.
1	2	3	4	5	6	7
	RS.	RS.	RS.	RS.	RS.	RS.
Actuals to end of 1883-84	...	14,28,862	11,31,686	14,01,180	...	2,69,494
Estimate for 1884-85.	...	14,28,862	57,154	1,02,500	...	45,346
Do. for 1885-86.	38,900	14,67,762	57,932	1,03,500	...	45,568
Do. for 1886-87.	61,500	15,29,262	59,940	1,06,500	...	46,560
Do. for 1887-88.	35,700	15,64,962	61,884	1,12,500	...	50,616
Do. for 1888-89.	36,093	16,01,055	63,320	1,16,500	...	53,180
Do. for 1889-90.	11,734	16,12,789	64,277	1,19,200	...	54,923
Do. for 1890-91.	...	16,12,789	64,512	1,22,200	...	57,688
Do. for 1891-92.	...	16,12,789	64,512	1,25,800	...	61,288
Do. for 1892-93.	...	16,12,789	64,512	1,26,800	...	62,288
Do. for 1893-94.	...	16,12,789	64,512	1,27,300	...	62,788
Do. for 1894-95.	...	16,12,789	64,512	1,27,800	...	63,288
Do. for 1895-96.	...	16,12,789	64,512	1,28,300	...	63,788
Do. for 1896-97.	...	16,12,789	64,512	1,29,300	...	64,788
Do. for 1897-98.	...	16,12,789	64,512	1,30,300	...	65,788
Do. for 1898-99.	...	16,12,789	64,512	1,31,000	...	66,488
Do. for 1899-1900.	...	16,12,789	64,512	1,31,000	...	66,488
Total ...	...	...	21,41,313	33,41,680	...	12,00,367

(Signed) J. O. HASTED, Colonel, R.E.,
Chief Engineer for Irrigation.

Order—dated 28th October 1884, No. 962 I., Public Works.

The completion estimates for the Pennér anicut system, as follows:—

Direct Charges.	RS.
Works	12,93,822
Establishment	3,19,636
Tools and Plant	36,832
	16,50,290
Deduct receipts on Capital Account ...	37,501
	16,12,789
Indirect Charges.	
Capitalization of land revenue	1,79,598
Leave and pension allowances	64,946
	2,44,544
Total ...	18,57,333

will be submitted for the sanction of the Government of India.

2. Sanction has already been accorded to Rs. 12,59,206 under Direct Charges, and the expenditure has amounted to Rs. 14,28,862. The further expenditure proposed amounts to Rs. 2,21,427, from which a deduction of Rs. 37,500 has to be made on account of sale-proceeds of tank beds.

3. The statement of financial results prepared by Mr. Wilson, C.S., shows that the project has, up to date, paid very well. The forecast statements now prepared show that when the works are finally completed, a return equivalent to 8·1 per cent. on total direct outlay may reasonably be expected. The Government are satisfied that it is desirable to carry out the works as now estimated for.

4. The Government regret the delay which has taken place in submitting these estimates in a complete form, but accept the assurance of the Chief Engineer for Irrigation that the delay has been unavoidable.

(Here enter No. 963 I., dated 28th October 1884.)

(True Extract.)
(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, II Circle.
„ Chief Engineer for Irrigation.
„ Examiner, Public Works Accounts.
„ Revenue Department.

Endorsement—dated 28th October 1884, No. 963 I., Public Works.

Forwarded.

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

Exd. A. Grubert.
Spare Copies

LIST OF PLANS TO BE SENT TO THE GOVERNMENT OF INDIA.

1	Index map.
1	General plan of Delta.
1	Plan of part of Pennér delta.
1	Longitudinal and cross sections of main and Sarvapalli channels.
1	Plan of shutter with screw-gearing for main head sluice.
6	Sheet survey, longitudinal and cross sections of Nellore tank supply channel.
1	Plan of surplus weir.
3	Sheets longitudinal and cross sections of main drain.
Total ... 15	

C No. 70

D.W.

This can await the reply from the Supt. of Works to No. 181 D of 24/1/85.

Sabapathy Mudaliyar can be appointed a temporary Overseer on Rs 80 per mensem.

E.A.S.
28/1/85.

E.

Yes.
C.S.
28.1.85

IRRIGATION.
ACCOUNT.

Govt. of (1884) Madras.

PUBLIC WORKS.

Dated October, 28th.

Recd. Encl.

G.O., 28th Oct. 1884, No. 963 I.

OCTOBER.

Penner Anicut System

Forwarding for sanction the completion estimates of the —.

No. 73.

North Arcot
~~VELLORE~~ CIRCLE,
LOCAL FUND BOARD'S OFFICE,
Chittur, ~~Vellore~~, 20th January 1885.

From,

H. J. Stokes Esquire,
~~Vice~~-PRESIDENT, LOCAL FUND BOARD,
North Arcot
~~Vellore~~ Circle.

To,

The Dy Chief Engineer,
D.P.W.
Madras.

SIR,

With reference to your letter No. 24 C. of the 7th Instant, I have the honour to state that the Assistant Engineer, Vellore thinks that he may not be able to get a competent man to replace Sabapathy Mudr. at the end of the official year unless the appointment will last for 9 or 12 months.

I request you will be good enough to let me know if you can guarantee the appointment for Sabapathy Mudr. for the period.

I have the honour to be
Sir,
Your most obedient Servant
Brown
President

Lieut. Col. R.E.
Superintendent of Works
Tank Maintenance Scheme

IRRIGATION BR. TANK MAINTENANCE SCHEME 16 JAN 85

Recd 24/1/85

No. 211 Ca/4-2-85

From,
THE VICE-PRESIDENT,
Local Fund Board,
Vellore Circle.

To,
THE

Station—Vellore.
Dated } 188
Received

SECRETARY TO GOVERNMENT P.W. DEPART. 22 JAN 85

No.
Enclosure.
SUBJECT.

Forwarding for sanction the completion estimates of the —.

No. 241 T

OFFICE OF SUPERINTENDENT OF WORKS,
TANK MAINTENANCE SCHEME,
30th January 1885.

From
THE SUPERINTENDENT OF WORKS,
TANK MAINTENANCE SCHEME,

To
THE Chief Engineer
Public Works Department

Enclosures. /

SIR,

With reference to your No: 181 D, dated 24th Instant, I have the honor to state that employment can be found for T. Subapathy Moodliar on the Red Hills Tank restoration for 9 months, as the work is likely to last not less than that period.

I have the honor to be
Sir
Your most obedient Servant

Lieut. Col. R.E.
Superintendent of Works
Tank Maintenance Scheme

2 FEB 85

No. 211 Cap 4-2-85

Public Works Dept.
Madras 4th February/85

No. 211 C

To
The President,
L. F. Board
North Arcot Circle

Sir,

In reply to your letter No. 73 d/20th January 1885, I have the honor to inform you that employment can be found for T. Sabapathy Mudaliyar on the Red Hills Tank Restoration for 9 months certain, and to request that as his services are urgently required they may be made available as early as may be convenient

I have &c
(B.O.)
Sd C B
D. E. W

despd 4/2/85

No. 181 Day 24-1-85
" 24 Ca 27-1-85

F.C.

271 C. 10-2-85

No. 271 Ca 4-2-85

E.A.S.
wants after
despatched
4/2/85

Ed
6/2

No. 271 Ca 10th February/85

P. W. Dept

No. 139.

North Arcot
~~VELLORE~~ CIRCLE,

LOCAL FUND BOARD'S OFFICE,

Chittur, ~~Vellore~~, 5th February 1885.

From,

G. W. Fawcett Esquire,

~~Vice~~-PRESIDENT, LOCAL FUND BOARD,
North Arcot
~~Vellore~~ Circle.

To,

The Dy Chief Engineer,
D. P. W.
Madras.

SIR,

Adverting to your letter No 271 C of the 4th Instant, I have the honor to inform you that I have instructed the Assistant Engineer, Vellore, to relieve Sabapathi Mudr. Local Fund Overseer of Vellore and direct him to join at once.

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

President

Copd. F.C.
Compd

Ex 7 P.W.A.
F.W.
R.S.

Master

No. 181 Da/ 24-1-85
" 24 Ca/ 2-1-85

No. 271 Ca/10-2-85

From,
THE VICE-PRESIDENT,
Local Fund Board,
Vellore Circle.

To,
THE

Station—Vellore.
Dated } 188
Received

No.
Enclosure.
SUBJECT.

7 FEB 85

P. W. Dept

No. 271 Ca/10th February/85

Memorandum

Letter from the President L. F. Board, N. Arcot Circle No. 139 d/5th Feby 1885.

T. Sabapathy Mudaliyar is appointed a temporary Overseer on Rs. 80 per mensem, and posted ~~to the Tank maintenance Scheme~~ for duty to the Red Hills Tank Division.

CW.
9. 2. 85

JJS

T. Sabapathy Mudaliyar thro' the President L. F. Board

Supt. of W. T. R. S.

Exr. P.W.A.

Do
10/2/85

J. W.

RS

No. 181 D

No. 211 Ca/ 4-2-85

No. 271 Ca/10-2-85

E

Arni
9th November 1885

To

The Chief Engineer

FC'

Class

INDIAN TELEGRAPH.

Local No. 0266

To (Station) DS

Words Triplicane Day. Hour. Madras Minute.

From (Station) Bezwada

Official Instruction.

To (Person) 25 | 9 10 16 20

Madras Works

From (Person) Referred

Suptg Engr 2nd Circle

Your Memo (1750) fourth instant please order the men to join Nellore Division at Nellore

Recd. from
At Hrs. L. N. Mts., By
Sent At Hrs. L. N. Mts., By
Date

MADRAS 10-11-85

Telegraph Master

B, Ellis, C P 3 1 8 F—No 238 - 25 - 30 - 13-3-85

No. 211 C a/ 4-2-85

No. 1750 C a/ 4-11-85
G.O. A 773 D a/ 11-9-85
No. 533 C a/ 13-3-85
G.O. A 1750 C a/ 4-11-85
5263 a/ 19-6-85
No. 942 D a/ 22-4-85
" 974 D a/ 20-4-85
" 615 C a/ 23-3-85
" 654 D a/ 16-3-85
G.O. A 963 D a/ 28-10-84

Incl 9742

Recd 11/11/85.

11 NOV 85
P.W. DEPARTMENT

No. 1822 C a/ 12th Novr/85

Recorded, with reference to Memo No. 1750 C of the 4th Novr 1885 in which the men were directed to report themselves at Nellore

Init
11/11/85

11-11-85

Arni
9th November 1885

To

The Chief Engineer
Madras Public Works Deptt.
Madras.

11 NOV 85

No C 9742
ME 11-11-85

Sir.

Referring to your honor's memorandum No. 1750 C dated 4th November /85 appointing me as 2nd grade Overseer to do duty in the 2nd Circle under the orders of the Executive Engineer Nellore Divn. I beg to inform that I have very recently entered the Local Fund Service as Overseer in the North Arcot District. Considering my future prospects & my present poor pay. (Rs 50) and the present employment being most serviceable ~~fo~~re, I beg your honor will be graciously pleased to ask the L. F. Executive Engineer at Chittore for permission to join the appointment in the Nellore Division P. W. D.

If your honor were not to write to the L. F. Executive Engineer for releasing me, it will take long time for me to be relieved.

Soliciting your kind orders &c.
I beg to remain Sir
Your most obedt Servant
P. Moothusamy Iyer.
L. F. Overseer
Polur Taluq
(Camp) Arni

Incl 9777

11 NOV 85
P.W. DEPARTMENT

Cll 17-11

6/

P. W. Department.

Letter from P. Moothusamy Iyer, L. F. Overseer, Polur taluq, Arni, d/ November 9. 1885.—

Note

By a late Govt. Order it was laid down as a rule that L. F. Boards and Municipalities should get three months notice from any of their employés desirous of leaving them for Govt. service.

In the present case a delay of three

months cannot be granted as the S. E. II Circle desires that the Overseer should join the Nellore Division by the 1st December 1885.

Proposed that the appointment of P. Muthuswami Aiyar be cancelled and that T. Subbapati lately employed on the Red Hills Tank &c be appointed to Nellore in his stead.

Yes. W.S.
13-11-85

13/11/85

13.11
E

D.W.
W

P. W. Department.

No. 1876 Cy 17th November/85

Memorandum.

Letter from P. Moothuswami Aiyar, Local Fund overseer, Polur Taluk, dated 9th Nov./85.

P. Muthuswami Aiyar, who was appointed a temporary overseer in memo No. 1570 C dated 4th November 1885, reports that he has obtained employment under the District Board North Arcot, and begs that the Local Fund Executive Engineer may be asked to relieve him.

Under recent orders in the Financial Department, three

three months notice should be given to District Boards in cases where any of their ~~Local Boards~~ subordinates may be taken into Government employ; but, as Upper Subordinates are urgently required in the Nellore Division, the appointment+ of P. Muthuswami Aiyar as temporary Overseer 2d grade is cancelled, and another subordinate will be appointed.

+ Vide No. 1750 Ca/4/11/85

Sent
14/11/85

14.11.85

S. E. II Circle
Ex. P. W. Accts
P. Muthuswami Aiyar.

Desd
17/11/85

Vellore 26 J

Most Respected sir

I humbly beg leave to inform your Honor that your Honor's letter about me to the President of this District (North Arcot Dist.) was referred to the Local Fund Assistant Engineer of Vellore Divn (my immediate superior) for his opinion. He was kind enough to reply saying he had no objection to my taking up an overseer's post in D.P.W. on the Red Hills Project and asked for a substitute being sent so that I may give over charge properly. I am therefore glad to tell your Honor that I will join your Honor's Department very shortly. There would not have been even so much delay had this not been the close of the official year.

I need hardly say that I am very much indebted to your Honor for the troubles your Honor has taken on my account.

I finally request your Honor will be graciously pleased to allow me a salary not less than my salary here which is Rs 70 + 15 = Rs 85 as I have a service of nearly 1½ years in D.P.W. and 5 years in L.F.D.P.W. Requesting your Honor will be so kind as to excuse me for all the troubles given and liberty taken

I beg to remain
most Respected Sir
Your Honor's most obedient & humble servant
T. Salapathymoorty
L.F. Overseer - Vellore Taluq

Delhi 700

Recd 27/1/85

No. 211 Cay
4-2-85

No. 1876/1877 Ca/17-11-85

W/18.11

C/

P. W. Dept.

No. 1877 Ca/17th November 85

Memorandum.

T. Sabapathy Mudaliyar is appointed temporary Overseer on Rs 80 per mensem, and posted for duty in the Nellore Dn.

He will report himself as soon as possible to the Executive Engineer at Nellore.

14/11/85

14.11.85

17.11

S. E. II Circle

Exr. P.W. Accts.

T. Sabapathy Mudaliyar.
C/o Ex: Eng: Red Hills Tank Dn.

E.A.S.

Cu/

No. 1822 C d/ 12-11-85
" 1774 C d/ 6-11-85
" 1750 C d/ 4-11-85
G.O. A/ 773 D d/ 11-9-85
" 526 D d/ 19-6-85
No. 992 D d/ 22-4-85
" 974 D d/ 20-4-85
" 806 D d/ 31-3-85
" 615 C d/ 23-3-85
" 654 D d/ 16-3-85
" 533 C d/ 13-3-85
" 555 D d/ 6-3-85
" 471 D d/ 23-2-85
" 271 C d/ 10-2-85
" 211 C d/ 4-2-85
G.O. A/ 963 D d/ 28-10-84

No. 1876/1877 C d/ 17-11-85

W 18/11

20 18/11

Financial Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following

~~+at [illegible]~~

Endorsement of the Public Works Department No. 396 D dated 13th July 1886 on letters from the Superintending Engineer, 2d Circle ^S.E's, Mg 1886, no. 53 S.2 recommending the exemption of certain +persons from the 25 years's rule.

+T. Sabapathi Mudaliar & P. Narainaswami Naidu

Order 22d July 1886 No. 696 Mis.

Sanctioned.

(True Extract.

Chief Secretary.

To The Public Works Department.

CR

Vellore 28th Febry/85

Most Respected Sir

I humbly beg leave to inform your Honor that I will finally hand over charge of this Taluq to-morrow and will visit your Honor on the 2d proximo. Hoping to be excused

I beg to remain
most Respd Sir
your most obedient
&
humble servant
T. Cakapathy
L. F. overseer
Vellore Taluq

✓

No 471 Dy 23/20 Feby/85

Recorded

CY.
20.2.85

M.
23.2

No. 471 D of 23-2-85
" 271 C of 10-2-85
" 211 C of 4-2-85

Br Ano: 1852

R/ 2. 3. 85.

No. 555 D of 6th March/85

D

Recorded

C.S.
3. 3

E

M./6.

No. 1962 W. of 7 August/

B

Communicated to the Suptg: Engr: ~~III~~ II Circle with reference to his letter No. 53 G.L. of 3rd July 1886.

6/8/86

2-8-86

396 D. 13.7.86.
745 C. 9.4.85 | Taken from No. 1946 of 30/9/86
1614 C. 9.10.85

S.E. ~~III~~ II × Circle ✓

Ex: P.W. accts: ✓ × D.C.W.

Des 7/8/86

O.G.S. 143 of 11/8/86

Mcleo 5255

[6]

Govt. of } 188 } Madras.

(6)

To

The P.W. Dept.

Proceedings, dated 22 July 1886
No. 696 W.

Subject.

B No. 1962 W. of 7-8-86

Sanctioning the entertainment of certain persons in the P.W. Dept., who are above 25 years of age

---

No. 624 C of 13th February /86

Telegram

D.S.

To,

S.E. II Circle.

Nellore.

Subbapati left for Nellore last Sunday × Donaghue instructed by wire to join immediately

(Sig.) D.McN(

D.G.W.

desp.d 13/2/86

1886.

P. W. DEPARTMENT.

Current No. 4545.

From

S. E. II Circle

ENCLOS.—

No. 224 N. L.

Dated June 10. } 1886.
Received " 14 }

SUBJECT.

Sabhapathy Mudaliyar T.
Overseer 3rd grade.—

Requests sanction of Govt to the entertainment of —— who is over 25 years of age

DISPOSAL.

No. 265 D. Dated June 18 - 1886

Forwarded to the Finl dept., with reference to G.O. No. 487 d/ 2nd June 1886, for favorable consideration.

2. The Overseer was appointed to the permanent upper subordinate

---

No. 626 Cay 13-2-86

M. /15.2

Financial Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following

from the Public Works department, No: 265 D. dated June 18th. 1886, requesting sanction for the entertainment of T. Sabapathy Mudaliar Overseer 3rd grade in the Nellore Division as he is over 25 years of age.

Order dated 25th June 1886. No: 555 Mis.

Sanctioned.

(True Extract)

[illegible] Webster

Chief Secretary

To

The Public Works department

Copy to S.E. II Circle.

C. No. 1151-

Note

Sabhapati left Madras for Nellore last Sunday. Sergt A. Donaghue has not yet left Kurnool. ~~A~~ Telegrams to S.E. II & III are submitted for approval.

13.2

No. 1715 W. d/ 8" July 1886

Communicated to the Supdg. Engr. II Circle, with advertence to his letter No. 224 N.S. dated 10" June 1886.

5.7.86

7/6/86

2096 W 24.8.81
3291 W 17.11.83.
2611 W d/ 5.11.85.
624 C d/ 13.2.86.
265 D d/ 18/6/86.

8/7

Desbd 8/7/86

S.E. II Circle

Exr. P.W. Accts.

15/7

Bulls 5730

Govt. of (188) Madras.

(3)

To

The P.W. Dept

Recd 3/7/86

Proceedings, dated 25 June 1886

No. 535 Mis

Subject.

No. 1715 W. d/ 8" July 1886

Sanctg. the entertainment of Sabhapathi Mudaliar, Overseer 3d grade in the Bellary Division

with order

With order

1886.

P. W. DEPARTMENT.

Current No. 5239.

From

The Supd. Engineer, II Circle.

Enclos.—

No. 53 G.L.

Dated 3rd July 1886

Received 7th do —

Subject.

Overseers T. Sabapathi Mudr. and Naranaswamy Naidu —

States that —— are above 25 years of age, and requests the sanction of Govt. to their entertainment under para 174 of the P.W. Code.

Disposal.

No. 396 D. Dated July 13. 1886

Forwarded to the Financl. Dept. for favorable consideration in the case of Overseer Naransawmy. Overseer Sabapathy Mudr. has already been exempted in G.O. 555 Mis d/ 25" June 1886. (1715 W d/ 8" July 1886).

Sd J.S.

W.

No. 397 D d/ 13.7.86

To

The Financl. Dept.

Copy to S.E. II Circle.

Desbd 14/7/86.

No 1876/1877 C a/ 17.11.85
1822 C a/ 12-11.85
1774 C a/ 6.11.85
1750 C a/ 4-11.85
G.A. 773 G a/ 11.9.85
" 526 G a/ 19.6.85
No 992 D a/ 22-4.85
" 974 D a/ 20-4.85
" 806 D a/ 31.3.85
" 615 D a/ 23-3-85
" 654 D a/ 16.3.85.
" 533 C a/ 13.3-85
" 555 D a/ 6.3-85
" 471 D a/ 23-2.85
" 271 C a/ 10-2-85.
211 C a/ 4.2.85
G6. A/963 G a/ 28.10.84.
No 745 C a/ 1-4.85
" 1614 C a/ 9.10-85
G4 2096 W a/ 24.8-81
3291 W a/ 17.11.83?
2611 W d 5-11.85
624 C a/ 13.2.86.
265 D a/ 18-6-86.
1715 W d 8.7.86.

Mch 5130 ✓

With order

With order