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(2) Date of repair 28.10.86.

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MIL NADU ARCHIVES

ERNMENT OF TAMIL NADU

Public Works. DEPARTMENT

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G.O. No. / B.P. No.	609 } W.	Press. / Mis.

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

27th February 1879, No. 609 W.

Buildings and Roads.

Civil Works.

Read the following papers :—

No. 275. From W. PARKES, Esq., M.I.C.E., Engineer-in-Chief, Madras Harbour Works, to the Secretary to Government, Public Works Department, Buildings and Roads, dated Madras, 24th January 1879.

I HAVE thought it desirable to take the opportunity while at Madras of examining the accounts of expenditure on the Harbour Works with the view of comparing them with my original estimate and of submitting the comparison to the Government in such a form as will enable them to judge how far our experience up to the present time justifies my estimate of the total expenditure on the Harbour.

2. To facilitate this I have prepared a rearrangement of the figures of my estimate in a form that will show more clearly the anticipated cost of the successive stages of the work (Appendix No. 1). Not only the total amount, but all the dimensions and prices are the same as in the original, the only difference being that the money column is carried out to show the cost of *sections* of the completed work instead of the total cost of each *class* of work (rubble stone, concrete blockmaking, setting blocks, &c.). The money column is also carried out in Rupees at 10 to the £ sterling which was the value when the estimate was made.

3. I also beg to submit a tracing of the completed Harbour with the several sections shown and the estimated cost marked on each (Appendix No. 2).

4. The boundaries of the sections were determined by the positions of the contour lines of depth shown on the plan on which I originally based my design, and the substantial correctness of which has since been confirmed by the special surveys made. Thus from the shore to the 2½ fathom line at each pier F and L represents the rubble stone "surf banks." From the 2½ to the 4 fathom line F to G and L to M the shallow water or three course sections, and from thence outwards the rubble base is calculated for according to the increasing depth by each successive fathom, and the superstructure at the uniform height of four courses of blocks. In addition to the aggregate cost of these several sections Rupees 8,00,000 is allowed for "Plant and Preliminaries," 10 per cent. for "Contingencies," and 5 per cent. for "Establishment," making a total of Rupees 56,50,740.

5. The statement of expenditure naturally lends itself to a somewhat similar arrangement, but a little modification of form in the statements hitherto submitted is required to present a clear ground for comparison. I have prepared the accompanying statement of the expenditure to 31st December (Appendix No. 3) with such necessary modifications the nature of which is explained in detail in Appendix No. 4, and the result shown is that the expenditure on the two piers apart from "Plant and Preliminaries," "Contingencies," and "Establishment" as far as completed to the 31st December was—

	Rs.
For the North Pier	6,61,151
For the South Pier	3,13,256
Total ...	9,74,407

which includes about Rupees 20,000 for rubble stone deposited in advance of the completed portions of the work.

6. The estimated expenditure on the same portions was as under:—

	Rs.
North Pier.	
Surf bank A to F	2,37,188
Shallow water, Section F G	1,80,612
4 to 5 fathoms G H	1,78,150
Proportion of 5 to 6 fathoms $\frac{339}{655}$ of H I	1,41,312
Total ...	7,37,262
South Pier.	
Surf bank D to L	2,37,188
Shallow water, Section L M	1,80,612
Proportion of 4 to 5 fathoms $\frac{50}{1000}$ of M N	19,794
Total ...	4,37,594
or total for the two piers	11,74,856

showing a saving on the estimate of Rupees 2,00,449 without making any allowance for the advanced rubble stone.

7. There were also on the ground at the date under notice 1,011 concrete blocks containing 15,432 cubic yards prepared at an actual cost of Rupees 1,47,012, of which the estimated cost was Rupees 1,54,320, showing a further saving of Rupees 7,308.

8. If it were justifiable to make the cost of the work so far as executed the basis of a revised estimate for the whole the result would be a smaller total than that of my original estimate, but the difference would still be within the limits of uncertainty which may naturally be expected in such an undertaking. I would therefore only submit the general conclusion that the present comparison of estimate and expenditure affords a strong presumption that the work will be completed within the original estimate of Rupees 56,50,000. The bulk of the saving is not in the pier works proper,* but in the surf banks, for which my original estimate was undoubtedly excessive. It was, however, impossible for any one to form any definite idea of the difficulties and obstructions which would be met with in pushing through the surf and shallow water. The result has proved that I over-estimated the cost of the operation, and perhaps somewhat under-estimated the time required for it.

9. The head of "Plant and Preliminaries" shows an expenditure to date of Rupees 8,91,198, and about Rupees 2,000 additional will be required for an office and store for the south pier under the sub-head "Buildings." All the other sub-heads will now be absolutely closed; any necessary additions to the plant or machinery will be charged to the works with which they are connected. Indeed in the modified

* The actual rates are as under—
Rubble nearly Rupees 2 per ton as against Rupees 1-8-0 estimated, but this is already much reduced.
Blocks Rupees 9-8-0 per cubic yard as against Rupees 10 estimated.
Blocksetting Rupees 17 per lineal foot as against Rupees 75 and Rupees 80 for three and four course work respectively.

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statement I submit I have made this rule to some extent retrospective, and have transferred several items to the accounts of the actual works. If any important additions should be required it will be for some purposes unforeseen when the original estimate was made, and these should be charged to "Contingencies." To this heading I have removed the charge for the new block ground at the south pier. The total amount charged to "Plant and Preliminaries" in my revised statement is Rs. 1,456 in excess of that in the statement already submitted, but this total is arrived at after making considerable changes in the several items. An aggregate of about Rs. 39,500 has been transferred from it to the several heads of the works in progress with which they are connected, and a sum of Rupees 41,004 has been transferred to it from "Rubble Base," being the charge for the current expenses of the steam hopper barges up to the time they were employed in depositing stone. This I consider to be a fair charge against "Preliminaries," because the delay in bringing the barges into work has rendered unnecessary the costly jetty for loading the stone which was originally contemplated, for which it is therefore a substitution. The comparatively small arrangements which will now be required for this purpose may be fairly charged against the current expenses of depositing the rubble base. The same rule has been as far as possible followed in all cases; as soon as the several works were fairly started they were made to bear the charges of not only the working and maintenance of the plant and machinery, but also of various small additions which experience showed to be desirable. Where more important additions are made as in the case of the new block ground at the south pier it may be presumed that the occasion for them will have been due to unforeseen conditions and the charges should be carried to "Contingencies."

10. Comparing the cost of "Plant and Preliminaries" (now with the small exception noted completed) with the estimate of Rupees 8,00,000, an excess of about Rupees 93,000 is shown, but a considerable portion of this is due to the loss on exchange in English purchases. With regard to the remainder it is only necessary to explain that the original estimate could not be other than a very rough one. I know that every economy was exercised in making the several provisions, and I think a proof of the general efficiency and sufficiency of the plant is given in the fact that so considerable a portion of the works have been executed under the estimated rates.

11. For *Contingencies* an allowance of 10 per cent. was made in the estimate. Ten per cent. on the expenditure of Rupees 20,12,617 would be Rupees 2,01,262, but hitherto only Rupees 49,778 have been charged to this head, being only $2\frac{1}{2}$ per cent. As this is the fund specially reserved for unforeseen requirements it would be improper to hazard any prediction as to what future claims may be made upon it.

12. The item of *Establishment* shows so far an excess over my estimate, being 9 per cent. on the expenditure instead of 5. This is in great measure accounted for by the delays which occurred to the works preventing expenditure without the possibility of reducing the establishment at the same time. I hope a great part of the excess will be recovered as the works progress more rapidly.

13. The head of *materials in store* is not comparable with the estimate as the charges are not brought into the account till the materials are issued to the works.

14. I beg to recommend the substitution of my amended statement of expenditure to the 31st December for that already presented as giving a fairer view of the relative cost of the different departments of the work, but any orders the Government may give on this will not effect future monthly statements except in the case of the few items which I propose to withdraw from the head of "Plant and Preliminaries" and on which expenditure is going on.

15. It will be observed that in my amended form of estimate I have not inserted the additions and sub-divisions which were made after the original passed out of my hands. I hope the Government will sanction their omission in future.

16. In conclusion I would suggest that as this letter contains some conclusions of public interest and calculated to correct some prevalent misapprehensions it might be advisable to communicate it to the Editors of the local papers.

APPENDIX No. 1.

Original Estimate rearranged.

		Rs. A. P.	Rs. A. P.
1	Plant and Preliminaries	...	8,00,000 0 0
	North Pier.		
2	*Surf Bank* from the shore to F 80 feet seaward of point B—		
	158,125 tons laterite at Rs. 1-8-0	...	2,37,187 8 0
3	Shallow water section 3 course work F to G (580 from B)—		
	2½ to 4 fathoms. Rubble base 19,575 tons Rs. 1-8-0 ...	29,362 8 0	
	Concrete blocks 20½ cubic yards to a foot lineal, and allowing 50 feet extra for expenses of junction with surf bank, at Rs. 10 per cubic yard, 550 lineal feet blocks at Rs. 205.	1,12,750 0 0	
	Do. setting at Rs. 70 ...	38,500 0 0	
			1,80,612 8 0
4	Section from G to H (1,030 feet from B)—		
	4 to 5 fathoms. Rubble base 15,480 tons at Rs. 1-8-0.	23,220 0 0	
	Concrete blocks 26½ cubic yards to a foot lineal 450 lineal feet at Rs. 265.	1,19,250 0 0	
	450 do. setting Rs. 80	36,000 0 0	
			1,78,450 0 0
5	Section from H to I (1,710 feet from B)—		
	5 to 6 fathoms. Rubble base 43,792 tons Rs. 1-8-0 ...	65,688 0 0	
	680 lineal feet blocks, Rs. 265	1,80,200 0 0	
	680 do. setting Rs. 80	54,400 0 0	
			3,00,288 0 0
6	From I to K (2,560 feet from B)—		
	6 to 7 fathoms. Rubble base 83,300 tons Rs. 1-8-0 ...	1,24,950 0 0	
	850 lineal feet blocks Rs. 265 ...	2,25,250 0 0	
	850 do. setting Rs. 80	68,000 0 0	
			4,18,200 0 0
7	From K to the end—		
	7 to 7¼ fathoms. Rubble base 159,637 tons Rs. 1-8-0.	2,39,455 0 0	
	1,370 lineal feet blocks, Rs. 265 ...	3,63,050 0 0	
	1,370 do. setting, Rs. 80	1,09,600 0 0	
			7,12,105 0 0
8	Light-house	...	30,000 0 0
	South Pier.		
9	Surf bank from shore to point L 150 feet from E same as No. 2.	...	2,37,187 8 0
10	Shallow water section L to M (650 feet from E) same as No. 3.	...	1,80,612 8 0
11	M to N (1,100 feet from E) same as No. 4	...	1,78,470 0 0
12	N to O (1,780 feet from E) same as No. 5	...	3,00,288 0 0
13	O to P (2,630 feet from E) same as No. 6	...	4,18,200 0 0
14	From P to the end, same as No. 7	...	7,12,105 0 0
15	Light-house	...	30,000 0 0
	Total for Works of both Piers ...	...	49,13,726 0 0
	Contingencies 10 per cent.	...	4,91,369 0 0
	Establishment at 5 per cent.	...	2,45,685 0 0
	Total ...	...	56,50,780 0 0

24th January 1879.

(Signed) W. PARKES, M.I.C.E.,
Engineer-in-Chief, Madras Harbour Works.

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APPENDIX No. 3.

REVISED STATEMENT of Outlay on Madras Harbour Works to 31st December 1878.

Heads of Expenditure.	Cost to end of December 1878.		Estimate.	Remarks.
	Rs.	Rs.	Rs.	
PRELIMINARIES.				
Marine Surveys	6,408	...	...	Closed.
Railways—				
Rails from England ...	1,38,197	...	...	Do.
Sleepers	39,385	...	...	Do.
Formation and materials.	66,027	...	...	Do.
Block ground	45,033	...	...	Do.
Buildings	62,005	...	...	Rupees 2,000 required for buildings at south pier.
PLANT.				
Locomotive engines ...	55,171	...	...	Closed. The cost of one locomotive, Rupees 18,657, has hitherto been wrongly charged to "Machinery."
Rolling Stock	20,035	...	...	Closed.
Floating Plant	1,80,004	...	...	Do.
Machinery, Cranes, &c. ...	2,42,125	...	...	Do. Rupees 18,657 transferred to "Locomotive Engines."
General Tools	32,778	...	...	Do.
Office Furniture	4,030	...	...	Do.
		8,91,198	8,00,000	
BLOCKMAKING.				
3,691 blocks	5,36,685	...		
Credit by 1,880 blocks used in north pier and 800 in south pier.	3,89,672	...		
Cost of 808 blocks of 16 cubic yards and 303 of 12½ cubic yards, in all 15,432 cubic yards.	...	1,47,013		
CONSTRUCTION OF PIERS.				
North Pier.				
Surf Bank complete ...	*1,76,585			*This includes Rupees 1,770 formerly charged to "Extra Rubble," which item is discontinued.
Rubble base, 82,498 tons ...	1,47,141			
1,880 concrete blocks ...	2,73,352			
Setting concrete, 1,350 lineal feet.	64,072	...	5,96,270	Estimate of pier complete to 1,030 feet.
		6,61,150		
			3,00,288	Estimate of section from 1,030 to 1,710 feet (now in progress).
			11,30,305	Estimate of remainder of pier.

REVISED STATEMENT of Outlay on Madras Harbour Works to 31st December 1878—*continued.*

Heads of Expenditure.	Cost to end of December 1872.	Estimate.	Remarks.
	RS.	RS.	
CONSTRUCTION OF PIERS—*continued.*			
South Pier.			
Surf Bank complete	67,328		* This includes Rupees 23,987, the cost of the extension of the South Indian Railway.
Rubble base, 45,979 ...	97,950		
800 concrete blocks ...	1,16,320		
Setting do. 700 lineal feet.	31,658		
	3,13,256	4,17,800	Estimate to 650 feet (completed).
Two Lighthouses ...		1,78,470	Estimate of section from 650 to 1,100 feet (now in progress).
...		14,30,593	Estimate of remainder of pier.
		60,000	
	20,12,617	49,13,726	
CONTINGENCIES.			
Protective works north of harbour.	20,998	...	As authorised at various times by Government.
Other charges as specified in former statements.	22,875	...	
Block ground at south pier.	6,106	...	Authorised by G.O., No. 3,759 W, dated 21st September 1878.
	... 49,777	4,91,369	
ESTABLISHMENT.			
Salaries	1,47,888	...	This item has been hitherto charged to "Preliminaries."
Office contingencies ...	2,625	...	
Travelling allowances ...	20,762	...	
Medical	318	...	
Assistance in Surveys ...	4,631	...	
	... 1,76,224	2,45,685	
Total Expenditure on Works.	22,38,618	56,50,780	
VALUE OF MATERIALS IN STORE.			
Cement, English ...	7,539	...	These materials are charged to the works when they are issued from the store.
Do. Indian ...	8,301	...	
Fuel	21,497	...	
Timber	13,371	...	
Iron and steel ...	19,922	...	
General stores ...	14,719	...	
Spare gear for machinery ...	7,000	...	Hitherto charged to "Plant."
	... 92,709	...	
Total Disbursements ...	24,24,035	...	

24th January 1879.

(Signed) W. PARKES, M.I.C.E.,
Engineer-in-Chief, Madras Harbour Works.

APPENDIX No. 4.

DETAILED STATEMENT of the Revisions recommended in the Account of Plant and Preliminaries.

Heads of Expenditure.	Original.	Amended.	To what Heads transferred.	Explanations.
	RS.	RS.		
1. Detailed surveys	4,631	...	4,631 transferred to "Establishment" ...	1. This has been from the first wrongly charged to Preliminaries. It follows and does not precede the work, and the expenditure will continue to the end. It should be charged to Establishment and called "Assistance in Surveys."
2. Marine do.	6,408	6,408	Account closed.	
3. Railways	2,47,122	2,43,609	1,171 transferred to blocksetting	3. The preliminary account for Railways is closed as from September 1877 and subsequent charges divided among the works served by them.
			2,342 transferred to rubble base	
4. Opening quarries ...	2,433	...	2,433 transferred to do.	4, 8. Opening quarries is an unnecessary item. A lump sum is sometimes paid for the purpose, but sometimes the cost is included in the tonnage rate. In either case the charge should be debited to the same head. The same remark applies to such land as may be required for quarries, the only purpose for which land is wanted for these works.
5. Block ground	51,139	45,033	6,106 transferred to Contingencies	5. The cost of the new block ground at the south pier not having been originally contemplated is a fair charge against "Contingencies."
6. Jetties for loading stone ...	1,922	...	1,922 transferred to Rubble base	6. The jetties now intended will be much smaller works than those originally contemplated. One is now being erected as an experiment, and others will have to be added when the best form is determined on. In the meantime no estimate can be given, but the cost will in any case be small, compared with the value of the rubble stone which will pass over them, and may therefore without undue disturbance of the rates be charged to "Rubble Base"—(See also remarks on No. 11).

DETAILED STATEMENT of the Revisions recommended in the Account of Plant and Preliminaries—*continued.*

Heads of Expenditure.	Original.	Amended.	To what Heads transferred.	Explanations.
	RS.	RS.		
7. Buildings	62,005	62,005	Rupees 2,000 required	7. *Buildings.*—The account may be closed after completion of certain necessary buildings (an office and store) at the South Pier.
8. Land	1,220	...	Rupees 1,220 transferred to rubble base ...	8. See above.
9. Locomotive Engines ...	44,401	55,171	Rs. 18,657* transferred from machinery below. Rs. 7,000 transferred to materials in store ... Rs. 443 transferred to rubble base ... Rs. 444 transferred to blocksetting ...	9. *Locomotive Engines.*—The amount Rupees 55,171 represents the cost of three locomotives ready for work. The Rupees 7,000 transferred to the store account represents spare parts sent out for renewals, and the sums of Rupees 443 and Rupees 444 are small current expenses since September 1877 chargeable to the works.
10. Rolling Stock	20,035	20,035	Account closed	10. This account will now be closed, any further rolling stock that may be wanted being charged to the works.
11. Floating Plant	1,43,535	1,80,004	Rs. 4,535 transferred to rubble base ... Rs. 41,004 transferred from rubble base ...	11. *Floating Plant.*—A sum of Rs. 4,530 has been transferred from this to rubble base, being the aggregate of several small charges connected with the deposit of rubble base since September 1877; on the other hand Rupees 41,000 has been transferred from rubble base to this head, being the cost of maintaining the two hopper barges from their arrival in May 1876 till they began to be employed in April 1878. This may be considered as a set off against the saving of the loading jetty which would have been required if they had been employed at earlier date.
12. Machinery, Cranes, &c. ...	2,67,366	2,42,125	Rs. 18,657* transferred to locomotive engines. Rs. 4,390 transferred to blocksetting ... Rs. 2,194 transferred to blockmaking ...	12. In the case of machinery all charges incurred since the machines got to work in a fairly complete state have been transferred to the works.
13. General Tools	32,778	32,778	Account closed	13. Account now closed.
14. Buoys and Beacons ...	717	...	Rs. 717 transferred to rubble base	14. The account for buoys and beacons is necessarily kept open; but as the use of them is only for depositing rubble base that head should bear them.
15. Office Furniture	4,030	4,030	Account closed	15. *Office Furniture.*—Account closed.

* Correction of an old error in the accounts.

General Remarks.—It is not to be assumed that because the above accounts are closed there will be no more charges of the same kind, but no such charges should be incurred unless with the ultimate view of reducing the current rates. Those rates may therefore fairly bear such charges, and the notice of the authorities should be directed to them by a special explanation in the column of "Remarks" in the monthly returns.

(Signed) W. PARKES, M.I.C.E.,
Engineer-in-Chief, Madras Harbour Works.

24th January 1879.

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No. 275-A. From the Examiner of Public Works Accounts, dated 17th February 1879, No. 43 B.

No. 276. ORDER THEREON, 27th February 1879, No. 608 W.

WITH the foregoing letter Mr. Parkes submits statements prepared with the object of showing how far his original estimate of the cost of the Madras Harbour Works has been borne out by actual experience.

2. In 1875 it was considered desirable that Mr. Parkes' original estimate of £565,000 for the works should be thrown into such a form as would enable the local Accounts Officers to deal with the monthly expenditure in the manner prescribed by the Government of India, and a revised estimate, prepared in some detail and amounting to Rs. 64,00,000, was submitted by the late Mr. May.

	£
Mr. Parkes' original estimate ...	565,000
Added by Government of India for additional rubble	20,000
Interest during construction ...	43,000
Total ...	628,000

3. This revised estimate was objected to by Mr. Parkes on various grounds, and in May 1876 another estimate was prepared by the Chief Engineer, which in its abstract form, and with the exception of the one item for additional rubble, was accepted by Mr. Parkes.

4. To facilitate a comparison between the estimated and actual cost of the Harbour up to the end of last year Mr. Parkes has rearranged this estimate, dividing the work into sections, and showing the expenditure, estimated or actual as the case may be, upon each section.

5. He has carried out the money column at Rupees 10 to the pound sterling, which was the rate at which the estimate was made.

The effect of this rearrangement is shown in the following abstracts :—

Chief Engineer's Estimate.

	Rs.
Plant	4,20,000
Buildings	75,000
Preliminaries	2,75,000
Land	30,000
	8,00,000
Rubble stone work	14,39,720
Piers from 2½ to 4 fathoms ...	3,02,500
Piers from 4 fathoms out-wards ...	23,11,500
Light-houses	60,000
Establishment	2,45,690
Maintenance and Contingencies ...	4,91,380
	56,50,790
Additional sum on account of rubble.	2,00,000
	58,50,790

Mr. Parkes' Estimate.

	Rs.
Plant and Preliminaries	8,00,000
... ...	4,74,375
... ...	3,61,225
From 4 to 5 fathoms	3,56,940
„ 5 to 6 „	6,00,576
„ 6 to 7 „	8,36,400
„ 7 to 7½ „	14,24,210
	32,18,125
... ...	60,000
... ...	2,45,585
... ...	4,91,380
... ...	56,50,790

6. With this rearranged estimate Mr. Parkes submits a statement of actual outlay to the end of 1878, showing that on the northern arm of the Harbour, which had then been advanced about half-way through the five to six fathom section, the sum of Rupees 6,61,151 had been expended, against the estimated cost for the same length of Rupees 7,37,262; while on the southern arm, which was beginning to enter the four to five fathom section, the real and estimated expenditure were respectively

609/b

Rupees 3,13,256 and Rupees 4,37,594; the total saving on both piers thus amounting to Rupees 2,00,449, irrespective of the cost of the advanced rubble foundation, and of a considerable saving on the concrete blocks manufactured up to the 31st December.

7. On other items of the estimate, such as Plant and Preliminaries, and Establishment, the expenditure is in excess of that anticipated, but the first named heads may with good reason be held to have been practically closed at the present date.

8. His Grace the Governor in Council concurs with Mr. Parkes in considering that, while the undertaking is in its present stage, it would be unwise to build too confidently upon these favorable results; but it is satisfactory to find that, so far, the expenditure on the works has on the whole been kept within the estimated cost.

9. It must also not be forgotten that, although the amount spent on tools and plant and machinery has necessarily been treated as a final charge, those articles represent a very considerable sum which will eventually be credited to the works.

10. Turning to Mr. Parkes' proposals in regard to the transfer of expenditure from one sub-head to another, His Grace the Governor in Council considers that each transfer should be brought forward on its own merits, and that the matter should be discussed between the Superintendent and the Examiner, Public Works Accounts. Such a transfer as that of the new block ground at the south pier from Preliminaries to Contingencies, being at variance with the procedure in the case of the north block ground, does not commend itself to the Government.

11. Nor can the Governor in Council consent to the proposal made in the 15th paragraph of Mr. Parkes' letter. The additions made to the original estimate were included in the sanction given by the Secretary of State, and must so remain until actuals can be substituted for estimate at the completion of the work.

12. These Proceedings will be forwarded to the Secretary of State and the Government of India, and communicated to the Harbour Committee and the Chamber of Commerce; and will also be placed on the Editors' Table.

(True Extract.)

(Signed) J. H. M. SHAW-STEWART, Colonel, R.E.,
Ag. Secy. to Govt., P.W.D.

To the Superintendent, Madras Harbour Works.
„ Examiner of Public Works Accounts.
„ Marine Department.
„ Chamber of Commerce.
„ Harbour Committee.
„ Editors' Table.

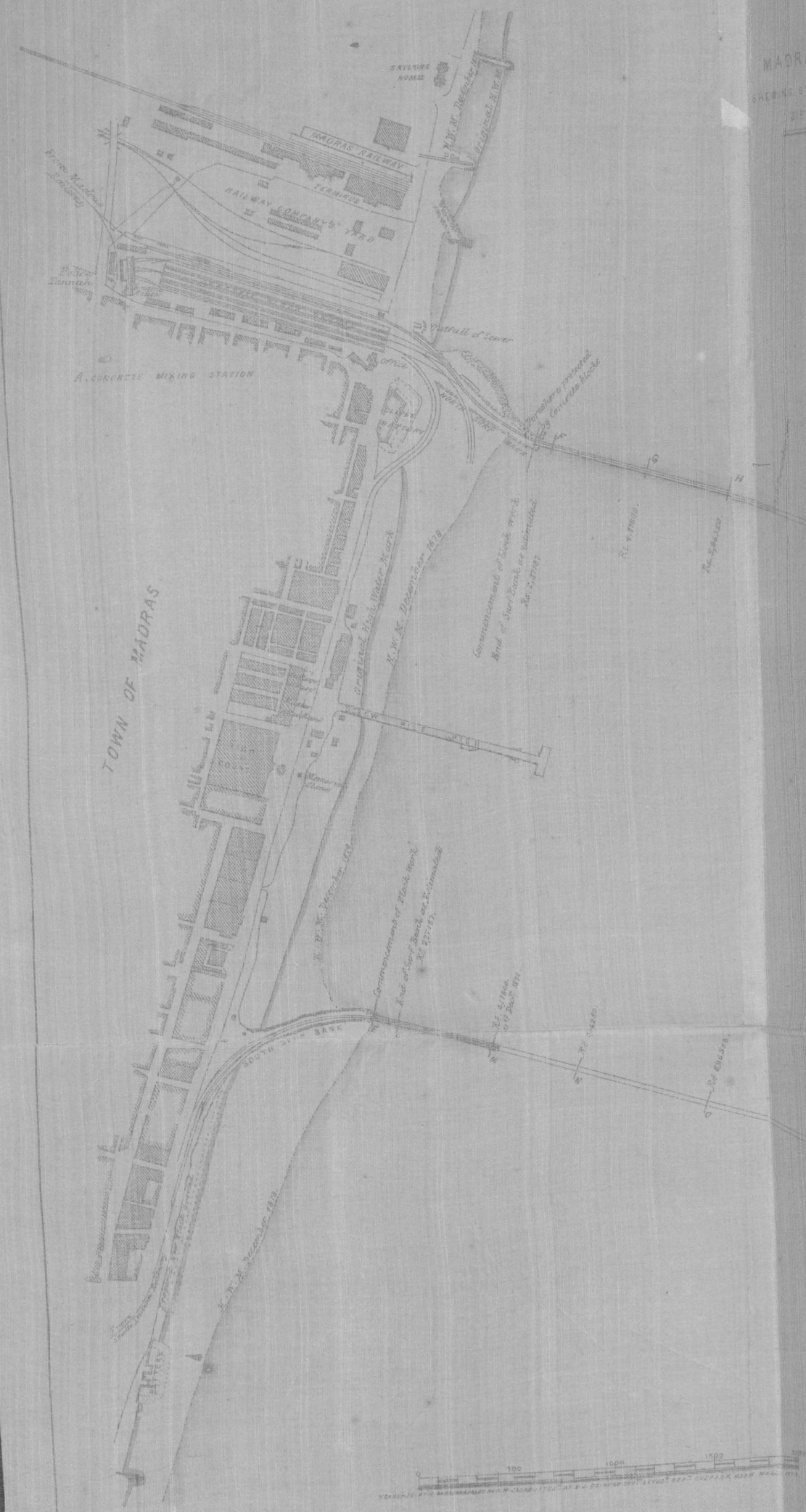
No. 277. (DOCKET No. 609 W, dated 27th February 1879).

COPY of the above forwarded to the Government of India.

Colonel, R.E.,
Ag. Secy. to Govt., P.W.D.

Exd. C. Howarth.
Spare Copies

APPENDIX No 2.



P 1

609/8

Madras Harbour.-

From

W. Parkes, Esq: M. Inst: C.E.
Engineer in Chief
Madras Harbour Works.

To

Colonel C. A. Foord R.E.
Secretary to Government,
Public Works Department,
Buildings & Roads,
Fort Saint George.

Madras 24th January 1879.

Sir,

I have thought it desirable to take the opportunity while at Madras of examining the accounts of expenditure on the Harbour Works with the view of comparing them with my original estimate and of submitting the comparison to the Government in such a form as will enable them to judge how far our experience up to the

the present time justifies my estimate of the total expenditure on the Harbour. –

2. To facilitate this I have prepared a rearrangement of the figures of my estimate in a form that will shew more clearly the anticipated cost of the successive stages of the work. (appendix No 1). – Not only the total amount but all the dimensions and prices are the same as in the original, the only difference being that the money column is carried out to shew the cost of sections of the completed work instead of the total cost of each class of work, (rubble stone, concrete blockmaking, setting blocks &c.). The money column is also carried out in Rupees at 10 to the £ sterling which was the value when the estimate was made. –

3. I also beg to submit a tracing of the completed Harbour with the several sections shewn and the estimated cost marked on each

each. Appendix No 2. –

4. The boundaries of the sections were determined by the positions of the contour lines of depth shewn on the plan on which I originally based my design – and the substantial correctness of which has since been confirmed by the special surveys made. – Thus from the shore to the 2½ fathom line at each pier F and L represents the rubble stone "surf banks"; From the 2½ to the 12 fathom line F to G, and L to M the shallow water or three course sections; and from thence outwards the rubble base is calculated for, according to the increasing depth by each successive fathom, and the superstructure at the uniform height of four courses of blocks. – In addition to the aggregate cost of these several sections Rs 8,00,000 is allowed for "Plant and Preliminaries" 10 per cent for "Contingencies" and 5 per cent for "Establishment" making a total of Rs 56,50,740. –

5. The Statement of expenditure naturally

lends

lends itself to a somewhat similar arrangement, but a little modification of form in the statements hitherto submitted is required to present a clear ground for comparison. I have prepared the accompanying statement of the expenditure to 31st December 1874 in Appendix No 3 with such necessary modifications the nature of which is explained in detail in appendix No 4; and the result shewn is that the expenditure on the two piers apart from "Plant and Preliminaries" "Contingencies" and "Establishment" as far as completed to the 31st December was

For the North Pier — Rupees 661,151
For the South Pier — Rupees 313256

Total Rupees 974,407

which includes about Rupees 20,000 for rubble stone deposited in advance of the completed portions of the work.—

6. The estimated expenditure on the same portions

1 3 609/10

was as under

North Pier. Surf Bank A to F		Rs 237,188
Shallow Water Section	F G	180,612
4 to 5 fathoms	G H	178,150
Proportion of 5 to 6 fathoms		
320/680 of	H I	141,312
		Rs 737,262
South Pier. Surf Bank	D to L	237,188
Shallow Water Section	L M	180,612
Proportion of 4 to 5 fathoms		
50/450 of	M N	19794
		Rs 437,594

or total for the two piers — Rs 1,174,856

shewing a saving on the estimate of Rs 200,449 without making any allowance for the advanced rubble stone.—

7. There were also on the ground at the date under notice 1011 concrete blocks containing 15,432 cubic yards prepared at an actual cost of Rs 147,012 of which the estimated cost was Rs 154,320 shewing a further saving of Rs 7,308.—

If

8. If it were justifiable to make the cost of the work so far as executed the basis of a revised estimate for the whole the result would be a smaller total than that of my original estimate, but the difference would still be within the limits of uncertainty which may naturally be expected in such an undertaking. I would therefore only submit the general conclusion that the present comparison of estimate and expenditure affords a strong presumption that the work will be completed within the original estimate of Rs 51,50,000. — The bulk of the saving is not in the pier works proper*, but in the surf banks, for which my original estimate was undoubtedly excessive. It was however impossible for any one to form any definite idea of the difficulties and obstructions which would be met with in pushing through the surf and shallow water. The result has proved that I overestimated the cost of the operation, and perhaps somewhat underestimated the time required for it. —

9. The head of "Plant and Preliminaries" shews an expenditure to date of Rs 8,91,198 and about Rs 2000 additional will be required for an Office and store for the South Pier under the sub-head "Buildings." — All the other sub-heads will now be absolutely closed, any necessary additions to the plant or machinery will be charged to the works with which they are connected. Indeed in the modified statement I submit I have made this rule to some extent retrospective, and have transferred several items to

---

* The actual rates are as under
Rubble nearly Rs 2 per ton as against Rs 1. 8. 0 estimated, but this is already much reduced —
Blocks — Rs 9 per cubic yard as against Rs 10 estimated
Blocksetting Rs 4/ per lineal foot as against Rs 70 and Rs 80 for three and four course work respectively —

Preliminaries (now with the small exception noted, completed) with the estimate of Rs 8,00,000 an excess of about Rs ~~12,000~~ 93,000 is shewn — but a considerable portion of this is due to the loss on exchange in English purchases — With regard to the remainder it is only necessary to explain that the original estimate could not be other than a very rough one. I know that every economy was exercised in making the several provisions, and I think of the plant is given in the fact that so considerable a portion of the works have been executed under the estimated rates —

11. For Contingencies an allowance of 10 per cent was made in the estimate — 10 per cent on the expenditure of Rs 20,12,617 would be Rs 2,01,262, but hitherto only Rupees 49,778 have been charged to this head, being only 2½ per cent. As this is the fund specially reserved for unforeseen requirements it would be improper to hazard any prediction as to what future claims may be made upon it. —

12. The item of Establishment shews so far an excess over my estimate being 9 per cent on the expenditure instead of 5. This is in great measure accounted for by the delays which occurred to the work preventing expenditure without the possibility of reducing the establishment at the same time — I hope a great part of the excess will be recovered as the works progress more rapidly. —

13. The head of Materials in store is not comparable with the estimate as the charges are not brought into the account till the materials are issued to the works. —

14. I beg to recommend the substitution of my amended statement of expenditure to the 31st December for that already presented as giving a fairer view of the relative cost of the different departments of the work but

my

any orders the Government may give on this will not affect future monthly Statements except in the case of the few items which I propose to withdraw from the head of "Plant and Preliminaries" and on which expenditure is going on.—

15. It will be observed that in my amended form of Estimate, I have not inserted the additions and sub-divisions which were made after the original passed out of my hands. I hope the Government will sanction their omission in future.—

16. In conclusion I would suggest that as this letter contains some conclusions of public interest and calculated to correct some prevalent misapprehensions it might be advisable to communicate it to the Editors of the local papers.—

I have the honor to be,
Sir,
Your most Obedient Servant
W Parkes M Inst. C.E.
Engineer in Chief
Madras Harbour Works

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Appendix No 1

Original Estimate rearranged

			Rupees
1	Plant and Preliminaries		6,12,000
	North Pier		
2	Surf Bank from the shore to F 80 feet seaward of point B		
	1,58,125 tons laterite at Rs 1-8		2,37,187 8
3	Shallow water Section 3 courses work F to G/580 from B/		
	Rubble base 19,575 tons Rs 1-8		29,362-8
2½ to 4 Fathoms	Concrete blocks 20½ cubic yards to a foot lineal, and allowing 50 fakzatra for expenses of junction with Surf Bank, at Rs 10 per cubic yard, 550 lineal feet blocks at Rs 205	1,12,750-0	
	do Setting at Rs 70	38,500-0	
			1,80,612 8
4	Section from G to H/1030 feet from B/		
	Rubble base 15,480 tons at Rs 1-8	23,220-0	
4 to 5 Fathoms	Concrete blocks 26½ cubic yards to a foot lineal 450 Lineal feet at Rs 265	1,19,250-0	
	450 do Setting Rs 80	36,000-0	
			1,78,450-0
5	Section from H to I/1710 feet from B/		
	Rubble base 43,792 tons Rs 1-8	65,688-0	
5 to 6 Fathoms	680 Lineal feet blocks Rs 265	1,80,200-0	
	680 " Setting Rs 80	54,400-0	
			3,00,288-0
	Carried forward		Rs 16,96,538-0

		Brought forward		1,696,538 - -
6	From I to K (2560 fat from B)			
6 to 7 fathoms	Rubble base 13,300 tons Rs 8 —		124,950	
	850 Lineal fat blocks Rs 265 —		226,250	
	850 " Setting Rs 80 —		68,000	
				418,200 - -
7	From K to the End.			
7 to 7¼ fathoms	Rubble base 15,637 tons Rs 8 —		239,455	
	1370 Lineal fat blocks Rs 265 —		363,050	
	1370 " Setting Rs 80 —		109,600	
				712,105 - -
8	Lighthouse			30,000 - -
	South Pier			
9	Surf Bunk from shore to point L			
	150 fat from E same as No 2			237,187 8 -
10	Shallow water section I to M			
	1650 fat from E same as No 3			180,612 8
11	M to N 1100 fat from E	same as No 4		178,450 - -
12	N to O 1780 fat from E	same as No 5		300,288 - -
13	O to P 2630 fat from E	same as No 6		418200 - -
14	From P to the end	same as No 7		712105 - -
15	Lighthouse			30,000 - -
	Total for Works of both piers			11,913,686 - -
	Contingencies 10 per cent			491,369 - -
	Establishment at 5 per cent —			245,685 - -
				Rs 56,50,740 - -

W Parkes Jr. Supt. & Engr in Chief
24th Jany 1879

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Appendix No. 3. Revised Statement of outlay on Madras Harbour Works to 31st December 1878.

Heads of Expenditure	Cost to end of December 1875	Estimate	Remarks.
PRELIMINARIES			
Marine Surveys	6408 ✓		closed
Railways			
Rails from England	1,31,197 ✓		closed
Sleepers	27,385 ✓		closed
Formation and materials	66,027 ✓		closed
Block ground	45,033 ✓		closed
Buildings	62,005 ✓		Rs 2000 required for buildings at South Pier
PLANT			
Locomotive Engines	55,171 ✓		closed - The cost of one locomotive (Rs 18657) has hitherto been wrongly charged to "Machinery"
Rolling Stock	20,035 ✓		closed
Floating Plant	1,80,004 ✓		closed
Machinery Cranes &c	2,42,126 ✓		closed Rs 18657 transferred to "Locomotive Engines"
General Tools	32778 ✓		closed
Office Furniture	4,030 ✓		closed
	8,91,198	800,000	
BLOCKMAKING (3691 blocks)	5,36,652		
Cost of 1850 blocks used on North Pier and 308 on South Pier	3,89,672		
Cost of 308 blocks of 16 cubic yards and 308 of 12½ cubic yards in all 15,432 cubic yards	1,47,012 ✓		
CONSTRUCTION OF PIERS			
North Pier			
Surf Bank complete	1,76,585 A		A This includes Rs 1770 formerly charged to "Extra Rubble" which item is discontinued.
Rubble Base 82,498 tons	1,47,141 ✓		
1880 Concrete blocks	2,73,352 ✓		
Setting do 1350 Lineal feet	64,072 ✓	596,230 ✓	Estimate of Pier complete to 1030 feet
	6,61,157	2,00,288 ✓	Estimate of Section from 1030 to 1710 feet (now in progress)
South Pier		11,30,305 ✓	Estimate of Remainder of Pier
Surf Bank complete	67,328 B		B This includes Rs 23,287 the cost of the extension of the South Indian Railway
Rubble base 45,979	97,960		
800 concrete blocks	46,320		
Setting do - 700 Lineal feet	31,658 ✓	4,17,500 ✓	Estimate for 650 feet completed
	2,13,256	1,78,450 ✓	do - of Section from 650 to 1100 feet (now in progress)
		14,30,593 ✓	do of Remainder of Pier.
2 Lighthouses	20,12,617 ✓	60,000 ✓	
		49,13,650	
		44,15,726	
CONTINGENCIES	20,997		Sanctioned at various times by Government
Protective Works North of Harbour	22,675		
Other charges as specified in former statements	6106		
Block ground at South Pier	49,778	4,91,369	authorised by G. O. No 3730 W. of 21 September 1878
	29,62,395	54,05,055	
Carried forward			

Heads of Expenditure	Cost to end of November	Estimate	Remarks.
Brought forward	2,62,398 4	54,05,085	
ESTABLISHMENT			
Salaries	1,47,388		
Office contingencies	2,628 5		
Travelling allowances	20,762		
Medical	818		
Assistance in Surveys	4,631		
Total Expenditure on Works	1,76,222 4	2,45,685	This item has been hitherto charged to "Preliminaries"
	~~2,21,326~~	56,50,770	
	22,38,618		
VALUE OF MATERIALS IN STORE			
Cement, English	7,239		These materials are charged to the works when they are issued from the store.
—do— Indian	8,201		
Fuel	24,497		
Timber	13,371		
Iron and Steel	19,922		
General stores	14,719		
Spare gear for Machinery	1,000		
Total disbursements	92,709		Hitherto charged to "Plant"
	24,24,036		

W Parkes, M: Inst: C.E. Engineer in Chief
Madras Harbour Works
24th Jany 1879

Appendix No. 4. Detailed Statement of the Revisions recommended in the account of Rent and Preliminaries.

Heads of Expenditure	Original	Amended	To what heads transferred.
1. Detailed Surveys	4,631	----------	4,631 transferred to "Establishment"
2. Marine Surveys	6,408	6,408	Account closed
3. Railways	2,47,122	2,43,609	1,171 transferred to Block setting 2,342 " Rubble base
4. Opening quarries	2,433	----------	2,433 " Rubble base
5. Block ground	51,139	45,033	6,106 " Contingencies
6. Jetties for loading stone	1,922	----------	1,922 " Rubble base
7. Buildings	62,005	62,005	Rs. 2000 required
8. Land	1,220	----------	1,220 transferred to Rubble base
9. Locomotive Engines	44,401	55,171	18,657* " from Machinery debtor 7,080 " to Materials in store 443 " Rubble base 444 " Block setting
10. Rolling Stock	20,035	20,035	Account closed
11. Floating Plant	1,43,535	1,80,004	4,530 transferred to Rubble base 41,004 " from Rubble base
12. Machinery, Cranes &c	2,67,366	2,42,125	18,657* " to Locomotive Engines 4,390 " Block setting 2,194 " Block making
13. General tools	32,778	32,778	Account closed
14. Buoys & Beacons	717	----------	717 transferred to Rubble base
15. Office furniture	4,030	4,030	Account closed.

* correction of an old error in the accounts.

W Parkes M Inst. C.E.
Engr in Chief
24th Jan 1879

Explanations

1. This has been from the first wrongly charged to Preliminaries. It follows and does not precede the work, and the expenditure will continue to the end. It should be charged to Establishment and called "Assistance in Surveys"

3. The preliminary account for Railways is closed as from September 1877 and subsequent charges divided among the works served by them.

4, 8. "Opening quarries" is an unnecessary item. A lump sum is sometimes paid for the purpose, but sometimes the cost is included in the tonnage rate. In either case the charge should be debited to the same head. The same remark applies to such land as may be required for quarries, the only purpose for which land is wanted for these works.

5. The cost of the new Block Ground at the South Pier not having been originally contemplated is a fair charge against "Contingencies"

6. The jetties now intended will be much smaller works than those originally contemplated. One is now being erected as an experiment and others will have to be added when the best form is determined on. In the meantime no estimate can be given, but the cost will in any case be small compared with the value of the rubble stone which will pass over them, and may therefore without undue disturbance of the rates be charged to "Rubble Base". (See also remarks on No. 11)

7. Buildings. The account may be closed after completion of certain necessary buildings (an office and store) at the South Pier.

8. See above

9. Locomotive Engines. The amount Rs. 55,171. represents the cost of 3 locomotives ready for work. The Rs. 7000. transferred to the Store account represents spare parts sent out for renewals, and the sums of Rs 443 and Rs 444 are small current expenses since September 1877 chargeable to the works.

10 This account will now be closed now further rolling stock that may be wanted being charged to the works.

11 Floating plant. A sum of Rs. 4,530 has been transferred from this to Rubble base being the aggregate of several small charges, connected with the deposit of Rubble base since September 1877. on the other hand Rs 41,000 has been transferred from Rubble base to this head being the cost of maintaining the two hopper barges from their arrival in May 1876 till they began to be employed

employed in April 1878. This may be considered as a set off against the saving of the loading jetty which would have been required if they had been employed at earlier date

12. As the case of Machinery, all charges incurred since the machines got to work in a fairly complete state have been transferred to the works

13. Account now closed

14. The account for Buoys and Beacons is necessarily kept open, but as the use of them is only for depositing Rubble Base that head should have them.

15. Office furniture. Account closed.

General Remarks. It is not to be assumed that because the above accounts are closed there will be no more charges of the same kind, but no such charges should be incurred unless with the ultimate view of reducing the current rates. Those rates may therefore fairly bear such charges and the notice of the authorities should be directed to them by a special explanation in the column of "Remarks" in the monthly returns.

B.P.R.
Works.

No. 608 W Public Works Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 27th Feby 1879

Read the following :—

608/W

From

Mr. W. Parkes M.I.C.E. (W.C. No. 2 W dy 24th Jany/79)

" The Secy to Govt P.W. Accounts (W.C. — 43 B dy 17th Feby/79)

With the foregoing letter Mr. Parkes submits statements prepared with the object of showing how far his original estimate of the cost of the Madras Harbour Works has been borne out by actual experience.

2. In 1875 it was considered desirable that Mr. Parkes original estimate of Rs 5,65,000 for the com

Mr. Parkes orig. Est. £ 565,000
add only E.I. for addl. Rubble 20000
Do. for Diving construction 43000
£ 628,000

should be thrown into such a form as would enable the local Accounts Officers to deal with the monthly expenditure in the manner prescribed by the Govt. of India; and a revised estimate, prepared in some detail and amounting to Rs 64,00,000 was submitted by the late Mr. May.

3. This revised estimate was objected to by Mr. Parkes on various grounds and in May 1876, another estimate was prepared by the Chief Engineer, which in its abstract form, and with the exception of one item from Mr. Nobbs was

609/21

accepted by Mr. Parkes.

4. To facilitate a comparison between the estimated and actual cost of the harbour up to the end of last year, Mr. Parkes has rearranged this estimate, dividing the work into sections, and showing the expenditure estimated or actual, as the case may be - upon each section.

5. He has also carried out the money columns at Rs 10 to the pound sterling, which was the value at which the estimate was made.

The effect of this rearrangement is shown

pa

in the following abstracts:

Chief Engineer's Estimate.		Mr Parkes' Estimate.	
Plant —	4,20,000	Plant and Preliminaries	8,00,000
Buildings —	75,000		
Preliminaries	2,75,000		
Land —	30,000		
	8,00,000		
Rubble stone work —	14,39,720	— — — — — — —	474,375
Piers from 2½ to 4 fathoms }	3,02,500	— — — — — — —	361,225
4 from 4 fathoms onwards }	231,500	From 4 to 5 fathoms — 3,56,940	
		" 5 — 6 — 6,00,576	
		" 6 — 7 8,36,400	
		" 7 — 7½ — 14,24,210	32,18,125
Lighthouses —	60,000	— — — — — — — —	60,000
Establishment —	245,690	— — — — — — —	245,685
Maintenance and contingencies }	491,380	— — — — — — — —	491,380
	56,50,790		56,50,790
Additional sum on account of rubble }	2,00,000		
	58,50,790		

608/22

6. With this pre-arranged estimate, Mr Parkes submits a statement of actual outlay to the end of 1878, showing that on the Northern arm of the harbour, which had then been advanced about half way through the five to six fathom section, the sum of Rs 6,61,151 had been expended against the estimated cost for the same length of Rs 7,37,262; while on the Southern groyne, which was beginning to enter the four to five fathom section, the real and estimated expenditure

were respectively Rupees 3,13,256, and Rs 4,37,594; the total saving on both piers thus amounting to Rs 2,00,449, irrespective of the cost of the advanced rubble foundation, and of a considerable saving on the concrete blocks manufactured up to the 31st December

7. On other items of the estimate, such as Plant and Preliminaries, and Establishment, the expenditure is in excess of that anticipated, but the first named heads may with good reason be held to have been practically closed at

609/23

the present date.

8. His Grace the Governor in Council concurs with Mr Parkes in considering that while the undertaking is in its present stage it would be unwise too confidently to build upon these favorable results, but it is satisfactory that, so far the expenditure on the works has on the whole been kept within the estimated cost.

9. ~~He~~ must also not be forgotten that, although the amount spent on tools and plant and machinery has necessarily been treated as a final charge, those

articles represent a very
considerable sum which
will eventually be credited
to the works

10. Turning to Mr.
Parkes' proposals in
regard to the transfer
of expenditure from one
Sub head to another,
His Grace the Governor
in Council considers
that each transfer should
be brought forward on
its own merits, and that
the matter should be
discussed between the
Superintendent and the
Examiner P. W. Accounts.
Such a transfer as that
of the new block ground
at the South Pier from

being a variance with the
procedure in the case of
the North Block ground

609/42

Preliminaries to Contingencies
does not commend itself
to the Government -

11. Nor can the Governor
in Council consent to
the proposal made in
the fifteenth paragraph
of Mr. Parkes' letter -
The additions made
to the original estimate
were included in the
~~sanction~~ given
~~sanctioned~~ by
the Secretary of State,
and ~~must originally~~
~~until actually carried~~
~~impracticable to work~~
~~substituted for estimate~~
~~to the completion of the work~~

12. These proceedings
will be forwarded to
the Secretary of State
and the Govt. of India

and

and communicated to the Harbour Committee and the Chamber of Commerce; and will also be placed on the Editors Table.

H.C. No. 609 Wd/27th Feby/79

Copy of the above forwarded to the Govt of India.

609/25

43/2 copies

~~Sept 8—3—79~~
~~with 25 Spare copies~~

Supt. M. H. Works ✓
Ex. P. W. Accts. ✓
Marine Deptt. ✓
Chamber of Commerce ✓
Harbour Committee ✓
Editors Table

57 copies printed

~~Sept 8—3—79~~

P. W. D

608/26

To,

The Right Honble
the Secy: of State for India

—

My Lord,

We have the honor
to forward copy of our
proceedings No 608 W
dated 27th Feby 1879,
on a letter from the
Engineer in Chief of
the Harbour Works,
submitting his estimate
for the Harbour Works
in a pre-arranged form,
together with comparative
statements of the actual
and estimated cost of

A.S. 2/2

the work up to the 31st December 1878.

2. We consider that the statements are interesting and satisfactory.

3. It is evident that up to the present time the cost of the works has been within the estimate, and, looking to the fact that the harbour has now passed through the most difficult stage of its construction, there seem to us to be good grounds for hoping that, when the undertaking has been carried to its completion, there will be found to be a considerable saving on

the sanction

609/27

609/30

FROM THE EXAMINER P.W.ACCOUNTS,

MADRAS.

TO THE JOINT SECRETARY TO GOVERNMENT,

PUBLIC WORKS DEPARTMENT,

BUILDINGS AND ROADS BRANCH.

NO.42.E. CHEPAK, FEBRUARY 1879.

SIR,

I HAVE THE HONOR TO FORWARD HEREWITH A STATEMENT PREPARED FROM THE BOOKS OF THIS OFFICE SHEWING THE OUTLAY INCURRED ON THE MADRAS HARBOR WORKS TO END OF DECEMBER 1878 AS COMPARED WITH THE ITEMS OF THE ESTIMATE.

2. THE STATEMENT CORRESPONDS WITH THAT PRINTED WITH G.O.NO.280.W. DATED THE 24TH.JANUARY 1879 EXCEPTING IN THE VALUE OF STOCK, WHERE THERE APPEARS A SLIGHT DIFFERENCE OF 15 ANNAS.

I HAVE THE HONOR TO BE,

SIR,

YOUR MOST OBEDIENT SERVANT.

Lowry-Gordon

EXAMINER P.W.ACCOUNTS AND MAJOR R.E.

FROM THE EXAMINER P. W. ACCOUNTS,

MADRAS.

TO THE JOINT SECY. TO GOVERNMENT,

P. W. DEPARTMENT

BUILDINGS & ROADS BRANCH

NO. 43. B.

DATED 17 FEBRUARY 1879.

RECD.

ENCLO- I.

SUBMITS A STATEMENT OF OUTLAY ON MADRAS HARBOR WORKS TO END OF DECEMBER 1878.

Buildings & Roads

Statement of outlay on Madras Harbor Works up to end of December 1878 as per accounts received in this Office

608/31

Subheads of Estimate	Amount of Estimate	Cost to end of December 1878	More than Estimate	Less than Estimate
Preliminary Works				
1 Detailed Survey	5.000	4631 2 6	6039 4 8	" " "
2 Marine Survey		6408 2 2		
3 Forming Railways	150.000	247.121 14 5	94.121 14 5	" " "
4 Opening Quarries	10.000	2432 14 8	" " "	7564 1 4
5 Preparing Block ground	65.000	51.139 1 9	" " "	13.860 14 3
6 Rubble Stone Jetties	45.000	1922 2 10	" " "	43077 13 2
7 Buildings	75.000	62.004 15 7	" " "	12995 " 5
8 Land	30.000	1220 6 4	" " "	28.779 9 8
Construction of North Pier				
Rubble Stone deposits	7.19.860	3.35.653 1 10	" " "	3.84.206 14 2
Concrete Block Setting from 2¼ to 4 Fathoms	3.66.500	61.069 1 4	" " "	2.45.430 14 8
11 Light House	30.000	" " "	" " "	30.000 " "
12 Extra Rubble	1.00.000	4.90 5 10	" " "	98,229 10 2
Construction of South Pier				
13 Rubble Stone Deposits	7.19.860	1.78.975 " 5	" " "	5.40.884 15 7
14 Concrete Block setting from 2¼ to 4 Fathoms	3.66.500	28.655 " "	" " "	2.74.845 " "
15 Light Houses	30.000	" " "	" " "	30.000 " "
16 Extra Rubble	1.00.000	" " "	" " "	1.00.000 " "
17 Concrete block making for North and South Pier	20.81.000	5.34.490 10 1	" " "	14.66.509 5 11
18 Contingencies at 5 Per Cent on total Estimate	2.45.690	22.644 12 1	" " "	
19 Protecting North beach		20.996 8 8	" " "	2.02.078 11 3
20 Establishment	2.45.690	1.41.593 1 "	" " "	74.096 13 7
Carried Over	51.85.100	14.32.388 6	1.03.161 3 1	35.55.502 13 7

Sub Head of Estimate	Amount Cost up to end of Dec. Estimate	More than Less than Estimate	Remarks
Brought Over	51.85.100 14.32.758 5 6	1.03.161 3 1	35.55.341
Plant			
22 Locomotive Engines	60,000 44.401 3 8	- -	15.598 4
23 Rolling Stock	35.000 20.034 11 10	- -	14.965 2
24 Floating Plant	1.45.000 1.43.534 8 3	- -	1.465
25 Engines Cranes, Concrete Machines &c	1.25,000 2.67.365 14 2	1.42.365 14 2	-
26 Quarry and General Tools	50.000 32.778 6 3	- -	17.221
27 Buoys and Beacons	3000 716 10 9	- -	2283
28 Office furniture	2,000 4029 14 9	2029 14 9	-
29 Maintenance during Construction	2.45.690	- - - - - -	2.45.690 -
Total	58.50,490 22.45.219 11 2	2.47.534 - -	38.52,124 4
Stock	85,709 4 -	85,709 4 -	- -
Grand Total	58.50,490 23.31329 2 2	3.33,266 4 -	38.52,124 4 1

L Conway-Gordon

Examiner P.W. Accounts & Major R.E.

562

Referred to the Examiner for his Early Remarks.

E Ward Lt. R.E.
Secy. to Govt.
C.W.D.
Fort St. George
6th Feby 1879

orgb 7-1-79 no 78W.
Secno 1005W.

TO W.

I THINK THAT THE REARRANGEMENT OF THE ORIGINAL ESTIMATE FOR THE MADRAS HARBOR WORKS WITH THE OBJECT OF SHEWING THE COST OF THE SUCCESSIVE STAGES OF THE

27.5
Cir 29-1 R221/2 D27.2

332

Buildings & Roads

From W. Parker Esqr. M.Inst.C.E.
Engineer in Chief
Madras Harbour Works

Rec'd 27-2-79 No 600 W.

Dated 21st January 1879

No of Enclosures 1

Expenditure

Submits comparative statements of— to 31st Dec 1878 on Original Estimate—

Referred

609/15

53

WORK IS CERTAINLY A MOVE IN THE RIGHT DIRECTION.

2. THE REMAINDER OF MR. PARKES' SUGGESTIONS ARE, I THINK, OPEN TO QUESTION. I SHOULD OBJECT STRONGLY TO ANY OF THE SUB-HEADS OF ACCOUNT BEING FINALLY CLOSED;- OF COURSE IF THERE IS NO FURTHER EXPENDITURE PROPERLY COMING UNDER THESE SUB-HEADS THEY WILL CLOSE THEMSELVES WITHOUT BEING INTERFERED WITH. BUT IF THERE IS ANY FURTHER EXPENDITURE PROPERLY CHARGEABLE TO THESE SUB-HEADS, SUCH EXPENDITURE SHOULD BE CHARGED TO THE PROPER SUB-HEAD AND NOT TO THE PIER WORK. I CAN SEE NO OBJECT WHATEVER IN THE PROPOSAL EXCEPT TO FORCE THE ACTUAL EXPENDITURE INTO AGREEING AS NEARLY AS MAY BE WITH THE DETAILED ITEMS SHEWN IN THE ORIGINAL ESTIMATE. NOT TO PUT TOO FINE A POINT UPON IT, I SEE NO CLEAR OBJECT IF MORE CHAIRS ARE WANTED IN THE SUPERINTENDENT'S OFFICE IN CHARGING THEM TO BLOCK SETTING.

Pro 27-2-78 No 608

27 c A

3. TAKE FOR INSTANCE THE HEAD 'PLANT'. MR PARKES IN HIS PARA 9 PROPOSES TO CHARGE ALL FURTHER NECESSARY ADDITIONS OF PLANT NOT

TO THE SUB-HEAD 'PLANT', BUT TO THE PIER WORK. PROPERLY SPEAKING THE TOTAL EXPENDITURE ON THE SUB-HEAD 'PLANT' SHOULD BE SUPPORTED BY A DETAILED PRICED LIST WORKING UP TO THE TOTAL, SHEWING ALL THE PLANT & TOOLS ETC. ETC. AT PRESENT ON THE WORKS. SHOULD MR. PARKES' PROPOSAL BE CARRIED OUT, IT IS EVIDENT THAT THE DETAILED LIST OF TOOLS AND PLANT, IF IT CONTAIN THESE NEW ADDITIONS, CAN ONLY DO SO BY DISAGREEING WITH THE TOTAL EXPENDITURE SHEWN UNDER THE SUB-HEAD TOOLS AND PLANT.

WITH REGARD TO THE PROPOSED TRANSFERS OF EXPENDITURE FROM ONE SUB-HEAD TO ANOTHER, I SHOULD PREFER IF each SUCH PROPOSED TRANSFER WERE BROUGHT FORWARD IN THE ACCOUNTS BY THE SUPERINTENDENT ON ITS OWN MERITS, AND PROPERLY CONSIDERED. SOME OF THE TRANSFERS PROPOSED ARE OBVIOUSLY CORRECT, I.E. THE TRANSFER TO PIER WORK OF THE EXPENDITURE ON THE MAINTENANCE AND WEAR AND TEAR OF MACHINERY. OTHERS ARE MOST UNDESIRABLE; I.E. THE PROPOSED TRANSFER OF THE COST OF THE NEW BLOCK GROUND AT THE SOUTH PIER FROM PRELIMINARIES TO CONTINGENCIES. THE ORIGINAL ESTIMATE FOR THESE WORKS IS OF SO ABSTRACT A CHARACTER THAT IT IS IMPOSSIBLE TO SAY WHAT EXPENDITURE MR. PARKES DID AND WHAT HE DID NOT MEAN/TO INCLUDE IN EACH SUB-HEAD IN THE ORIGINAL ESTIMATE, BUT I THINK IT IS OBVIOUS THAT IF THE ACCOUNTS OF THE WORK ARE TO HAVE ANY MEANING AT ALL THAT THE COST OF BOTH BLOCK GROUNDS SHOULD BE CHARGED TO THE SAME HEAD.

I SHOULD OBJECT ALSO TO THE PROPOSED TRANSFER OF RS. 41,004 FROM RUBBLE BASE TO FLOATING PLANT. THE REASON GIVEN BY MR. PARKES MIGHT BE A REASONABLE GROUND FOR CHARGING THE AMOUNT TO PRELIMINARIES BUT NOT TO FLOATING PLANT. THE PROPOSAL IS IN FACT OPPOSED IN PRINCIPLE TO MR. PARKES' SUGGESTIONS IN ANOTHER PLACE TO CHARGE THE COST OF ALL MAINTENANCE OF MACHINERY AND PLANT TO THE SUB-HEAD OF WORK FOR WHICH THE MACHINERY WAS REQUIRED. THE PROPOSED TRANSFERS CAN BE BEST DEALT WITH WHEN SUBMITTED IN ORDI-

HARY COURSE WITH THE ACCOUNTS.

IN THE MEANTIME, THE ACCOUNTS THEMSELVES BEING UNALTERED, I SEE NO OBJECTION TO MR. PARKES ALTERING THE FIGURES AND SUPPOSING THE TRANSFERS CARRIED OUT FOR THE SAKE OF MORE CLEARLY ILLUSTRATING THE FINANCIAL POSITION OF THE WORKS IN A POPULAR ACCOUNT SUITABLE FOR THE PRESS. IN THIS CASE HOWEVER, I THINK IT WOULD BE BETTER TO WRITE A REGULAR COMMUNIQUE FOR THE PRESS, THAN TO COMMUNICATE MR. PARKES' LETTER WHICH IS NOT, I THINK, IN A SUFFICIENTLY POPULAR AND CLEAR FORM FOR THE GENERAL READER.

AS REGARDS MR. PARKES' GENERAL POSITION THAT THE WORK IS ON THE WHOLE BEING CARRIED ON WITHIN THE ESTIMATED COST, I GENERALLY AGREE. IN FACT I THINK HIS CASE MIGHT BE MADE SOMEWHAT STRONGER. HE HAS THROUGHOUT TREATED ALL THE EXPENDITURE ON TOOLS AND PLANT, RAILS, MACHINERY ETC. AS FINAL CHARGES. THIS IS CORRECT IN THE FIRST INSTANCE, BUT AT THE CONCLUSION OF THE WORKS THEY WILL UNDOUBTEDLY POSSESS SOME VALUE, AND PROBABLY A VERY CONSIDERABLE SUM. THE MADRAS HARBOR WORKS WILL BE CREDITED WITH WHATEVER VALUE THEY MAY BE SOLD OR TRANSFERRED TO OTHER WORKS, AND THIS WILL TEND TO CONSIDERABLY DECREASE THE FINAL COST OF SEVERAL ITEMS OF THE ESTIMATE. THIS POINT, SHOULD, I THINK, BE NOTICED IN THE ARTICLE FURNISHED TO THE PRESS.

C.

Rec'd 27-2-79 & to Govt

P. W. Department.

Read the following :— 60/79

Letter from W. Parkes Esqr. M. I. C. E.
No. 2 W dy 24th January 1879.

FOR ORDERS.

I think Lieut Rickard
has rec'd Govt Instrs
for his early Surveys.
Eventually Govt. must
G.S. Stn. offrs & the
Harbour Committee
& Ch. of Coms. & pilots
Editors table. It is a
very important & extensive
subject but more favorable
than I expected. I do not
omit from our Surveys
to ascertain & report
upon by Col. Walker
& instructions to the Hydr. Surveyor

E A Ford Col. RE
Secy to Govt P. W. D

29. Jany 1879.

FOR ORDERS.

[illegible] of 1879 Madras
PUBLIC WORKS

G.O. No. 833

10 papers
[illegible] 12
28-2-79

27 Feby

608/609 W

275-277

Harbour Works, submitting his estimate for the works in a re-arranged form, together with comparative statements of the actual & estimated cost of the works up to the 31 Dec /78

Sep

Madras Harbour Works

Forwards copy of Procgs on letter from the Engineer in chief of the Madras Harbour Works submitting his estimate for the Harbour Works in a rearranged form together with comparative statements of the actual & estimated cost of the works up to 31 Dec /78

Madras Harbour Works

Passes orders on letter from the Engineer in chief submitting his estimate for the works in a re-arranged form together with comparative statements of the actual & estimated cost of the works up to 31 Dec /78

[illegible] forwards copy of Procgs on letter from the Engineer in chief of the [illegible]

Feby 27 [illegible] 12½ p.m.