Date taken out.	For what purpose.			Initials of Referencer.	Date returned.	Initials of Attender.
	Department.	C. No.	Year.			

[G. / 11]
2,500—8-94

ORDINARY, MS.

Marine Department.
G.O., dated 20-5-95.
No. 141.

INDEXED.

When given for copying 23/5-

[Despatch Abstract.]

Contg: to the P. P. O/r:
P.Lr. P. W. Dt:. returning,
with remark to the
Supt.g: Engr:, V Cir:, for
sanction and execution
on funds being made
available, Estimate of
Rs. 1270 for extending
the groyne at the
mouth of the Negapatam
Harbour.--

Date [illegible]	For what purpose.			Initials of Referencer.	Date ret	Initials of Attender.
	Department.	C. No.	Year.			

Marine Current 254

The Chief Engr: recommends the extension of a groyne at Negapatam at a cost of Rs: 1270. The P.P.O. has not countersigned as the groynes have so far proved useless and he prefers to wait and see what the dredger will do - She has to be built yet. The Chief Engr: says that the groyne is useless because it is not long enough, and that the extension is necessary independently of the question of dredging. There is plenty of money.

Subt: that the Estimate may be sanctioned.

Wd
Sapr

FDB
30.3.95.

Sd
5/4

Negapatam Groynes

H.E. the Governor

C. No. 254. 2nd No 845
3/19-4-95

The estimate is approved & returned to the P. W. Dept for execution.

(sd) J. T. Price
Chief Secy.

Dip
C 5/4

3RD MAY 1895, No. 1041 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

READ—the following papers :—

From J. C. LARMINIE, Esq., Superintending Engineer, V Circle, to the Chief Engineer, Public Works Department, dated Chepâk, 31st January 1895, No. 37 W.

With reference to G.O., No. 3048 W., dated 27th November 1894, communicating G.O., Marine, No. 447, dated 15th idem, I have the honour to submit herewith for sanction enclosed plan and estimate of Rs. 1,270 for extending the groyne at the mouth of the Negapatam Harbour therein called for.

Memo. No. 625 C.

The undersigned has the honour to return to the Superintending Engineer, V Circle, the estimate of Rs. 1,270 for extending the groyne at the mouth of the Negapatam Harbour received with his letter No. 37 W., dated 31st January 1895, and to request that he will be so good as to resubmit it through the Presidency Port Officer after revision in accordance with the following remarks : —

(1) No detailed section of the groyne has been furnished. This should be supplied.
(2) There is a slight deviation in the alignment of the proposed extension, but the estimate has not been altered accordingly. The estimate should be revised to suit the deviation.
(3) Many of the rates cannot be checked. Data lists are required to support them.

(Signed) C. H. B. BURLTON,
16th February 1895. Deputy Chief Engineer, P.W.D.

From W. POWELL, Esq., Commander, R.I.M., Presidency Port Officer, to the Chief Engineer, Public Works Department, dated Madras, 16th March 1895, No. 500/35 P.W.

By desire of the Superintending Engineer, V Circle, and with reference to paragraph 4 of G.O., Marine, No. 447, dated 15th November 1894, I forward herewith an estimate amounting to Rs. 1,270 for extending the groyne at the mouth of the Negapatam Harbour together with the plan and report which accompanied the same. I have not countersigned this estimate, as the groynes already constructed have up to date proved useless, and I do not think it advisable to spend any more money on such work. I think it better to wait and see what improvements can be effected with the bucket dredger which is about to be provided.

Memo. No. 1250 C.

Referred to the Marine Department for consideration.

2. In paragraph 4 of the Chief Engineer's note of the 16th October 1894, printed with G.O., Marine, No. 447, dated 15th November 1894, it is distinctly stated that the reason why the groyne is at present useless is that it is not long enough; the proposed extension is necessary, for the reasons stated in the paragraph quoted, quite independently of the question of dredging.

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

25th March 1895.

No. 845, Marine.

The estimate is approved and returned to the Public Works Department for execution.

Ootacamund,
19th April 1895.

(Signed) J. F. PRICE,
Chief Secretary.

Order—dated 3rd May 1895, No. 1041 W., Public Works.

The estimate, amounting to Rs. 1,270, for extending the groyne at the mouth of the Negapatam Harbour, is returned to the Superintending Engineer, V Circle, for sanction and execution on funds, as shown below, being made available by the Financial Department:—

	Rs.
Works	1,270
Establishment	292
Tools and Plant	19
Total ...	1,581

2. The attention of the Superintending Engineer is drawn to paragraph 2 of the Chief Engineer's memo. No. 625 C., dated 16th February 1895, which has not been complied with.

(True Extract.)

Under Secy. to Govt., P.W.D.

To the Superintending Engineer, V Circle, with six enclosures.
" Financial Department.
" Marine Department.

Exd. C. A. Munisawmy.
Spare Copies

CURRENT No. 362

Mail

Marine 1895

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1895} Madras.

PUBLIC WORKS.

Dated May, 3rd.

Recd. 15-5-95 Encl.
Regd 17-5-95

G.O., 3rd May 1895, No. 1041 W.

MAY.

CHIEF SECRETARY
15 MAY 1895
GOVERNMENT OF MADRAS

Negapatam Harbour

Estimate of Rs. 1,270 for extending the groyne at the mouth of the —, returned, with remark, to the Superintending Engineer, V Circle, for sanction and execution on funds being made available by the Financial Department.

Ans

N

Order d/20th May 1895 No. 141

Copied to the

P.W.O.

F.&B.

for C.S.

18/5/95.

1.

Ai 2315
23/5
DESPATCHED
27 MAY 95
IN M.S

Presents Post-Office use

CURRENT No. 364

9TH MAY 1895, No. 1108 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

READ—the following paper :—

From E. TURNER, Esq., I.C.S., Chairman, Harbour Trust Board, to the Chief Secretary to Government, Marine Department, dated Madras, 8th March 1895, No. 4385.

I have the honour to submit herewith an estimate, dated 6th February, received from the Board's Engineer for expenditure upon the Madras Harbour during the official year 1895–96, which was considered by the Trustees at the special meeting of the Board held on Friday, 15th idem, under section 37, Act II of 1886.

The Engineer therein states his requirements for completing the harbour as follows :—

		Rs.	Rs.
Balance of sanctioned estimate			68,227
Advance to be recovered on sale of stores		33,333	
Excess on works		3,69,122	
			4,02,455
Total ...			4,70,682

2. As I have already informed Government, this demand for so large an additional outlay took the Board very much by surprise, no mention of any excess expenditure having been made by the Engineer up to the submission of his progress report, dated 4th February, for the quarter ending 31st December 1894, in which no reference was made to the sanctioned estimate being insufficient to complete the harbour. On the contrary in reply to an inquiry from the Government of India No. 2515/A., dated Simla, 22nd May 1894, the Engineer stated on 4th June 1894 that the sanctioned estimate " Rs. 61,06,227 is all that is required."

3. Annexed to the budget estimate are statements A and B. The former shows the additional outlay under various heads, which with the exception of the extra cement, Mr. Pogson contends should be recovered from Port or other funds and credited to harbour construction; the items, however, appear to be rightly debitable to the harbour works, but this is a matter for the auditor to report upon.

4. After the Board's special meeting of the 15th February the Engineer was called upon to explain why earlier intimation was not given by him that he anticipated so large an excess of expenditure. His reply No. 884, dated 13th February, is submitted for information. With regard to paragraph 3 of that letter, the meeting of the Board to which Mr. Pogson alludes, is apparently the committee meeting held on the 30th November 1894, but none of the Trustees present at that meeting, and now in Madras, have any recollection of any such statement being made; at an[illegible]it was not put forward as a request that an additional 5 per cent. might be p[illegible]d, and if the Engineer knew then that it would be needed he should have made his requirements known at once; but he explains that only since the 10th January 1895, from actual work done, could he gather data to enable him to name the actual cost of completing the works.

5. While much regretting that earlier intimation was not given to Government, the Trustees have no option now, but to submit for information and favour of orders, a revised estimate for the completion of the harbour in the form which accompanies all progress reports and shows the various sub-heads of work under column 1, against which is shown the expenditure up to 31st December 1894, columns 8 and 9, the balance available under the sanctioned estimate, column 10, the present supplimentary estimate for completion, column 11, and in 12, the total of the revised sanctioned estimate and of this supplemental estimate.

6. The excess appears due chiefly to two causes: first, the delay in completing the works, and secondly, the enhanced charge for cement. The first has necessitated a very much heavier expenditure upon staff than was anticipated, and the latter is due to the additional proportion of cement used, and hereafter to be used in the capping in compliance with the instructions of Sir Alexander Rendel, communicated for guidance under G.O., No. 821 W., P.W., dated 24th March 1893.

7. The Trustees have inquired from their Engineer whether he was not mistaken in supposing that Sir Alexander Rendel meant that the capping should be of better quality than the blocks upon which it had to be placed, and he has replied very decidedly that "as regards the increased strength of concrete to be used Sir Alexander Rendel referred to *any concrete work yet to be done* and was aware that the capping was the future concrete work to be done; and as the G.O., No. 821 W., was communicated to me for guidance, I have carried out instructions and *as soon as possible* with facts before me framed my estimate accordingly."

8. Mr. Pogson is himself strongly of opinion that "in view of the recently found out action of sea water upon concrete cement, there would appear danger of this action taking place *above* water level * * * more than *below* water level in an open harbour of this description, where the water pressure is equal on both sides of the superstructure and the tidal range so small."

9. As the Board's Engineer freely corresponds with Sir Alexander Rendel, they are no doubt in accord in this opinion, and I have therefore to request that the accompanying indent for extra cement required may be forwarded to the India Office for favour of compliance, and as it is important in the interest of economy that no further delay should occur in the completion of the harbour, the Board would ask that a telegram be despatched requesting that it may be shipped at an early date. Sir Alexander Rendel has no doubt been kept fully advised by the Board's Engineer, and will be aware of the necessity for the supply, which Mr. Pogson states is required in June.

10. The Board would further request that the supplemental estimate for the completion of the harbour now furnished by their Engineer may be submitted to the Right Honourable the Secretary of State for sanction; and would be glad if the audit of the harbour works accounts could be proceeded with at once, the caisson at the south pier head will be, it is hoped, set in a few days, and the work thereafter will be much simpler, when being freed from the necessity for personal supervision of the works, the Engineer should turn his attention to the accounts and assist the auditor to complete same as soon as possible.

ENCLOSURES.

EXTRACT of Proceedings of the Trustees of the Harbour of Madras at a meeting held at the offices of the Board on Friday, the 8th day of March 1895.

* * * * *

2. Read correspondence with the Board's Engineer regading his budget estimate, dated 6th February, for expenditure upon the harbour during 1895–96 amounting to Rs. 4,70,682, being Rs. 4,02,455 in excess of the sanctioned estimate. The completion estimate submitted by the Engineer, as directed by the Chairman, having been printed and a copy sent to each Trustee, was discussed, together with draft of letter to the Chief Secretary to Government submitting same for the approval of the Right Honourable the Secretary of State.

Resolved that the Chairman's draft letter to the Chief Secretary to Government submitting supplemental estimate is approved, and that the Engineer's indent for cement be passed and forwarded to Government for favour of compliance by the India Office.

* * * * *

(True Extract.)

(Signed) C. PINSENT,
Secretary, Harbour Trust Board.

From the Engineer, Harbour Trust Board, Madras, to the Chairman, Harbour Trust Board, dated 8th February 1895, No. 871.

I have the honour to forward the budget estimate for completing the Madras Harbour Works in the official year 1895–96, being Rs. 4,70,682, which sum includes excesses upon the estimate, due to delay in completing the works, &c., of Rs. 1,41,360 upon the sanctioned estimate of Rs. 58,28,896; and the balance is due to additional charges and work done not provided for in the sanctioned estimate, and additional work *plus* the balance remaining upon the sanctioned estimate, and a temporary advance of Rs. 33,333 upon the value to be recovered upon the sale of the stores on completion of works.

2. The schedule of office staff for the official year is forwarded for sanction under the Harbour Trust Board Act.

3. A separate schedule of the work establishment is furnished as usual, the cost of which is included in the value of work to be done, per yard, ton, &c., of work to be turned out to the completion of the works.

4. An estimate of the schedule of staff per mensem, and arrangements for working the Traffic and Porterage Departments, Machinery, Traffic arrangements and maintenance of Railway lines under the Engineer, Harbour Trust Board, is submitted for sanction, being the same arrangements as sanctioned for 1894–95 which have worked so well in the past year.

5. An indent for the balance of Portland cement is also forwarded including a new wire rope for the titan crane included in the budget estimate for early sanction and transmission through Government to the India Office, as the cement will be required in June 1895.

BUDGET estimate for completing Harbour Works on sanctioned design in 1895–96.

Balance of sanctioned estimate upon 31st March 1895, Rs. 82,227 (*vide* G.Os., Nos. 480 and 535, dated 8th June and 12th July 1894).

	RS.	RS.
Amount overdrawn, 1894–95		14,000
Available balance on sanctioned estimates for 1895–96		68,227
Cost of cement received on works to be paid for in official year 1895–96	58,189	
Cost of stone for caisson and capping	47,364	
Cost of cement required for increased proportions of concrete for capping, for completion of works ...	1,25,566	
Cost of fuel, stores and daily-paid labour for above to complete works	1,21,562	
		3,52,681
Office establishment for 1895–96 as per schedule of staff, 1895–96	39,349	
Works establishment for 1895–96 as per schedule of staff, 1895–96	26,795	
		66,144
Total of schedule of staff, 1895–96 to complete works ...	...	
Add compensation for land north of harbour to be paid in 1895–96	8,857	
Add refund of recovery made on tools and plant ...	30,000	
Add arrears due to estate of late Kazim Ali Nakvy Saib.	13,000	
		51,857
Actual cash or value of payments and work to be done, 1895–96 *plus* materials on hand *to complete works* ...		4,70,682
Deduct balance of sanctioned estimate available for 1895–96 = Rs. 82,227—14,000 drawn, 1894–95 = balance		68,227

	RS.
Additional sum above estimate requiring sanction of Harbour Trust Board	4,02,455
Deduct advance to be made by Harbour Trust Board, of sum to be realised on sale of stores in stock, other than tools and plant on completion of works to be refunded to Harbour Trust Board, taken as two-thirds original cost	33,333
Total sum of *extras and excesses upon sanctioned estimate* as per detailed statements A and B requiring sanction of Government *for completion of works*	3,69,122

ABSTRACT of extra charges and excesses upon sanctioned estimate requiring further sanction of Government.

	RS.
Actual sum paid from Construction Funds since October 1890 and extras not included in *sanctioned estimate* as per *statement A attached*	2,27,762
Total sum or excesses upon sanctioned estimate from March 1895 due to works taking longer to complete, due to rough sea and removal of old works, &c., inclusive of additional charges of Provident Fund and exchange compensation allowances in 1895–96, *statement B*	1,41,360
Total of extra charges to works and excesses upon estimate requiring further sanction of Government	3,69,122

BUDGET estimate for 1895–96, completing works.

Additional sum charged to works including excesses upon estimate required in 1895–96	3,69,122
Balance of sanctioned estimate available for 1895–96 due from Government = Rs. 82,227—14,000 excesses drawn on budget estimate, 1894–95 = balance	68,227
Advance required on value of stores in stock to be recovered on sale of same on completion of works	33,333
Total of budget estimate for 1895–96 which will complete the harbour works upon the sanctioned design in the above official year	4,70,682

TOTAL cost of Madras Harbour Works to completion.

Total of sanctioned estimate (framed in October 1890) sanctioned in Secretary of State's despatch No. 1, dated 7th January 1892	1,23,83,386
Total estimated cost of completing works upon sanctioned design in 1895–96, including excesses and additional charges, added to cost of works not anticipated as per statements A and B requiring further sanction	3,69,122
Total cost of Madras Harbour Works on completion of sanctioned design in 1895–96 inclusive of all extras and excesses, &c.	1,27,52,508

STATEMENT A showing additional outlay since sanction of estimate charged to Construction Estimate.

Refund of—Extras not included in sanctioned estimate, but already carried out and met from Construction Funds since October 1890 for cement and for work, other than construction proper, to completion of works:—

	RS.
Realignment of Beach Railway lines for Tramway Company ...	14,679
Extensions to the Fort Drain for the Madras Municipality ...	13,948
Compensation for land north of the Harbour already paid ...	4,138
Repairs to revetment from October 1890 to February 1891 ...	10,301

	RS.
Insurance and other charges, additional, since October 1890 ...	1,291
Import duty on cement received	5,367
Sum paid to Presidency Port officer for work done by Agent, Government Consignments, 1890–92	3,000
Trust contribution towards Provident Fund to March 1895 ...	38,681
Exchange compensation allowance	10,791
Cement required for completion of works, 1895–96, including import duty, &c.	1,25,566
Total of extras upon sanctioned estimate, additional, to sum included for Provident Fund and exchange compensation allowance, to completion of works, 1895–96	2,27,762

STATEMENT B.—Extras upon sanctioned estimate due to work taking longer to complete, due to rough sea, &c.

	RS.	RS.
Excess on establishment as per statement of expenditure to 31st March 1895 (item 38)		66,000
Excess on contingencies (item 39)		5,711
Add office establishment and work establishment from March 1895 to completion of works as per schedule of staff, 1895–96 ...		66,144
Add fuel, longer maintenance of work establishment, drivers, gaugers, watchmen, pointsmen and trollymen at works, &c. ...		66,838
		2,04,693
Deduct sum to be realised on sale of stores on completion of works	33,333	
Deduct sum recovered on tools and plant	30,000	
		63,333
Actual excesses upon estimate due to works taking longer to complete		1,41,360

MADRAS,
6th February 1895.

(Signed) A. LEE POGSON, M.I.C.E., M.I.M.E., &c.,
Engineer, Harbour Trust Board.

From the Engineer, Harbour Trust Board, Madras, to the Chairman, Harbour Trust Board, dated Madras, 13th February 1895, No. 884.

I have the honour to acknowledge the receipt of your letter No. 5188 (*a*), dated the 9th instant, regarding the budget estimate for 1895–96 for completing the Madras Harbour Works.

2. The actual cash required for the completion of these works is Rs. 4,70,682 as stated, but Rs. 82,227 is not the available balance of the sanctioned advances but Rs. 1,02,196 + 68,227 = Rs. 1,70,423, being the balance due from Government for 1895–96 *plus* the sums paid out of the advances made for construction but spent upon other works not included in the estimate or Rs. 1,02,196, being money paid from construction advances now to be refunded, which should, from time to time, have been met from port or other funds, but by paying the above charges from and drawing on construction advances, the trust have had this sum for investment, and I have repeatedly remarked to the Chairman (Mr. Austin) and the Secretary that the construction estimate could not meet such charges and that a refund must be made for completion of works.

3. Some months back when I was permitted to be present at the Board's meeting, I was asked if the works would not be finished within 5 per cent. of the sanctioned estimate, and I informed the Trustees that 5 per cent. on the sanctioned estimate would easily cover the excesses, and although there has since been further delay in completing the works, the extra sum required Rs. 2,66,926 *plus* balance above, refund, and a small advance on stores, &c., is only 4½ per cent. on the sanctioned estimate—*vide* Secretary of State's despatch No. 1, dated 7th January 1892, and this sum even includes extras of Provident fund, exchange compensation allowance, compensation for land, duty on cement, &c., to the completion of the works.

4. As regards early intimation being given of the excess, it was presumed provision had been made for the above refund *plus* available balance from Government being available from March 1895 without further sanction and therefore the additional expenditure would not be required before June or five months hence.

5. The balance or actual sum or excess required from June 1895 could not be worked out earlier, as it was not certain when the south pier caisson would be set, and only since the 10th January 1895 from actual work done could I gather data to enable me to name the actual cost of completing the works and the excess now named is very small for any marine work.

6. It is well to mention that even with the first works without any difficulties, the excess was 15 per cent. over the estimate without the extras, while with these works "Reconstruction of damaged works" there has never been any data upon which a similar estimate could be framed, and it is surprising to find that the works can be completed for a sum so near the estimated cost.

EXTRACT of Proceedings of the Trustees of the Harbour of Madras at a special meeting held at the offices of the Board on Friday the 15th day of February 1895 under the provisions of section 37, Act II of 1886, to consider the estimates of receipts and charges for 1895–96.

* * * * *

Read letter from the Board's Engineer, No. 871, dated 8th February, forwarding an estimate, dated 6th idem, for completing the harbour in 1895–96 amounting to Rs. 4,70,682.

Read minutes by Messrs. G. L. Chambers, R. J. Black and S. R. Turnbull.

Read letter from the Chairman, No. 5188 (*a*), dated 9th February, addressed to the Engineer, enquiring why earlier intimation was not given that he anticipated so large an excess of expenditure, the available balance under the sanctioned estimate being only Rs. 82,227.

Read letter in reply No. 884, dated 13th February, stating that only since the 10th January from actual work done could he gather the actual cost of completing the works. Mr. Pogson who was present explained that the excess was largely due to the larger proportion of cement now being used under the orders of Sir Alexander Rendel, viz., 1 in 6 instead of 1 in 10 as formerly and that when he wrote his letter No. 195, dated 4th June 1894, and stated—in reply to paragraph 4 of No. $\frac{A}{2515}$ from the Government of India, dated Simla, 22nd May—that the sanctioned estimate "Rs. 61,06,227 is all that is required," he was not in a position to foresee the extra outlay which he now finds to be necessary.

Resolved that this estimate be submitted to Government for information and for favour of orders.

* * * * *

(True Extract.)

(Signed) C. PINSENT,
Secretary, Harbour Trust Board.

COMPLETION estimate of Madras Harbour Works.

Sub-head of work.	As per estimate sanctioned in Secretary of State's despatch No. 1, dated 7th January 1892.					Quantities executed up to 31st December 1894.		Total expenditure up to 31st December 1894.		Balance of sanctioned estimate.		Supplemental estimate for completion.		Total of revised estimate, columns 9, 10 and 11.		Remarks.	Total cost.	
	Quantity.	Rate.		Per	Cost.		Total.											
1	2	3		4	5	6		7	8	9		10		11		12		13
		Rs. A. P.			Rs.	Rs.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.			Rs. A. P.	
Expenditure up to 31st Dec. 1884.																		
1. Works	..	..		..				..		..		..		..			55,09,324	0 0
2. Establishment	..	..		..	..			..		..		..		..			5,29,904	0 0
3. Tools and plant	..	..		..	..			..		..		..		..			6,16,262	0 0
Total ..	..	..		..	..			..		..		..		..			63,54,490	0 0
Revised Estimate.																		
4. Alteration and extension of block ground .. Prely.	..	..		..	..		5,892	5,892	0 11	..		..		5,892	0 0		..	
North Pier.																		
5. Ordinary rubble deposited from breakwater .. Tons.	13,930	1	12 0	Ton.	24,378			24,377	9 0	0	7 0	..		24,378	0 0	..	..	
6. Ordinary rubble deposited from boats .. .. ,,	205,896	2	0 5	,,	4,19,218			4,15,132	8 10	4,085	7 2	..		4,19,218	0 0	..	..	
7. Concrete blocks for building .. .. C. yds.	51,320	11	8 0	C. yd.	5,90,110			5,90,110	0 0	..		..		5,90,110	0 0	..	..	
8. Setting blocks at commencement of new work .. ,,	2,615	2	1 1	,,	5,415			5,414	11 2	0	4 10	..		5,415	0 0	..	..	
9. Setting blocks from 2,200 to 3,600 feet .. .. ,,	36,520	2	14 3	,,	1,05,569			1,05,569	0 0	..		..		1,05,569	0 0	..	..	
10. Setting blocks at pier head .. .. ,,	12,185	9	8 11	,,	1,16,424			1,16,415	4 0	8	12 0	..		1,16,424	0 0	..	..	
11. Concrete in mass for filling .. .. ,,	263	4	8 3	,,	1,188			1,188	0 7	—	0 7	..		1,188	0 0	..	..	
12. Wave-breaker blocks .. ,,	288	9	5 7	,,	2,692			2,692	0 0	..		..		2,692	0 0	..	..	
13. Wave-breaker concrete blocks .. .. ,,	77,355	10	14 11	,,	8,45,591			8,45,459	12 4	131	3 8	..		8,45,591	0 0	..	..	
14. Depositing concrete blocks .. .. ,,	77,932	1	0 0	,,	77,928			77,918	8 4	9	7 8	..		77,928	0 0	..	..	
15. Concrete in protection to rubble base .. .. ,,	1,986	10	4 1	,,	20,358			20,358	0 0	..		3,800	0 0	24,158	0 0	..	..	
16. Cramps, iron .. .. No.	331	9	10 1	Each.	3,188			3,188	0 0	..		..		3,188	0 0	..	..	
17. Concrete capping .. .. C. yds.	16,352	11	3 10	C. yd.	1,83,798			67,206	8 5	1,16,591	7 7	82,191	0 0	2,65,989	0 0	..	..	
18. Cost of north pier caisson and setting same as items 26,27,33 and 34 .. .. ,,	..	..		..	..			84,727	1 9	22	14 3	19,105	0 0	1,03,855	0 0	..	..	
Total for North Pier ..	..	..		..	..		24,80,607	23,59,767	0 5	1,20,849	15 7	1,95,096	0 0	25,85,703	0 0	..	..	

Completion estimate of Madras Harbour Works—*cont.*

Sub-head of work.	As per estimate sanctioned in Secretary of State's despatch No. 1, dated 7th January 1892.					Quantity.	Rate.	Total expenditure up to 31st December 1894.	Balance of sanctioned estimate.	Supplemental estimate for completion.	Total of revised estimate, columns 9, 10 and 11.	Remarks.
	Quantity.	Rate.	Per	Cost.	Total.							Total cost.
1	2	3	4	5	6	7	8	9	10	11	12	13
Extending the rubble revetment ... shore north of Harbour—cont.		Rs. A. P.		Rs.	Rs.		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
37. Tools and plant	..	..	..	..	6,11,656	..	..	6,11,541 9 10	114 6 2	..	6,11,656 0 0	..
38.	..	..	..	..	2,17,415	..	..	2,22,509 2 7	— 5,094 2 7	30,555 0 0	2,47,970 0 0	..
39.	..	..	..	..	5,34,369	..	..	5,97,854 0 2	— 63,485 0 2	1,39,076 0 0	6,73,445 0 0	..
40. ...con- ...)	C. yds.	..	..	..	..	3,355½	14 6 5	44,072 2 11	—44,072 2 11	..	..	..
41. A... ...ple	..	..	..	..	..	..	..	34 3 2	— 34 3 3	..	..	..
Total of estimate and value of work done	..	..	..	..	61,06,227	..	..	58,82,251 1 11	2,23,975 14 1	3,72,455 0 0	64,78,682 0 0	64,78,682 0 0
Deduct probable recoveries due to sales of tools and plant	..	..	..	..	2,77,331	..	..	— 29,775 12 7	—2,47,555 3 5	30,000 0 0	—2,47,331 0 0	1,30,33,172 0 0 — 2,47,331 0 0
Total ..	..	..	..	..	58,28,896	..	..	58,52,475 5 4	—23,579 5 4	4,02,455 0 0	62,31,351 0 0	1,27,85,841 0 0
Deduct sale of stores and refunds of Harbour Trust Board on completion of works	..	..	..	..	..	..	..	..	..	— 33,333 0 0	—33,333 0 0	— 33,333 0 0
Total of revised estimate sanctioned in Secretary of State's despatch ..	..	..	..	..	58,28,896	..	..	58,52,475 5 4	—23,579 5 4	3,69,122 0 0	61,98,018 0 0	1,27,52,508 0 0
Estimated cost of additional works, extra and excesses found necessary up to completion of works, 1895-96.	..	..	..	..	..	..	..	..	..	3,69,122 0 0		
Total estimated cost for completion of reconstruction of works ..	..	..	..	..	..	..	..	..	..	..	61,98,018 0 0	

MADRAS,
1st March 1895.

(Signed) A. LEE POGSON,
Engineer, Harbour Trust Board.

No. 551, Marine.

Transferred to the Public Works Department. Orders in regard to the audit of the harbour accounts will issue shortly.

FORT ST. GEORGE,
13th March 1895.

(Signed) J. F. PRICE,
Chief Secretary.

Note by the Chief Engineer, Public Works Department.

The papers submitted herewith refer to a revised estimate for the completion of the construction of the Madras harbour, from which it appears that the sanctioned estimate will be exceeded by a sum of Rs. 3,69,122, of which Rs. 2,33,379 is due to extra cost of work (including tools and plant), Rs. 1,39,076 to extra cost of establishment and Rs. 30,000 to a reduction in the sum expected to be recovered from the sale of plant; less a sum of Rs. 33,333 for sale of stores and refunds of Harbour Trust Board on completion of works, the nature of which, and the items of which it is made up, not being stated.

2. The only explanation given by the Engineer of the causes of this excess is that it is due to the delay in completing the works and to an increase in the quantity of cement used.

3. The former explanation is perhaps sufficient as regards the increased cost of establishment, but the latter can certainly not be accepted, without further information than is at present available, as accounting for an excess expenditure of 42 per cent. upon the cost of the concrete capping, the provision for which in the sanctioned estimate is Rs. 3,68,293, while in the revised estimate it is Rs. 5,22,676.

4. The total excess is not in itself very serious, being only 6·33 per cent. on the total sanctioned estimate of Rs. 58,28,896, or omitting establishment, only 3·94 per cent.; but it becomes serious in view of the fact that as lately as November last no notice appears to have been given to the Board that the estimate would be exceeded.

5. Mr. Pogson in his letter No. 884 of the 13th February 1895, paragraphs 4 and 5, states what is perfectly true that the actual excess is small for a work of this class; but the fact that it was not possible in 1886 to make a more accurate estimate than the one actually made is no reason whatever why an accurate estimate should not have been made long before January 1895, and I can only say that, if Mr. Pogson was not long before that date in possession of "data to enable him to name the actual cost of completing the works," he must have given very imperfect attention to the financial side of his duties.

6. It will be within the recollection of Government that last year the Harbour Trust Board applied for the services of an officer of this department to enquire into various matters connected with the management of the works, and it was proposed to depute Major Boddy, R.E., for this duty as soon as he could be spared, which was expected to be in October or November of last year; before the time arrived, for some reason with which I am unacquainted, the Board withdrew their application, which in my opinion is much to be regretted.

G.O., No. 322, Financial, dated 23rd April 1894.
Memo. No. 93 D., dated 4th May 1894.
G.O., No. 189, Marine, dated 24th May 1894.
Memo. No. 523 D., dated 5th July 1894
G.O., No. 286, Marine, dated 19th July 1894.
" " 425, Marine, dated 5th Nov. 1894.

7. As the case stands there is, I presume, no alternative but to submit the revised estimate to the Secretary of State for sanction, but I consider that it is eminently desirable to take steps for ensuring in the future a proper financial control over all expenditure on construction, and the first requisite for this is that all accounts for such expenditure should be subject to the regular audit of the Examiner of Public Works Accounts.

8. A proposal appears to have been made that the Examiner should undertake a private audit of these accounts under section 91 of the Civil Service Regulations. On this point I must record a very decided opinion that such an audit is not what is wanted and will not meet the requirements of the case.

9. What is necessary is the regular audit from month to month, which is given in the case of all Public Works expenditure; the Examiner considers that this audit is "extraneous to his duties;" and I am not sure that he is not correct as the law now stands. If so, it is very desirable that the audit in question should be brought within the scope of his duties, and I would suggest an early application being made to the Government of India for that purpose. There seems no reason why a small additional remuneration should not be given to him for this work, just as a remuneration is given to the Collector of Sea Customs for acting as Chairman of the Harbour Trust Board, but there should, I submit, be no room allowed for doubt that the audit is a regular and official one and not in any way private or special. The work is paid for in the first instance by money obtained from the public treasury, and the expenditure should be scrutinized in precisely the same manner as that on any other public work.

28th March 1895.

(Signed) J. PENNYCUICK, Colonel, R.E.,
Chief Engineer, P.W.D.

ORDER—dated 9th May 1895, No. 1108 W., Public Works.

With his letter No. 4385, dated 8th March 1895, the Chairman of the Madras Harbour Trust Board submits—

(*a*) a revised construction estimate for the completion of the works;
(*b*) an indent for cement; and
(*c*) a budget estimate of expenditure during 1895–96.

2. His Excellency the Governor in Council observes that the expenditure on works to the end of December 1894 amounted to Rs. 65,54,490 and that the revised estimate for reconstruction sanctioned by the Secretary of State in his despatch No. 1, Public Works, dated 8th January 1892, amounted to Rs. 1,23,83,386. The total amount of the revised sanctioned estimate thus comes to Rs. 1,23,83,386. The supplemental estimate now submitted amounts to Rs. 3,69,122, thus bringing the total estimated cost for the completion of works up to Rs. 1,27,52,508.

3. The supplemental estimate is made up as follows:—

		Rs.	Rs.
	North Pier.		
Concrete in protection to rubble base		3,800	
Concrete capping		82,191	
Cost of north pier caisson and setting in position and filling		19,105	1,05,096
	South Pier.		
Concrete in filling in between coursed block work and caisson		9,105	
Concrete in protection to rubble base		6,200	
Concrete capping		72,192	
Preparing base for and setting cylindrical pier head ...		10,231	97,728
			30,555
			1,39,076
Contingencies			30,000
Establishment			4,02,455
Tools and plant			
Deduct—Sale of stores and refunds of Harbour Trust Board on completion of works			33,333
Net supplemental estimate ...			3,69,122

4. Of the excess of Rs. 3,69,122 now submitted for sanction, Rs. 2,27,762 are attributed chiefly to the use of a larger proportion of cement in certain portions of the work considered necessary by the Consulting Engineer, and to items not included in the sanctioned estimate but now found to be necessary. The balance of Rs. 1,41,360 occurs under establishment, and is said to be due to delay in the completion of the works owing to difficulties not anticipated when the last revised estimate was drawn up.

5. His Excellency in Council regrets that this excess has been found necessary and that it was not foreseen and reported earlier. There is now no alternative but to lay the estimate before the Right Honourable the Secretary of State for formal sanction.

6. The indent for cement has been disposed of in separate Proceedings, and the budget estimate of expenditure for 1895–96 will be dealt with in the Financial Department.

7. The budget estimate amounts to Rs. 4,70,682 and is made up as follows:—

	Rs.
The balance of sanctioned estimates on 31st March 1895	68,227
Supplemental estimates now submitted	3,69,122
Total ...	4,37,349
Advance to be made but which will be subsequently recovered by the sale of stores on the completion of works	33,333
Total ...	4,70,682

8. His Excellency the Governor in Council concurs with the Chief Engineer as to the necessity for a regular audit of the Harbour Works accounts on the same system as that adopted in the case of ordinary public works, and resolves that the Government of India be requested to direct the Examiner, Public Works Accounts, to undertake this duty at once, the question of remuneration being decided hereafter.

[Here enter No. 1109 W., dated 9th May April 1895.]

(True Extract.)

Under Secy. to Govt., P.W.D.

To the Examiner, Public Works Accounts.
" Chairman, Harbour Trust Board.
" Marine Department.
" Financial "

Exd. T. K. Narayana Aiyangar.
Spare Copies

5. While much regretting that earlier intimation was not given to Government, the Trustees have no option now, but to submit for information and favour of orders, a revised estimate for the completion of the harbour in the form which accompanies all progress reports and shows the various sub-heads of work under column 1, against which is shown the expenditure up to 31st December 1894, columns 8 and 9, the balance available under the sanctioned estimate, column 10, the present supplimentary estimate for completion, column 11, and in 12, the total of the revised sanctioned estimate and of this supplemental estimate.

6. The excess appears due chiefly to two causes: first, the delay in completing the works, and secondly, the enhanced charge for cement. The first has necessitated a very much heavier expenditure upon staff than was anticipated, and the latter is due to the additional proportion of cement used, and hereafter to be used in the capping in compliance with the instructions of Sir Alexander Rendel, communicated for guidance under G.O., No. 821 W., P.W., dated 24th March 1893.

7. The Trustees have inquired from their Engineer whether he was not mistaken in supposing that Sir Alexander Rendel meant that the capping should be of better quality than the blocks upon which it had to be placed, and he has replied very decidedly that "as regards the increased strength of concrete to be used Sir Alexander Rendel referred to *any concrete work yet to be done* and was aware that the capping was the future concrete work to be done; and as the G.O., No. 821 W., was communicated to me for guidance, I have carried out instructions and *as soon as possible* with facts before me framed my estimate accordingly."

8. Mr. Pogson is himself strongly of opinion that "in view of the recently found out action of sea water upon concrete cement, there would appear danger of this action taking place *above* water level * * * more than *below* water level in an open harbour of this description, where the water pressure is equal on both sides of the superstructure and the tidal range so small."

9. As the Board's Engineer freely corresponds with Sir Alexander Rendel, they are no doubt in accord in this opinion, and I have therefore to request that the accompanying indent for extra cement required may be forwarded to the India Office for favour of compliance, and as it is important in the interest of economy that no further delay should occur in the completion of the harbour, the Board would ask that a telegram be despatched requesting that it may be shipped at an early date. Sir Alexander Rendel has no doubt been kept fully advised by the Board's Engineer, and will be aware of the necessity for the supply, which Mr. Pogson states is required in June.

10. The Board would further request that the supplemental estimate for the completion of the harbour now furnished by their Engineer may be submitted to the Right Honourable the Secretary of State for sanction; and would be glad if the audit of the harbour works accounts could be proceeded with at once, the caisson at the south pier head will be, it is hoped, set in a few days, and the work thereafter will be much simpler, when being freed from the necessity for personal supervision of the works, the Engineer should turn his attention to the accounts and assist the auditor to complete same as soon as possible.

Enclosures.

Extract of Proceedings of the Trustees of the Harbour of Madras at a meeting held at the offices of the Board on Friday, the 8th day of March 1895.

* * * * *

2. Read correspondence with the Board's Engineer regading his budget estimate, dated 6th February, for expenditure upon the harbour during 1895–96 amounting to Rs. 4,70,682, being Rs. 4,02,455 in excess of the sanctioned estimate. The completion estimate submitted by the Engineer, as directed by the Chairman, having been printed and a copy sent to each Trustee, was discussed, together with draft of letter to the Chief Secretary to Government submitting same for the approval of the Right Honourable the Secretary of State.

Resolved that the Chairman's draft letter to the Chief Secretary to Government submitting supplemental estimate is approved, and that the Engineer's indent for cement be passed and forwarded to Government for favour of compliance by the India Office.

* * * * * *

(True Extract.)

(Signed) C. PINSENT,
Secretary, Harbour Trust Board.

From the Engineer, Harbour Trust Board, Madras, to the Chairman, Harbour Trust Board, dated 8th February 1895, No. 871.

I have the honour to forward the budget estimate for completing the Madras Harbour Works in the official year 1895–96, being Rs. 4,70,682, which sum includes excesses upon the estimate, due to delay in completing the works, &c., of Rs. 1,41,360 upon the sanctioned estimate of Rs. 58,28,856; and the balance is due to additional charges and work done not provided for in the sanctioned estimate, and additional work *plus* the balance remaining upon the sanctioned estimate, and a temporary advance of Rs. 33,333 upon the value to be recovered upon the sale of the stores on completion of works.

2. The schedule of office staff for the official year is forwarded for sanction under the Harbour Trust Board Act.

3. A separate schedule of the work establishment is furnished as usual, the cost of which is included in the value of work to be done, per yard, ton, &c., of work to be turned out to the completion of the works.

4. An estimate of the schedule of staff per mensem, and arrangements for working the Traffic and Porterage Departments, Machinery, Traffic arrangements and maintenance of Railway lines under the Engineer, Harbour Trust Board, is submitted for sanction, being the same arrangements as sanctioned for 1894–95 which have worked so well in the past year.

5. An indent for the balance of Portland cement is also forwarded including a new wire rope for the titan crane included in the budget estimate for early sanction and transmission through Government to the India Office, as the cement will be required in June 1895.

Budget estimate for completing Harbour Works on sanctioned design in 1895–96.

			Rs.
Balance of sanctioned estimate upon 31st March 1895, Rs. 82,227 (*vide* G.Os., Nos. 480 and 535, dated 8th June and 12th July 1894).			14,000
Amount overdrawn, 1894–95			68,227
Available balance on sanctioned estimates for 1895–96			
	Rs.		
Cost of cement received on works to be paid for in official year 1895–96	58,189		
Cost of stone for caisson and capping	47,364		
Cost of cement required for increased proportions of concrete for capping, for completion of works	1,25,566		
Cost of fuel, stores and daily-paid labour for above to complete works	1,21,562		3,52,681
Office establishment for 1895–96 as per schedule of staff, 1895–96	39,349		
Works establishment for 1895–96 as per schedule of staff, 1895–96	26,795		66,144
Total of schedule of staff, 1895–96 to complete works			
Add compensation for land north of harbour to be paid in 1895–96	8,857		
Add refund of recovery made on tools and plant	30,000		
Add arrears due to estate of late Kazim Ali Nakvy Saib.	13,000		51,857
Actual cash or value of payments and work to be done, 1895–96 *plus* materials on hand *to complete works*			4,70,682
Deduct balance of sanctioned estimate available for 1895–96 = Rs. 82,227—14,000 drawn, 1894–95 = balance			68,227

		RS.
Additional sum above estimate requiring sanction of Harbour Trust Board		4,02,455
Deduct advance to be made by Harbour Trust Board, of sum to be realised on sale of stores in stock, other than tools and plant on completion of works to be refunded to Harbour Trust Board, taken as two-thirds original cost		33,333
Total sum of *extras and excesses upon sanctioned estimate* as per detailed statements A and B requiring sanction of Government *for completion of works*		3,69,122

ABSTRACT of extra charges and excesses upon sanctioned estimate requiring further sanction of Government.

	RS.	
Actual sum paid from Construction Funds since October 1890 and extras not included in *sanctioned estimate* as per *statement A attached*		2,27,762
Total sum or excesses upon sanctioned estimate from March 1895 due to works taking longer to complete, due to rough sea and removal of old works, &c., inclusive of additional charges of Provident Fund and exchange compensation allowances in 1895–96, *statement B*		1,41,360
Total of extra charges to works and excesses upon estimate requiring further sanction of Government		3,69,122

BUDGET estimate for 1895–96, completing works.

Additional sum charged to works including excesses upon estimate required in 1895–96		3,69,122
Balance of sanctioned estimate available for 1895–96 due from Government = Rs. 82,227—14,000 excesses drawn on budget estimate, 1894–95 = balance		68,227
Advance required on value of stores in stock to be recovered on sale of same on completion of works		33,333
Total of budget estimate for 1895–96 which will complete the harbour works upon the sanctioned design in the above official year		4,70,682

TOTAL cost of Madras Harbour Works to completion.

Total of sanctioned estimate (framed in October 1890) sanctioned in Secretary of State's despatch No. 1, dated 7th January 1892		1,23,83,386
Total estimated cost of completing works upon sanctioned design in 1895–96, including excesses and additional charges, added to cost of works not anticipated as per statements A and B requiring further sanction		3,69,122
Total cost of Madras Harbour Works on completion of sanctioned design in 1895–96 inclusive of all extras and excesses, &c.		1,27,52,508

STATEMENT A showing additional outlay since sanction of estimate charged to Construction Estimate.

Refund of—Extras not included in sanctioned estimate, but already carried out and met from Construction Funds since October 1890 for cement and for work, other than construction proper, to completion of works:—

	RS.
Realignment of Beach Railway lines for Tramway Company ...	14,679
Extensions to the Fort Drain for the Madras Municipality ...	13,948
Compensation for land north of the Harbour already paid ...	4,138
Repairs to revetment from October 1890 to February 1891 ...	10,301

	RS.
Insurance and other charges, additional, since October 1890 ...	1,291
Import duty on cement received	5,367
Sum paid to Presidency Port officer for work done by Agent, Government Consignments, 1890–92	3,000
Trust contribution towards Provident Fund to March 1895 ...	38,681
Exchange compensation allowance	10,791
Cement required for completion of works, 1895–96, including import duty, &c.	1,25,566
Total of extras upon sanctioned estimate, additional, to sum included for Provident Fund and exchange compensation allowance, to completion of works, 1895–96	2,27,762

STATEMENT B.—Extras upon sanctioned estimate due to work taking longer to complete, due to rough sea, &c.

	RS.	RS.
Excess on establishment as per statement of expenditure to 31st March 1895 (item 38)		66,000
Excess on contingencies (item 39)		5,711
Add office establishment and work establishment from March 1895 to completion of works as per schedule of staff, 1895–96 ...		66,144
Add fuel, longer maintenance of work establishment, drivers, gaugers, watchmen, pointsmen and trollymen at works, &c. ...		66,838
		2,04,693
Deduct sum to be realised on sale of stores on completion of works	33,333	
Deduct sum recovered on tools and plant	30,000	63,333
Actual excesses upon estimate due to works taking longer to complete		1,41,360

MADRAS,
6th February 1895.

(Signed) A. LEE POGSON, M.I.C.E., M.I.M.E., &c.,
Engineer, Harbour Trust Board.

From the Engineer, Harbour Trust Board, Madras, to the Chairman, Harbour Trust Board, dated Madras, 13th February 1895, No. 884.

I have the honour to acknowledge the receipt of your letter No. 5188 (*a*), dated the 9th instant, regarding the budget estimate for 1895–96 for completing the Madras Harbour Works.

2. The actual cash required for the completion of these works is Rs. 4,70,682 as stated, but Rs. 82,227 is not the available balance of the sanctioned advances but Rs. 1,02,196 + 68,227 = Rs. 1,70,423, being the balance due from Government for 1895–96 *plus* the sums paid out of the advances made for construction but spent upon other works not included in the estimate or Rs. 1,02,196, being money paid from construction advances now to be refunded, which should, from time to time, have been met from port or other funds, but by paying the above charges from and drawing on construction advances, the trust have had this sum for investment, and I have repeatedly remarked to the Chairman (Mr. Austin) and the Secretary that the construction estimate could not meet such charges and that a refund must be made for completion of works.

3. Some months back when I was permitted to be present at the Board's meeting, I was asked if the works would not be finished within 5 per cent. of the sanctioned estimate, and I informed the Trustees that 5 per cent. on the sanctioned estimate would easily cover the excesses, and although there has since been further delay in completing the works, the extra sum required Rs. 2,66,926 *plus* balance above, refund, and a small advance on stores, &c., is only 4½ per cent. on the sanctioned estimate—*vide* Secretary of State's despatch No. 1, dated 7th January 1892, and this sum even includes extras of Provident fund, exchange compensation allowance, compensation for land, duty on cement, &c., to the completion of the works.

4. As regards early intimation being given of the excess, it was presumed provision had been made for the above refund *plus* available balance from Government being available from March 1895 without further sanction and therefore the additional expenditure would not be required before June or five months hence.

	RS.
Additional sum above estimate requiring sanction of Harbour Trust Board	4,02,455
Deduct advance to be made by Harbour Trust Board, of sum to be realised on sale of stores in stock, other than tools and plant on completion of works to be refunded to Harbour Trust Board, taken as two-thirds original cost	33,333
Total sum of *extras and excesses upon sanctioned estimate* as per detailed statements A and B requiring sanction of Government *for completion of works*	3,69,122

ABSTRACT of extra charges and excesses upon sanctioned estimate requiring further sanction of Government.

	RS.
Actual sum paid from Construction Funds since October 1890 and extras not included in *sanctioned estimate* as per *statement A attached*	2,27,762
Total sum or excesses upon sanctioned estimate from March 1895 due to works taking longer to complete, due to rough sea and removal of old works, &c., inclusive of additional charges of Provident Fund and exchange compensation allowances in 1895–96, *statement B*	1,41,360
Total of extra charges to works and excesses upon estimate requiring further sanction of Government	3,69,122

BUDGET estimate for 1895–96, completing works.

Additional sum charged to works including excesses upon estimate required in 1895–96	3,69,122
Balance of sanctioned estimate available for 1895–96 due from Government = Rs. 82,227—14,000 excesses drawn on budget estimate, 1894–95 = balance	68,227
Advance required on value of stores in stock to be recovered on sale of same on completion of works	33,333
Total of budget estimate for 1895–96 which will complete the harbour works upon the sanctioned design in the above official year	4,70,682

TOTAL cost of Madras Harbour Works to completion.

Total of sanctioned estimate (framed in October 1890) sanctioned in Secretary of State's despatch No. 1, dated 7th January 1892	1,23,83,386
Total estimated cost of completing works upon sanctioned design in 1895–96, including excesses and additional charges, added to cost of works not anticipated as per statements A and B requiring further sanction	3,69,122
Total cost of Madras Harbour Works on completion of sanctioned design in 1895–96 inclusive of all extras and excesses, &c.	1,27,52,508

STATEMENT A showing additional outlay since sanction of estimate charged to Construction Estimate.

Refund of—Extras not included in sanctioned estimate, but already carried out and met from Construction Funds since October 1890 for cement and for work, other than construction proper, to completion of works:—

	RS.
Realignment of Beach Railway lines for Tramway Company ...	14,679
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Insurance and other charges, additional, since October 1890 ...	1,291
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Exchange compensation allowance	10,791
Cement required for completion of works, 1895–96, including import duty, &c.	1,25,566
Total of extras upon sanctioned estimate, additional, to sum included for Provident Fund and exchange compensation allowance, to completion of works, 1895–96	2,27,762

STATEMENT B.—Extras upon sanctioned estimate due to work taking longer to complete, due to rough sea, &c.

	RS.	RS.
Excess on establishment as per statement of expenditure to 31st March 1895 (item 38)		66,000
Excess on contingencies (item 39)		5,711
Add office establishment and work establishment from March 1895 to completion of works as per schedule of staff, 1895–96 ...		66,144
Add fuel, longer maintenance of work establishment, drivers, gaugers, watchmen, pointsmen and trollymen at works, &c. ...		66,838
		2,04,693
Deduct sum to be realised on sale of stores on completion of works	33,333	
Deduct sum recovered on tools and plant	30,000	
		63,333
Actual excesses upon estimate due to works taking longer to complete		1,41,360

MADRAS,
6th February 1895.

(Signed) A. LEE POGSON, M.I.C.E., M.I.M.E., &c.,
Engineer, Harbour Trust Board.

From the Engineer, Harbour Trust Board, Madras, to the Chairman, Harbour Trust Board, dated Madras, 13th February 1895, No. 884.

I have the honour to acknowledge the receipt of your letter No. 5188 (*a*), dated the 9th instant, regarding the budget estimate for 1895–96 for completing the Madras Harbour Works.

2. The actual cash required for the completion of these works is Rs. 4,70,682 as stated, but Rs. 82,227 is not the available balance of the sanctioned advances but Rs. 1,02,196 + 68,227 = Rs. 1,70,423, being the balance due from Government for 1895–96 *plus* the sums paid out of the advances made for construction but spent upon other works not included in the estimate or Rs. 1,02,196, being money paid from construction advances now to be refunded, which should, from time to time, have been met from port or other funds, but by paying the above charges from and drawing on construction advances, the trust have had this sum for investment, and I have repeatedly remarked to the Chairman (Mr. Austin) and the Secretary that the construction estimate could not meet such charges and that a refund must be made for completion of works.

3. Some months back when I was permitted to be present at the Board's meeting, I was asked if the works would not be finished within 5 per cent. of the sanctioned estimate, and I informed the Trustees that 5 per cent. on the sanctioned estimate would easily cover the excesses, and although there has since been further delay in completing the works, the extra sum required Rs. 2,66,926 *plus* balance above, refund, and a small advance on stores, &c., is only 4½ per cent. on the sanctioned estimate—*vide* Secretary of State's despatch No. 1, dated 7th January 1892, and this sum even includes extras of Provident fund, exchange compensation allowance, compensation for land, duty on cement, &c., to the completion of the works.

4. As regards early intimation being given of the excess, it was presumed provision had been made for the above refund *plus* available balance from Government being available from March 1895 without further sanction and therefore the additional expenditure would not be required before June or five months hence.

5. The balance or actual sum or excess required from June 1895 could not be worked out earlier, as it was not certain when the south pier caisson would be set, and only [illegible]h January 1895 from actual work done could I gather data to enable me to name [illegible]st of completing the works and the excess now named is very small for any marine work.

6. It is well to mention that even with the first works without any diff[illegible]s was 15 per cent. over the estimate without the extras, while with these works "[illegible]f damaged works" there has never been any data upon which a similar estimate could [illegible] and it is surprising to find that the works can be completed for a sum so near the [illegible] cost.

EXTRACT of Proceedings of the Trustees of the Harbour of Madras at a special meeting held at the offices of the Board on Friday the 15th day of February 1895 under the provisions of section 37, Act II of 1886, to consider the estimates of receipts and charges for 1895–96.

* * * * *

Read letter from the Board's Engineer, No. 871, dated 8th February, forwarding an estimate, dated 6th idem, for completing the harbour in 1895–96 amounting to Rs. 1,70,682.

Read minutes by Messrs. G. L. Chambers, R. J. Black and S. R. Turnbull.

Read letter from the Chairman, No. 5188 (*a*), dated 9th February, addressed to the Engineer, enquiring why earlier intimation was not given that he anticipated so large an excess of expenditure, the available balance under the sanctioned estimate being only Rs. 82,227.

Read letter in reply No. 884, dated 13th February, stating that only since the 10th January from actual work done could he gather the actual cost of completing the works. Mr. Pogson who was present explained that the excess was largely due to the larger proportion of cement now being used under the orders of Sir Alexander Rendel, viz., 1 in 6 instead of 1 in 10 as formerly and that when he wrote his letter No. 195, dated 4th June 1894, and stated—in reply to paragraph 4 of No. $\frac{A}{2515}$ from the Government of India, dated Simla, 22nd May—that the sanctioned estimate "Rs. 61,06,227 is all that is required," he was not in a position to foresee the extra outlay which he now finds to be necessary.

Resolved that this estimate be submitted to Government for information and for favour of orders.

* * * * *

(True Extract.)

(Signed) C. PINSENT,
Secretary, Harbour Trust Board.

COMPLETION estimate of Madras Harbour Works.

Sub-head of work.	As per estimate sanctioned in Secretary of State's despatch No. 1, dated 7th January 1892. Quantity.	Rate.	Per	Cost.	Total.	Quantity.	Rate.	Total expenditure up to 31st December 1894.	Balance of sanctioned estimate.	Supplemental estimate for completion.	Total of revised estimate, columns 9, 10 and 11.	Remarks. Total cost.
1	2	3	4	5	6	7	8	9	10	11	12	13
		Rs. A. P.		Rs.	Rs.		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Expenditure up to 31st Dec. 1884.												
1. Works	..	..	..	..		..	..	..	..	..	..	55,09,324 0 0
2. Establishment	..	..	..	..		..	..	..	..	..	..	6,29,904 0 0
3. Tools and plant	..	..	..	..		..	..	..	..	..	..	4,15,262 0 0
Total ..	..	..	..	..	5,892	..	..	5,892 0 11	..	..	5,892 0 0	65,54,490 0 0
Revised Estimate.												
4. Alteration and extension of block ground .. Prely.	..	..	..	..	5,892	..	..	5,892 0 11	..	..	5,892 0 0	..
North Pier.												
5. Ordinary rubble deposited from breakwater .. Tons.	13,930	1 12 0	Ton.	24,378	24,378	13,930	1 12 0	24,377 9 0	0 7 0	..	24,378 0 0	..
6. Ordinary rubble deposited from boats .. .. ,,	206,896	2 0 6	,,	4,19,218	4,19,218	205,477	2 0 8	4,15,132 8 10	4,085 7 2	..	4,19,218 0 0	..
7. Concrete blocks for building .. .. .. C. yds.	51,320	11 8 0	C. yd.	5,90,110	5,90,110	51,320	11 8 0	5,90,110 0 0	..	..	5,90,110 0 0	..
8. Setting blocks at commencement of new work .. ,,	2,615	2 1 1	,,	5,415	5,415	2,615	2 1 1	6,414 11 2	0 4 10	..	5,415 0 0	..
9. Setting blocks from 2,200 to 3,600 feet .. .. ,,	36,520	2 14 3	,,	1,05,569	1,05,569	36,520	2 14 3	1,05,669 0 0	8 12 0	..	1,05,569 0 0	..
10. Setting blocks at pier head .. .. ,,	12,186	9 8 11	,,	1,16,424	1,16,424	12,186	9 8 11	1,16,415 4 0	— 0 0 7	..	1,16,424 0 0	..
11. Concrete in mass for filling .. .. ,,	263	4 8 3	,,	1,188	1,188	263	4 8 3	1,188 0 7	..	..	1,188 0 0	..
12. Wave-breaker blocks .. ,,	288	9 5 7	,,	2,692	2,692	288	9 5 7	2,692 0 0	..	..	2,692 0 0	..
13. Wave-breaker concrete blocks .. .. ,,	77,355	10 14 11	,,	8,45,591	8,45,591	69,863	12 1 8	8,45,459 12 4	131 3 8	..	8,45,591 0 0	..
14. Depositing concrete blocks .. .. ,,	77,932	1 0 0	,,	77,928	77,928	70,467	1 1 8	77,918 8 4	9 7 8	..	77,928 0 0	..
15. Concrete in protection to rubble base .. .. ,,	1,986	10 4 1	Each.	20,858	20,858	1,986	10 4 0	20,358 0 0	..	3,800 0 0	24,158 0 0	..
16. Cramps, iron .. .. No.	331	9 10 1	C. yd.	3,188	3,188	313	10 3 0	3,188 0 0	..	..	3,188 0 0	..
17. Concrete capping .. .. C. yds.	16,352	11 3 10		1,83,798	1,83,798	3,303½	..	67,206 8 5	1,16,591 7 7	82,191 0 0	2,65,989 0 0	..
18. Cost of north pier caisson and setting in position and filling same as items 26,27,33 and 34 .. ,,	..	..	..	84,750	84,750	..	..	84,727 1 9	22 14 3	19,105 0 0	1,03,855 0 0	..
Total for North Pier ..	..	..	..	..	24,80,607	..	..	23,59,767 0 5	1,20,849 15 7	1,05,096 0 0	25,85,703 0 0	..

Completion estimate of Madras Harbour Works—*cont.*

Sub-head of work.	As per estimate sanctioned in Secretary of State's despatch No. 1, dated 7th January 1892.					Quantity.	Rate.	Total expenditure up to 31st December 1894.	Balance of sanctioned estimate.	Supplemental estimate for completion.	Total of revised estimate, columns 9, 10 and 11.	Remarks.
	Quantity.	Rate.	Per	Cost.	Total.							Total cost.
1	2	3	4	5	6	7	8	9	10	11	12	13
A Pier.												
19. Rubble deposeit-		Rs. A. P.		Rs.			Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
20. [illegible] Tons.	175,078	2 9 0	Ton.	4,49,052		173,659	2 9 4	4,44,126 1 4	4,925 14 8	..	4,49,052 0 0	..
21. [illegible] ,,	8,615	1 12 0	,,	15,076		8,615	1 12 0	15,075 13 0	0 3 0	..	15,076 0 0	..
22. Se[illegible] .. C. yds.	45,066	11 3 1	C. yd.	5,04,510		43,341⅛	11 10 3	5,04,510 0 0	..	..	5,04,510 0 0	..
23. Se[illegible] at com- ,,	2,556	3 1 6	,,	7,912		2,556	3 1 6	7,911 13 3	0 2 9	..	7,912 0 0	..
[illegible]ks at pi[illegible] ..	30,160	3 7 11	,,	1,05,461		30,160	3 7 11	1,05,461 0 0	..	..	1,05,461 0 0	..
25. Co[illegible] mass for	12,350	11 1 3	,,	1,36,845		12,350	11 0 10	1,36,468 7 6	376 8 6	..	1,36,845 0 0	..
26. Co[illegible]	[illegible]	7 9 1	,,	4,555		602	7 9 1	4,554 14 4	0 1 8	..	4,555 0 0	..
[illegible]		15 0 0	,,	35,325		..	..	12,904 11 10	22,420 4 2	..	35,325 0 0	..
[illegible] work and caisson ..	184	15 0 0	,,	2,760		..	..	..	2,760 0 0	9,105 0 0	11,865 0 0	..
28. Wave-breaker concrete blocks .. ,,	47,231	11 1 6	,,	5,24,070		42,589⅞	12 2 9	5,14,062 0 0	10,008 0 0	..	5,24,070 0 0	..
29. Depositing concrete blocks	[illegible]	[illegible]	,,	64,708		41,073	1 9 0	64,260 3 9	447 12 3	..	64,708 0 0	..
30. Concrete in protection to rubble base ..	[illegible]	[illegible] 6	,,	16,420		1,108	13 7 7	14,932 9 1	1,487 8 11	6,200 0 0	22,620 0 0	..
31. Cram[illegible] ..	[illegible]	11 7 7	Each.	2,972		220	13 8 1	2,972 0 0	..	..	2,972 0 0	..
32. Conc[illegible] .. .. No.	[illegible]	11 5 8	C. yd.	1,84,495		669	..	15,188 12 0	1,69[illegible]	72,192 0 0	2,56,687 0 0	..
33. Iron c[illegible]			,,	18,000		..	..	18,000 0 0	..	..	18,000 0 0	..
34. Preparing base for and setting cylindrical pier head	..	..		28,665	21,00,826	..	..	28,403 2 10	261 13 2	10,231 0 0	38,896 0 0	..
Total for South P[illegible]				..		..	..	18,88,831 8 11	2,11,994 7 1	97,728 0 0	21,98,554 0 0	..
Extending the rubble revetment protecting the foreshore north of Harbour.												
[illegible] revetment. Tons.	[illegible],600	2 1 0	Ton.	13		91,051	1 8 8	1,40,093 13 2	[illegible] 10	..	1,45,[illegible]13 0 2	..
[illegible]s ..	..	..	..	19	1,55,462	..	..	11,665 7 10	—1,816 7 10	..	9,849 0 0	..
								1,51,759 5 0	3,702 11 0	..	[illegible]	..

Completion estimate of Madras Harbour Works—*cont.*

Sub-head of work.	As per estimate sanctioned in Secretary of State's despatch No. 1, dated 7th January 1892.					Quantity.	Rate.	Total expenditure up to 31st December 1894.	Balance of sanctioned estimate.	Supplemental estimate for completion.	Total of revised estimate, columns 9, 10 and 11.	Remarks.
	Quantity.	Rate.	Per	Cost.	Total.							Total cost.
1		3	4	5	6	7	8	9	10	11	12	13
Extending the rubble revetment protecting the foreshore north of Harbour—cont.		Rs. A. P.		Rs.	Rs.		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
37. Tools and plant	..	..	..	..	6,11,656	..	..	6,11,541 9 10	114 6 2	..	6,11,656 0 0	..
38. Contingencies	..	..	..	..	2,17,415	..	..	2,22,509 2 7	— 5,094 2 7	30,555 0 0	2,47,970 0 0	..
39. Establishment	..	..	..	..	5,34,369	..	..	5,97,854 0 2	— 63,485 0 2	1,39,076 0 0	6,73,445 0 0	..
40. Materials at site (concrete blocks in yards.) C. yds.	..	..	..	..	..	3,355¼	14 6 5	44,072 2 11	—44,072 2 11	..	..	..
41. Advances to work-people ..	..	..	..	..	..	..	..	34 3 2	— 34 3 3	..	..	..
Total of estimate and value of work done	..	..	..	..	61,06,227	..	..	58,82,251 1 11	2,23,975 14 1	3,72,455 0 0	64,78,682 0 0	64,78,682 0 0
												1,30,33,172 0 0
Deduct probable recoveries due to sales of tools and plant	..	..	..	..	2,77,331	..	..	— 29,775 12 7	—2,47,555 3 5	30,000 0 0	—2,47,331 0 0	— 2,47,331 0 0
Total ..	..	..	..	..	58,28,896	..	..	58,52,475 5 4	— 23,579 5 4	4,02,455 0 0	62,31,351 0 0	1,27,85,841 0 0
Deduct sale of stores and refunds of Harbour Trust Board on completion of works	..	..	..	..	..	..	..	..	..	— 33,333 0 0	— 33,333 0 0	— 33,333 0 0
Total of revised estimate sanctioned in Secretary of State's despatch ..	..	..	..	..	58,28,896	..	..	58,52,475 5 4	— 23,579 5 4	3,69,122 0 0	61,98,018 0 0	1,27,52,508 0 0
Estimated cost of additional works, extra and excesses found necessary up to completion of works, 1895-96.	..	..	..	..	..	..	..	..	..	3,69,122 0 0		
Total estimated cost for completion of reconstruction of works ..	..	..	..	..	..	..	..	..	..	..	61,98,018 0 0	

MADRAS,
1st March 1895.

(Signed) A. LEE POGSON,
Engineer, Harbour Trust Board.

No. 551, Marine.

Transferred to the Public Works Department. Orders in regard to the audit of the harbour accounts will issue shortly.

FORT ST. GEORGE,
13th March 1895.

(Signed) J. F. PRICE,
Chief Secretary.

Note by the Chief Engineer, Public Works Department.

The papers submitted herewith refer to a revised estimate for the completion of the construction of the Madras harbour, from which it appears that the sanctioned estimate will be exceeded by a sum of Rs. 3,69,122, of which Rs. 2,33,379 is due to extra cost of work (including tools and plant), Rs. 1,39,076 to extra cost of establishment and Rs. 30,000 to a reduction in the sum expected to be recovered from the sale of plant; less a sum of Rs. 33,333 for sale of stores and refunds of Harbour Trust Board on completion of works, the nature of which, and the items of which it is made up, not being stated.

2. The only explanation given by the Engineer of the causes of this excess is that it is due to the delay in completing the works and to an increase in the quantity of cement used.

3. The former explanation is perhaps sufficient as regards the increased cost of establishment, but the latter can certainly not be accepted, without further information than is at present available, as accounting for an excess expenditure of 42 per cent. upon the cost of the concrete capping, the provision for which in the sanctioned estimate is Rs. 3,68,293, while in the revised estimate it is Rs. 5,22,676.

4. The total excess is not in itself very serious, being only 6·33 per cent. on the total sanctioned estimate of Rs. 58,28,896, or omitting establishment, only 3·94 per cent.; but it becomes serious in view of the fact that as lately as November last no notice appears to have been given to the Board that the estimate would be exceeded.

5. Mr. Pogson in his letter No. 884 of the 13th February 1895, paragraphs 4 and 5, states what is perfectly true that the actual excess is small for a work of this class; but the fact that it was not possible in 1886 to make a more accurate estimate than the one actually made is no reason whatever why an accurate estimate should not have been made long before January 1895, and I can only say that, if Mr. Pogson was not long before that date in possession of "data to enable him to name the actual cost of completing the works," he must have given very imperfect attention to the financial side of his duties.

6. It will be within the recollection of Government that last year the Harbour Trust Board applied for the services of an officer of this department to enquire into various matters connected with the management of the works, and it was proposed to depute Major Boddy, R.E., for this duty as soon as he could be spared, which was expected to be in October or November of last year; before the time arrived, for some reason with which I am unacquainted, the Board withdrew their application, which in my opinion is much to be regretted.

G.O., No. 322, Financial, dated 23rd April 1894.
Memo. No. 93 D., dated 4th May 1894.
G.O., No. 189, Marine, dated 24th May 1894.
Memo. No. 523 D., dated 5th July 1894
G.O., No. 286, Marine, dated 19th July [illegible]
" " 425, Marine, dated 5th Nov. [illegible]

7. As the case stands there, I presume, no alternative but to submit the revised estimate to the Secretary of State for sanction, but I consider that it is eminently desirable to take steps for ensuring in the future a proper financial control over all expenditure on construction, and the first requisite for this is that all accounts for such expenditure should be subject to the regular audit of the Examiner of Public Works Accounts.

8. A proposal appears to have been made that the Examiner should undertake a private audit of these accounts under section 91 of the Civil Service Regulations. On this point I must record a very decided opinion that such an audit is not what is wanted and will not meet the requirements of the case.

9. What is necessary is the regular audit from month to month, which is given in the case of all Public Works expenditure; the Examiner considers that this audit is "extraneous to his duties;" and I am not sure that he is not correct as the law now stands. If so, it is very desirable that the audit in question should be brought within the scope of his duties, and I would suggest an early application being made to the Government of India for that purpose. There seems no reason why a small additional remuneration should not be given to him for this work, just as a remuneration is given to the Collector of Sea Customs for acting as Chairman of the Harbour Trust Board, but there should, I submit, be no room allowed for doubt that the audit is a regular and official one and not in any way private or special. The work is paid for in the first instance by money obtained from the public treasury, and the expenditure should be scrutinized in precisely the same manner as that on any other public work.

(Signed) J. PENNYCUICK, Colonel, R.E.,
Chief Engineer, P.W.D.

28th March 1895.

ORDER—dated 9th May 1895, No. 1108 W., Public Works.

With his letter No. 4385, dated 8th March 1895, the Chairman of the Madras Harbour Trust Board submits—

(*a*) a revised construction estimate for the completion of the works;
(*b*) an indent for cement; and
(*c*) a budget estimate of expenditure during 1895-96.

2. His Excellency the Governor in Council observes that the expenditure on works to the end of December 1894 amounted to Rs. 65,54,490 and that the revised estimate for reconstruction sanctioned by the Secretary of State in his despatch No. 1, Public Works, dated 8th January 1892, amounted to Rs. 58,28,896. The total amount of the revised sanctioned estimate thus comes to Rs. 1,23,83,386. The supplemental estimate now submitted amounts to Rs. 3,69,122, thus bringing the total estimated cost for the completion of works up to Rs. 1,27,52,508.

3. The supplemental estimate is made up as follows:—

	Rs.	Rs.
North Pier.		
Concrete in protection to rubble base	3,800	
Concrete capping	82,191	
Cost of north pier caisson and setting in position and filling	19,105	1,05,096
South Pier.		
Concrete in filling in between coursed block work and caisson	9,105	
[illegible] protection to rubble base	6,200	
[illegible]	72,192	
Preparing base for and setting cylindrical pier head ...	10,231	97,728
Contingencies		30,555
Establishment		1,39,076
Tools and plant		30,000
		4,02,455
Deduct—Sale of stores and refunds of Harbour Trust Board on completion of works		33,333
Net supplemental estimate ...		3,69,122