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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

Cons. 20 11 1859

G.O. No. 2688-89 Press Mis.

103-105

Dated 18-11- 1859.

Not to be folded or roughly handled

No. 103. Read the following letter from Lieutenant-Colonel J. H. BELL, Chief Engineer; to J. D. BOURDILLON, Esq., Secretary to Government, dated 28th October 1859, No. 6607.

I have the honor, with reference to the order of Government as per margin, to submit the accompanying estimate for completing the Vellore bridge over the Palaur, amounting to Rupees 23,590.

September 15th 1859, No. 2227.

2. Lieutenant-Colonel Lawford has, in his letter of the 10th of August 1859, No. 3685, reported, with regard to the cause of this additional demand, first, that when the revised estimate of Rupees 1,11,073 was submitted, it was unknown to the District Engineer or overlooked by him, that an excess of Rupees 5,063 had already occurred upon the amount of Rupees 1,613 entered in the said estimate for cut stone; and secondly, that a large excess afterwards occurred upon the remaining works.

1 Letter from District Engineer, North Arcot, No 2109, January 20th 1859, with 2 enclosures.
1 do. No 2404, March 8th, 1859.
1 do. ., 449, July 13th, 1859, with 1 enclosure.
1 Memorandum by Mr Brock, August 10th, 1859.
1 Letter from District Engineer, North Arcot, No. 600, August 12th, 1859, with 2 enclosures.
1 do. from Lieutenant-Colonel Lawford, Deputy Chief Engineer, Central Circle, No. 35, dated September 17th, 1859.
1 do. from District Engineer, North Arcot, No. 832, September 24th, 1859, with 2 enclosures
1 do. do. No 888, October 3rd, 1859, with 2 enclosures.
1 do. do No. 957, October 15th, 1859.
1 do. do ., 983, October 20th, 1859, with 1 enclosure.
1 Estimate.
1 Statement.

3. The late acting District Engineer, Mr. Dopping, knew nothing of the excess upon the cut stone when the last estimate was submitted, and in his letter of the 20th of January 1859, No. 2109, paragraph 3, ascribes his ignorance to the "absence of Mr. Howard, and all others who were acquainted with the facts." In a subsequent letter of the 8th of March 1859, No. 2404, paragraph 6, Mr. Dopping reminds the Chief Engineer, "that the revised estimate was submitted by me within 2¼ months from the date of my taking charge of the district, and long before the accounts had been got into such a state as to be thoroughly examined," and in paragraph 8, he again urges that, as there was no cash book for the 1st division for the year in which the cut stone work had been done, no one, not previously connected with the work could, in the short time allowed, and without Mr. Howard's assistance, have ascertained the true expenditure.

4. Under these circumstances, it does not appear that Mr. Dopping can be held responsible for the blamable omission of the extra cost of the cut stone from the revised estimate; for it was not his fault that the accounts were unintelligible; and I think that the responsibility for this state of things must be fixed upon his predecessor, Captain Mayne, who should have insisted on clear accounts for comparison of the expenditure and estimate of so important a work.

5. The cause of the excess on the cut stone is fully explained in paragraph 9 of Mr. Brock's memorandum, from the information supplied by Mr. Howard. The rate per cubic yard—for this species of work allowed in the estimate was only Rupees 11, while it is said to have been properly 16, when the estimate was prepared, and to have since risen to 30. Besides this encrease, the salary of a European stone cutter cost Rupees 725, and stone of the value of Rupees 1,500 lying in the bed of the river, was lost in the freshes.

6. The excess of Rupees 5,063 on the stone work being deducted, there remains for the excess on works executed after the submission of the revised estimate, Rupees 11,181, of which Rupees 9,323 is put down to the arches, 1,835 to the approaches and roadway, and 26 to superintendence. The statement containing these particulars not appearing to be satisfactory, the Auditor of the Central circle, Mr. Brock, was deputed to Arcot, to investigate the matter. Upon his report, I caused a valuation to be made of the works said to have been executed since the submission of the last estimate, and sent it to the District Engineer for verification and explanation.

Dated August 10th 1859

7. Captain Prendergast in his reply states that, the later works were under-estimated by the Auditor Mr. Brock, and submits a memorandum shewing in detail the works in question, and exhibiting the excess as before. This statement is, I presume, justified by the accounts, to the satisfaction of the District Engineer; and I consider it unnecessary to pursue the enquiry any further, for Captain Prendergast has evidently taken great pains to ascertain the facts of a case, in which he has had no personal concern.

October 3rd 1859, No. 888.

8. According to the memorandum, Mr. Horgan had charge of all the arch work on which the excess of Rupees 9,323, five-sixths of the whole, took place. But Mr. Horgan was subordinate to Lieutenant Clay, upon whom the responsibility for the "actual additional cost," stated at Rupees 2,848-3-10 was fixed by Mr. Dopping. I have, therefore, procured an explanation from Lieutenant Clay through the District Engineer.

Letter March 8th 1859, No 2404, paragraph 12.

9. Lieutenant Clay in his letter herewith submitted, ascribes the excess on the arch work in the first place to the extra expense of hiring bricklayers from Trichinopoly, and as the rates (or wages) paid to them equalled those paid by the railway Engineers, Lieutenant Clay, comparing the cost of the arch work with that of the ordinary brick work at the Vellore station, is surprised at the moderate amount of the former. This is not a satisfactory explanation, and Lieutenant Clay is evidently ill informed of the facts, since it appears from Mr. Brock's memorandum, that the number of bricklayers employed on the arch work was far in excess of the data, and it is reasonable to conclude that this excess was mainly owing to want of good arrangements and superintendence, though it may be conceded that the proximity of the railway works, executed in a still more costly manner, must have rendered it difficult to procure the due amount of labor from the workmen at the bridge.

October 17th 1859, in letter from District Engineer, October 20th, 1859, No. 983.

Paragraph 12.

Secondly, Lieutenant Clay states that the removal of the bridge centres was a very expensive operation, being effected piece by piece to allay the fears of the workmen, excited by the accident in striking one centre which had deprived Lieutenant Boyd of his life. He adds that the cost of transporting the centres to the Palaur annicut was charged to the accounts.

Thirdly, the excess on the approaches is stated by Lieutenant Clay to have occurred not in forming them, but in maintaining the new embankments after completion. This explanation differs from that of Mr. Supervisor Howard, who affirms that the earth work of the approaches was under-estimated one half; and it appears to me unsatisfactory, since the expenditure upon the approaches after August 1858, amounted to Rupees 4,301, of which 1,835 or nearly 43 per cent. was in excess, an amount far too great to be charged to maintenance.

Mr. Brock's report paragraph 13.

10. With regard to the defects of the estimate, Lieutenant Clay must be considered, according to his own account, to share the responsibility with Mr. Horgan and the officiating District Engineer, Mr. Dopping.

Paragraph 5.

11. Lieutenant Clay also inspected and checked the bridge accounts, but it no where appears that his check was an intelligent one, or that he was at all aware of the extra cost of the works under his superintendence. On the other hand, as Lieutenant Clay was ill for seven weeks, during which a large portion of the excess occurred, and absent for one month of that period, he can be charged only with a portion of the responsibility for ignorance of the accounts.

Paragraph 6.

12. The ignorance of the officiating District Engineer appears to me more blamable. He might not have been able to prevent the excess, but he ought to have been aware of it as soon as it began to take place, and to have reported it to this office.

13. Unless such reports are made, the Central office cannot supervise expenditure satisfactorily, especially when it is proceeding rapidly, as in the case of the Vellore bridge, for the progress reports do not supply the requisite information in sufficient time, and the office is, therefore, necessarily dependent on the special information of the District Engineer, who is able at any moment to inspect the accounts, and to compare the expenditure with the estimate.

14. I submit the accompanying letter from Lieutenant-Colonel Lawford, who explains that his report had reference only to the operations from February 1858. I have carefully examined the whole correspondence from that time, and cannot find that there was any report from which to conclude that the expenditure was exceeding the estimate. Colonel Lawford on the 1st of June 1858, reported an

September 17th 1859.

Letter No. 17, submitted in Chief Engineer's letter of June 1st 1858, No. 745.

inspection of the bridge on the 27th of May, and stated that he had not been able to procure an account of the expenditure, which I find must have at that time been in excess of Mr. Horgan's estimate by about Rupees 6,000, besides the former excess on the cut stone work of 5,063; as will appear from the following statement, which must of course be regarded as only approximate.

	Rs.
Expended to cessation of works, (Captain Prendergast's statement, dated July 13th 1859)	1,12,907
Expended to end of May 1858, (Mr. Dopping's letter, May 28th 1858, No. 163, submitted in Chief Engineer's letter, June 1858, No. 750)	92,572
Remains expended between May and cessation	20,335
Expended after Mr. Horgan's time, (Captain Prendergast's statement, in letter dated October 3rd 1859)	8,979
Remains expended between May and August by Mr. Horgan	11,356
Mr. Horgan's whole expenditure, (Mr. Brock's statement, paragraph 1.)	31,255
Remains expenditure between February and May	19,899
The amount spent on the arches alone was	29,653

Mr. Horgan's whole outlay.	Outlay on arches.	Outlay between Feby. and May.	Outlay on arches between February and May.
∴ as ~~31,256~~	: 29,563	:: 19,899	: 18,878

Excess on arches.			Excess on arches between February and May.
and as 29,653	: 9,324	:: 18,878	: 5,936

15. Besides the excess on works done, the estimate for those which remain requires to be augmented as follows:—

	Estimate. Rs. A. P.	Additional amount required. Rs. A. P.
Baling and cutting channel	2,500 0 0	1,181 15 11
Superintendence	4,607 2 8	250 0 0
Flooring	7,080 15 0	3,395 4 0
Scaffolding and sundries	5,871 1 5	1,210 0 0
Parapet walls	1,650 0 0	1,381 14 0
Pointing in chunam	3,250 0 0	824 6 0
Blocking course and cornice	2,062 8 0	39 14 0
Excavating foundation	1,500 0 0	440 3 0
		8,723 8 11
Add excess on former works.		
Cut stone	5,062 10 5	
Arches	9,323 6 6	
Approaches	1,834 8 1	
Superintendence	26 5 2	
		16,246 14 2
		24,970 7 1
Deduct estimated amount for rough apron not required	1,380 7 1	1,380 7 1
or requiring sanction	Rupees	23,590 0 0

16. There has been considerable difficulty in admitting the District Engineer's new data, to which he adheres after some correspondence; and as I find no sufficient ground for altering them, I have, as the best way of procuring a reduction of the actual cost, requested the District Engineer to endeavour to contract for the works.

From District Engineer, August 12th 1859, No. 600. From do. September 24th 1859, No. 832.

17. Besides the encreased rates, there is additional work provided for in the new estimate, as explained in the District Engineer's letter of the 13th of July, No. 449. He states, that the old measurements of the flooring were incorrect, that the thickness of the parapet has been encreased from 12 to 15 inches, and that the general sums before allowed for pointing in chunam and excavating foundation have proved inadequate. The rough stone apron referred to in the same letter is not required in addition to the flooring, and has, therefore, been struck out of the estimate.

18. I have not admitted the proposed deduction of the value of the centres, because the Palaur annicut bridge for which they were intended has been countermanded, and the Arcot bridge is not sanctioned or even estimated. The centres should, therefore, as they have been already paid for, be charged to stores. Their cost can hereafter be deducted from the estimate for the new bridge, and they can then be re-transferred from the stores.

Order of Government, dated Augt 27th 1859, No. 2060. From District Engineer, October 15th 1859, No. 957.

19. I have not ordered the execution of the flooring, as the monsoon would interfere with the work, but it should be commenced in January, if there are funds sufficient for it. If not, it can be postponed till May.

20. I trust that under the foregoing explanation, the Government will recommend for the sanction of the Government of India, the supplemental estimate of Rupees 23,590.

No. 104. ORDER THEREON, 18th November 1859, No. 2688.

1. With this letter, the Chief Engineer forwards with reference to the Proceedings of Government dated 15th September 1859 No. 2227, a third supplemental estimate amounting to Rupees 23,590 to complete the bridge over the Palaur river at Vellore; furnishing explanation at the same time as to the causes which have led to this additional demand.

2. The order of 15th September above referred to reviewed the history of this bridge, and noticed in general terms the causes of the excess over the estimate in the cost of the structure. These were 1st improper omissions from the estimate; 2nd an undoubted rise in the cost of labour and materials, especially in the case of a work so near the railway; and 3rd mismanagement on the part of the executive.

3. The last of the three is the only one for which the present officers of the department can be held responsible. One most conspicuous piece of mismanagement is noticed in paragraph 7 of the order already adverted to; viz. that the District Engineer habitually neglected the work, and left it to the unassisted care of a subordinate, generally a young and inexperienced officer. For this, it was noticed that the late Chief Engineer and the Superintending Engineer of the circle were in part responsible, as they might and ought to have seen that so important a work was under proper supervision. It may here be observed, with reference to Colonel Lawford's letter of the 17th September 1859 to the Chief Engineer, that there was no intention in the order of referring to him in particular; he was acting Chief Engineer from July to December 1858, but the Government are not aware that he was Superintending Engineer of the Centre circle while the bridge was in building.

4. From Colonel Bell's present letter,* it sppears that Captain Mayne, late acting District Engineer of North Arcot and now Executive Engineer of Bangalore, is mainly responsible for the absence of proper accounts of the work, which led to the omission from the last estimate of the extra cost of the cut-stone.

*Paragraph 4.

5. Lieutenant Clay also appears blamable in the matter of accounts; and he must share with Mr. Horgan the blame of a large part of the increased cost of the arches, resulting from wasting a great deal of labour on them from bad organization and arrangements. The Government desire that this be pointed out to both Captain Mayne and Lieutenant Clay. Mr. Horgan it is observed, is not now in the department.

Paragraph 11.

Paragraph 9.

6. With these remarks, the Government resolve to recommend the supplemental estimate amounting to Rupees 23,590 now submitted by the Chief Engineer for the sanction of the Government of India. The whole of the works provided for have already been completed; with the exception of those in the margin.*

*Flooring under the arches Pointing with chunam.

7. The mode proposed by the Chief Engineer for treating the centrings is proper; their cost will be charged to the head of "stores" not to the bridge.

Paragraph 18.

8. Adverting to paragraph 17 of the Chief Engineer's letter, the Government request that officer to call upon the District Engineer to explain his reasons for increasing the thickness of the parapet walls to 15 inches when the estimate allowed only 12; and Colonel Bell will be good enough to give his opinion as to the propriety of the change.

9. The necessity of early report to the Chief Engineer where estimates are likely to be exceeded is obvious. In the present case, it seems that even the District Engineer was in entire ignorance of the state of the expenditure in the absence of correct accounts. Colonel Bell will take care that all District Engineers understand their duties in this respect; viz. both to have exact and punctual accounts, and duly to report expected excess in the cost above the estimate.

(Signed) J. D. BOURDILLON,
Secretary to Government.

No. 105. Ordered in consequence that the following letter be despatched.

From J. D. BOURDILLON, Esq., Secretary to the Government of Fort Saint George; to Colonel BAIRD SMITH, C. B., Officiating Secretary to the Government of India, P. W. D., dated 18th November 1859, No. 2689.

1. I am directed to report for the information and early orders of the Government of India the insufficiency of the second supplemental sanction of Rupees 22,500 granted in July* 1858 for the bridge over the Palaur river at Vellore, and the necessity that has now arisen for a third supplemental grant. The amount now stated to be necessary for the completion of the structure, is Rupees 23,590.

* Letter dated 16th July 1858 No. 3323.

2. The original estimate for this bridge sanctioned† in 1855 amounted to Rupees 72,673. In addition to this amount, the Government of India have already accorded‡ sanction to two supplemental estimates amounting together to Rupees 38,400; and including the sum now asked for, the total sanction for the work will stand at Rupees 1,34,663.‖

† Letter dated 26th January 1855 paragraph 19.

‡ Letters dated 9th April and 16th July 1858 Nos. 1666 and 3323.

	Rs.
‖ Original estimate	72,673
First supplemental	15,900
Second do.	22,500
Total sanction....	1,11,073
Now wanted.....	23,590
Total.....	1,34,663

3. On the 10th August 1859, the Deputy Chief Engineer then in charge of the Central office reported that a third supplemental sanction would be required to complete the bridge. In proceedings dated 15th September following No. 2227, this Government reviewed the case, and noticed in general terms the causes of the excess over the estimates in the cost of the structure. These were 1st culpable omissions from the estimate; 2nd an undoubted rise in the cost of labour and materials, especially in the case of a work so near the railway; and 3rd mismanagement on the part of the executive. The Government also called upon the Chief Engineer to submit a full and distinct explanation of the causes for the further demand of funds for completing the bridge. Colonel Bell's reply dated 28th ultimo is herewith submitted. In explanation of the causes which have

led to the additional demand, he states, 1st that when the last estimate was prepared it was unknown to the District Engineer chiefly from the absence of proper accounts, that an excess of Rupees 5,063 had already occurred upon the amount of Rupees 1,613 therein entered for cut-stone, and secondly that a large excess subsequently took place upon other works; viz. Rupees 9,323 on the arches, 1,835 for the approaches and roadway.

4. The excess on the cut-stone is explained to be owing to the rate per cubic yard for this species of work allowed in the estimate having been only Rupees 11, while it was properly 16 at the time and has since risen to 30. It is further stated that the salary of a European stone cutter cost Rupees 725, and that stone of the value of Rupees 1,500 lying in the bed of the river was lost in a fresh. The excess in arch work Colonel Bell attributes to want of good arrangement and superintendence; and the removal of the bridge centres, it is stated, was a "very expensive operation being effected piece by piece to allay the fears of the workmen excited by "the accident in striking one centre which had deprived Lieutenant Boyd of his life." The explanation furnished in respect to the extra expenditure on the approaches is deemed unsatisactory by the Chief Engineer. Lieutenant Clay the executive officer reports it to have occurred not in forming the approaches but in maintaining the new embankments after completion, while Mr. Supervisor Howard affirms that the earth work of the approaches was under-estimated one half. Besides the excess in the items just noticed, the estimate for certain others enumerated in paragraph 15 of Colonel Bell's letter requires to be augmented.

5. The accompanying proceedings of this date contain the orders passed by Government on Colonel Bell's report. Captain Mayne late Acting District Engineer of North Arcot and now Executive Engineer of Bangalore appears to be mainly responsible for the absence of proper faccounts of the work, which led to the omission from the last estimate of the extra cost of the cut stone. Lieutenant Clay also appears blamable in the matter of accounts, as well as for a large part of the increased cost of the arches resulting from waste of labour on them through defective organization and arrangements. The Government have desired the Chief Engineer to point out these serious defects to both Captain Mayne and Lieutenant Clay.

6. I am directed to add that the Government believe the Executive branch of the Public Works Department to be now more alive to its duties; and that they hope that such instances of mismanagement as that presented by this case are not likely to recur.

7. Little satisfactory as the management of the work has been, the Governor in Council desires me to request the sanction of the Government of India for the sum now required for its completion viz. Rupees 23,590.

4

General Office

No. 6607 Fort St. George

28th October 1859

From

The Chief Engineer

To

The Secretary to Government

Public

Communication.

Sir.

I have the Honor, with reference to the order of Government as per margin, to submit the accompanying Estimate for completing the Vellore Bridge over the Palar amounting to Rupees 23,590

2. Lieutenant Colonel Crawford has, in his letter of the 16th of August 1859, reported with regard to the cause of this additional demand, first that when the revised Estimate of Rupees 111,073 was submitted, it was unknown to the District Engineer or overlooked by him that an excess of Rupees

Sepl. 15th 1859 No. 2227.

No. 3685

Enclosures 22

1 Letter from DE N. Arcot No 2062 Jan 20/59 with 2 Encs.
1 Do No 2404 March 6/59
1 Do 449 July 13/ with 2 Encs
1 Memo by Mr Brooke Aug 10/59
1 Letter from DE N. Arcot No 600 Aug 12/59 with 2 Encs
1 do from Col Lawford Dy Ch Engr CE No 35 Dated Sept 17/59
1 do from DE N. Arcot No 832 Sept 24/59 with 2 Encs
1 do Do No 888 Oct 3/59 2 Encs
1 do Do 957 Oct 15/
1 do Do 953 Oct 20/ 1 Enc
1 Estimate
1 Statement

(Rupees 5063 had already occurred upon the amount of (Rupees 1,6[illegible]3 entered in the said Estimate for Cut stone; and secondly that a large excess afterwards occurred upon the remaining works.

3 The late (Acting) District Engineer Mr. Dossing knew nothing of the excess upon the Cut stone when the last Estimate was submitted, and in his letter of the 20th of January 1859 para 3 ascribes his inaccuracies to the absence of Mr. Howard and all others who were acquainted with the facts." In a subsequent letter of the 8th of March 1859 Mr Dossing reminds the Chief Engineer "that the revised Estimate was submitted by me within 2/4 months from the date of my taking charge of the District, and long before the accounts had been got into such a state as to be thoroughly examined)," and in

No. 2109

No. 2404 para 6

in para 8 he again urges that as there was no Cash book for the 1st Division for the year in which the Cut stone work had been done no one not previously connected with the work could in the short time allowed, and without Mr Howards assistance, have ascertained the true expenditure.

4 Under these circumstances it does not appear that Mr Dossing can be held responsible for the blameable omission of the extra cost of the Cut stone from the revised Estimate, for it was not his fault that the accounts were unintelligible, and I think that the responsibility for this state of things must be fixed upon his predecessor Captain Haynes, who should have insisted on clear accounts for comparison of the expenditure and Estimate

of

of so important a work.

The cause of the excess on the Cut Stone is fully explained in para 9 of Mr. Brooke's Memo: from the information supplied by Mr. Howard. The rate for this species of work allowed in the Estimate was only Rupees 11, which it is said to have been properly 16 when the Estimate was prepared, and to have since risen to 30. Besides this increase the salary of a European stone Cutter cost (Rupees 725, and) stone of the value of Rupees 1500 lying in the bed of the river was lost in the freshes.

6 The excess of Rs. 5063 on the Stone work being deducted, there remains for the excess on works executed after the submission of the revised Estimate, Rupees 11,184, of which Rupees 9,323 is put down to the Arches, 1835 to the Approaches and Roadways

Roadways, and 26 to superintendence. The Statement containing these particulars not appearing to be satisfactory, the Auditor of the Central Circle, Mr. Brook, was deputed to Oreyt to investigate the matter. Upon his report Sanction was accorded a valuation to be made of the works said to have been executed since the submission of the last Estimate, and sent it to the District Engineer for verification and explanation.

dated August 10th 1859

Captain Prendergast in his reply states that the later works were under estimate by the Auditor Mr. Brook, and submits a Memorandum shewing in detail the works in question, and exhibiting the excess as before. This Statement is presumed justified by the accounts to the satisfaction of the District Engineer; and I consider it unnecessary to pursue the enquiry any further, for Captain

Feby 3rd 1859 No 888.

Prendergast

(Rendergast has evidently taken great pains to ascertain the facts of a case in which he has had no personal concern.

8 According to the Memorandum Mr Morgan had charge of all the Arch work on which the excess of Rs 9323, five sixths of the whole, took place. But Mr Morgan was subordinate to Lieutenant Clay upon whom the responsibility for the "actual additional cost" stated at Rupees 2848-3-10 was fixed by Mr Dossing. I have therefore procured an explanation from Lieutenant Clay through the District Engineer.

Letter March 8 1859 No 2404 para 12

9 Lieutenant Clay in his letter herewith submitted describes the excess on the Arch work in the first place to the extra expense of hiring bricklayers from Pachimapoly, and as

Feb 17th 1859 in letter from D Engr Feb 20th 1859 No 783

as the rates (or wages) paid to them equalled those paid by the Railway Engineers, Lieutenant Clay, comparing the cost of the Arch work with that of the ordinary brickwork at the Vellore Station, is surprised at the moderate amount of the former. This is not a satisfactory explanation, and Lieutenant Clay is evidently ill informed of the facts, since it appears from Mr Brooks' Memo. that the number of bricklayers employed on the Arch work, was far in excess of the data, and it is reasonable to conclude that this excess was mainly owing to want of good arrangements and superintendence, though it may be conceded that the proximity of the Railway works, executed in a still more costly manner, must have rendered it difficult to procure the due amount of labor, from the workmen at the Bridge -

para 12

Secondly

Secondly Lieutenant Clay states that the removal of the Bridge centres was a very expensive operation, being effected piece by piece to allay the fears of the workmen excited by the accident in striking one centre which had deprived Lieutenant Boyd of his life. He adds that the cost of transporting the centres to the Palár Ameut was charged to the accounts.

Thirdly the excess on the approaches is stated by Lieutenant Clay to have occurred not in forming them but in maintaining the new embankments after completion. This explanation differs from that of Mr Superviser Howard, who affirms that the earth work of the approaches was underestimated one half; and it appears to me unsatisfactory since the expenditure upon the approaches after August 1858 amounted

Report para 13

to Rupees 4301, of which 1835 or nearly 43% was in excess, an amount far too great to be charged to maintenance.

10 With regard to the defects of the Estimate Lieutenant Clay must be considered, according to his own account, to share the responsibility with Mr Morgan and the Officiating District Engineer Mr Dopping.

Para 5

Para 6

11 Lieutenant Clay also inspected and checked the Bridge accounts, but it no where appears that his check was an intelligent one, or that he was at all aware of the extra cost of the works under his superintendence. On the other hand as Lieutenant Clay was ill for seven weeks, during which a large portion of the excess occurred, and absent for one

month

month of that period), he can be charged only with a portion of the responsibility for ignorance of the accounts.

12. The ignorance of the Officiating District Engineer appears to me more blameable. He might not have been able to prevent the excess, but he ought to have been aware of it as soon as it began to take place, and to have reported it to this Office.

13. Unless such reports are made the Central Office cannot supervise expenditure satisfactorily, especially when it is proceeding rapidly as in the case of the Vellore Bridge, for the Progress Reports do not supply the requisite information in sufficient time, and the Office is therefore necessarily dependent on the special information of the District Engineer, who is able at any moment to inspect the accounts, and to compare the expenditure with the Estimate.

Sept. 17th 1858

14 Send with the accompanying letter from Lieutenant Colonel Crawford, who explains that the report had reference only to the operations from February 1858. I have carefully examined the whole correspondence from that time, and cannot find that there was any report, from which to conclude that the expenditure was exceeding the Estimate. Colonel Crawford on the 1st of June 1858 reported an inspection of the Bridge on the 27th of May, and stated that he had not been able to procure an account of the expenditure, which I find must have at that time been in excess of the Estimate by about Rupees 6000, besides the former excess on the

Letter No 17 of 1858 from the Chief Engineer to the Secretary to Government dated 1st June 1858 with enclosure

Cut Stone work of 5063, as will appear from the following Statement, which must of course be regarded as only approximate. —

Expended to end of Feby 1858		
Captain Pendergast's Statement dated July 13th 1857		11,907
Expended to end of Feby 1858		
Add Excavations to close of Feby 28th 1858		
No 163 submitted in this Engineers letter of June 1858 rs 7750		92,572
Remains expended since on Feby and Mar		26,735
Expended after close of Works and since Captain Pendergast's Statement (as detailed Octr 1857)		8,779
Remains of Cut Stone, and repairs to Retaining Wall		13,856
The Works shall expenditure (Estimate Statement)		51,255
Remains expended since Estimate Feby and Mar		12,599
The amount of Estimate Cut Stone was		27,653

	Cut Stone	Cut Stone	Excess Cut Stone	Excess Cut Stone
	Works	Estimate	Works	Estimate
as	31,256	: 27,653	:: 18,699	: 18,378
	Excess Arches			Excess Arches
and as	29,653	: 9324	:: 18,378	: 9,936

15. Besides the excess on works done the Estimate for those which remain requires to be augmented as follows. —

	Estimate			additional amount required		
Baling and cutting Channel	2,500	0	0	1181	15	11
Superintendence	4607	2	8	250	0	0
Flooring	7,080	15	0	3395	4	0
Scaffolding and Sundries	5871	1	5	1210	0	0
Parapet Walls	1650	0	0	1381	14	0
Pointing in Chunam	3250	0	0	824	6	0
Blocking Course and Cornice	2062	8	0	38	14	0
Excavating foundation	1500	0	0	440	3	0
				8723	8	11

Add excess on former works.

Cut Stone	5062	10	5	
Arches	9323	6	6	
Approaches	1834	8	1	
Superintendence	26	5	2	
				16,246 12 2
				24,970 7 1
Deduct Estimates amount for Rough Apron not required	1380	7	1	1380 7 1
or requiring Sanction Rupees				23,590 0 0

From Dist. Engineer August 12th 1859 No 600
From do Sept. 24th 1859 No 832

16. There has been considerable difficulty in admitting the District Engineers new data, to which he adheres after some correspondence, and as I find no sufficient grounds for altering them

them. I have, as the best way of procuring a reduction of the actual cost, requested the District Engineer to endeavour to contract for the works. —

17 Besides the increased rates there is additional work provided for in the new Estimate as explained in the District Engineer's letter of the 13th of July. He states that the old measurements of the Flooring were incorrect, that the thickness of the Parapet has been increased from 12 to 15 inches, and that the general sums before allowed for pointing in chunam and excavating foundation have proved inadequate. The single stone Apron referred to in the same letter is not required in addition to the flooring and has therefore been struck out of the Estimate. —

No. 449

18. I have not admitted the proposed deduction of the value of the Centres, because the Pálar Ancient Bridge for which they were intended has been countermanded, and the Arrest Bridge is not sanctioned or even estimated. The Centres should therefore, as they

Order of Govt. under dated Aug. 27th 1856 No. 2066
from Chief Engr. dated 15th 1857 No. 957

they have been already paid for, be charged to stores. Their cost can hereafter be deducted from the Estimate for the new Bridge, and they can then be retransferred from the Stores.

19. I have not ordered the execution of the Flooring as the Monsoon would interfere with the work, but it should be commenced in January if there are funds sufficient for it. If not, it can be postponed till May. —

20. I trust that under the foregoing explanation the Government will recommend for the sanction of the Government of India the Supplemental Estimate of Rupees 23,590-.

Central Office of P.W.D.
Fort Saint George
28th October 1857.

I have the honor to be
Sir
Your most obedient Servant
J. H. Bell Lieut. Colonel
Chief Engineer

2nd May

Memo:

1. This is a clear and intelligible paper on the excess over the estimate, in the cost of the Kistna Bridge.

2. The rates are admitted in general terms the causes of the excess. These were 1st Cultivable ground from the estimate; 2nd an underestimate in the cost of labour and materials especially in the case of a work so near the Sea-shore, 3rd mismanagement on the part of the executive.

3. The last of the three is the only one for which the present officers can be held responsible. The most complimentary part of the mismanagement is noticed in para 7 of the former note, viz. that the District Engineer quickly recalled the work, and left it to the unskilled care of an Subordinate, whose conduct in every way was unexperienced officer.

4. This it was noticed that the Chief Engineer and the Superintending Engineer were in fact responsible, as they ought to have

and

Dft. Con.: 16th Sept. 59 - 109 110
— do 8th June 58 - 27 31
— do 2d Sept. 59 - 13-14-

P.W. 1859 Public Department
Proc. of Govt. 20th Nov.
No. 2806

From
Chief Engineer
To
Secretary
Government of Bombay

E-17 - Returned 15 Dec. 13-12

Dated 28 October 1859
Received 28th

No. 6607

No. 2688 - 18th November

Estimate & Sketch for completion of Kistna Bridge over the Krishna, amounting to Rupees 23890, and under the sanction given by the Government will commence upon the execution of the Government of India has called for. Estimate & Sketch now forwarded.

Dy. to the Asst. Secretary
to State to the
Govt. of India
18 Nov. 59.

No. 103.

Ack. 31 October Rd. 7 Nov. Ch. 12 Dec. 15

and ought to have seen that so important a work was under proper supervision. Col. Crawford was not particularly interested, though he was acting Chief Engineer all the last half of 1858.

4. Capt. Mayne, now Executive Engineer of Bangalore, appears to be mainly responsible for the absence of proper accounts of the work.

5. Lieut. Clay also appears blameable in the matter of accounts; and he must share with Mr. Horgan the blame of a large part of the increased cost of the arches, resulting from wasting a great deal of labour on them from bad organization and arrangements. This may be pointed out to both Capt. Mayne and Lieut. Clay. Mr. Horgan is not now in the Department: he has lately been appointed Engineer to the Madras Municipal Commission.

6. On the whole this work is an instance of the general slackness which prevailed at the time throughout the District, under a careless and weak administration at the Central Office.

There

There is reason to hope that the execution Department is now more alive to its duties.

7. The necessity of early report to the Chief Engineer where Estimates are likely to be exceeded, is obvious. In the present case it seems that the District Engineer was in entire ignorance of the state of the expenditure, in the absence of correct accounts. The Chief Engineer will, no doubt, take care that all District Engineers understand their duties in this respect; viz. both to have exact and punctual accounts, and to report expected excess.

8. I presume Government will now recommend the Estimates for sanction to the Government of India. Nearly the whole of the works provided for have already been completed; the only ones remaining are those in the Enargum.

9. The proposed mode of treating the centrings is proper. Their cost should be sanctioned under the head of "Stores", not for the bridge.

The

C 31 Collections Engineer Office

10. The District Engineer should be called on to explain his reasons for increasing the thickness of the parapet walls to 18 inches, when the Estimate allowed only 12, and the Chief Engineer should give his opinion of the propriety of the change.

Public Department

25

No. 2688

Proceedings of the Madras Government
Under date the 18th November 1859

Read the following
letter from the Chief
Engineer

Submits a supplemental estimate amounting to Rs. 23,590 for completing the Bridge over the Palaur river at Vellore, and trusts that under the explanation given, the estimate will be recommended for the sanction of the Govt of India

(Here enter 28th October 1859 No. 6607)

P. With this letter, the Chief Engineer forwards with reference to the Proceedings of Govt dated 15th Sept. 1859 No. 2227 a third supplemental estimate amounting to Rs. 23,590 to complete the bridge over the Palaur river at Vellore, furnishing at the same time explanation, as to the causes which have led to this additional demand.

2. The order of 15th September above referred to

Ordered 31st October Rd 4th Nov. Ch. 11th 1859

to reviewed the history of this bridge, and noticed in general terms the causes of the excess over the estimate in the cost of the structure. These were 1st improper omissions from the estimate, 2nd an undoubted rise in the cost of labour and materials, especially in the case of a work so near the Arabian sea, and 3rd mismanagement on the part of the executive.

3. The last of the three is the only one for which the present officers of the Department can be held responsible. The most conspicuous piece of mismanagement is pointed in para. 7 of the order already adverted to; viz that the District Engr habitually neglected the work, and left it to the unsupervised care of a subordinate, generally a young and inexperienced Officer. For this, it was noticed that the late Chief Engr and the Superintending Engr of the Circle were in part responsible, as they might and ought to have seen that so important a work was under proper supervision. It may here be observed, with reference to Col. Lawford's letter of the 17 Septr 1859, to the Chief Engr, that there was no intention in the order referring to him in particular; he was only Ch. Engr from July to Decr 1858, but the Govt are not aware that he was Supg. Engr of the Central circle which the bridge was in building. (*para 4)

4. From Col Pelly's present letter, it appears that Captain Wayne, late Dy Dist Engr of North Arcot and now Executive Engineer

Engineer of Bangalore, is mainly responsible for the absence of proper accounts of the work, ~~and~~ which led to the omission from the last estimate of the extra cost of the cut stone.

5. Lieut.t Clay also appears blamable in the matter of accounts; and he must share with Mr. Morgan the blame of a large part of the increased cost of the arches, resulting from wasting a great deal of labour in them from bad organization and arrangements. The Govt. desire that this be pointed out to both Captain Crayne and Lieut.t Clay. Mr. Morgan, it is observed, is not new in the Department. ~~He has lately been appointed~~

para 11

para 9

† Flooring under the arches Pointing with chunam

united Engineer to the Madras Municipal Commission.

6. On the whole, the Govt. regard this work as an instance of the general slackness which prevailed at the time throughout the Department under a careless and weak administration at the Central Office. They have reason to hope that the executive Department is now more alive to its duties.

7. With these remarks, the Govt. resolve to recommend the supplemental Estimate amtg. to Rs. 23,590 now submitted by the Chief Engr. for the sanction of the Govt. of India. ~~Nearly~~ The whole of the works provided for have already been completed, with the exception of those ~~only three remaining sections~~ in the margin.†

The

para 18.

7. The mode proposed by the Chief Engr. for treating the centrings is proper, ~~and the Govt~~ will be charged their cost, being charged to the head of "Stores" not to the bridge.

8. Adverting to para 17 of the Chief Engineer's letter, the Govt request that Officer to call upon the District Engineer to explain his reasons for increasing the thickness of the parapet walls to 15 inches when the estimate allowed only 12, and Col Bell will be good enough to give his opinion as to the propriety of the change.

9. The necessity of early reports to the Chief Engineer where estimates are likely to be exceeded is obvious. In the present case, it seems that the District Engineer was in entire ignorance of the state of the expenditure, in the absence of correct accounts. The Chief Engineer Colonel Bell will take care that all District Engineers understand their duties in this respect; viz both to have exact and punctual accounts, and duly to report expected excess in the cost above the estimate.

10 Copies
Chief Engineer Circ. 19
&c — Govt of India —

Public Works 1859 Dept.
Rec.d from Govt 20th Nov.r

No. 2688.

From the Madras Govt.
dated 18th December 1859.

Forwg Chief Engr's D/ 21 Decr/59
Ctg 3337 in Bx. 10 Stamps, 60 in 7-48

From the Govt of India D/ 24th
Decr/59 Ctg No. 61 in Bx. 20 Stamps 60 in 21-32

From Chief Engineer D/ 14th
July, to Collr Ctg 4 in Bx.

Revolving to recommend for the sanction of the Government of India a 3d Supplemental Estimate of Rs. 23590 to complete the bridge over the Palaur river at Vellore.

W.R. Cotton & Co Govt Rec.
No. 2689 dated 18 Nov/59.

Nos 103 + 104 + 105.

11th Nov.r 1815.

Collr Dist.t
with Civil, Rail & Ch.l Engrs

P.W.D.

No. 2689.

To

Col Baird Smith C.B.
Officiating Secy to the Govt of India

Sir,

1. I am directed to report for the information and early orders of the Govt of India the insufficiency of the second supplemental ~~estimate and to~~ sanction of ~~estimate~~ granted for ~~sanctioned by that~~ Rs 22500 ~~Govt~~ in July 1858 for the bridge over the Palaur river at Vellore, in the ~~North Arcot District~~, and the necessity that has now arisen for a third ~~supplemental estimate~~ grant. The amount now stated to be ~~according to~~ Rs 23590 as necessary for the completion of ~~to complete the structure~~ the structure, is Rs 23590-

2. The original es-

timate

* Letter dated 16 July 1858
No 3323.

timate for this bridge sanctioned in 1855 amounted to Rs 72,673. In addition to this amount, the Govt of India have already accorded sanction to two supplemental estimates amounting together to Rs 38400, and including the sum now asked for, the total sanction for the work will stand at Rs 1,34,663.

3. On the 10th August 1859, the Deputy Chief Engineer in charge of the Central Office reported that a third supplemental sanction would be required to complete the bridge. In Proceedings dated 15th Septr following No 2227 already before the Govt of India, this Govt reviewed the case and noticed in general terms

* Letter dated 26 January 1855 para 4.

* Letters dated 9th April and 16th July 1858 Nos 1666 & 3323.

	Rs
# Original estimate ...	72,673
Third Supplemental ...	15,900
Second do ...	22,500
Total sanction —	111,073
Now wanted ...	23,590
Total ..	1,34,663

~~* C.W. Proc 10th to 16th Septr 1859 Nos 109 & 110.~~

the causes of the excess over the estimate in the cost of the structure. These were 1st unforeseen and unforeseeable outlays from the estimate, 2nd an underrated price in the cost of labour and materials, especially in the case of a work so near the Railway, and 3rd mismanagement on the part of the executive. The Govt also called upon the Engr to submit a full and distinct explanation of the causes for the further demand of funds for completing the bridge. Col Bell's reply dated 28th ultimo is herewith submitted. In explanation of the causes which have led to the additional demand he states, 1st that when the last estimate was prepared it was unknown to the Distt Engineer chiefly

chiefly from the absence of proper accounts, that an excess of Rs. 3,963 had already occurred upon the amount of Rs. 1,643 therein entered for cut stone, and secondly that a large excess subsequently took place upon other works viz Rs. 9,323 for arches, on the 1,835 for the approaches and coading and 26 for superintendence.

4. The excess on the cut stone is explained to be owing to the rate per cubic yard for this species of work allowed in the estimate having been only Rs 11, while it was properly 16 at the time and has since risen to 30. It is further stated that the salary of a European stone cutter cost Rs 725, and that stone of the value of Rs 1,500 lying in the bed of the river

was

was lost in a freshet. The excess in arch work Col Bell attributes to want of good arrangement and superintendence; and the removal of the bridge centres, it is stated, was a "very expensive operation being effected piece by piece to allay the fears of the workmen excited by the accident in striking one centre which had deprived Lieut Boyd of his life." The explanation furnished in respect to the extra expenditure on the approaches is deemed unsatisfactory by the Chief Engineer. Lieut Clay the executive officer reports it to have occurred not in forming the approaches but in maintaining the new embankments after completion

completion, while Sup. Superintendent Howard affirms that the earth work of the approaches was underestimated one half. Besides the excess in the items just noticed, the estimate for certain others enumerated in para 15 of Col Bell's letter requires to be augmented.

5. The accompanying Proceedings of this date contain the orders passed by Govt on Col Bell's report. Captain Mayne late Actg Dist Engr of North Arcot and now Executive Engineer of Bangalore appears to be mainly responsible for the absence of proper accounts of the work, and which led to the misjudgment from the last estimate of the extra cost of the cut stone. Lt. Clay also appears blamable in the matter of accounts, as well as for a large part of the increased cost of the arches resulting from waste, a great deal of labour on them through defective organization and arrangements. The Government have desired the Chief Engineer to point out these serious defects to both Captain Mayne and Lt. Clay.

6 I am directed to add that the Govt believe the Executive branch of the Public Works Department to be now more alive to its duties, and that they hope that such instances of mismanagement

mismanagement as that presented by this case are not likely to recur.

7 Little satisfactory as the management of the work has been, the Governor in Council desired me to request the sanction of the Govt. of India for the sum now required for its completion viz Rupees 23590.

Fort St. George
18th Nov. /59

12-7-59.

Public Works 1859 Dept.
Pro: of Govt 20th Nov.

No 2689.

To the Offg Secretary to the
Govt of India.
Dated 18th Nov. 59.

From — A.G. — 24th Dec. 59.
C. No 64 of 60 in Rev.

Recommending for
sanction a Supplemen-
tal estimate of Rs 23590 to
complete the bridge over the
Palaur river at Vellore.

No 105.

Rec'd Nov. 15th