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MADRAS RECORD OFFICE.

Government of Madras.

Public Works **DEPARTMENT.**

G.O. No. 1471 Press / Mis.

87-88

Dated 6-8- 1861.

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department, 6th August 1861.

No. 87. Read the following letter from Lieutenant-Colonel W. I. BIRDWOOD, Deputy Chief Engineer, in charge of Central Office of Public Works, to J. D. SIM, Esq., Secretary to Government, dated Chepauk, 12th July 1861, No. 2,594:—

SIR,

1. In their Proceedings No. 140, dated 19th January 1860, Government were pleased to sanction an Estimate, amounting to Rupees 6,850, for re-constructing the bridge of five arches over the Kuliar, on the road from Lalgudi to Arrealore in the District of Trichinopoly, which had been carried away during the floods of November 1858.

2 Letters from District Engineer, Nos. 1,549 and 220, dated 27th March and 13th June 1861.
2 Abstract Estimates.
1 Plan.
1 Comparative Statement.

2. Again, in Proceedings No. 675, dated 2nd April 1860, on a representation* made by Colonel Bell, that through a mistake the former estimate† had been framed for a bridge perpendicular to the stream instead of oblique, as the former one was, and that insufficient allowance had been made for cut stone, Government accorded a further sanction of Rupees 1,630 for the construction of the same work; thus bringing up the total of the expenditure proposed to be incurred upon the bridge to Rupees 8,480.

* No. 11,686, dated 24th March 1860.

† Rupees 6,850.

Rupees 1,630.

Rupees 8,480.

3. On the 27th March 1861, No. 1,549, the Acting District Engineer reported that the estimates as above were insufficient for the completion of the bridge, and forwarded at the same time a revised estimate amounting to Rupees 11,500, or Rupees 3,020 in excess of the sum already sanctioned.

4. Although the new bridge was planned with arches 25 feet (eventually 30 feet) in lieu of 20 feet, no allowance appears to have been made by Captain Moberly (indeed he seems purposely to have omitted the item) for removing the masonry of the abutments, which evidently could not be allowed to stand, nor for clearing away the ruined piers of the old bridge. Again, the late District Engineer seems simply to have allowed "wells" with a "basement" of masonry upon them as the foundations, for getting that of course a certain amount of excavation would be required, for which no provision was made. Lieutenant Palmer brings also to notice that the item "scaffolding" had been omitted, but I have pointed out to him that the items, "centrings, &c.," or at any rate "sundries" are generally made to include also all the scaffolding that is required in the construction of bridges. In very large works perhaps scaffolding may form a distinct charge in the estimate.

5. Lieutenant Palmer estimates the cost of these three omissions at Rupees 758-7-2, and he forwards a comparative statement exhibiting in detail the causes of excess in other items; by that it will be seen that the cost of excavating the temporary channels intended to draw off and return into the river below the site of the bridge any small fresh that might come down, was arbitrarily estimated at Rupees 200, whereas high ground had to be cut through and a section had to be given to the channel which would afford sufficient earth for the approaches to the bridge, so that no less than 905 Rupees instead of 200 Rupees were actually expended on that single item.

6. The Kuliar drains all the lands irrigated by the two large channels; the Peruvully and the Iyár having their heads above the Upper Anicut on the north side of the Agunda Cavery, and consequently it receives water for about nine months in the year. When a work has to be constructed across such a drainage, a large item should always be allowed for baling water. The sum of Rupees 500 which was granted in the original estimate (which also included temporary dams) has proved utterly insufficient, and an excess on these items of Rupees 713 has arisen.

7. The piers of the work were raised one foot higher than they were estimated, but owing to other reductions, on the whole, there is a small saving in the ordinary masonry.

8. Sixty-seven wells were found not to be required, but the eighty-one put down cost more than 11 Rupees each instead of Rupees 7½. The former price is that which commonly rules at Trichinopoly.

9. Such are the principal causes of increased expenditure. Insufficient rates, centrings put up and pulled down again, dams for a second year's work, and an increase in the item of Extra Establishment and Sundries, complete the category and lead to the demand of an extra 3,020 Rupees.

10. But I regret to state that our wants do not end here.

11. On the 4th June 1861, No. 1,223, I submitted to Government a letter* from the Acting District Engineer Trichinopoly, reporting the occurrence of a heavy flood in the Ooper (the name of the Kuliar, higher up than where the bridge is being built), which had caused great damage to the works in progress, I have now the honor to forward a letter† from Lieutenant Palmer, enclosing an estimate of the amount‡ required to repair the damages done thereby.

* No. 145, dated 31st May 1861.

† No. 220, dated 13th June 1861.

‡ Rupees 1,610.

12. The remainder of the arch which in the above letter was reported as nearly completed, but which of course fell when its centring was washed away, will cost Rupees 315; the centrings 250 Rupees, new temporary dams and turn-channel 743 Rupees, with some minor items which bring up the whole charge due to the extraordinary flood, to Rupees 1,610, and this added to the demand of Rupees 3,020 previously made makes a total of Rupees 4,630, for which the sanction of Government is solicited out of the reserve fund of 1861-62.

13. The total of all the estimates is Rupees 13,110, or nearly 100 per cent. more than was contemplated when the first sanction was given.

14. A sketch is enclosed, showing the state of the bridge after the flood.

No. 88. ORDER THEREON, 6th August 1861, No. 1,471.

1. The original bridge of five arches over the Kuliar on the road from Lalgudi to Arrealore in Trichinopoly, having been carried away by the floods of November 1858, an estimate of 6,850 Rupees was prepared and sanctioned for its re-construction in January 1860; but it was soon after discovered that the estimate had been framed for a structure at right angles with the course of the stream, and not in an oblique direction as it should have been; in consequence of this error the Government had, in April following, to sanction a further sum of 1,630 Rupees, or 8,480 Rupees in all. Even this has now been found insufficient by the Acting District Engineer; Captain Moberly, the late District Engineer having, it appears, omitted various items of necessary work, such as the removal of the masonry abutments and the ruined piers of the old bridge, and a certain amount of excavation for the foundations, while insufficient provision was made by him for other work. The Deputy Chief Engineer in charge of the Central Office closes his enumeration of these mistakes in the following words: "Such are the principal "causes of increased expenditure. Insufficient rates, centrings put up and pulled down again, "dams for a second year's work, and an increase in the item of extra establishment and "sundries, complete the category and lead to the demand of an extra 3,020, Rupees."

2. Lieutenant Palmer's revised estimate thus raises the cost of re-constructing the Kuliar bridge from 6,850 Rupees to 11,500 Rupees or an excess of 4,650 Rupees, of which the sum of 1,630 Rupees having been already authorized as above noticed, the balance of 3,020 Rupees now remains to be sanctioned. But it would appear that this is not the whole extent of the demand to be made upon Government. An extraordinary flood took place in the Oopar and caused considerable damage to the work in progress. To restore the fallen arch, renew the centring washed away, and construct new temporary dams and turn-channel, with some minor work, a further sum of 1,610 Rupees is asked for, or 4,630 Rupees in all, which raises the total estimate to 13,110 Rupees or 100 per cent. more than the original estimate.

3. The Government sanction the expenditure of the 4,630 Rupees now applied for, to complete the re-construction of the Kuliar bridge, the amount being defrayed as proposed by Colonel Birdwood from the reserve fund of 1861-62; but they desire that the Chief Engineer will forward a copy of this correspondence to Captain Moberly and express to him their great dissatisfaction with the want of care and foresight which has characterized his conduct in connection with this work.

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

Madras

Central Office of Public Works.

Chepauk 12th July 1861

No 2594

Public

From,
Lieutenant Colonel W. J. Birdwood,
Dy Chief Engineer in charge Central Office of P. W.

To, J. D. Sim Esqr
Secretary to Government P. W. D.
Fort St George.

Sir,

In their Proceedings No 140, dated 19th January 1860, Government were pleased to sanction an Estimate amounting to Rupees 6,850 for reconstructing the Bridge of 5 Arches over the Kuliar, on the road from Lalgudi to Arrealore in the District of Trichinopoly, which had been carried away during the floods of November 1858.

2. Again, in Proceedings No 675, dated 2d April 1860, on a representation made by Colonel Bell, that through a mistake the former Estimate had been framed for a bridge perpendicular to the Stream, instead of oblique as the former one was, and that insufficient allowance had been made for cut stone, Government accorded a further Sanction of Rupees 1,630, for the construction

† No 1686, dated 24th March 1860.

Rupees 6,850.

Rupees 1,630
Rupees 8,480.

construction of the same work, thus bringing up the total of the expenditure proposed to be incurred upon the Bridge to Rupees 8,480.

3. On the 27th March 1861, the Acting District Engineer reported that the Estimates, as above, were insufficient for the completion of the Bridge, and forwarded at the same time a Revised Estimate amounting to Rupees 11,500 or Rupees 3,020 in excess of the sum already sanctioned. No. 1549.

4. Although the new Bridge was planned with Arches 25 feet (eventually 30 feet) in lieu of 20 feet, no allowance appears to have been made by Captain Moberly (indeed he seems purposely to have omitted the item) for removing the Masonry of the abutments, which evidently could not be allowed to stand, nor for clearing away the ruined Piers of the old Bridge. Again, the late District Engineer seems simply to have allowed "Wells" with a "Basement" of Masonry upon them as the foundations, forgetting that of course a certain amount of excavation would be required, for which no provision was made. Lieutenant Palmer brings also to notice that the item 'Scaffolding' had been omitted, but I have pointed out to him that the items "Centrings &c" or at any rate "Sundries" are generally made to include also all the Scaffolding that is required in the construction of Bridges. In very large works perhaps Scaffolding may form a distinct charge in the Estimate.

5. Lieutenant Palmer estimates the cost of these three omissions at Rupees 758-7-2 and he forwards a Comparative Statement exhibiting in detail the causes of excess in other items; by that it will be seen that the cost of excavating the temporary Channels intended to draw off, and return into the River below the site of the Bridge, any small pools that might come down, was arbitrarily Estimated at Rupees 200, whereas high ground had to be cut through, and a Section had to be given to the Channel which would afford sufficient earth for the approaches to the Bridge, so that no less than 905 Rupees instead of 200 Rupees were actually expended on that single item.

6

Lieut Colonel
Dy Chief Engr in Charge of Central Offices

6. The Kuliár drains all the lands irrigated by the two large Channels, the Perunully and the Syár, having their heads above the Upper Anicut on the North side of the Agunda Cavery, and consequently it receives water for about 9 Months in the year. When a work has to be constructed across such a drainage, a large item should always be allowed for Baling water. The sum of Rupees 500 which was granted in the original Estimate (which also included temporary dams) has proved utterly insufficient, and an excess on these items of Rupees 713 has arisen.

7. The Piers of the work were raised one foot higher than they were estimated, but owing to other reductions on the whole there is a small saving in the ordinary Masonry.

8. Sixty Seven Wells were found not to be required, but the 81 put down cost more than 11 Rupees each instead of Rupees 7½. The former price is that which commonly rules at Trichinopoly.

9. Such are the principal causes of increased expenditure. Insufficient rates, Centrings put up and pulled down again, dams for a 2d Year's work, and an increase in the item of Extra Establishment and Sundries complete the Category, and lead to the demand of an extra 3,020 Rupees.

10. But I regret to state that our wants do not end here.

No 1223 dated 31st May 1861

11. On the 4th June 1861, I submitted to Government a letter from the Acting District Engineer Trichinopoly reporting the occurrence of a heavy flood in the Coleroon (the name of the Kuliár higher up than where the Bridge is being built) which had caused great damage to the works in progress. I have now the honor to forward a letter from Lieutenant Palmer, enclosing an Estimate of the amount required to repair the damages done thereby.

x No 220 dated 13th June 1861.

y Rupees 1610

12. The remainder of the Arch, which in the above letter was reported as nearly completed, but which of course fell when its Centring was washed away, will cost Rupees 315, the Centrings 250 Rupees, new temporary Dams and turn Channels 743 Rupees, with

Lieut Colonel
Dy Chief Engineer in Charge of Central Officers

with some minor items which bring up the whole charges due to the extraordinary flood to Rupees 1,610 and this added to the demands of Rupees 3,020 previously made, makes a total of Rupees 4,630 for which the sanction of Government is solicited out of the Reserve Fund of 1861/62.

13. The total of all the Estimates is Rupees 13,110 or nearly 100 per Cent more than was contemplated when the first sanction was given.

14. A sketch is enclosed shewing the state of the Bridge after the flood.

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

Central Office P.W.
Chepauk 12th July 1861

Lieutt Colonel
Dy Chief Engineer
In charge Central Office P.W.

A.B. Lieutt Coll
For Dy Chief Engrs S.C.

To,
J.D. Sim Esqre
Secretary to Government P.W.D.
Fort St George.

Compd W.P.K

Received 15 July 1861

Lieut Colonel
Dy Chief Engineer in Charge of Central Office

PUBLIC (ROADS)

(New Work) (6)

ABSTRACT of Estimate No. of 186 -

ROAD No.

DISTRICT Trichinopoly.

WORK Reconstructing a Bridge across the Vellar on the Road from Trichinopoly to Madura.

Quantities.	Description of Work.	Rate. Rs.	A.	P.	Amount. Rupees.	Amount of each part. Rupees.
	81 Sinking wells and filling					
	ditto Brick Selly & Sand	11	3	7½	909	
28277	Cubic ft. Brick in Chunam Mortar	"	1	6	2651	
12996	Do Do Do Do	"	2	3	1828	
11039	Supply Watering with 1 Coolly					
	Chunam Mortar	2	"	"	281	
880	Cubic ft. Rough Stone Masonry	1	"	"	880	
552½	Cubic ft. Cut Stone in Chunam Mortar	"	1	8½	267	
83⅓	Cubic ft. Plastering	"	"	12	62	
	Filling approaches	"	"	"	906	
	3 Centerings	"	"	"	621	
	Erecting Dams and baling water				1211	
	Removing Old masonry	"	"	"	220	
	Excavating foundations	"	"	"	388	
	Scaffolding	"	"	"	150	
	Embankments in front of Bridge	"	"	"	250	
	Extra Establishment Wanchers				573	
						11500
	Deduct Amount Saved by Good Rice &c. &c.					8480
	Remaining Amount					3020

Central office of the Chief Engineer 12 July 1861

Lieut Colonel
Officiating Chief Engineer in Charge of Central Office

Quantities.	Description of Work.	Rate.			Amount.	Amount of each part.
		Rs.	A.	P.	Rupees.	Rupees.

PUBLIC (ROADS)

(Repairs)

ABSTRACT of Estimate No. of 186 -

ROAD No.

DISTRICT Inchampoly

WORK Repairing the damage done by the floods to the Kollair Bridge.

Quantities.	Description of Work.	Rate. Rs.	A.	P.	Amount. Rupees.	Amount of each part. Rupees.
	1 New Entrance Complete for 4th Arch	"	"	"	150	
	Entrance for 2d and 3d arches nearly all materials washed away and pillars to be rebuilt	"	"	"	100	
2240	Cubic ft. Arch work laid on 2d arch Cft	"	2	3	315	
10396	Do Increased rate owing to high price of materials Do	"	"	3	162	
3920	Cubic ft. Earth work, new banks in front and rear arch Cft	"	1	3	306	
490	Superft. Inland facing to front bank Superft	"	2	6	77	
720	Do Place opening in road when closed Do	"	3	"	135	
1200	Cubic ft. Earth opening road South of bridge Cft	"	1	"	75	
	Say Closing road when work is done	"	"	"	150	
	Carried Over				1470	

Quantities.	Description of Work.	Rate. Rs.	A.	P.	Amount. Rupees.	Amount of each part. Rupees.
	Brought forward				1470	
	Extra labor in removing Debris and old masonry	"	"	"	80	
112	Cy. Filling in Southern arch with Brick Jelly and Clay	2	3	"	21	
28	Do. Rough Stone flooring above	Do	1	8	"	42
	Sundries and Extra Establishment				17	
					Total Rupees	1610

Central office of Works
Thepauk
12th July 1861

Lieut. Blood
Dy Chief Engineer in Charge of
Central office of Works.

P. W. Dept

(D)

No 1471-71

Proceedings of the Madras Government
Under date the 6th August 1861—
Read the following letter
from the Dy Chief Engr
in charge of the Central Office P.W.

Details particulars, and sub-
-mits two Estimates amounting
together to Rupees 4,630, for com-
-pleting the Bridge of 5 arches
across the Kuliar in the Dis-
-trict of Trichinopoly—

Here enter 12th July 1861 No 2394

The original bridge
of five arches over the Ku-
-liar, on the road from
Lalgudi to Arrealore in
Trichinopoly, having been
carried away by the floods
of November 1858, an estimate
of 6850 Rs was prepared
and sanctioned for its recon-
-struction in January 1860,
but it was soon after dis-
-covered that the estimate
had been framed for a
structure at right angles
with the course of the stream

and

Copy to the
Chief Engineer
for Information
Fort St George
1st August 1861

By Order
H. Sconce
Secy

Chief Engr's Office
Fort St George
2nd August 1861

Submitted to the Secretary
to Government P.W. Dept
for submission to the Board
of Revenue

Chief Engr's Office
Fort St George
3rd August 1861

Submitted to the Board of Revenue
for submission to the Govt
Chief Engr

and not in an oblique direction as it should have been; in consequence of this error the Govt had, in April following, to sanction a further sum of Rs 1,630 Rs, or £480 Rupees in all. Even this has now been found insufficient by the Acting Dist: Engr; Captain Moberly, the late District Engr, having it appears omitted various items of necessary work, such as the removal of the Masonry abutments and the ruined piers of the old bridge, and a certain amount of excavation for the foundations, while insufficient provision was made by him for other work. The Dy Chief Engr in charge of the Central Office closes his enumeration of these mistakes in the following words.

"Such

"Such are the principal "causes of increased ex- "penditure. Insufficient "rates, centrings put up and "pulled down again, dams "for a second year's work, "and an increase in the "item of extra Establishment "and sundries complete the "category, and lead to the de- "mand of an extra 3,020 Rs".

2 Lieutenant Palmer's revised estimate thus raises the cost of reconstructing the Kilian bridge from 6,850 Rs to 11,500 Rs or an excess of 4,650 Rs; of which the sum of 1,630 Rs having been already authorized as above noticed, the balance of 3,020 Rs now remains to be sanctioned. But it would appear that this is not the whole extent of the demand to be made upon Govt. An extraordinary flood took place in

in the Coparand caused considerable damage to the work in progress. To restore the fallen arch, renew the centring washed away, and construct new temporary dams and burn channel, with some minor work, a further sum of 1,610 Rs is asked for, or 1,630 Rs in all; which raises the total estimate to 13,110 Rs or 100 per cent more than the original estimate.

3. The Govt sanction the expenditure of the 1,630 Rs now applied for, to complete the reconstruction of the Kuliar bridge, the amount being defrayed as proposed by Colonel Birdwood from the Reserve fund of 1861/62, but they desire that the Chief Engr will forward a copy of this correspondence to

(12)

to Captain Moberly and express to him their great dissatisfaction with the want of care and foresight which has characterised his conduct in connection with this work.

13 Copies
To The Chief Engr with the Govt Resp.
3 " Accts Genl
3 " Civil Paymaster.
" Civil Engr

Reconstruction of the
Kuliar Bridge in Trichi-
= nopoly

Public Works 1861 Depart.t
Pro: of Govt for August

N: 1471.

Pro: of the Madras Govt
16th August 1861.

Letter from the Chief
Engineer regarding the recon:
= struction of the Bridge of
five Arches over the Kuliar
on the Road from Lalgudi
to Arreatore in the District
of Trichinopoly with orders
thereon.

N: 87 to 88.

Received 30 July Read 2d Augt.