(1) Number of pages 28
(2) Date of repair 14.8.87
(3) Initials of the Referencer

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

PW DEPARTMENT

G.O. No. B.P. No.	237 W	Press. Mis.
Dated	29.1.1885	~~198~~ .

Not to be folded or roughly handled

Archives 1--10,006 1 -80.

1/937

29th January 1885, No. 237 W., Public Works.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

Read—the following letter from G. T. WALCH, Esq., Executive Engineer, South Arcot Division, to the Superintending Engineer, V Circle, dated Cuddalore, 31st December 1884, No. 663 :—

With reference to your No. 3544, of 13th instant, on proceedings of the Madras Government No. 3027,* of 9th December 1884, I have the honor to report as follows.

2. The Gadilam bridge had twenty segmental *arches* of 30-feet span ; height of *piers and abutments* to springing of arches, 6 feet 6 inches ; rise of *arches*, 7 feet 6 inches ; *floor* in form of an invert with 2 feet versed sine and extending 6 feet beyond cut-waters up and down stream ; *piers* 5 feet thick ; *foundations* of piers and abutments 8 feet in depth below springing of invert floor ; *retaining walls* of floor to same depth as foundation.

3. The bed of the river at the site is tidal loam below the surface, which is of pure sand of varying depth.

4. The bridge was built 1843 to 1847. In October 1864, when th[illegible] was a very high flood, ten arches fell or were so shaken that they had to be remove[illegible] these were rebuilt in 1865-66.

5. On the 7th of this November six arches fell or were shattered.

6. The immediate cause of this destruction was, as with most of similar mishaps to bridges of the kind, insufficiently broad protection on the upstream side, where, in high floods, dangerous eddies are of course set up near the piers.

7. One of these eddies evidently undermined the upstream ends of the third and fourth piers† which, sinking, carried with them the arches which sprang from them, and another pier and arch followed, whilst two more were shattered.

8. Mr. Norfor, the Local Fund Engineer, who saw the bridge just before it fell, tells me that water did not rise to the crown of the arches ; and I believe that, with efficient protection on the upstream side, the bridge would not have then gone.

9. Judging from *that* flood, with regard to which this report has been called for, I would have recommended the restoration of the bridge between its then existing abutments, substituting iron girders of 60-feet span for the ruined arches, and the provisions of a sufficiently broad upstream floor or "apron" along the whole length of the bridge, and also certain training works to bring the river more directly to the bridge and lessen the now considerable "set," and therefore disturbance, on the western side.

10. But on 18th instant (December) there came a much higher flood, which turned the bridge on its western flank, destroyed the abutment there, and completely wrecked the remainder of the bridge except the seven most eastern arches.

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* Herewith returned as requested.

† Counting from western end.

11. For that flood the waterway between the former abutments would not be enough even if girders were substituted for arches; the railway bridge, about two miles higher up the river, has one thousand running feet of clear waterway through which the river flowed upwards of 14 feet deep, whilst besides this an enormous volume of water left the river just above that bridge and flowed down to Tirupapuliyur and *so* back to the Gadilam below the ruined road bridge.

12. If the discharge down the Gadilam could be confined to the drainage of its own basin, then the ruined bridge might be reconstructed of its old total length; but if the Gadilam is to receive, as it certainly did in former days and has now again received, a great access of water from the Ponniár, then, judging from the railway bridge, which in the recent flood was certainly not too large, any new bridge at Cuddalore should have at least one thousand *running* feet and fourteen thousand *square feet* of waterway as against six hundred running feet and seven thousand six hundred square feet of the old structure. Girders of at least 60-feet span on deep and well protected foundations are alone suitable for the site.

No. 3802.

Endorsement on the above.

Forwarded to the Chief Engineer, Public Works Department, with reference to paragraph 1 of G.O., No. 3027 W., dated 9th December 1884.

10th January 1885.
(Signed) H. L. PRENDERGAST, Colonel, R.E.,
Superintending Engineer, V Circle.

ORDER—dated 29th January 1885, No. 237 W., Public Works.

Communicated to the Revenue Department, with advertence to G.O., in that department, No. 1297, dated 24th November 1884.

2. The cost of a new bridge of the dimensions recommended by the Executive Engineer is roughly estimated at two lakhs of rupees, and the Government, in the Public Works Department, are unable to accept that large expenditure as a charge against the State.

3. The Government will probably be prepared to assist in the matter, but it is considered that the first action must be taken by the Municipality and the Local Fund Board.

(True Extract.)

Major, R.E.,
Under Secy. to Govt., P.W.D.

To the Revenue Department.
" Financial "
" Superintending Engineer, V Circle.
" Chief Engineer for Irrigation.

Exd. A. F. Aaron.
Spare Copies

2/23

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of 1885 Madras

PUBLIC WORKS.

Dated January, 29th.

Recd. Encl.

G.O., 29th Jan. 1885, No. 237 W.

JANUARY.

Gadilam Bridge

Orders on report of the Executive Engineer on the subject of the restoration of the—.

251
25/237

D.S.

In the papers printed with Pro. Rev. Dept No 1297 d/ 24.11.84, the Collector of S. Arcot reported the failure of the Gadilam Bridge Cuddalore, during the floods of the first week of November, and stated that the bridge would have to be rebuilt at the cost of Govt, the money at the command of the Municipality being insufficient for the purpose.

The order in the Rev. Dept was, "The question of reconstructing the Gadilam bridge will be carefully considered in the Public Works Dept." —

The Ex. Engr. S. Arcot Divn, to whom the matter was referred, now gives a brief history of the bridge, explains the cause of its failure, & states his opinion that if a new bridge be constructed, it should have at least 1000 running feet and 14000 square feet of waterway, against 600 running feet & 7600 sq. feet of the old structure. No idea is however given as to the cost of such new structure.

If the bridge is to be rebuilt at the cost of Govt, the work will have to be carried out & paid for by the P. W. D.

It seems necessary therefore now to decide whether plans & estimates shall be called for, in view to a consideration of the further question as to how funds can be provided.

For orders

Ch

13.1.85.

P. W. Department.

7/237

To W

8/237

It has to be decided now whether Govt is prepared to bear the cost of the reconstruction of the Gadilam bridge, Cuddalore, which the Collector of South Arcot, in his letter published with G.O. of 24th November, 84, No 1297, Revenue, stated the Municipality would be unable to rebuild.

The Ex: Engineer, South Arcot — Mr. Walch — reports that for the new bridge 1000 running feet and ~~fourteen~~ 14000 sq. feet of waterway will be required. 16 60 ft. girders, on deep & well-protected foundations, are recommended.

A structure such as this will cost, I suppose, from 2 to 3 lacs, & this will be a heavy charge against "Provincial", at a time too when, I should say, there will be exceptional demands on that fund.

A principle seems to me involved in the question. Is Govt to be called on to provide funds for Municipal works — originally constructed by them, but destroyed by disastrous floods or other unforeseen causes? Is not a Loan raised by the Municipality, with, if necessary, the assistance of Govt, the proper mode of providing funds in such cases? But this, perhaps, is rather a Financial than a P.W.D. question. At any rate, the matter should be decided in view to the preparation of plans & estimates.

CS.
13. 1. 85

C. N° 251

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6/85

P. W. Department.

7/85

To D.W.

I am certainly not prepared to advise that the cost of a new bridge over the Guddam be borne by the State.

That cost may be assumed at about 200/- per lineal foot of waterway; — or two lakhs.

The Govt. will probably be prepared to assist in the matter, but the first action must I think be taken by the municipality.

~~a/p~~

Please have a brief note for orders drafted.

14.1.85

P. W. DEPARTMENT.

7/23

READ the following :—

From the Executive Engineer, South Arcot Division No. 663 dated 31st December/84.
Endorsement thereon by the Supg Engineer II Circle No. 3802 dated 10th January/85.

FOR ORDERS.

In the papers printed with Proceedings Revenue Department No. 1297 dated 24th November/84, the Collector of South Arcot reported the failure of the Gadilam Bridge, Cuddalore, during the floods of the first week of November, and stated that the bridge would have to be rebuilt at the cost of Government, the money at the command of the Municipality being insufficient — for repairing the roads & rebuilding tunnels across them —

The order in the Revenue Department was, "The question of reconstructing the Gadilam Bridge will be carefully considered in the Public Works Department"

The Executive Engineer, South Arcot Division, to whom the matter was referred, now gives a brief history of the bridge, explains the cause of its failure, and states his opinion — that, if a new bridge be constructed, it should have at least 1000 running feet and 14,000 square feet of water-way, against 600 running feet and 7,600 square feet of the old structure. Assuming the cost of a new bridge at about Rs 200/ per lineal foot, the total cost would amount to two lakhs.

The Chief Engineer is not prepared to recommend that this charge be borne by the State.

The Government will probably be prepared to assist in the matter, but the first action must, it is thought, be taken by the Municipality

15.1.85

15.1.85

Circ: 15/1/85

~~The [illegible] the Collec~~

For orders.

SECRETARY TO GOVERNMENT
17 JAN 85
P.W. DEPARTMENT MADRAS

Commun[illegible]
& Rev = [illegible]
also contribute [illegible]
16/1

No. 663

South Arcot Divisional Office
Cuddalore
31st December 1884

From

The Executive Engineer,
South Arcot Division

To

The Superintending Engineer,
6th Circle.

Enclosure 1.
1 Ly. O.

Sir,

(1) With reference to your No: 3644 of 13th Instant on Proceedings of the Madras Government No: 3027 of 9th December 1884, I have the honor to report as follows.

x herewith returned as requested

(2) The Gaddilam Bridge had 20 segmental arches of 30' span; height of piers and abutments to springing of arches 6'- 6"; rise of arches 7'- 6"; floor, in form of an invert with 2 feet versed sine and extending 6' beyond Cutwaters up and down stream; piers 5 feet thick; foundations of piers and abutments 8 feet in depth below springing of invert floor; retaining

walls of floor to same depth as foundations.

(3) The bed of the river at the site is tidal loam below the surface which is of pure sand of varying depth.

(4) The bridge was built 1843 to 1847. In October 1864, when there was a very high flood, ten arches fell or were so shaken that they had to be removed; these were rebuilt in 1866-66.

(5) On the 7th of this November 6(six) arches fell or were shattered.

(6) The immediate cause of the destruction was, as with most of similar mishaps to bridges of the kind, insufficiently broad protection on the upstream side where in high floods dangerous eddies are of course set up near the piers.

(7) One of these eddies evidently undermined the upstream ends of the 3rd and 4th x piers which sinking carried with them the arches which sprang from them and another pier and arch followed; whilst two more were shattered.

x counting from Western end.

(8) Mr Morison, the Local Fund Engineer, who saw the bridge just before it fell, tells me that water did not rise to the crown of the arches and I believe that with efficient protection on the upstream side the bridge would not have then gone.

(9) Judging from that flood, with regard to which this report has been called for, I would have recommended the restoration of the bridge between its then existing abutments, substituting iron girders of 60' span for the ruined arches, and the provision

of a sufficiently broad upstream floor or "apron" along the whole length of the Bridge, and also certain training works to bring the river more directly to the bridge and lessen the now considerable "set", and therefore disturbance, on the Western side.

(10) But, on 18th Instant (December) there came a much higher flood, which turned the bridge on its Western flank, destroyed the abutment there, and completely wrecked the remainder of the bridge except the 7 most Eastern arches.

(11) For that flood the waterway between the former abutments would not be enough even if girders were substituted for arches; the railway bridge, about 2 miles higher up the river, has one thousand running feet of clear waterway

waterway through which the river flowed upwards of 14 feet deep, whilst besides this an enormous volume of water left the river just above that bridge and flowed down to Tirupapuliur and so back to the Gaddilam below the ruined road bridge.

(12) If the discharge down the Gaddilam could be confined to the drainage of its own basin, then the ruined bridge might be reconstructed of its old total length; but if the Gaddilam is to receive, as it certainly did in former days and has now again received, a great access of water from the Poniar, then, judging from the Railway bridge which in the recent flood was certainly not too large, any

new bridge at Cuddalore should have at least one thousand running feet and fourteen thousand square feet of water way, as against six hundred running feet and seven thousand six hundred square feet of the old structure. Girders of at least 60' span on deep and well protected foundations are alone suitable for the site.

I have the honor to be
Sir,
Your most obedient servant
C. Stewart
Executive Engineer

&c.

R.C. No. 4766
5-1-85

No. 1049 d/21.11.84
" 3027 W d/9.12.84

No. 3802

Forwarded to the Chief Engineer P.W. Department, with reference to para 1 of G. O. No. 3027 W dated 9th December 1884.

Col. R.E.
Superintg Engr.
5th Circle
10th January 1885.

Circ: 15/1/85

From

The Executive Engineer
South Arcot Division

Dated 31st December 1884
Despd
Recd

12 JAN 85

No. 663

Enclosure (+)

Gadilam Bridge—
Reports regarding the restoration of the—

Buildings & Roads
Civil Works

Immediate

No. 237 W.

PUBLIC WORKS DEPARTMENT.

257

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 29th January/85.

READ the following

From the Executive Engineer South Arcot Division } H.E. No. 663 d/ 31st December/84

Endorsement thereon by the Superintending Engr. V Circle } " No. 3802 d/ 10th January/85

Communicated to the Revenue Department, with advertence to G. O. in that department No. 1297 dated 24th November 1884.

2. The cost of a new bridge, of the dimensions recommended by the Ex: Engineer, ~~South Arcot Division~~ is roughly estimated at ~~will approximate~~ two lakhs of Rupees; and the Govt in the P. W. Dept are unable to accept that large expenditure as a charge against the State.

The

3. The Govt will probably be prepared to assist in the matter but it is considered that the first action must be taken by the Municipality and the Local Fund Board.

CN
14.1.85

W.S.
20.1.85

No 269

3 - 184
13.11.91

To

The Revenue Department
" Financial Dept
" Supg. Engr. V Circle
" Chief Engr. forwarding

Un. Secy } for information
Rev. Secy }

251

Govt. of 1885 Madras.

PUBLIC WORKS.

Dated

Press 30-1-85

Recd 5-3 [illegible]

Recd.

Encl.

G.O., 29 [illegible] 1884, No. [illegible]

[illegible]

[illegible] in [illegible]

[illegible] the [illegible]

of the [illegible]

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