

Public Works (1896) Department.

RAILWAY BRANCH.

G.O., No. 132. R

DATED 17th February

[Despatch Abstract.]

Bridge.— Estimate of Rs 10,766 for converting the 30 ft. girder arch— at 168/10 miles, Bangalore Branch, Madras Railway, into a girder opening, sanctioned as a special work and with remarks.

BACK PAPERS.

[illegible]

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

No. 132 R., 17TH FEBRUARY 1896.

GOVERNMENT OF MADRAS.
PUBLIC WORKS DEPARTMENT.

Railway.

Read the following paper:—

From the Agent and Manager, Madras Railway, dated 16th December 1895, No. 8599/1103.

ORDER—No. 132 R., dated 17th February 1896.

The estimate, amounting to Rs. 10,766, chargeable in the proportion of Rs. 7,823 to Capital and Rs. 2,937 to Revenue for converting the 30 feet arch bridge at 168/10 miles, Bangalore Branch, into a girder opening, is sanctioned as a special work. Provision should be made for the contemplated expenditure during the current financial year of Rs. 2,700 under cash and Rs. 1,500 under stores in the revised estimate for 1895-96.

2. This sanction has been registered as No. 37 R. of 1895-96.

(True Extract.)

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

To the Agent and Manager, Madras Railway.
" Examiner, Railway Accounts.

End. T. K. Narayana Aiyangar.
Spare Copies

RAILWAY.

Govt. of {1896} Madras.

PUBLIC WORKS.

Dated February, 17th.

Recd.

Encl.

G.O. No. 132 R., 17th Feb. 1896.

FEBRUARY.

Bridge

Estimate of Rs. 10,766 for converting the 30 feet arch — at 168/10 miles, Bangalore Branch, Madras Railway, into a girder opening, sanctioned as a special work and with remarks.

8599
6658

Madras Railway Company
Agent and Manager's Office
Madras 15th July 1896.

From

The Offg. Agent and Manager
Madras Railway

To
The Chief Engineer of Mysore
Bangalore
(Through the Secy. to the President
of Mysore)
Sir,

I have the honor to acknowledge the receipt of your letter No. 164 of 29th April 1896, and to state that your suggestion that the existing waterway in the railway should be enlarged by doubling the present 30 feet arch does not commend itself to the Company.

The Company's Offg. Chief Engineer, however, is of opinion that it is practicable to convert the 30 feet arch into a girder opening with a view to secure a greater headway and thus increase the waterway in the railway, from 558 to 720 square feet. The estimated cost of this work is Rs. 10,766, but it is open to question whether this increased headway is absolutely necessary, but if so, whether the Company can be equitably called upon to incur this outlay.

The subject was referred to the Offg. Chief Engineer, and the following extracts

2.
extracts from his reply are quoted for your information:-

In August 1869 a heavy flood due to the bursting of banks, passed through the bridge, and carried away the end of the wing wall, it had not then a floor and abutment walls, which were subsequently added by the indigenous. On the 15th of August 1892, the Satigal bank just above the bridge burst and the larger volume of water thus suddenly liberated rose above the bank top at the bridge, cutting this away for a length of 500 feet and depth of 6 feet, the bridge being injured.

After this flood a special survey was made of the catchment area of the bank above this and other bridges, and the area of this one was computed at 9.88 square miles as against 11 square miles reckoned by the Chief Engineer, Alipore, who further assumes that $\frac{1}{4}$ per hour may run off this area = 5580 cubic feet a second.

This for 9.88 miles would give $\frac{9.88}{11}$ of 5580 = 4942 cubic feet a second, which the bridge would discharge with a mean velocity of 9 feet a second.

The calculations given in para. 5 of this officer's letter N^o 6152 were made

made by Ryves. Formula $D = C \sqrt{m^2}$.
C being taken as 6.2 for areas between
15 and 100 miles of the sea.

If however the value of C by
for limited areas near the hills, which
is the proper one, for this case, be
taken, the discharge will be 5105
cubic feet a second, which would
give a mean velocity of 5.82 feet
a second if the Bridge ran full.

Experience has shown that the
Bridge safely passed the abnormal
floods of 1892 without injury to it,
and that these great floods have been
caused solely by the bursting of Tanks,
so that I consider this Bridge as it
now is can safely carry all surplus
rain fall discharged from the
Vatigal Tank culingula, and that
this Company can hardly be expected
to provide Bridges with material
contingents on the bursting of defective
Tanks above them.

4. It would appear therefore
that if the bund of the Vatigal Tank be
maintained in efficient repair the present
30 feet arch in the Railway is ample for
the accommodation of the drainage
flowing through it. But if the Mysore
Government

Government contemplate any alterations in the present condition of the Valigal bank by which the storage of water will be largely increased, thereby enhancing the risk to the railway in the event of the bank again failing, it is hoped that the Mysore Government will be prepared to bear the cost of any additional waterway in the railway required to meet this risk.

5. I shall feel much obliged if you will be so good as to favour me with your further views on this subject in the light of the observations now offered.

I have &c.
Ed Henry Co. West.
Offg. Agent and Manager.

/ True copy /
Mrs S M V
Agent and Manager.

all

Encls. N^o 1 to Amis N^o 1103
16-12-95

N^o 4062

Mysore P. W. Department
Central Office
Bangalore 6th August 1895

From

The Chief Engineer of Mysore
P. W. Department

To

The Agent and Manager.
Mysore Railway

Through

The 1st Assistant to the Resident
in Mysore

Sir,

In reply to your letter N^o 5599
dated 13th ultimo, stating that, if the bund
of the Chittigal Tank be maintained
in efficient repair, the present 30 feet arch
in the Railway would be ample for the
discharge of the drainage flowing from it,
and requesting my further views on the
subject in the light of the observations
now offered, I have the honor to inform
you that the catchment area of this Tank
is shown by the Topo Survey Map to be
11.25 square miles (say 11 square miles) and
as a run off from this hilly catchment
of $\frac{3}{4}$ " per hour may occur, not often,
but now and then, as it probably did
in 1892 when there was something like

(No. 1)

No. 8599

1103

MADRAS RAILWAY.

AGENT AND MANAGERS OFFICE,

Madras, 16th December 1895

From

The Agent and Manager,

Madras Railway.

To

The Consulting Engineer for Railways,

Madras.

SIR,

I have the honor to forward herewith an estimate, with plan N^o 25, for converting the 30' arch Bridge at $\frac{16}{10}$ mile into a girder opening and to request that the sanction of Government may be conveyed to me for the required outlay Rs 107 66/- chargeable in the proportion of Rs 7829 to Capital and Rs 2937 to Revenue.

2. The line at this mileage has been damaged on two occasions, once in 1869 and again in 1892 by the heavy floods combined with the bursting of banks, and it is considered that the safety of the line will be ensured by increasing the waterway from 533 to 720 square feet.

The question of enlarging the waterway was first raised by

Agent & Manager letter no: 6608/11.7.95
Chief Engineer, Mysore - 1002 of 6.6.95

2

Colonel Bowen, Chief Engineer of the Mysore Government and Enclose for your information two copies of correspondence with him marginally noted.

3 It will be observed that no provision has been made in the Estimate for Diversion, for wear and tear of the materials (required for a length of 167 L. yds) which will be on the line until the proposed opening is completed. In reference to this the Chief Engineer explains that as these materials will be in use for a short time only the depreciation will be immaterial and may therefore be disregarded.

4. Information as to provision in the Budget and date on which sanction will lapse is given on the estimate

I have the honor to be

Sir,

Your most obedt. Servant

Wm S M V

Agent & Manager

Encl 4

1002/11

C. No. 7142
Recd. 1/12/95

From
MADRAS RAILWAY.
The Agent and Manager.
To
The Consulting Engineer
for Railways.
No. 183
Dated
Recd.

Letter to Am No 40
7-1-96

Form No. 11.
50-4-5-20.

590
19 DEC 1895

OFFICE OF THE CONSULTING ENGINEER FOR RAILWAYS,
Madras, 17th December 1895.

No. 4074

OFFICE NOTE.

Letter from the Agent, + Manager, Madras Railway, No. 8599, dated 16th December 1895, forwarded to the Examiner of Railway Accounts, for favour of check as to allocation and Budget provisions.

[Signature]
for E. R.

14/12/95

EXAMINER'S REPLY.

The estimate is correct as to allocation and requires the sanction of the Local Government, which may be accorded if the work is considered 'Special' as it was not entered in the Budget estimate of the Railway for the current year.

2. It is for E. R. to decide whether Rs. 1400 charged to Revenue for masonry correctly represents the approximate value of the arch to be removed.

3. Funds are available from the grant for unsanctioned works Schedule B of Budget 7596, but it is observed that no provision has been made, for the contemplated expenditure during the current of Rs. 2700 under cash & of Rs. 1500 under stores, in the Revised Estimate just

21/12

a rough estimate of
the cost of doubling the
existing 30 ft arch and
also of adding an additional
30' further opening

11/6/1

8/11

9/14/1

N^o C/6152
175

Madras Railway Company,
Chief Engineer's Office,
c. Madras, 11th February 1896.

The Agent and Manager.

Dear Sir,

Single 30 feet arch at $\frac{16}{10}$ miles Bangalore Branch.

With reference to your endorsement
on Consulting Engineer's letter N^o. 40 of 7th January
1896, I beg to forward herewith the rough estimates
called for.

(1). The original scheme provides for converting
the existing arch into a girder and raising the
gradient 2 feet. This can be economically carried
out by temporarily diverting the line on the
double line side of the arch and then dismant-
ling the arch for half the width of the bridge.
The estimated cost of this scheme, as already
submitted, is Rupees 10,766/.

(2) The construction of an additional 30 feet
arch as proposed by the Consulting Engineer
will involve a very costly diversion, as the line
runs on a high bank. This scheme is estimated
to cost Rupees 17,984/, including revetment of the
side of the embankment.

The

Comparative estimates of the Bangalore Branch 185-
10

Ising Ck

N^o C/6152
175

Madras Railway Company,
Chief Engineer's Office,
c. Madras 11th February 1896.

The Agent and Manager.

Dear Sir,

Single 30 feet arch at $\frac{16}{10}$ miles Bangalore Branch.

With reference to your endorsement on Consulting Engineer's letter N^o. 40 of 7th January 1896, I beg to forward herewith the rough estimates called for.

(1). The original scheme provides for converting the existing arch into a girder and raising the gradient 2 feet. This can be economically carried out by temporarily diverting the line on the double line side of the arch and then dismantling the arch for half the width of the bridge. The estimated cost of this scheme, as already submitted, is Rupees 10,766/.

(2) The construction of an additional 30 feet arch as proposed by the Consulting Engineer will involve a very costly diversion, as the line runs on a high bank. This scheme is estimated to cost Rupees 17,984/, including revetment of the face of the embankment.

The

(3) The other alternative of adding a 30 feet girder opening to the existing arch - also proposed by the Consulting Engineer - will entail a similar diversion as in scheme (2) and the cost of the work is estimated at Rupees 16,679/- including revetment of the slope of the bank.

2. In all three projects the revetment of the slope of the bank is retained as it will be necessary. In the opinion of this office the original scheme (1) appears to afford sufficient waterway, and if the Mysore Government be urged to keep the tank in efficient repair, it is considered that the outlay of Rupees 10,766/- is as much as the Company should be called upon to incur to secure the safety of the line.

Yours faithfully
(sd) Henry C. West,
Chief Engineer

1. True copy

Wm S V M W.
Agent & Manager.

Encls. to R's & N's 668 of 96

Amis No 123 of 12-2-96

(A. & M. I.)

No 5599
123

MADRAS RAILWAY.

AGENT AND MANAGER'S OFFICE,

Madras, 12th February 1896.

From

The Agent and Manager,
M. R. Coy.

To

The Consulting Engineer for Railways,
Madras.

Sir,

In compliance with the request contained in your letter No. 110 of the 7th ultimo, I have the honour to forward herewith a copy of the Chief Engineer's letter No. 6132 of the 11th instant together with the rough estimates referred to therein furnishing the information called for by you in connection with the conversion of the 30' arch Bridge at 16th miles Bangalore Branch into a girder opening.

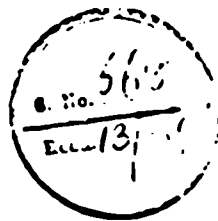
to include the material
also would be sufficient
with the plan etc. 11/12

I have the honour to be,
Sir,
Your most obed^t Servant,

Amis S. M. V.
Agent & Manager.

S. M. V.

received 7-12-1896



Madras,

189 .

OFFICE NOTE.

From E.-R.

D1-

The following note is made by me on inspection
of the 163 30 ft level bridge -
10.

The bank across a deep narrow valley at this station was topped last monsoon owing to the bursting of a tank just above the bridge.

The roadway at present is 538 59 ft.

According to the Rf calculation at 6 ft the clearance from the drainage area at 6 ft per sec is 520 59 ft.

The Engineer has said that 520 59 ft is required for a V of 10 ft per sec or 880 59 ft at 6 ft per sec.

By connecting the bank and not the water into a feeder the water will be increased to 720 59 ft.

This bridge has always been built to give sufficient way.

... I think writing
 should suffice.

EM I think writing
 should suffice
 H.H. 14/1

The estimate of 10,764.
 for converting the work into
 a grade opening may be
 sanctioned - some of the

File 15
 2 96
 AR.
 draft sanction of 80. See also 14/1
 H.H. 15/1

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following

Letter from the Agent
 & Manager Madras Ry. } H.E. No. 8579 of 16 Dec 1895
 1103

The estimate a-
 mounting to Rs 10,766, charge-
 able in the proportion of
 Rs 7,029 to Capital and
 Rs 2,937 to Revenue for
 converting the 30' arch
 bridge at 16 1/2 miles, Dan-
 gloor Branch, into a
 girder opening is sanc-
 tioned as a special
 work. Provision ^{should be} made
 for the contemplated ex-
 penditure during the
 current financial year
 Rs 2700 under cash
 & Rs 1500 under short
 in the revised estimate

for

for 1895-96.

2. This sanction has
been registered as No 37. R
91895-96.

Full
 $\frac{1}{2}$

R

Sankey

11.11.10 R. 15

M.
No 132. D. dated 17.2.96

Subscribed
17/2/96
By the Agent & Manager
- C. G. H. G. G. G.