(1) பக்கங்களின் எண்ணிக்கை 30 + 1 Map Sketch.

(2) புதுக்கித் திருப்பிய நாள் 6/89

(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம்

71

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

P. W. D. துறை

அரசாணை எண். மு. கோப்புத் தாள் எண்.	1718 - 14/1718
அச்சகம் பலவகை	

நாள் : 28-6-1889 198 .

மடிக்கவோ கண்டபடி கையாளவோ கூடாது

Misc.
15 + 1 Plan Sketch.

ஆவண. கா-1—18,006—15-6-87.

1718-14/1718

28TH JUNE 1889, No. 1718 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

READ—again the following papers:—

G.Os., No. 3891 W., dated 11th December 1888, and No. 1076 W., dated 22nd April 1889, in which are recorded reports by Sir A. Rendel, Consulting Engineer, India office, on the superstructure of the Gadilam and Talavasal bridges.

READ—also the following paper:—

Note by the Chief Engineer, Public Works Department.

Type designs for the superstructure of iron bridges are an admitted necessity for Engineers in India, and with the object of supplying this want a number of type designs were recently obtained from the India office.

G.O., No. 1525 W., dated 16th June 1886.
" " 1387 W., " 11th May 1888.
" " 2328 W., " 31st July "

2. The bridges included in these designs vary from 5 to 152 feet span and may be divided into three main classes—

(1) Those in which the floor plates are used as girders.
(2) Those with rolled iron girders.
(3) Those with Whipple-Murphy trusses.

It will be observed that the list does not include any plate, Warren or lattice girders.

3. Owing to the difficulty of obtaining skilled labor for erecting iron bridges it was considered that pinned bridges would be preferable to riveted ones, and in the type designs furnished there are no members which would require to be riveted in India.

4. From Sir A. Rendel's reports on the Gadilam and Talavasal bridges it appears probable that the advantages of pinned girders have been overestimated, and as there is strong evidence to show that riveted bridges are ordinarily both cheaper and stronger, it is desirable that a further selection of type designs should be prepared to enable Engineers to select a bridge which would be most suitable in reference to the part of the country in which it has to be erected.

5. The assistance afforded by these type designs in estimating and indenting for bridgework is very great, and while admitting that there must be many cases in which the existing type designs will answer all requirements, the Chief Engineer strongly recommends that the list should be made more complete by the addition of plate, lattice and other riveted designs for iron bridges.

6. The new standard designs should comprise bridges from 5 to 150 feet span, but in those cases where no decided improvement can be effected upon the existing types, as appears probable in some of the smaller spans, it will be sufficient to omit such spans from the list.

7. Owing to the demand for these standard designs, it is considered that at least 200 copies of each should be supplied for distribution.

(Signed) R. R. E. DRAKE-BROCKMAN, Lieut.-Col., R.E.,
17th June 1889. Acting Chief Engineer, P.W.D.

ORDER—dated 28th June 1889, No. 1718 W., Public Works.

Ordered that the following letter be addressed to the Secretary of State for India.

(Here enter No. $\frac{14}{1718}$ W., dated 28th June 1889.)

(True Extract.)

(Signed) R. R. E. DRAKE-BROCKMAN, Lt.-Col., R.E.,
Ag. Joint Secy. to Govt., P.W.D.

Exd. J. Henricus.
Spare Copies

1718-14/1718

9

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1889} Madras.

PUBLIC WORKS.

Dated June, 28th.

Recd. *Encl.*

G.O., 28th June 1889, No. 1718 W.

JUNE.

Type Designs

Ordered that the Secretary of State be requested to have a series of — for superstructure of girder bridges prepared upon the basis of Sir A. Rendel's remarks, and that two hundred copies may be supplied for distribution in the Public Works Department and among Local Fund Boards.

1718—14/1718

PUBLIC WORKS DEPARTMENT.

LETTER—to

THE RIGHT HONORABLE THE SECRETARY OF STATE FOR INDIA.

MY LORD,

We have the honor to forward, for your Lordship's consideration, copy of our Proceedings marginally noted, relative to the type designs for bridge superstructures lately supplied to this Government.

G.O., No. 1718 W., dated 28th June 1889.

2. Standard designs for the superstructure of iron bridges are necessary for the guidance of officers of the Public Works Department and Local Fund Boards, and as it is doubtful whether the designs for pinned girders already furnished by the Director-General of Stores possess any marked advantage over the riveted girders which are recommended by Sir A. Rendel as being both stronger and cheaper than pinned girders, we beg to recommend that a series of type designs be prepared upon the basis of Sir A. Rendel's remarks.

3. The Chief Engineer, Public Works Department, is of opinion that the list of standard designs should be similar to the one contained in your Lordship's despatch No. 2, Public Works (Stores), of 12th April 1888, and that two hundred copies of each design should be supplied for distribution in the Public Works Department and among Local Fund Boards, and his recommendations have our approval.

We have the honor to be,
My Lord,
Your Lordship's most obedient, humble servants,

(Signed) CONNEMARA.
(„) C. G. ARBUTHNOT.
(„) H. E. STOKES.
(„) J. H. GARSTIN.

OOTACAMUND,
28th June 1889.

Encl. J. Henricus.

3

GOVT. OF MADRAS.

PUBLIC WORKS DEPARTMENT.

(Copy)

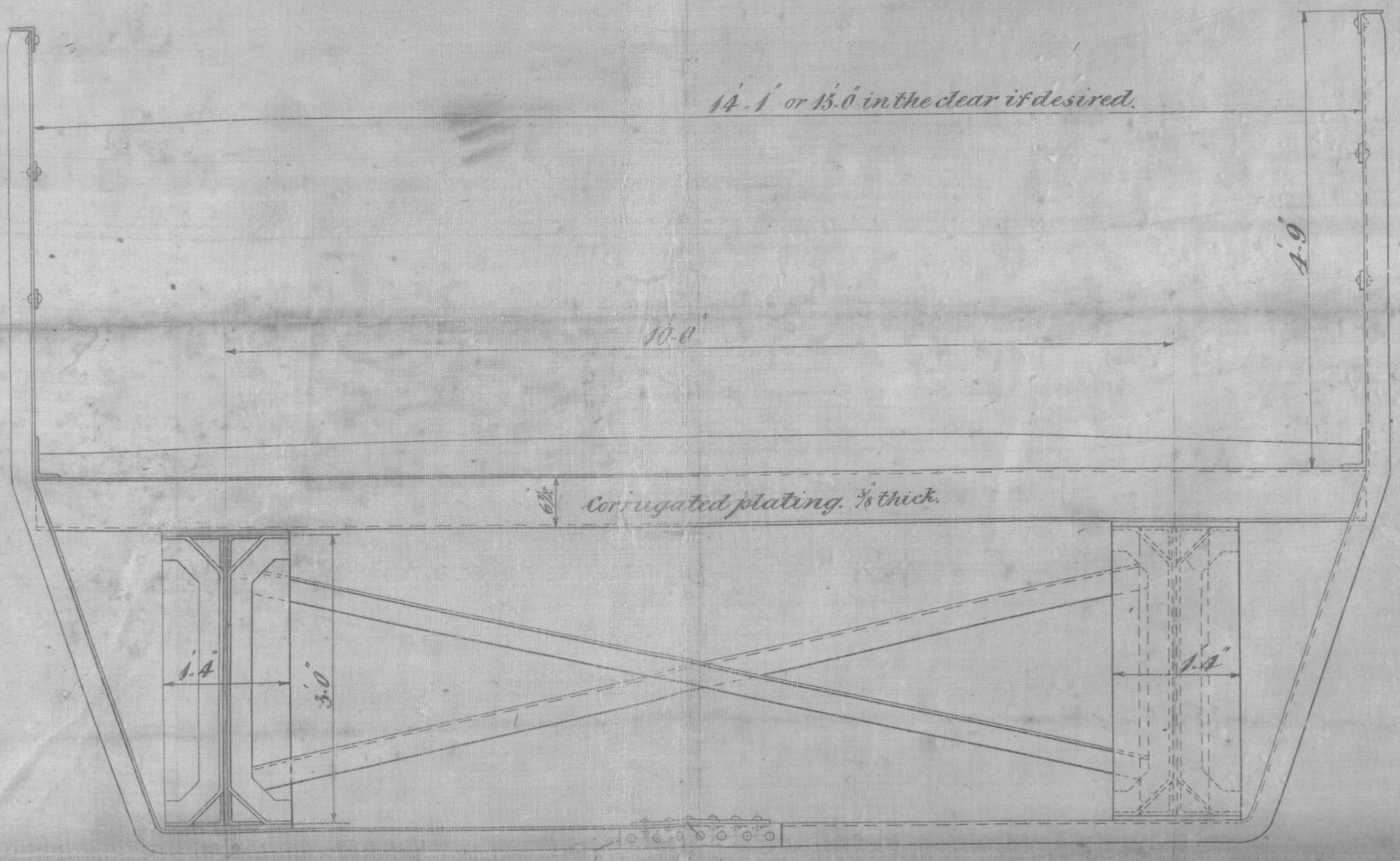
LETTER to the Right Honorable the Secretary of State for India.

No. 14 / 1718 W., dated 28th June 1889.

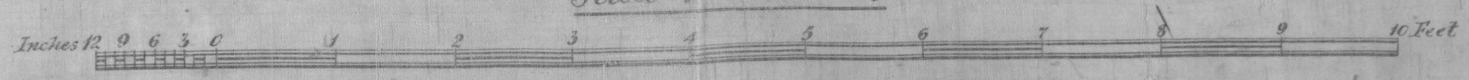
Recommending the preparation of a series of type designs for superstructure of girder bridges upon the basis of Sir A. Rendel's remarks, and that two hundred copies may be supplied for distribution in the Public Works Department and among Local Fund Boards.

MADRAS P.W.D. SKETCH FOR TALAVASAL BRIDGE

To accompany Sir Alex.r M. Rendel's memo of 16/3/82.



Scale 1 in to a foot



March 1882.

1718- 14/1718

Copy Report by Consulting Engineer
dated 16th March 1889.

There is a considerable resemblance between this case and that of the Gaddilam Bridge on which I reported under date of 16th November 1888. The Engineer on the spot prepared in this case a design for riveted girders for which he was afterwards told by head quarters to substitute a type design apparently simply because it was the type and his own design has been condemned and is not even sent home with the papers.

I consider, however, that the course originally intended viz: to have a plate or lattice riveted girder bridge was undoubtedly the right one. The type design with a wooden Roadway is 20 per cent heavier than a plate girder bridge would be with an Iron Roadway and the work it involves is of a much more costly character, so that I think the cost of a plate girder bridge with Iron Roadway equal in strength to the type design with a wooden would be less than half the cost of the latter.

The saving of weight above estimated assumes that the main girders would be put under the roadway so as to save the weight of cross girders and trimmers. The levels of the piers and roadway, respectively, shown on the drawings sent home admit of this and if need be the level of the Roadway might be raised a little. I should then cover the main girders transversely with corrugated iron plates which form when ballasted a much better and more durable roadway for traffic and

probably

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1718-14/1718

probably a cheaper one than planking and at the same time contribute to the structural strength of the bridge. I should place the main girders 10 feet apart and let the corrugated plates overhang on each side by 2 ft. 6 inches or 3 ft. thus giving a roadway width of 16 ft. clear, which is that of the type for 15 ft. if desired. This class of roadway has been asked for in preference to planking and asphalt in two recent communications from different parts of India and might have been in this case, if the loads provided for in the type drawings did not seem to forbid it. The bridge I am recommending is of the same pattern as the smaller bridges on the Toungoo-Mandalay Railway, but of course lighter. I append a sketch. The weight of material in one span is as follows approximately:-

Main Girders	6 Tons
Ironwork for Roadway.	6
Handrailing and bracings	1
Total Tons	13

It will be well if the main girders could go out complete in one piece. They would weigh under 3 tons each. I should say there would be no difficulty.

The cost of 9 spans of such girders delivered in England would be about £1250.

The cost of ironwork in 9 spans built according to the type drawings I estimate at about £2000 delivered in England. Besides this there would be according to those designs 2450 cubic ft. of timber for planking and curbs which would cost I suppose, Rs. 9800 and which would not be required with my design.

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Go 3891 Wa/11.12.88
" 499 Wa/19.2.89
" 500 W a/19.2.89
" 501 Wa/19.2.89

2788
5306

It is requested that in any further communication on this subject the undermentioned letters and number may be quoted, and the reply addressed to
The Director General of Stores,
India Office,
Whitehall,
S.W.
S 3814

1718 - 14/1718

2430

India Office,
Whitehall, S.W.,
29th March 1889.

Sir,

With reference to your letter No: 500 W. of 19th February 1889, transmitting an indent for ironwork required for the Talavasal bridge in the Salem District I have the honor to forward herewith, a copy of a report on the subject by the consulting Engineer to this office.

You will observe that Sir A Rendel suggests that a plate girder riveted bridge, as originally contemplated for this work, would be preferable to the type design for a pinned bridge demanded in the indent, and he appends to his report a sketch of the pattern of bridge recommended, the cost of which, for the 9 spans required, is estimated at about £1250 delivered in England, whereas the cost of the pinned bridge demanded in the indent would be about £2000, to which must be added the cost of the timber for planking and curbs to be provided in India.

In these circumstances designs will be

The Secretary to the
Government of Madras.
Public Works Dept:
Madras

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1718

be prepared for a plate girder riveted bridge as shown in Sir A. Rendel's drawing, and also for a pinned bridge in accordance with the type design; and I shall await your decision as to the type to be supplied, which might be communicated by telegraph.

I have the honor to be.

Sir

Your obedient servant.

A. Fitz

Director General of Stores

8

Public 3788.

1718-14/1718

S.W.D.

Translation

p. 1 Vacivior ... From Govt. of Madras to Secretary of State for India

p. 305 Sanioseum ... Director General of Stores, India Office

p 196 Metticam ... Your letter of

p 106 Emollita ... 29th March last

p. 31. Argitidi ——— I(we) approve of Proposed design for

p. 159 Inflavit ... plate girders final? riveted bridge at Talavasal. approved

K.S. 9

St. Thr
St. Ex office issue

B/

1718-14/1718

No. 1076 W

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 22nd April 89

READ the following

Letter from the Director Genl of Stores (H.E. No 53817 of Mch 29, 1889)

Ordered that the following telegram be despatched to the Director Genl of Stores through the Secretary of State for India

Secl
as ap

"Your letter 29th March 1889
"Proposed design for plate
"girder rivetted bridge
"at ~~over~~ Talavasal approved"

C

desp d. 22.IV.89

WCR
26.4.89

Rivers
20/4/89

2/14
SEV Circle
SEIV Circle

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1718 - 19/1718

Noted by the Chief Engr. B.W.D.

G.O. 1525 w dy 16.6.86
" 1397 w dy 11.5.88
" 2328 w dy 31.7.88.

1. Type designs for the superstructure of iron bridges are an admitted necessity for Engineers in India; and with the object of supplying this want a number of type designs were recently obtained from the India office.

2. The bridges included in these designs vary from 5 to 152 feet span and may be divided into three main classes.

(1) Those in which the floor plates are used as girders;
(2) Those with rolled iron girders;
(3) Those with whipple Murphy trusses.

It will be observed that the list does not include any plate, Warren or lattice girders.

3. Owing to the difficulty of obtaining skilled labour for erecting iron bridges it was considered that pinned bridges would be preferable to riveted ones and in the type designs furnished there are no members which would require to be riveted in India

4

4. From Sir A. Rendel's reports on the Sadilasso and Talawasal bridges it appears probable that the advantages of pinned girders have been over estimated, and as there is strong evidence to shew that riveted bridges are ordinarily both cheaper and stronger; it is desirable that a further selection of type designs should be prepared to enable Engineers to select a bridge ~~[illegible]~~ which would be most suitable in reference to the part of the country in which it has to be erected.

5. The assistance afforded by these type designs in estimating and indenting for bridge work is very great, and while admitting that there must be many cases in which the existing type designs will answer all requirements, the Chief Engineer strongly recommends that the list should be made more complete by the addition of

1718 - 14
1718

of plate, lattice and other riveted designs for iron bridges.

6. The new standard designs should comprise bridges from 5 to 150 feet span, but in those cases where no decided improvement can be effected upon the existing types, as appears probable in some of the smaller spans, it will be sufficient to omit such spans from the list.

7. Owing to the demand for these standard designs, it is considered that at least 200 copies of each should be supplied for distribution.

WCW 15.6.89

Enc.

Rwell 17.6.89

12

Fr. Bus 1076 W dj 22.4.89.
" A " 493.500.501 W dj 15.2.89
" " " 3891 W dj 11-12-88
" " " 3131-32-33-34 dj 6-10-88
" B " 2702 W dj 31-8-88.
" A " 1387 W dj 11.8.88.
" B " 2490 W dj 21.9.87
" A " 1525 W dj 16.6.86.
Despatches 2/269 W dj 1.2.86.
Fr. Aus 269 W dj 1.2.86.

Type designs of Bridges.

Note by E.W.

E. I. Form No. 22.

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the

READ ~~the following~~ again —

G. O.s Nos 3891 W dj 11 December 1888 and 1076 W dj 22d April 1889. in which are recorded reports by Sir A. Rendel, Consulting Engineer, India Office on the superstructure of the Gadilam and Talouasab Bridges.

Read also

Note by the Chief Engr PWD dj June 1889

Ordered that the following letter be addressed to the Secretary of State for India.

Ack 19 June

A.L. No. 14/1782 W. dj 28th June 1889.

To The Right Honble the Secretary of State for India

My Lord,

We have the honor to forward for your Lordship's consideration copy of our Proceedings marginally noted relative to the type designs for bridge superstructures

G.O. No. 10 dj. June '89.

superstructures lately supplied to this Government.

2. Standard designs for the superstructure of iron bridges are necessary for the guidance of officers of the Public Works Department and Local Fund Boards, and as it is doubtful whether the designs for pinned girders already furnished by the Director General of Stores possess any marked advantage over the pivetted girders which are recommended by Sir A. Rendel as being both stronger and cheaper than pinned girders we beg to recommend that a series of type designs be prepared upon the basis of Sir A. Rendel's remarks.

3. The Chief Engr. P.W. Deptt. is of opinion that the list of standard designs should be similar to the one contained in your Lordship's despatch No. 2 Public works (Stores) of 12th April 1888 and that

two

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two hundred copies of each design should be supplied for distribution in the P.W. Department and among Local Fund Boards, and his recommendations have our approval.

15.6.89

17.6.89

18/6/89

14

Govt. of Madras.

PUBLIC WORKS.

9

Dated

Rcd. Encl.

G.O., 28th June 1880 No. 1718

14
1718

Type designs

Ordered that the Secy
Plate be requested to have
a series of ~~8~~ 7
~~sketches~~ prepared for
~~bridge~~ superstructure
of girder bridges prepared
upon the basis of Sir
A. Rendel's remarks
& that two hundred
copies may be supplied
for distribution in the
Dept & L. G. Boards

Recommending the
preparation of a series
of type designs for
superstructure of girder
bridges upon the
basis of Sir A. Ren-
del's remarks, &
that two hundred
copies may be supplied
for distribution in
the Dept & among
L. G. Boards

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