

(1) Number of pages 12.
(2) Date of repair _____
(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No.	186	(Ry)	Press Mis
Dated	20.1.	1877.	

Not to be folded or roughly handled

No. 362. Read the following letter from Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 10th January 1877, No. 14:—

ADVERTING to paragraph 3 of the Order of Government, dated the 28th August 1876, No. 2,383, I have the honor to enclose a letter from the Agent of the South Indian Railway, giving cover to a report from the Acting Chief Engineer upon the results obtained at the Adyar bridge after the addition of the horizontal diagonal bracings.

2. The chief object in view in introducing the additional bracings was to reduce the lateral deflection of the girders when tested by a load moving at speed over the bridge.

3. Before the introduction of the horizontal bracings, the maximum lateral deflection, recorded at a point 3 feet below rail level, was 63 inch.

4. After the addition of the horizontal bracings, the maximum lateral deflection, at the same level, was 34 inch. The maximum lateral deflection on the top boom of the girder was 25 inch; and on the bottom boom 70 inch. These results show a marked improvement.

From W. S. BETTS, Esq., Agent, South Indian Railway, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Negapatam, 26th December 1876, No. 2,620.

I FORWARD herewith, for information, a paper showing the results of tests recently completed at the Adyar bridge, District No. 1 Northern Extension. The Acting Chief Engineer reports "these tests were made at your request after the addition of a continuous system of horizontal diagonal bracing, the effect of which, as proved by the tests, has been to render the girders much more rigid."

Mr. White adds, "the tests for oscillation before and after the addition of the horizontal diagonal bracing not having been made at the same points they cannot be compared. The first tests were made 1 foot 6 inches or at one-fifth of its depth below top of girder. If to the oscillation at top boom of the second set of tests be added one-fifth of the difference between it and the oscillation at the bottom boom, an approximate comparison may be made with the first set of tests, and the result shows a very appreciable reduction in the oscillation. Take, for instance, span 4 which oscillated at 3 feet below rail level before the horizontal diagonal bracing was added; 63 of an inch, worked as above the oscillation at the same point after the addition to the bracing is only 18 of an inch.

Proceedings of the Madras Government, Public Works Department,
20th January 1877. No. 186.

SOUTH INDIAN RAILWAY.

NORTHERN EXTENSION.

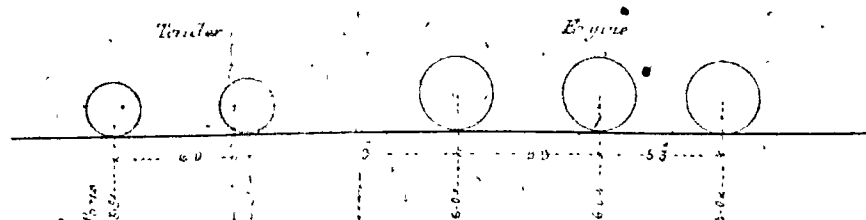
DISTRICT No. 1.

Adyar Bridge.

Six 65 feet lattice girder spans at 6 miles 50 chains.

Rails running on upper flange of girder.

Statement showing the deflection and oscillation of the girders when subjected to the rolling load of two engines (Nos. 36 and 39, Neilson type, weights as given in the attached diagram) coupled front to front and moving at a speed of 25 miles an hour.



No. of Span.			OBSERVATIONS MADE BEFORE THE ADDITION OF THE HORI- ZONTAL DIAGONAL BRACING.		OBSERVATIONS MADE AFTER THE ADDITION OF THE HORIZONTAL DIAGONAL BRACING.			
			Deflection in inches.	Oscillation in inches.	Deflection in inches.	Oscillation in inches.		
				Observed 3 feet below rail level.		Top boom.	Bottom boom.	
1	{	Right girder ...	...	...	...	60	20	40
		Left do. ...	...	...	...	60	20	40
2	{	Right girder ...	...	...	...	75	20	45
		Left do. ...	...	...	...	75	25	40
3	{	Right girder ...	...	...	...	70	25	40
		Left do. ...	...	...	...	65	20	50
4	{	Right girder ...	...	...	...	70	20	40
		Left do. ...	...	...	...	70	15	30
5	{	Right girder ...	...	...	...	70	25	50
		Left do. ...	...	...	...	60	25	70
6	{	Right girder ...	...	...	...	60	...	60
		Left do. ...	...	...	...	60	...	40

22nd December 1876.

(Signed) JOHN WHITE,
Acting Chief Engineer.

No. 363.

ORDER THEREON, 20th January 1877, No. 186.

RAILWAY, No. 26.

ORDERED to be recorded.

(True Extract.)

To the Consulting Engineer for Railways.
Exd. S. T. Austin.
Spare Copies

Major-General, R.E.,
Secretary to Government.

Read the following:—

From the Consulting Engineer for Railways
No. 14, dated 10th January 1877.

FOR ORDERS.

Commander Major-General R.E.
Secretary to Govt.

The results are somewhat singular if I read the figures correctly — the oscillation has been much reduced although and equalised — but the deflexion although equalised — has been increased in six girders — i.e. 2 spans & one girder in each of 2 other spans — the increase is not inconsiderable being for left girder of 1 span from 0.46 to 0.60
right — of 2 — 0.57 to 0.75
left — of 4 — 0.48 to 0.70
However the bridge is improved — which is satisfactory — Record the teller
M. 19/1

CONSULTING ENGINEER'S OFFICE

Madras: 10th January 1879

No.

From

LIEUT.-COLONEL J. H. M. SHAW-STEWART, R.E.

Consulting Engineer for Railways.

To

MAJOR-GENERAL G. W. WALKER, R.E.

Secretary to Government,

Public Works Department

Fort Saint George

SIR

Adverting to paragraph

31 of the Order of Government &
dated the 28th August 1876, No.

N^o 2620-2621 2283, I have the honour to enclose
December 1896. a letter from the Agent of the
South Indian Railway giving
cover to a report from the
Siding Chief Engineer upon
the results obtained at the
Adyar bridge after the ad-
-dition of the horizontal and
diagonal bracings.

2. The

Resident Agents
 Colter, No 2670

2. The chief object in view in introducing the additional bracing was to reduce the lateral deflection of the girders when tested by a load moving at speed over the bridge girder.

3. Before the introduction of the horizontal bracing, the maximum lateral deflection, recorded at a point 2 feet below rail level, was 1.2 inch.

4. After the addition of the horizontal bracing, the maximum lateral deflection, at the same level, was .34 inch. The maximum

maximum lateral deflection on the top beam of the girder was .25 inch; and on the bottom beam, .70 inch. These results show a marked improvement.

I have the honor to be
Sir
Your most obedient servant
Wm. Stewart
Brentford, Q.O.

Consulting Engineer for Railways.

RAILWAY DEPARTMENT.
From
The Consulting Engineer
for Railways,
To
The Secretary to Government,
P. W. Department,
Fort Saint George.

24/1



Govt. of 1877 Madras
PUBLIC WORKS.

To *The Commr. Eng. & Supt. of P.W.*

Dated

Issued

Recd.

Encl.

G. O. 20th Sept 1877, No. 189

Nos. 762 + 363.

Agar Bridge, S. I. Ry.
Report of the results ob-
tained at the — after
the addition of the hori-
zontal diagonal bracing.
Recorded.

Comr. Eng. & Supt.

*1877
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