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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P.W.D DEPARTMENT

G.O. No.	1534 - W	Press.
B.P. No.		Mis.
Dated	30-6-1880	197.

R.R.
Not to be folded or roughly handled

1534

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

30th June 1880, No. 1,534 W.

Buildings and Roads.
Civil Works.

Read the following paper:—

No. 86. From Captain A. AWDRY, R.E., Superintendent of Works, Buckingham Canal, to the Chief Engineer, Public Works Department, dated 18th March 1880, No. 4,201.

WITH reference to your No. 47 of 9th January, I have the honor to request information as to what should be the standard height of bridges over the canal, as it does not appear from any papers which I have seen to be definitely laid down.

2. Rule VII limits the draught of boats to $2\frac{1}{2}$ feet and their height to $6\frac{1}{2}$ feet above load line. The breadth is allowed to be 13 feet. This gives (assuming low

	Feet.
Margin over top ...	$\frac{1}{4}$
Height above load line ...	$6\frac{1}{2}$
Depth of boat below do. ...	$2\frac{1}{2}$
Below keel of boat ...	$\frac{1}{2}$
	$9\frac{3}{4}$

tide to be $1\frac{1}{2}$ feet below M. S. L.) a height of $9\frac{3}{4}$ feet above the sole of the canal or $5\frac{1}{4}$ feet above M. S. L. as a minimum which would admit, with a reasonable margin above top and below keel, of boats passing at all when fully laden when the bar at the Cocum is open and the tide low.

3. The maximum height would appear to be when a boat empty, drawing perhaps only one foot, is passing when

	Feet.
Over top ...	$\frac{1}{4}$
Height above load line ...	$6\frac{1}{2}$
Depth to load line ...	$1\frac{1}{2}$
Water ...	$3\frac{1}{2}$ above M.S.L.
	$11\frac{1}{2}$

both bars are closed, i.e., when the water is $3\frac{1}{2}$ feet above M. S. L., the height then would be $11\frac{3}{4}$ feet above M. S. L., or $16\frac{1}{4}$ feet above the sole of the canal, and the width of that portion of the span which is at this height should not be less than $13\frac{1}{2}$ feet, which allows only a margin

of 3 inches on each side of the authorised width of boat.

4. I have the honor to suggest that the standard height be fixed at 10 feet above M. S. L. for a clear width of $13\frac{1}{2}$ feet; this will just allow boats of authorised height and breadth to scrape through when the Cocum river is quite full, and they are loaded down to very nearly their full loaded line.

5. The enclosed list of all the bridges on the canal between Ennore and the Palár shows which of them are up to this standard even at the crown of the arches and which are below it. The latter are shown in red ink.

6. The standard height cannot well be fixed at a lower figure than 10 feet without altering the rules for the size of boats or for the height at which the Cocum bar is to be opened.

It might perhaps be well, as the Central Station Railway bridge is only 9.35 above M. S. L., to alter in the Rule VII " $6\frac{1}{2}$ feet above deep load line" to " $9\frac{1}{4}$ feet above water line."

No. 87.

ORDER THEREON, 30th June 1880, No. 1,534 W.

HIS GRACE the Governor in Council sees no immediate necessity for fixing a standard height for the bridges over the canal.

2. Separate orders have been passed in regard to the South Indian Railway bridge.

(True Extract.)

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

To the Superintendent of Works, Buckingham Canal.

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1880) Madras.

PUBLIC WORKS.

To

THE SUPERINTENDENT OF WORKS,
BUCKINGHAM CANAL.

Dated June, 30th.

Issued

Recd.

Encl.

G. O., 30th June 1880, No. 1,534 W.

JUNE.

Nos. 86-87.

Bridges over the Buckingham Canal.—
Intimating that there is no immediate
necessity for fixing a standard height for
the —

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

29th July 1879, No. 1,970 W.

Buildings and Roads.
Civil Works.

Read the following paper :—

No. 185. From Major H. M. VIBART, R.E., Acting Superintending Engineer,
Third Circle, to the Chief Engineer, Public Works Department, dated 12th
July 1879, No. 4,102.

Five plans.
Two specifications.
Five estimates.

WITH reference to G.O., No. 344 W,
dated 1st February 1879, I have the honor
to submit for your selection and sanction
three designs for supporting the water-
pipe at Elephant Gate bridge.

2. As regards the design supplied by the Municipal Engineer, Mr. Jones, I
would observe that, in my opinion, there
is no urgent necessity to widen the bridge
in the manner proposed, and that under
present financial circumstances it would not be desirable to expend such a large sum
on the work.

3. The design furnished by the Executive Engineer, Buckingham Canal, is, I
think, open to objection on the score of
weakening the arch even if the longitu-
dinal cut was executed with the greatest care. There is also the further objection
that the bridge would have to be closed to traffic during the execution of the work.

4. The design by my Assistant, Mr. Usher, for supporting the pipe from the
existing stone brackets meets, in my
opinion, all the requirements of the case.

During the execution of the work one half of the bridge could be kept open to traffic
under the direction of Police constables.

No. 186. ORDER THEREON, 29th July 1879, No. 1,970 W.

WITH this letter the Superintending Engineer submits alternative designs for
supporting the municipal 24" main in connection with the Elephant Gate bridge.

2. The first design, the estimate for carrying out which amounts to Rupees
5,365, was prepared by the Executive Engineer of the Municipality, on the supposi-
tion that the cost of the work would be borne by Government. In the present state
of the finances this estimate, which provides not only for supporting the pipe but also
for widening the existing bridge, cannot be considered.

3. The second design, prepared by Mr. O'Shaughnessy, provides for laying the
pipe in a deep trench cut along the centre of the bridge, and is objected to by the
Acting Superintending Engineer on the ground that it would weaken the arch.

4. The third design, which is understood to have been prepared by Mr. Ussher, Assistant to the Superintending Engineer, provides for suspending the main to the brackets by which the road side was formerly widened; these brackets being fastened to the masonry of the bridge by wrought-iron bolts.

5. This design is estimated to cost Rupees 625, and is, with some modification, recommended by the Chief Engineer for adoption.

6. The work will cost less than Rupees 700, and is sanctioned for immediate execution, at the charge of the Municipality.

(True Extract.)

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, Third Circle.
" Financial Department.
" Examiner of Public Works Accounts.

Exd. S. T. Austin.
Spare Copies



BUILDINGS AND ROADS
CIVIL WORKS.

Govt. of [1879] Madras.

PUBLIC WORKS.

20 MAR 80

No. 1943

To THE SUPERINTENDING ENGINEER,
THIRD CIRCLE.

Dated July 1879.

Issued

Recd.

Encl.

G. O., 291A July 1879, No. 1,970 W.

JULY.

No. 185-186.

Supporting the municipal 24' mass in
connection with the Elephant Gate bridge.
Sanctions for immediate execution, at the
charge of the Madras Municipality, the third
design for.

No. 201

OFFICE OF SUPERINTENDENT OF WORKS,
BUCKINGHAM CANAL,
Camp 18th March 1880.

From

THE SUPERINTENDENT OF WORKS,

BUCKINGHAM CANAL,

To

THE CHIEF ENGINEER,

PUBLIC WORKS DEPARTMENT, MADRAS.

Sir,

Enclosure. 4

With reference to your No. 47
of 9th ^{January} ~~January~~, I have the honor to request
information as to what should be the
Standard height of bridges over the canal,
as it does not appear from any papers
which I have seen to be definitely laid down.

2 Rule III limits the draught of
boats to 2½ feet and their height to 6½ feet
above load line. The breadth is allowed
to be 13 feet. This gives (assuming low tide
to be 1½ feet below M. S. L.) a height of

Margin over top — ¼ feet	} 9¾ feet above the sole of the canal or 5½ feet above M. S. L. as a minimum which would admit — with a reasonable margin above top and below.
Height above Load line 6½ feet	
Depth of boat below Load line — 2½ feet	
Below keel of boat — ½ — 2 — 3/4 feet	

keel of boats passing at all when fully laden when the bar at the Croom is open and the Tide low.

3 The maximum height would appear to be when a boat empty, drawing perhaps only one foot, is passing when both bars are closed i.e. when the water is $3\frac{1}{2}$ feet above M. S. L., the height then would be $11\frac{3}{4}$ feet above M. S. L. or $16\frac{1}{4}$ feet above the sole of the canal and the width of that portion of the span which is at this height should not be less than $16\frac{1}{2}$ feet which allows only a margin of 3 inches on each side of the authorized width of boat.

4 I have the honor to suggest that the standard height be fixed at 10 feet above M. S. L. for a clear width of $13\frac{1}{2}$ feet this will just allow boats of authorized height and breadth to scrape through when the Croom river is quite full and they are loaded down to very nearly their full load line.

Over top — $\frac{1}{4}$
Height above
Load line $3\frac{1}{2}$
Depth to Load
line — $3\frac{1}{2}$ above
Under — $11\frac{3}{4}$

5 The enclosed list of all the bridges on the Canal between Emmer and the ^{Palmer} ~~Palmer~~ shows which of them are up to this standard even at the crown of the arches and which are below it. The latter are shown in red ink.

6 The standard height cannot well be fixed at a lower figure than 10 feet without altering the Rules for the size of boats or for the height at which the Croom bar is to be opened.

It might perhaps be well as the Central Station Railway Bridge is only 9.35 above M. S. L. to alter ⁱⁿ the Rule VII " $6\frac{1}{2}$ feet above deep load line" to " $9\frac{1}{4}$ feet above water line"

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

A. Audry, Esq. Capt. R.E.
Superintendent of Works
Buckingham Canal

Ap. N. 47 of 9.180

From

The Superintendent of Works,
P.W.D. Buckingham Canal,

To

N^o 1973
The Chief Engineer,
Public Works Department,
Madras.

Dated 18th March 1880.

No. 4201

Enclosure. 4

Bridges over the Canal.
Requests information
as to what should be the
standard height of—

Cir 23.6.80. Det. 28.6.80 -
orty. 15/6/80. 20th 80

Having regard to the
amount of traffic carried
over English Canals.

L. Min. in the
Grand Junction
& others - without

incumbrance in
boats which would
all pass comfortably

The dimensions now
Cir 23.6.80. Det. 28.6.80 -
15.6.80 2.20-6.80

1534
Note by the Chief En-
gineer.

1534 W
The question here
raised about the pro-
per dimensions of the
openings to be given
to the Buckingham
Canal bridges need
not necessarily be
dealt with at once, for
although the rules under
which the Canal is
now being worked
lay down certain
dimensions and
draughts for boats,
it seems clear that
these are in a measure
provisional.

2 If as may be hoped
the Canal may in no

distant future be rendered available for steam boats, and both larger and better appointed boats than those now plying, bridges suitable for the passage of boats at all stages of the tide, and having greater heights than $6\frac{1}{2}$ feet above the low water line and $13\frac{1}{2}$ feet breadth of beam must it can hardly be doubted be provided for.

3 An examination of the dimensions of the existing bridges as given by Capt. Audry under date 18th March shows that out of 29 existing structures only 13 have more than $6\frac{1}{2}$ feet headway.

available. I see
no reason for
contemplating ~~any~~
any extensive
alteration of the
size —

Attention begun
to better pattern of
boats - such as
English canal boats
adopted - to carry
the largest tonnage
in the smallest space
No difficulty with
with cargo -

Paperen fronts of
ample size can be
glazed at the

diminution given -

The I think that
any consideration
of structural
alterations ^{of existing bridges} would
be waste of time -
+ show no profit
of canal alterations

I do not consider the
raising the temporary
bridge on the town - on
the main pipe from
the Sycamore gate bridge
included amongst structures
at the town -

24/6

Int 296

the same clear headway
as the Cutcherry road
bridge.

4. Should means even-
tually become avail-
able for altering the
bridges to suitable dimen-
sions throughout it
with no doubt be
deemed advisable to
give clear openings
for the passage of the
largest class of boats
likely to use the canal
at high water and
having a clear breadth
sufficient for towing
paths in addition
to the maximum
breadth of beam,
a sufficient margin
being allowed both
in height and width to
allow for easy passage

17/6/80 *Att*

Memo. 15/11/79
No. 3887d/18th Dec: 79
To S.E. 3 P.W.D.
20 MAR 80

He of No. 1973
has 13/1 the

has to report
that the S.E. will
report whether the
work sanctioned in
G.O. No. 1970 W of the
29th July last in
connection with the
Elephant Gate bridge
has yet been
executed by the
Municipality, and
what the clear
headway of the
bridge is, as will
be after the work
has been completed.

Att 16/12
16/12/79

3RD CIRCULE, SUPERINTENDING ENGINEER'S OFFICE,
Chapark, 22nd Decr 1879.
Dispt 23rd
ING ENGINEER,

3RD CIRCLE, SUPERINTENDING ENGINEER'S OFFICE.

Chapauk, 22nd Decr 1879.

THE SUPERINTENDING ENGINEER.

3RD CIRCLE,

With reference to your Memorandum
= dated P. 3887 dated 18th December 1879
I have the honor to inform you that
the work therein alluded to has
been carried out. The clear head-
= way of the Bridge just below the
Municipal water pipe is 7'-7" above
present water level. at the time
the measurement was taken (6 P.M.
19th) the level of water in the
Canal was 1.25 above M. S. L.
so the bottom of pipe is now
8.83 feet above M. S. L. or 13.33
ft. above ^{true} sole of Canal. I have the honor to be

Your most obedient servant
 Henry H. Schell Major A.C.
 Ag. Sup. Engineer 3^d Circle

17/6/80

L. & M. 3887-18-12-79

From
The Superintendant
of the
P.W.D.

20 MAR 80
No. 7473

Dated 22nd
Recd 23rd } December 1879

No. 7477

(To be returned)

Offensive to the Bridge.

Reporting with a view to
that the _____ has been
carried out.

Civ: 26-12-

18/12

12

P.W.D.
20 MAR 80

Statement showing the clear leading and span of Bridges over the Buckingham Canal.

No. of Bridge	Name of Bridge	Maximum Span at H.S.L. in feet	Maximum Height above H.S.L. in feet	Description of Bridge and for arch bridges the number of spans	Clearance		Height and width of abutments	Remarks
					Clearance at H.S.L. in feet	Clearance at L.S.L. in feet		
1	Bridge north of Basin							
2	Propaganda railway bridge	59	10.75	Low girder bridge			10.75 7.22 7.22	
3	Kachhwa Vahel Bridge	43	11.00	Masonry segmental arch	0.40	0.60	9.40 6.10 5.90	
4	Theravator Bridge	43	11.10	"	0.42	0.66	9.38 6.08 5.86	
5	Bridge south of Basin							
6	Basin Bridge	50	12.52	Masonry segmental arch	0.35	0.53	12.17 11.94 8.67 8.46	
7	Tall Collar Bridge	29.8	8.6	Wooden Bridge			8.64 5.4 5.4	
8	Elephant gate bridge	49	10.96	Masonry segmental arch	0.42	0.66	10.52 7.02 6.78	
9	Central station railway bridge	64		Low girder bridge			9.35 5.85 5.85	
10	General Hospital Bridge	49	11.04	Masonry segmental arch	0.42	0.66	10.62 7.12 6.88	
11	South Indian railway bridge	13.5		Wooden bridge			7.03 3.53 3.53	
12	Saint Mary's Bridge	29	11.49	Wooden bridge - metalled now			11.49 7.99 7.99	
13	Government house bridge	32	10.40	Masonry segmental arch	0.66	0.87	9.74 6.24 6.03	
14	Marine Villa	19.82	10.92	Superficial rough stone abutts - wooden flat form			10.92 7.62 7.62	
15	Chepauk bridge	19.62	10.92	Masonry segmental arch	1.00	1.75	9.92 6.17 5.67	
16	Pierette road	19.62	10.29	"			1.75 10.29 9.54 6.79 6.04	
17	Van Karammal street	20.17	11.52	Masonry and wooden flat form			11.52 8.02 8.02	
18	Low house road	19.83	11.68	Masonry segmental arch	1.00	1.75	10.88 9.93 7.18 6.43	
19	Elliot's road	20.17	11.77	Masonry semi-circular arch	1.33	2.42	10.64 9.55 6.96 5.85	
20	Barbers Bridge	27.83	9.7	Masonry and wooden flat form			9.7 6.21 6.21	
21	Grand army Canal road	20.00	13.22	"			13.22 9.72 9.72	
22	Archer's road	19.68	10.42	Masonry semi-circular arch	1.33	2.42	9.09 8.40 5.59 4.50	
23	Brodies road	20.17	10.84	"			1.21 2.12 9.68 8.77 6.18 5.27	
24	Dontholam Aqueduct	20.42	10.05	Masonry wooden flat form			10.05 6.55 6.55	
25	Mallapatha Munda Canal road	20.45		"			9.22 9.22 5.72 5.72	
26	Cooley Canopy off-han	21.83	10.00	"			10.00 6.57 6.57	
27	Gharunwari Bridge	21.00	13.03	Masonry segmental arch - stone	1.00	2.00	12.03 8.53 7.53	
28	Grainy Bridge	45	15.62	Masonry elliptical arch almost flat	0.25	0.33	15.07 15.09 11.67 11.59	
29	Lathee Bridge	43	12.14	Masonry abutts & wooden structure			12.14 8.64 8.64	
30	Ladhas Bridge	43.4	13.88	Masonry elliptical arch almost flat	0.25	0.33	13.58 13.58 10.08 10.08	
31	Amalpat Bridge	35	14.75	Masonry semi-circular arch	0.37	0.62	14.38 10.88 10.63	

Office of the Sup^t of roads
Buckingham Road No 18th March 1890

A. Henry.

Superintendent of works P. Canal.

1534
13

N^o 1534 W

B. & P.
Ch. K.

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the *30 June 1880*
Read the following:—

From

The Supt. of Works

Buckingham Canal (H.E. No. ~~4201~~ 4201 2/18 March 1880)

*His Grace the Governor
in Council sees no
immediate necessity
for fixing a standard
height for the bridges
over the Canal.*

*2. Separate orders
have been passed
in regard to the
South Indian Railway
bridges.*

Supt. of Works, Buckingham Canal

Doyle

12-7-80

Ch. K.

27/6/80

Cur 1973

Gobt. of (1880) Madras.

PUBLIC WORKS.

To

Dated

Issued

Recd.

Encl.

G. O., 30 June 1880, No. 1534/W.

Nos.

86-87

Bridges over the
Bullingham Canal

Intimating that
there is no immediate
necessity for fixing
a standard height
for the

W.