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MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	1808	Press
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Dated	7-7-	195
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Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
7th July 1874.*

No. 95. Read the following letter from A. C. LAWFORD, Esq., Officiating District Engineer, South Canara, to Colonel G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Mangalore, 3rd June 1874, No. 30 :—

IN continuation of my letter, No. 20 of 9th ultimo, reporting the destruction of three bridges on the road between Mangalore and Buntwal, I have the honour to report as follows :—

2. The Teringapett bridge on the 9th mile stone was a single semi-circular arch of 46 feet span (and not 30 feet as reported before), laterite in chunam, built in 1853 by Overseer Graham under Mr. Maltby at a cost of Rupees 5,620. The approaches are highly embanked, and the stream runs through paddy-fields. The cause of collapse has evidently been the unusual scour caused by the flood. Either side of the arch has fallen inwards and the major portions of the wings have followed, the entire earth backing having also gone, and on the east bank the embankment has cracked some distance beyond the wings and shows signs of settlement. The water has been within 6 inches of the crown of the arch, if not higher, and having covered an enormous extent of paddy land has swept inwards from either side, cutting away the banks of the river and baring the wings. That the bed of the river has been deeply hollowed at one time, during the flood, would appear from the mass of silt mixed with large stones that has been thrown over a large area of paddy field to the depth of a foot or more, and the force of the current is attested by solid blocks of masonry 5 feet and 6 feet long having been carried some 100 feet below the bridge. The section of the river has been increased both above and below the bridge site by the flood.

3. The second is Bermarkuttoo bridge, situated on the 13th mile stone. This was under construction, and the abutments of granite in chunam had just been completed. The span was 29 feet, and proved quite inadequate to pass the quantity of water that came down on this occasion. The abutments have fallen forwards owing to the scour in the bed, and the portions of the wings alone remain. A part of the western embankment, extending to 23 feet beyond the end of the wings of the old bridge, has also been swept away, and a part of the eastern embankment has been hollowed out. The section of the river has been largely increased by the cutting away of the banks, and the temporary road above the bridge has been entirely washed away. The rush of water has been very great here; the mud walls surrounding the paddy fields above the bridge are breached everywhere, and the water has risen over the embanked road.

4. The third is the Chendamar laterite bridge on the east of Buntwal, consisting of two semi-circular spans of 8 feet each, with a pier 10 feet in width. It was built long ago, and repaired in 1861 or 1862. Scour appears to have caused the fall of the eastern arch, and that with its abutments and wings has disappeared entirely, the stream being paved with the debris for about 100 yards below. The section of the stream is considerably increased.

5. The villagers attribute the loss of the bridges to the fact that many of their irrigation bunds, which had not yet been cut, were burst by the flood; but I am inclined to believe that this had little to do with it, and that a fall of

rain of unprecedented heaviness and, I hope local, was the chief cause of the destruction.

6. In Mangalore, on the night of the 6th May, over 9 inches of rain fell, and again during the night of the 7th, 3 inches: a total of nearly 13 inches in 36 hours. During the night of the 7th the whole of the damage was done. There are no signs of an unusually heavy fall within five or six miles of Mangalore, and the testimony of side channels overflowing and pouring over the road, of large blocks of stone being swept down the hill sides, and of the banks of streams being cut and widened by scour, commences proving that a much heavier fall than 13 inches in the 36 hours must have there occurred.

7. What has largely increased the force of the rivers crossing the Bantwal road has without doubt been the fact that the Neithrawatty river does not seem to have been above its normal monsoon level, if so high; and the head of the smaller rivers has been thereby much increased. As a rule, during floods, it is the backwater of the Neithrawatty that raises the lower streams, and the currents of the latter are in the wettest weather very feeble, as it was noticed during the heaviest floods in the last four years. In 1872, when the water rose 8 feet high over the Bemarkuttoo embankment, the old bridge, cracked through and through as it was, stood it, as it had done the floods for years before whilst in the same condition. The Teringapett bridge was also uninjured by the 1872 flood, although the water covered the embankment, and the crown of the arch was well beneath the surface.

8. Judging by the effects of this storm I have allowed in the designs now being prepared, for replacing the destroyed bridges, a water-way which is nearly double that of the latter.

9. The above information has been taken largely from the report of the Mangalore Range Officer, but the road has been thoroughly inspected by myself, and the designs are being personally prepared.

No. 96.

ORDER THEREON, 7th July 1874, No. 1,808.

CIVIL WORKS, No. 7.

Ordered to be recorded, and communicated to the Financial Department.

2. The damages have no doubt been caused by a very heavy and local fall of rain occurring in the hilly ground west of Bantwal, in the deep valleys of which run the streams over which the bridges in question were built.

(True Extract.)

Colonel, R.E.,

Secretary to Government.

To the District Engineer, South Canara.
Financial Department.

Exd. S. T. Austin.

Spare Copies

District Engineer's office
Mangalore 3rd June 1874.
No. 30

From,

A. C. Sanford Esq.
Offg District Engineer
Mangalore.

To
Colonel G. W. Walker R.E.
Chief Engineer and
Secretary to Government, P.W.D.
Madras.

Sir,
In continuation of my letter No. 20 of 27th ultimo reporting the destruction of 3 bridges on the road between Mangalore and Bantwal I have the honour to report as follows:

2. The Teringapett Bridge on the 9th mile stone was a single semicircular arch of 46 feet span and not 30 feet as reported before, built in Chueam built in 1858 by overseer Graham under Mr. Maitly at a cost of Rs. 5800. The approaches are highly embanked, and the stream runs through sandy fields. The cause of collapse has evidently been the unusual scour caused by the flood. Either side of the arch has

has fallen inwards and the major portion of the wings have followed the entire earth backing having also gone. and on the east bank the embankment has crumbled some distance beyond the wings and shows signs of settlement. The water has been within 6" of the crown of the arch, if not higher, and having covered an enormous extent of paddy land, has swept inwards from either side cutting away the banks of the river & leaving the wings. That the bed of the river has been deeply hollowed at one time during the flood would appear from the mass of silt mixed with large stones, that has been thrown over a large area of paddy field to the depth of a foot or more, and the force of the current is attested by solid blocks of masonry 5 or 6 long having been carried some 100 feet below the bridge. The section of the

river has been increased, both above and below the Bridge side by the flood.

3. The second is Dermotulloh Bridge situated on the 18th Mile stone. This was under construction and the abutments of granite in Chinnam had just been completed. The span was effected and proved quite inadequate to pass the quantity of water that came down on this occasion. The abutments have fallen forwards owing to the scour in the bed and the portions of the wings alone remain. A part of the western embankment extending to 23' beyond the end of the wings of the old Bridge has also been swept away and a part of the eastern embankment has been hollowed out. The section of the river has been largely increased by the cutting away of the banks and the temporary road above the bridge has been entirely washed away. The rush of water has been very great here. The mud walls surrounding the paddy fields above the bridge are breached everywhere. and the water has risen

risen over the embankment road.

4. The third is the Chendur
laterite bridge on the east of Punal
consisting of two semicircular spans
of 8' each with a span 10' in width. It
was built long ago and repaired in
1861 or 1862. A scour appears to have caused
the fall of the eastern arch and
that with its abutments and wings
have disappeared entirely, the stream
being paved with its debris for about
100 yards below. The section of the stream
is considerably increased.

5. The villagers attribute the loss of
the bridges to the fact that many of their
irrigation bunds, which had not yet
been put, were burst by the flood, but
I am inclined to believe that this had
little to do with it, and that a fall of
rain of unprecedented heaviness and
Chops local was the chief cause of
the destruction.

6. In Mangalore on the night of
the 6th May over 9" of rain fell, and



again during the night of the 7th 5", a total
of nearly 15" in 24 hours. During the night
of the 7th the whole of the damage was
done. There are no signs of an unusually
heavy fall within 5 or 6 miles of Mangalore,
and then testimony of side channels
overflowing and pouring over the road,
of large blocks of stone being swept
down the hill sides and of the banks
of streams being cut and widened
by scours, commences proving that a
much heavier fall than 15" in the 24 hours
must have there occurred.

7. That has largely increased
the force of the rivers crossing them,
Punal road has without doubt been
the fact, that the Neithravathy river does
not seem to have been above its nor-
mal monsoon level, if so high, and the
head of the smaller rivers has been
thereby much increased. as a rule in
rising floods it is the backwater of
the Neithravathy, that raises the lower
streams, and the currents of the latter

are in the wettest weather very feeble,
as it was noticed during the heaviest
floods in the last four years. In
1872 when the water rose 8 feet high
over the Derrmarketter embankment
the old bridge cracked through and
through as it was, stood it, as it had
done the floods for years before
while in the same condition. The
Linnings Bridge was also un-
injured by the 1872 flood, although the
water covered the embankment and
the crown of the arch was well be-
neath the surface.

8. Judging by the effects of this
storm I have allowed in the designs
now being prepared for replacing the
destroyed bridges, a water way, which
is double that of the latter.

9. The above information has
been taken largely from the report
of the Mangalore Range officer
but the road has been thoroughly
inspected

inspected by myself and the designs
are being personally prepared.

I have the honor to be,
Sir,
Your most Obedt Servt

Al Larpue
Offd. Engineer
Mangalore

1808

Ordered to be recorded and
communicated to the Financial
Department.

The damages have no doubt
but caused by a very heavy and
local fall of rain occurring
in the ~~hills~~ ^{hilly ground} west of Buntwall,
in the deep valleys of which run
the streams over which the bridges
in question were built.

Comm.

It has not been creditable that
in different parts my was given to the
new bridge (under construction) at Barmantle
it has not been noticed & been the foundations
found & carried & support depth 18/6 M

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Govt. of 1874 Madras

PUBLIC WORKS.

To  The Dist. Super.
S. Canara

Dated

B'd

Encl.

7th July 1874 No. 1508

No. 95-96

Damages to Bridges

South Canara -

Letter from the Dist. Super.
reporting more fully on
the subject of the ~~disturbance~~
damages to ~~the~~ Bridges
by the late heavy rains
recorder of & Comd to the
Dist. Super. -