

(1) Number of pages 16
 (2) Date of repair 26-8-86
 (3) Initials of the Referencer lma

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

Public work DEPARTMENT

G.O. No.	804 (W)	Press.
~~B.P. No.~~		Mis.
Dated	18-2-1878	1978

297

Not to be folded or roughly handled

804

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

18th February 1878, No. 804 W.

Buildings and Roads.

Civil Works.

Read the following paper :—

No. 160. From Major J. L. L. MORANT, R.E., District Engineer, Nilgiris, to the Chief Engineer, Public Works Department, dated Ootacamund, 4th February 1878, No. 30.

With reference to Public Works Order No. 284 W, of the 17th ultimo, endorsed on Petition Department Order of the 11th idem, I have the honor to submit a plan and estimate, the latter amounting to Rupees 5,000, for restoring the Elk Hill Aqueduct.

2. In November last much water from the unusually excessive rain of the north-east monsoon having percolated into the south side of the Elk Hill cutting at its highest and steepest point, an immense portion of this side cracked and separated from the adjoining solid ground. The great weight of this partly liberated mass of earth forced up the road in the cutting about a yard in height, not evenly but irregularly, so that it resembled a frozen sea. The cracks in the side of the cutting extended behind the shallow south abutment of the aqueduct, completely breaking it up and endangering the southernmost trussed wooden span, which was at once taken down. The cracking of the solid ground continued for about a month, getting almost daily worse and worse. At last it seems to have affected the south pier of the aqueduct, the foundations and lower portion of which it forced in a northerly direction. The centre span which had not been disturbed caused a rigidity in a southerly direction. Hence, as the foundations and lower part were being pushed northwards, the pillar cracked about two-thirds from the ground, and the crack grew bigger up to $1\frac{1}{2}$ inches, and the upper third part of the pillar leaned over about $\frac{1}{4}$ inches in a southerly direction until the whole affair nearly toppled over. I then took down the centre span.

3. I have now the honor to submit for sanction and provision of funds the accompanying plan and estimate for restoring the aqueduct very much to its former condition; by rebuilding the southern pier and restoring the two trussed wooden spans.

4. I have, after much reflection and consultation with Mr. Campbell, found it impossible to temporarily restore the water service for three reasons :—firstly, because the presence of a large flow of water in the open channel merely cut out of the hill side would very probably bring down the already cracked earth on to the road, blocking it up for traffic and making its removal costly and slow; secondly, because the temporary erection of large pipes of sufficient bore would need a very stiff staging which would cost money, and block up the narrow roadway of the main road into Ootacamund from Coonoor; and, thirdly, because pipes of small bore, say 3 or 4 inches, would not supply sufficient water so as to reach the house of Mr. Campbell which is by the channel, about half a mile or so distant from the aqueduct; the water would be entirely sucked up by the wide open duct cut out of the hill side which leads the water to his house.

5. With the permission conveyed in Public Works Department, G.O., No. 2,024 W, dated the 8th December 1877, about 100 convicts have during the past month been engaged in excavating the earth on the south of the cutting. We have begun work at the top of the cutting and have wheeled the earth away to spoil along the water-supply channel and between it and the road. We have excavated back to about a yard or so behind the cracks, which we find extend downwards to a great depth. We slope the cutting in steps as we work. We shall thus try and work from the top down to the roadway, and, if possible, at last widen the road as well as give the face of the cutting an easier slope than it had before. It is important to work from the top and not to allow the cracked earth to fall into the cutting. If it falls into the cutting it will block up the road to traffic and be much more costly to remove, because the earth will have to be carried a very much longer distance. As far as we have gone we have been successful.

6. I hope to have the cutting completed and the aqueduct restored by the end of April. The restoration of the latter cannot be effected until the earth-work is more advanced.

No. 161. ORDER THEREON, 18th February 1878, No. 804 W.

The plan and estimate of Rupees 5,000 for restoring one pier and two spans of the Elk Hill Aqueduct at Ootacamund are sanctioned.

2. The District Engineer will apply for funds in his statement of demands against the Reserve of 1878-79, to be submitted in April next, but will press on the work at once without reference to allotment.

3. This sanction has been registered as Provincial No. 281 B of 1877-78.

(True Extract.)

Colonel, R.E.,
Secretary to Government, P.W.D.

To the District Engineer, Nilgiris.
" Examiner of Public Works Accounts, with Estimate.
" Financial Department.

Exd. S. T. Austin.
Spare Copies

804
2/1

portion of the old cracked and

★
BUILDINGS AND ROADS
CIVIL WORKS.

Gobt. of (1878) Madras.
PUBLIC WORKS.

To
THE DISTRICT ENGINEER,
NILGIRIS,
Ar., &c., &c.

Dated February 1878.

From

To

End.

G. O., 1878 February 1878, No. 801 W.

FEBRUARY.

Nos. 160-161.

For the Approval of Government.—
The following works have been approved for
restoring one pier and two spans of the

District Engineer's Office
Ootacamund 4th February 1878

to 30

From

By

The District Engineer
Nilgiris

To

The Chief Engineer,
P. M. D.,
Madras

Sir

With reference to P. M. D.
Order No 284 W of the 11th June 1877
dated on Petition Department Order of
the 11th June I have the honor to sub-
mit a Plan and Estimates, the
latter amounting to Rs 5000, for
restoring the Bell Mill Aqueduct.

2. In November last much
water from the unusually excessive
rain of the North East Monsoon
having percolated into the Southern
side of the Bell Mill Cutting at its
highest and steepest point, an immense
portion of this side cracked and

Separated from the adjoining solid ground. The great weight of this heavily liberated mass of earth forced up the road in the cutting about a yard in height, not evenly but irregularly so that it resembled a frozen sea. The cracks in the side of the cutting extended behind the shallow South abutment of the Aqueduct completely breaching it up and endangering the southernmost truss wooden span, which was at once taken down. The cracks for about a month getting almost daily worse and worse. It last evening of the solid ground continued to have affected the southern pier of the Aqueduct, the foundations and lower portion of which it forced in a westerly direction. The central span which had not been disturbed showed a rigidity in a south-westerly direction - thus as the foundations and lower part were being pushed

pushed westward the pillar cracked about $\frac{2}{3}$ mile from the ground, and the crack gave began - gave up to $1\frac{1}{2}$ inches and the upper third part of the pillar bowed over about 4 inches in a southerly direction until the whole affair suddenly toppled over. I then took down the central span. ~~SE~~

3. I have now the honor to submit for sanction and provision of funds the accompanying Plan and Estimates for restoring the Aqueduct very much to its former condition; by rebuilding the southern pier and restoring the two truss wooden spans.

4. I have, after much reflection and consultation with Mr Campbell, found it impossible to temporarily restore the water service for three reasons: firstly because the presence of a large flow of water in the open channel merely

cut out of the hill side would vary
probably being down the already
excavated north cut to the road and
blocking it up for traffic and in
making its removal costly and in
flow; Secondly, because the temporary
erection of large pipes of sufficient size
would need a very stiff abutment
which would cost money and block
up the narrow roadway of the main
road into Colerain and from Colerain;
and, thirdly, because pipes of small
bore, say 3 or 4 inches, would not
supply sufficient water to do ex-
cess the house of Mr Campbell
which is by the channel about 2 or
3 miles or so distant from the aqueduct,
the water would be entirely sucked
up by the wide open dirt cut on
out of the hill side which leads
the water to his house.

With the permission conveyed
in P. W. D. G. O. No 3024, dated ..

the 8th December 1877 about 100 barrels
have during the past month been
engaged in excavating the north cut
the south of the cutting. We have
begun work at the top of the cut
and have intended the north
cutting and have intended the north
cutting to spoil along the water
supply channel and between it
and the road. We have excavated
backs to about a yard or so behind
the ditches, which we find extend
downwards to a great depth. We
slope the cutting in steps as we
work. We shall thus try and
work from the top down to the
roadway, and, if possible, at last
widen the road, as well as give
the faces of the cutting as having
slopes than it had before. It is
important to work from the top
and not to allow the excavated earth
to fall into the cutting. If it
falls into the cutting it will block up

200/6

up the road to traffic and has
much more readily to remove, be-
cause the earth will have to be
carried a very much longer dis-
tance. As far as we have gone
we have been successful.

6. I hope to have the cutting
completed and the aqueduct re-
stored by the end of April. The
restoration of the latter cannot
be effected until the earth work
is more advanced.

I have the honor to be
Your most obedt servant
John Morant Major. A. C.
District Engineer

Handwritten: R.A. Insp. 25/7/2.78

7-1073 ✓

Chap 330
Publ. of 1878,  **PUBLIC WORKS.**

To *Mr D. C. Neilson*

Dated

Issued

Filed

Encl.

G. O. 18 Feb 1878, No 804 H.

Hos.

*Elk Hill Aqueduct at
Potacumund. Section
with remarks plan & letter
for restoring one pier and
two spans of the —*

Leath's Rep.

19-2