

(1) Number of pages 76(2) Date of repair 9/11/12

(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No. 3025	Press ~~Mis.~~
267-69	
Dated 14 . 12	1870 .

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
14th December 1870.*

Read the following papers:—

No. 267. Endorsement of the Revenue Department, 15th November 1870.

Proceedings of the Board of Revenue, dated 12th November 1870.

From the Collector of Nellore, to the Acting Secretary to the Board of Revenue, dated Nellore, 7th November 1870, No. 2,978.

THE water in the Pennair having now sufficiently subsided to admit of an inspection of the anicut, it is with much regret that I have the honour to inform the Board that the structure has been most materially damaged by the recent flood, the heaviest known since 1852, and that its present condition is so dangerous that the immediate or early occurrence of even a moderate fresh would inevitably cause a serious breach.

2. The Board are perhaps aware that the rough-stone apron in rear of the front main wall is retained by two parallel walls. But little of the rearmost retaining wall remains, and where this has been destroyed for the most part the rough-stone apron up to the first retaining wall has been swept away, or so broken up as to be useless as a support.

3. But the greatest injury is towards the north bank, where for a considerable distance absolutely nothing remains but the bare main front wall itself. The probability is that had the flood remained at full height for six hours more this wall must have gone too, and the anicut would then have been most seriously breached.

4. Major Clay, the Range Officer, will lose no time in temporarily supporting the main front wall at this spot, and I have undertaken to employ the provisions of Act I. of 1858, if necessary, in providing him with requisite labour.

5. My unprofessional opinion is that had a few thousands of Rupees been spent in giving the rough-stone apron a smooth surface with a good coating of concrete, this lamentable damage would probably have been averted. I am not in the least surprised that the enormous friction of such a weight of water rushing over the bare stones of the apron should have displaced them.

6. Roughly Major Clay calculates the cost of repairing the damage at some Rupees 25,000, but the Board must at the same time be prepared for the contingency of the almost total destruction of the anicut.

P.S.—Since writing the above Major Clay has furnished me with the enclosed copies of his reports on the subject to the Superintending Engineer, dated 4th instant and today.

SUBMITTED for the information of Government.

(True Copies.)

(Signed.)

J. GROSE,
Acting Secretary.

TRANSFERRED to the Public Works Department.

(Signed.)

R. A. DALYELL,
Acting Secretary to Government.

*Proceedings of the Madras Government, Public Works Department,
14th December 1870.*

No. 233.

Note by the Chief Engineer for Irrigation, dated Fort Saint George, 18th November 1870.

On hearing demi-officially from Major Clay of the damage sustained by the Pennair anicut at Nellore, instructions were sent to that Officer both by telegraph and in writing regarding the measures which appeared to be necessary for the prevention of further damage.

2. Since then I have received a later report, dated 14th instant, from Major Clay, by which time the repairs had made good progress, and the risk of a breach from a moderate fresh averted.

3. It is my intention to visit Nellore at the end of this month, when such further instructions as may be necessary will be given to the Executive Engineer.

(Signed.) J. MULLINS, Major, R. E.,
Chief Engineer for Irrigation.

From the Executive Engineer of the first or Nellore Range, to the Chief Engineer for Irrigation,
dated Nellore, 14th November 1870, No. 355.

I HAVE the honour to acknowledge the receipt of your Memorandum No. 222, under date the 10th instant, and to inform you that I did not lose an instant in taking advantage of the river's fall to commence operations to secure the anicut from further damage, in anticipation of funds being allotted for the purpose.

2. I first secured the most exposed portion of the body-wall, by carefully repacking the largest blocks of stone procurable, adhering as closely as possible to the original section; the work is going on steadily and rapidly, the portions most in danger being first attended to. I have more than four hundred work-people, and others are daily coming in.

3. The highest point reached by the water was 21 feet 9 inches above true bed of river in front of anicut, and 14 feet in rear. From close observation during the rise of the river, I am of opinion that the injury commenced at the tail of the apron, about 200 yards south of the north under-sluiques, gradually working backwards; at the same time some large blocks were lifted from between the first and second retaining walls in several other places.

4. In framing the estimate for the permanent repair of the work, I propose the addition of a third retaining wall at the tail of the present apron, the crest of the wall to be one yard below the true bed of the river below anicut. I would also suggest all interstices being filled with good concrete, so as to reduce friction to a minimum.

5. Your instructions regarding the increased size of the blocks of stone to be used, and on all other points, shall have due attention.

6. I anticipate some difficulty in laying down the tramway, and procuring trucks, etc., as our workshops are closed, and all the skilled and well-trained labour has been dispersed; but steps are being taken to build trucks, etc.

7. We have on hand rails for tramway, and wheels, axles, etc., for trucks, and about 5,000 cubic yards of stone, with which to make a commencement.

No. 268. Endorsement of the Superintending Engineer, 2nd Division, dated
Camp at Masulipatam, 8th November 1870, No. 106.

From the Executive Engineer of the first or Nellore Range, to the Superintending Engineer, 2nd
Division, No. 202.

With reference to my telegram of the 21st instant, I have the honour to report that rain set in on the 19th and lasted, with little intermission, till the morning of Monday the 24th instant.

2. The greatest fall in twenty-four hours was between 7 o'clock A.M. on the 20th and 7 o'clock on the 21st, when 8.19 inches was gauged. The total rainfall from 1st January up to date is 41.75 inches against 30.16 inches, the average of the last ten years.

*Proceedings of the Madras Government, Public Works Department,
14th December 1870.*

3. The highest water mark in front of head-sluique was 18½* on the 21st instant. The telegraph post in the bed of the river was carried away on the 21st instant, and direct telegraph communication with the Northern Stations cut off. No post from the north was received from 21st up to 24th instant.

4. The anicut appears perfectly sound; three shutters in auxiliary head-sluique were broken, and one in the old head-sluique which prevented our regulating the quantity of water in the main channel which sometimes had as much as 11 feet in it.

5. A small breach occurred in the right bank of the Survapully main channel near the third aqueduct, caused by the rush of water from the Nellore tank and outside drainage; but I am happy to say the breach is small and of no consequence.

6. The Nellore tank was in some danger, at one time the water had risen to full tank level (Lower Bull's head), when a sinking of the revetment suddenly took place at the site of an old sluique opposite to the Rajah's bungalow; luckily there was a break in the rain, and the water rose no higher, I therefore lost no time in examining the cause of the slip, and found a large hollow immediately in rear of the revetment, which, had the water risen another foot, or had there been any wind, must, I think, have led to a terrible catastrophe. I at once set Mr. Plumb to work and, aided in labour and materials by the Tahsildar, by night-fall the danger was averted, and the repair completed on Sunday morning. Mr. Plumb was constantly on the work, and I inspected it three times during the day. The south river embankment has suffered considerably, but I am unable at present to say to what extent.

7. Several injuries are reported to works in the delta, but none of a serious nature; also four small breaches in the Vellaur channel recently completed. The masonry works at Kanaparti-paud under Mr. Lyon were very severely tried, and are reported to have stood well.

8. I was at Survapully on the 19th and 20th, and left on the 21st, up to which time all was safe, and the new revetment standing well. I have since received a report from the Overseer, N. Moorogasem Moodelly, that a slip of turf and earth in rear of tank No. 8 occurred on the morning of the 21st, shortly after I left, caused by the very heavy rain of the previous night, but the Overseer appears to have taken prompt and judicious measures for the security of the bund.

9. Several small tanks have breached, but no particulars have yet reached me. I have called on Mr. Lyon and the various Overseers to send in a report, with rough estimates, of all damage done in their respected charges, to be followed by detailed estimates; these will be submitted to you in due course.

10. I must here observe that while the river was at its highest on the 21st instant, there was cause of great alarm lest the water should break in and inundate the town; the water was within a yard of the roadway leading to the anicut, and I would urge the necessity of early sanction being obtained for the continuation of the embankment from the Dispensary to the anicut, the plans and estimates for which I had the honour to submit some months back.

11. As Mr. Lyon's work on the Survapully project for the present is at a stand-still, I have deputed him to make a thorough inspection of the masonry works on the great northern road, as I am apprehensive that injury must have been sustained by some which have long been in a dilapidated state, as I have more than once reported.

FORWARDED to the Chief Engineer for Irrigation for information. The estimate for the river embankment from the Dispensary to the anicut referred to in the foregoing letter will be submitted immediately.

(Signed) F. J. MOBERLY, Colonel, R. E.,
Superintending Engineer, 2nd Division.

*Proceedings of the Madras Government, Public Works Department,
14th December 1870.*

No. 269. ORDER THEREON, 14th December 1870, No. 3,025.

IRRIGATION, No. 24.

THE Government learn with regret from these papers that heavy rains in the Nellore District and freshes in the Pennair have occasioned much anxiety regarding the safety of some of the most important irrigation works in the district, and that the Pennair anicut was so much injured as to have been in serious danger of breaching. His Excellency in Council is, however, glad to know that prompt measures were adopted for the repair of this latter work, and that the more emergent repairs had, by the middle of last month, made good progress.

2. The Chief Engineer for Irrigation will, when visiting Nellore, make a careful examination of the anicut, and report what alterations or additions may appear to him to be necessary for its future security.

3. The Government will await further reports regarding the effect of the heavy rains on Public Works in the Nellore District generally.

(True Extract.)

Colonel, R.E.,

Secretary to Government.

To the Superintending Engineer, 2nd Division.

- „ Chief Engineer for Irrigation.
- „ Board of Revenue.
- „ Controller of Public Works Accounts.
- „ Revenue Department.

Exd. E. C. Shunker.

*Read the following:-
Revenue Department*

*Proceedings of the Board of Revenue
dated 12 November 1870.*

Read the following:-

No. 2978.

*From G. Vans Agnew Esq.
Collector of Nellore
To J. Grose Esq.
Secy. Secretary to the
Board of Revenue
Madras*

*Sir,
The water in the Pennair
having now sufficiently subsided
to admit of an inspection of the
anicut, it is with much regret that
I have the honor to inform the Board
that the structure has been most
materially damaged by the recent
flood - the heaviest known since
1852 - and that its present condition
is so dangerous that the immediate,
or early occurrence of even a moderate
fresh would inevitably cause a
serious breach.*

*2. The Board are perhaps
aware that the rough stone apron
in rear of the front main wall is
retained by two parallel walls. &
But little of the rearmost retaining
wall*

wall remains, and where this has been destroyed, for the most part the rough stone apron up to the first retaining wall, has been swept away, or so broken up as to be useless as a support.

3. But the greatest injury is towards the north bank where for a considerable distance absolutely nothing remains but the bare main front wall itself. The probability is that had the flood remained at full height for six hours more this wall must have gone too, and the ancient would then have been most seriously breached.

4. Major Clary, the Range Officer, will lose no time in temporarily supporting the main front wall at this spot, and I have undertaken to employ the provisions of Act I of 1858, if necessary, in providing him with the requisite labor.

5. My unprofessional opinion is that had a few thousands of rupees been spent in giving the rough stone apron a smooth surface with a good coating of concrete, this lamentable damage would probably have been averted. I am not in the least surprised

surprised that the enormous friction of such a weight of water pushing over the bare stones of the apron should have displaced them.

6. Roughly Major Clary calculates the cost of repairing the damage at some Rs 2,500, but the Board must at the same time be prepared for the contingency of the almost total destruction of the ancient.

Nellore Collector's Office
7 November 1870

I have &c &c.

/s/ J. Vans Agnew
Collector

P.S. Since writing the above Major Clary has furnished me with the enclosed copies of his report on the subject to the Superintending Engineer, dated 4 instant and today.

/s/ J. Vans Agnew
Collector.

Submitted for the information
of Government.

/True Copies & Extract/

J. G. Cole
M. Secretary

To
The M. Secretary to Government, P.O.
with 2 original enclosures.

J. G. Cole
M. Secretary

N^o 233

P⁵ 3

Note by the Chief Engineer for Irrigation

On hearing semi-officially from Major Selay of the damage sustained by the Pinnai-Aricut at Vellore, instructions were sent to that office both by telegraph and in writing, regarding the measures which appeared to be necessary for the prevention of further damage.

2. Since then I have received a later report dated 14th instant from Major Selay by which time the repairs had made good progress, and the risk of a breach from a moderate fresh averted.

3. It is my intention to visit Vellore at the end of this month, when such further instructions as may be necessary will be given to the Executive Engineer.

Fort St George 3 Vundulimala Major R.R.
18 November 1870 3 Chief Engineer for Irrigation.

The Secretary to Govt P. W. Dept.

h. m.

Transferment the
Public work Dept

Mr. Selay

15 Nov 1870

18 Nov 1870

Proceedings of the
Board of Revenue

Dated 12 Nov 1870

18 Nov 1870

Amical

Pinnai-Aricut - in
Vellore dt. - letter from
the, regarding serious
damage done to, by
late floods, and under
supervision of Major Selay's
reports thereon, submitted
to Government for their
information.

18 Nov 1870

18 Nov 1870

18 Nov 1870

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Sir, I have the honor to acknowledge

the

Ms. A. 9.2.5.14.14.170

the portions most in danger being first attended to. I have more than 400 workpeople, & others are daily coming in.

3. The highest point reached by the water was 21-9 above true bed of river, in front of Sukat, & 14 in rear. From close observation during the rise of the river, I am of opinion, that the injury commenced at the tail of the Apron, about 200 yards South of the North Under-shield, ~~and~~ gradually working backwards, at the same time some large blocks were lifted from between the 1st & 2nd Retaining walls, in several other places.

4. In framing the Estimate for the permanent repair of the work, I propose the addition of a third Retaining wall, at the tail of the present apron, the crest of the wall

to be 1 yard below the true bed of the river below Sukat. I would also suggest all interstices being filled with good concrete, so as to reduce friction to a minimum.

5. Your instructions regarding the increased size of the blocks of stone to be used, and on all other points, shall have due attention.

6. I anticipate some difficulty in laying down the Tramway, & procuring Trucks ~~very~~ as our Workshops are closed, and all the skilled & well trained labour has been dispersed but steps are being taken to build Trucks ~~very~~.

7. We have on hand rails for Tramway, & wheels axles ~~very~~ for Trucks, and about 5000 Cuyars of stone with which to make a commencement.

I

I have the honor to be
 Sir
 Your most obedient
 Alex. D. Campbell
 Executive Engineer 1st or
 Bellare Range

14th November 1870

The Chief Engineer
 for Bellare Range
 1st or Bellare Range
 No 222 of 10th
 Bellare Range
 14th November 1870
 3055
 14th November 1870
 10th

No 202
 From The Executive Engineer 1st or Bellare Range
 To The Superintending Engineer
 2nd Division

Sir
 With reference to my Telegram
 of the 21st Instant, I have the honor to
 report, that rain set in on the 19th and lasted
 with little intermission, till the morning
 of Monday the 24th Instant.

The greatest fall in twenty four hours,
 was between 7 o'clock A.M. on the 20th, and
 7 o'clock on the 21st, when 8-10 inches was
 gauged; the total rain fall from 1st January
 up to date, is 41.75 inches, against 30.16 inches
 the average of the last 10 years.

The highest water mark in front of
 "or 2 1/2" upon the Head Sluice was 18 1/2 on the 21st instant.
 Quaint under.
 Sluice floor. The Telegraph Post in the bed of the
 river, was carried away, on the 21st instant
 and direct telegraph communication with
 the Northern stations cut off. No post.

from the North was received from 21st up to 24th Instant.

The sluice appears perfectly sound; three shutters in Auxiliary Head Sluice were broken and one in the old Head Sluice which prevented our regulating the quantity of water, in the main channel which sometimes had as much 11 feet in it.

A small breach occurred in the right bank of the Surrafully main channel, near the 3^d Aqueduct, caused by the rush of water, from the Nellore tank, and outside drainage, but I am happy to say, the breach is small and of no consequence.

The Nellore tank was in some danger at one time, the water had risen to full tank level, (Lower Bull's head) when a sinking of the Rementment suddenly took place, at the site of an old sluice, opposite to the Rajah's Bungalow. Luckily there was a break in the rain, and the water rose no higher, I therefore lost no time in examining the cause of the slip & found

a large hollow immediately in rear of the Rementment, which, had the water risen another foot, or had there been any wind, must I think have led to a terrible Catastrophe. I at once set Mr. Plumb to work, and aided in labour and materials, by the Tahildar, by night fall the danger was averted and the repair completed on Sunday morning.

Mr. Plumb was constantly on the work, and I inspected it three times during the day. The South River Embankment has suffered considerably, but I am unable at present to say to what extent.

Several injuries are reported to work in the Gatta but none of a serious nature, also four small breaches in the Vakkur Channel recently completed. The masonry work at Kanapartipai and at Lijon were very severely tried, and are reported to have stood well.

I was at Surrafully on the 19th & 20th, and left on the 21st, up to which time, all was safe, and the new Rementment standing well.

I have since received a report from the Overseer, St. Morogodo, that a slip of turf and earth in rear of tank No. 8, occurred on the morning of the 21st. Shortly after I left, caused by the very heavy rain of the previous night, but the Overseer appears to have taken prompt and judicious measures for the security of the bund.

Several small tanks have breached, but no particulars have yet reached me. I have called on Mr. Lyon and the various Overseers, to send in a report with rough Estimates of all damage done in their respective charges, to be followed by detailed Estimates, these will be submitted to you in due course.

I must here observe that while the river was at its highest, on the 21st instant there was cause of great alarm, lest the water should break in and inundate the town, the water was more than a yard of the Road way, leading to the Anicut, and I would urge the necessity of early sanction

being obtained for the continuation of the Embankment from the Dispensary to the Anicut, the Plans and Estimates for which, I had the honor to submit some months back.

As Mr. Lyon's work on the Surveying Project for the present is at a stand still I have deputed him to make a thorough inspection of the masonry works, on the Great Northern Road, as I am apprehensive that injury must have been sustained by some which have long been in a dilapidated state, as I have more than once reported.

I have &c
/ Signed / A. D. Flay Major
Executive Engineer P. & N. Bellu Pany.

No 106
I forwarded to the Chief Engineer for Irrigation, for information. The Estimate for the River Embankment from the Dispensary to the Anicut, referred to in the foregoing letter will

No 269

No 3025-12 (Overleaf)

Forwarded copy
of Major Clayton's
on the rainfall &
rise of water in the
Penna at present state
of works in the
and observe that the
estimate for minor im-
provements given
by the Engineer to assist
with the submittal
of the

Recd 28 Jan 1870
Madras

To the Chief Eng^r
for the
Penna

20 Jan
The Chief Eng^r
for the
Penna

Public Works Department
No 3025
Proceedings of the Madras Government
Under date the 14th Decr 70
Read the following
Proceedings of the Board of Rev^{rs} / H. E. No Dated 12th November 1870
From The Chief Engineer for Irrigation / 233 - 18th - 1870

The Government
learn with regret from
these papers that heavy
rains in the Bellary
District, and freshes in
the Penna, have occa-
sioned much anxiety
regarding the safety of
some of the most im-
portant irrigation works
in the District and
that the Penna anicut
was so much injured
as to have been in
serious danger of breaching

His

His Excellency in Council
is however glad to know
that prompt measures
were adopted for the
repair of this latter work
and that the more emer-
gent repairs had by
the middle of ^{last} ~~the current~~
month made good
progress.

2. The Chief Engineer
for Irrigation will when
visiting Sellore make
a careful examination
of the anicut and
report what alterations
or additions may appear
to him to be necessary
for its future security.

3. The Government
will await further
reports

12¹¹
reports regarding the
effect of the heavy rains
on Public works in
the Sellore District
generally.

14¹¹ 18/11/70

CS

45
To
1. The Sup^r Engr. 2^d Divⁿ
3. Chief Engr. Jondryga
5. Bd of Rev^s
6. Engr. Secy
Rec. Secy

Recd 2 17/12/70

(3)

Op. 4677 & 4638

Govt. of 1870 Madras.

PUBLIC WORKS.

To The Superintending Engineer
2nd Division

Date

Recd.

2

G. O. 14th Dec 70, No. 3025.

Nos. 267 @ 269

Burrain Ancient. Repair orders

papers relating to the
damages sustained to the
Burrain Ancient in the Nellore
district by the recent floods.