M.R.O. 14-5,450—22-10-25.

MADRAS RECORD OFFICE.

Government of Madras.

Revenue **DEPARTMENT.**

G.O. No. 3088 — Press Mis.

309.310

Dated 14 — 11 — 1866.

Not to be folded or roughly handled

Proceedings of the Madras Government, Revenue Department,
14th November 1866.

No. 309. Read the following Proceedings of the Madras Government in the Public Works Department:—

Expressing regret at the occurrence of another serious breach in the Madras Irrigation and Canal Company's Anicut at Soonkasala, but hoping that measures will be taken for securing the work as soon as the state of the river will admit, &c. } (Here enter 31st October 1866, No. 3,464.)

No. 310. ORDER THEREON, 14th November 1866, No. 3,088.

Miscellaneous. Communicated to the Board of Revenue.

(True Extract.)

(Signed) J. D. SIM,
Secretary to Government.

To the Board of Revenue, with Proceedings Public Works Department, No. 3,464.

Exd. S. T. Augustin.

No. 708. Read the following letter from the Consulting Engineer for Irrigation and Canal Company, to the Secretary to Government, Department Public Works, dated Madras, 20th October 1866, No. 80 :—

1. I have the honor to forward, for the information of Government, a letter, No. 276 of the 16th instant, from the Agent and Manager Madras Irrigation and Canal Company, with its accompaniments from the Executive Engineer, Hindry Division, and Chief Engineer, reporting the failure of the Soonkasala Anicut, at the site of the old breach, on the nights of the 2nd and 3rd instant.

1 Letter in original from Agent, No. 276, dated 16th instant.

2. The fresh, which has occasioned this damage, commenced on the 1st instant, rose to 6 feet on the crest of the anicut by the evening of the 2nd, and to 7¼ feet somewhat later, and the river then fell rapidly, for there were only 4½ feet of water going over the dam on the morning of the 3rd.

3. The damage would be unimportant, were it not that considerable difficulty and expense will probably be occasioned in supplying the 1,400 or 1,500 acres of irrigation of the current season, for the fresh has washed away only that part of the wall and apron below it, the removal of which, with a view to the re-construction of the anicut from the rock upwards, was sanctioned in the Order of Government as per margin.* The Chief Engineer, in his special report, discusses two plans for cutting off the stream from the breach. One by bunding off the part of the river leading to the south branch altogether, and sending the water over the north branch. The other by constructing a rubble stone ring dam of 100 yards radius immediately in front of the breach. The cost of either method is estimated at Rupees 4,000, and Mr. Latham considers the latter the safer plan. It appears to me, however, that it will hardly be possible to do anything until the river has fallen considerably, for immediately above the breach there was a great mass of rubble stone, and if that has been carried away, it seems clear that similar material would not stand until the velocity and volume of the water passing through the breach have much diminished.

* Proceedings Madras Government, No. 3,253, dated 12th October 1866.

4. From a telegram received from the Chief Engineer yesterday, however, it would appear that the upper rubble, just referred to, partly remains, and, if this should prove to be the case, it is possible that the temporary closing of the breach may be easily effected, though, as the same telegram says, that, the breach seems quite cut down, and that the fresh was still over crest, the actual circumstances can hardly be ascertained until the place becomes accessible.

5. If the mass of rubble stone above and below the anicut be not washed away to a level much below the sill of the under-sluces, it will be practicable, so soon as the quantity of water in the river diminishes, and this may be expected to be the case in the course of a few days, to construct such a ring bund as the Chief Engineer proposes, by keeping the sluices open for a short time, and, in order that this may be done without much risk to the cultivation under the canal, I have suggested that the supply to the 1st section of the latter be increased while the fresh continues, so that it may hold a reserve for the cultivation and town supply,

during the few days that it will be desirable and economical to allow the level of the water above the anicut to be depressed to as great an extent as the under-sluices can lower it. The partly built bridge in the 17th mile will, as heretofore, enable the water to be held up at the lower end of the 1st section, and, if a depth of 10 feet can be retained there without risk to the banks above, the water will stand up the canal after the supply at the head-sluice ceases for a length of 12 or 13 miles, and the contents of this length of canal will be sufficient to meet all demands for a considerable time, as the total supply required is not more than 81,000 cubic yards a day or, allowing for leakage, say 1,20,000 cubic yards.

6. The Toombuddra registers in this Office extend back to the year 1858, but they are too incomplete and imperfect to give a correct idea of the character of the freshes. The gauges are at Humpaságur, Walavapore, Soonkasala, and Kurnool, and apparently 14 feet 5 inches on the Kurnool register are equivalent to 6 feet 2 inches on the crest of the Soonkasala Anicut. The Kurnool registers are for the years 1861 to 1865, and the highest October fresh recorded was on the 14th and 15th October 1862, when the river was at 10 feet 9 inches on that register. The fresh of this month in the current year is the highest that has occurred since the anicut was built.

7. At present it does not seem to be necessary to sanction an advance for the closing of the breach. There is a considerable balance of former sanctions in connection with the breach, and as soon as the state of the river enables the Chief Engineer to decide on the nature and extent of the work to be done, it will be better that he should then forward an estimate for sanction.

From the Agent and Manager Madras Irrigation and Canal Company, to the Consulting Engineer Madras Irrigation and Canal Company, dated Madras, 16th October 1866, No. 276.

1. A high flood, very unexpected at this season, has unfortunately occasioned serious damage to the anicut at Soonkasala.

Dated 5th October 1866.
Do. 11th do. "

2. I transmit to you copy of Mr. Cotton's report of the occurrence, and also copy of a special report from Mr. Latham on the repairs which he proposes to execute.

3. I expect to receive from him a detailed estimate of the probable outlay, which I will forward to you so soon as it reaches me.

MADRAS IRRIGATION AND CANAL COMPANY.

Hindry Division.

1. The river remained at about the same height as last week (viz., 1 foot 3 inches depth on anicut) up to the evening of the 1st October; on the morning of the 2nd the depth on anicut was 3 feet, it increased to 6 feet by evening, and during the night to 7 feet 3 inches (this was discovered by levels taken of the flood mark). On the next morning (3rd) it had fallen to 4 feet 6 inches, and on the morning of the 5th to 2 feet 3 inches. At daylight of the 3rd it was discovered that the anicut had breached during the night; the breach being in the same place as that of 1864. The river is too high to allow of a close examination of the breach, but from observation from the shore, the two side walls of the apron to the breach, appear to be undisturbed, the breach being confined to the space between them. A high fresh in this month is most unusual, the highest generally occurs in the beginning of September, it rose also a foot higher than during any previous season since the construction of the anicuts. Arrangements are being made to secure labor, and have every thing in readiness for closing the breach as soon as the river falls sufficiently to allow of our commencing operations.

2. The depth of water in the canal at head-sluice has been kept to 4 feet 6 inches; there has been a considerable flow of water into the canal from local drainage, owing to heavy rains during the week. The sluices in calingulahs have been used to regulate the quantity in the canal.

3. No new applications for water have been received.

4. The Statement for irrigation in 1st section has been sent in.

(Signed) H. C. COTTON,
Executive Engineer, Hindry Division.

5th October 1866.

Special report on the proposed repairs of breach of October 2nd, 1866, *in the Soonkasala Anicut.*

The most recent section across the breach is one taken by Mr. Gordon in 1861, before it was first closed up. It has never since been laid bare; and if a section was taken by sounding, while the water was pouring through in 1863 or 1864, it must have been very rough, and no record remains of it. Mr. Gordon's section shows the rock bottom 22 feet below the crest of the anicut for a distance of 20 feet. It then rises irregularly till 3 feet higher, the gap is 50 feet wide. At 18 feet below the crest it is its full width. It is nearly certain that the rocky bottom has somewhat broken up since this time.

So far as can be ascertained the first breach was closed by turning the whole of the river water through the north anicut, which was not then closed. This was effected by a bank from the west end of the anicut island, and must have been a third of a mile long, across a bed now containing several channels, 15 feet below the anicut crest.

When the second breach occurred, the north anicut was already closed, and some irrigation was going on. It was attempted to stop the water from flowing to the breach, by a bund across its course below its divergence from the channel of water flowing to the head and under-sluices. The bank was constructed from shallow ground up to each side of the water, which had then fallen to about 9 or 10 feet below the anicut crest; but neither mud, stones, nor baskets availed to stop the one and half million cubic yards an hour, then probably flowing through the narrow channel. When the water had further fallen, so much that all our revenue this year would be jeopardized should it be allowed again, a rubble stone heap was thrown successfully in a semi-circle above the breach, the centre line of bank having about 190 feet radius.

For the present year it would be possible to turn the water down the north branch, and over the north anicut by a bank of mud bags and earth. A bank protected by mud bags of date-mat, as in the margin, would bear an overfall of one foot clear head for several days, with a little attention. In order that there may be no overfall until the bank be within one foot of the surface it would be necessary to have 1,300 feet run of bank of the above section, the rest being raised

clear above water. Now there is a hard shoal parallel to the anicut and one-third of a mile above it, which is 1,500 feet long, and about one to two feet below the crest, with about 700 feet of shallow water 5 to 6 feet below crest between it and the north side, and 250 feet of deep water 16 feet below crest, between it and the south bank of the river. To have closed the deep part would be no difficult matter if the water remained pretty nearly level with the anicut crest for a fortnight. But if the water should fall to 3 feet below crest, before the deep part were filled up, all would be carried away. This would have to be a strong bank, and would cost Rupees 2,000, including protecting the end on the shoal with bags. The 700 feet of shallow water might then be closed, supposing the water not to fall, for say 700 Rupees ; and lastly, as soon as the water fell below head sluice sill with the under-sluice closed, the shoal water would be brought up horizontally by sand bags until the water was stopped. A bag of double date-mat costs about 4 Annas 4 Pies at Soonkasala, and contains five and a half cubic feet, which if wet weigh near 550 lbs. If filled dry, and pressed as much as safe before closing, they would compress in the water to about seven to the cubic yard. This bank would have cost a another 1,000 Rupees. The total would amount to Rupees 4,000 if successful ; but the risks would be very great, depending on labor and the fluctuations of the river in an extraordinary season ; and if the bank were finished it would still be necessary to make a half ring dam round the breach, and until these were finished all irrigation would be stopped.

	A.	P.
2 Mats	4	0
Sewing at 24 a day for 4 Annas ...	0	2
	4	2

The safer way seems to be to make a half circle dam of rubble stone above the breach at once. There we are independent of rise or fall of the water so far as the safety of the work is concerned, and only find work the more easy as water falls and its completion is more required.

A dam of 100 yards radius will measure 240 yards length. Supposing the breach* to average 8 yards depth below the crest of the anicut, and that it is necessary to stop it as soon as the water falls 9 feet below the crest, I reckon that, allowing for pounding up below the anicut to the extent of 9 feet, there would be a discharge of some one and three-fourths millions per hour. The breach is not 24 feet deep for that breadth, and therefore this calculation is on the safe side : and we may say that the whole discharge would pass over a weir 240 yards long with three feet over-fall ; probably above half would go through, and not over the ring of rubble as it was brought gradually up. Judging of the average bed of the river from that shown in the section of the anicut, I will suppose that of this 240 yards run—

* 66 feet broad.

For 15 the rock will be above water.
69 there will be one yard depth of water.
96 ,, two ,, ,,
38 ,, three ,, ,,
22 ,, five ,, ,,

So that the whole may probably be done for Rupees 1,000 (4,000 cubic yards at 4 Annas), to which Rupees 2,000 is a reasonable allowance for construction and deterioration of staging, earthing the front of dam, and making an earthen bank above it, all duly secured by bags. Let us call the total Rupees 4,000.

Our staging must be gradually erected and secured by rubble deposit as we progress. The particular mode of securing it must depend entirely on the pace the water goes down. I propose to commence operations as soon as the water has fallen 3 feet below the crest, (which at 2 inches a day will be in ten days), but freshes are likely to come down till the end of October. A fresh prevents work ; by increasing the flow through the breach, so much as to flood all the rock and stone below the anicut and prevent its collection.

KURNOOL,
11*th October* 1866.

(Signed) J. H. LATHAM,
Provisional Chief Engineer.

(True Copies.)

(Signed) F. H. HENSLOWE,
Agent and Manager.

Proceedings of the Madras Government, Public Works Department,
31st October 1866.

No. 709. ORDER THEREON, 31st October 1866, No. 3,464.

CIVIL WORKS, No. 130.

The Government regret to learn the occurrence of another serious breach in the Madras Irrigation and Canal Company's Anicut at Soonkasala, but they hope that measures will be taken for securing the work as soon as the state of the river will admit, and for retaining a sufficient supply of water for the lands which are dependant upon the Company's Canal for irrigation.

(True Extract.)

Colonel, R. E.,
Secretary to Government.

Consulting Engineer for Irrigation and Canal Company.
Manager for do. do.
Revenue Department.

Exd. S. T. Augustin.

Revenue 1866. Despat.
Pro: of Govt Bay November
No. 3891.

Proceedings in the
S.W. Despatch —

Dated 31st Octr.
Received 1st. Novr. 66.
No. 3464.

No. 3088.

Communicated
to the Board of Reve-
-nue

14th. Novr 66.

Expressing regret at the occurrence of another serious breach in the Madras Irrign and Canal Co's Anicut at Coonkaula, but hoping that measures will be taken for securing the work as soon as the state of the river will admit, &c.a. —
No. 3088-14th Novr.

We therefore L

No. 3464 Dated 13th Dec. with Pro. No. 3464 Despt 14th.

A 309 & 310