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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

Revenue DEPARTMENT

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V.S.M

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

19th May 1877, No. 104 W.

Buildings and Roads.

Civil Works.

Read the following paper :—

No. 200. From Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to the Chief Engineer, Public Works Department, Buildings and Roads, dated St. Thomas' Mount, 30th April 1877, No. 367.

I HAVE the honor to report that agreeably to G.O. No. 1,095 of 31st March, I instructed the Range Officers, Sirulur and Chingleput, to prepare materials for constructing groynes at Ennore and Covelong, and to cut channels from the backwaters to H.W.M. on the beach, where measures were to be taken to secure the cuts from the action of the surf.

2. The site of the cut at Ennore was laid down in G.O. No. 1,095. I chose that at Covelong in the deepest part of the bay caused by the reef of rocks to southward and the narrowest line of beach.

3. The groyne was to consist of casuarina stakes driven into the sand as far as 4 feet at low water if possible; to be sheeted with palmyra slabs, mats, or any other materials procurable to protect the sand bags from the surf.

4. I hoped to have found good progress made by the 11th April in time for the new moon spring tides, but very little had been done at Ennore and no effort was made to open the mouth; the channel inside is of great length. I will report separately on Ennore, which I have not yet seen; Lieutenant Smith's reports are not easy to understand, but the sea has burst in and thrown in some water.

5. On the 13th I reached Covelong for the second time. I found that Mr. Donaghue had altered the line which I had laid out so as to place the mouth farther north, the inner end being in the same place; he was induced to do this by observing that the water had apparently deepened from the action of the groyne at the more northerly point.

6. As the tide of the 13th fell I ran the channel out to sea and put up a fresh barrier, but very slight, at low water mark. It stood for some time, but not long enough to obtain a rush, and the surf came in in small volumes. On the 14th I made the cut in the original line straight, and by the same measures obtained another flow of surf, but it threw up laminæ of sand and gradually closed again. The water on the gauge inside was raised $1\frac{1}{2}$ inches, but this and half an inch more were lost during the next neap tides.

7. I felt, however, very sanguine that, if I could construct a barrier strong enough to resist the rising tide and blow it up a little before H.W., I should obtain a rush which would clear the bar for a longer period of time.

8. I therefore obtained by the kind assistance of the Inspector-General of Ordnance and Magazines twenty cases, each containing 2 lbs. of gun powder, and borrowed an electric battery from the General Superintendent of Public Works Workshops; there was some failure in its action and I could not fire my charges, but hope to try again next springs.

9. I am encouraged to try this by the action that took place; the southern half of the barrier erected across the mouth at H.W.M. was turned at right angles to seaward as far as L.W.M., so as to make a left bank to the new channel, the groyne being its right; the powder was laid across the mouth at L.W.M. and a barrier of sand bags was erected over the charges.

10. As I was sure that even in one tide a beach would be thrown up against the barrier, I placed some cases outside the barrier, sinking them with a sand bag each; these were, as I expected, completely buried by the surf.

11. When the tide was nearly at its height I attempted to fire the charges; but, as I said above, failed to procure any current.

12. The sea rose and burst through the slight screen on the left, cut a channel down to L.W.M. immediately, and raised the water on the gauge 6 inches very rapidly. The ebb was in the middle of the night, and another tide was making when I visited the bar in the morning; at its highest the water had risen 11 inches. At low water I found the channel through the site of the screen was still good, but some slope had been formed by the surf washing over the sand bag barrier.

13. I had the powder cases all removed; they were apparently in very good order; I intended to have taken away the barrier, but Mr. Donaghue suggested that it was the cause of the channel round its head. I could not understand its action, but thinking the experiment worth a trial allowed him to carry out his proposal to strengthen it, and see the effect for a day or two.

14. This has been done and I am inclined to agree with Mr. Donaghue now in thinking that it has done good. I enclose cross sections showing the condition of the channel at the points marked on plan; from these it would appear as if in some way this groyne running north from the main groyne does keep the channel deeper.

15. I propose, unless I hear from you to the contrary, to lay charges of powder in this site again, if the sea at neaps should close it as I fear it will do; my idea being that if we can fill the backwater so that an efflux should occur at ebb, the groyne will enable us to keep a channel permanently open.

16. The cost of operations at Covelong has been Rupees 2,333-1-4, and about Rupees 10 a day will be spent in removing silt at the entrance into the backwater, &c. There are still some additional charges for the supplies of powder, acids, &c.; and on the other hand some money will be recovered by the sale of the materials of the groyne, which I presume must be removed before the north-east monsoon carries away the river mouth.

17. I enclose also an estimate for more permanent work at the reef amounting to Rupees 3,320. This is, I think, excessive; but, as I cannot drive a borer into the hard sand, I cannot find how far the reef underlies it, and have allowed liberally for stone sinking. I hope saving may be effected in quantity and in rate by obtaining water carriage through our present operations.

18. From Lieutenant Smither's report and observation at Covelong, it is very clear that I was wrong in supposing that the groyne would shelter an opening *very near* to itself; it may perhaps with an impervious work, but sand passes through and there is some wash which makes a small beach.

19. The cut for permanent use at Covelong should therefore probably be made very near the temporary work; it is the best for the river flow; the flood and monsoon action from N.E. will probably drive it south as far as the reef, which appears to be the south limit of the mouth, and the deep water near will probably last longer there, while the groyne will protect the channel from blown sand, &c.

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20. I would point out that my operations were intended to be preparatory to the monsoon floods, not to be carried out in dry weather like this; that we have both at Ennore and Covelong long channels and backwaters all which absorb an immense quantity of water and afford a large surface for evaporation.

21. On the other hand the Cooum basin is small; there is a stone groyne to the south of it which would afford base for a jetty of stakes, &c. If the mouth were suddenly opened in the way I propose, I am very hopeful that I could fill the backwater to L.W.M. in two tides. Its want of depth is very much against any scouring action at ebb, but probably very great benefit would accrue from even the admission of water in so large a volume.

No. 201. ORDER THEREON, 19th May 1877, No. 104 W.

THE Governor in Council regrets to hear of the very moderate success of these operations, and considers that until the flood-discharges from heavy rain take place it is doubtful if any effectual action to keep the bars open can be taken, and therefore withholds sanction to any further expenditure on the work for the present.

(True Extract.)

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

To the Superintending Engineer, Chingleput.
" Examiner of Public Works Accounts.
" Revenue Department.

Encl. E. C. Shunker.

Spurs Copies

Revenue Department

No 2726

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of 1877 Madras.

PUBLIC WORKS.

To

THE SUPERINTENDING ENGINEER,

CHINGLEPUT.

&c., &c., &c.

Dated May 19th.

Issued

Recd.

1st June 1877

Encl.

G. O., 19th May 1877, No. 104 W.

MAY.

Nos. 200-201.

No 3127

Communicated to the
Board of Revenue

4th June 1877.

Cavelong Bar, Chingleput District. — With-
holding sanction for the Agent to any
further expenditure on the work of opening
the —.

With orders

11-7-77 H. H. of Revenue No 2726-77

11-7-77