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MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Revenue DEPARTMENT

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Dated 23-3-1875 196 .

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No. 421. Read the following papers:—

No. 83-E.

MEMORANDUM.

In submitting, for the information and orders of Government, the accompanying extract from notes of inspection in the Salem District, the Chief Engineer for Irrigation requests the confirmation of the instructions given to the District Engineer to undertake the work therein noticed as urgently requisite for the prevention of further destruction of property at Periapett, a township of Vaniembady, and to employ a Surveyor for the preparation of a survey of the river including the two islands and a mile or two of the bed and banks above and below them.

2. It will be requisite for the Government to determine from what funds the present comparatively small outlay, and, if it be considered that the permanent works indicated as necessary should be undertaken, the further much larger outlay, should be met. As far as the undersigned can judge whatever funds may be capable of appropriation for the benefit of towns, aided by a grant under Agricultural Miscellaneous, would seem to be the proper arrangement.

Camp at Vaniembady, *20th January* 1875. (Signed) JOHN MULLINS, Lieut.-Col., R.E., *Chief Engineer for Irrigation.*

Extracts from Notes of Inspection in the Salem District.

* * * *

Palar river at and near Vaniembady, 18th January.

The freshes of October 1874 were of unusual height, and the result has been, as the Government are aware, the destruction of a large amount of property in houses and valuable cocoanut plantations or garden lands in Vaniembady, Rahimanpett, and the detached township of Periapett. Moreover as regards the latter place particularly the destruction will certainly be continued when the next freshes occur unless immediate measures be taken to avert the danger. Many of the houses destroyed and of those now threatened with destruction were or are fine substantial structures worth a good deal of money. It is not therefore a matter of a cluster of mud huts which might be rebuilt at a small expense in some safer locality, and to provide for which a very small sum would suffice.

The atlas sheet No. 78 will enable the following description to be the more readily understood, and there is no larger scale survey at present available the better to exemplify the lamentable effects of the flood, but as one will be needed to enable effective works to be decided upon, the District Engineer has been authorized at once to engage a Surveyor and Lascars, and to lay down upon the Revenue Survey maps the present state of the river.

Scale 16 inches to the mile.

Nearly two miles above the fort of Vaniembady a channel taking off on the left bank of the main stream will be seen; probably the enlargement of this has been going on for years, but at any rate it is now the largest and deepest branch of the river. Between this and the right branch there is a large island, towards the eastern end of which there is a village marked Rymanpettah, which is really Periapett, Rahimanpett being on the other island. West of Periapett a sharp bend of the river to the northward is shown, and there must have always been a tendency here to cut away towards the south and east. Now the river channel has gone beyond a good alignment, and in so doing has swept away a large part of Periapett and a great extent of cocoanut gardens, and occupies a channel entirely clear, and to the right, of its former bed for much of its course, the bend northwards being now below the town, and this is succeeded by an abrupt bend to the east. The head of the channel passing to the south of this upper island is

greatly silted up, and much of the head of the island has been washed away. Large quantities of water passed down the branch between the two islands, and did a good deal of mischief; below the lower end of the upper island the united waters eroded the right bank greatly in several places at one of which the scarp has been brought close to some houses, and is at no great distance from the Sub-Magistrate's Cutcherry. On the right lower channel to the south-east of Vaniembady there was a three-arch bridge on the road leading from the railway station to the town; this was completely destroyed in the flood of May 1874. Good floorings and a lower apron would have saved it, as undermining from scour was evidently the cause of its fall. With the exception of a few unusually high places, both islands appear to have been submerged by the flood, and it is not to be wondered at that the inhabitants felt their position to be eminently precarious, for with the one bridge gone there were no means of escape left. The evidence of the sad effects of the flood upon property is still very patent, the beds of the rivers being strewed with cocoanut trees in all directions, and the half-washed away houses of Periapett on the river brink, with those dismantled close by to save the roof timber, &c., presenting a scene of great desolation.

The most pressing work to be done is the prevention of further erosion on the south or right bank of the river at Periapett. This can, it is thought, be effectually done if taken in hand at once.

First by laying down at such a distance from the foot of the scarp as will admit of a new slope of 2 to 1 being given to the bank, a line of durbah or nanel grass rollers made in the Tanjore* way, placed in a regular curve, bedded as low as possible in the sand, and pegged down with long stakes driven 4 or 5 feet into the bed. This line of rollers will form the toe of the slope, the top of which should be so far away from the top edge of the scarped bank as to allow of a regularly and flatly curved alignment. The slope and filling in should then be formed of the best soil available in the neighbourhood, and it must contain a good deal of clay; the filling in to be carried up from the bottom and over the whole width from scarp to face in 4 inch layers watered and well-rammed with heavy rammers; the slope is to be revetted with nanel revetment formed of rolls pegged† down with the long ends placed in the mass of the earth and between each two layers. Afterwards the facing is to be watered and kept quite moist until it is clothed with a well established crop of growing nanel. As a further security, it will be desirable if practicable to place two more lines of durbah rollers outside the first roller forming the toe of the slope, and similarly staked down, or an apron of rough stone three yards wide and two feet deep would be an effective substitute, if sufficient nanel for the rollers cannot be obtained.

* See description given in memorandum on use of nanel.

† Small thin pegs 8 or 9 inches long.

The new bank should extend from the upper end of the small cocoanut tope immediately above this pettah to a point some yards below the last house near the river.

Second a plantation of nanel should be at once formed commencing at a bush on the edge of the right bank at about one-third of a mile above the pettah, starting with a width of say three yards and gradually increasing the width, with a regular and even curve for the outer edge, until opposite the pettah this width will probably be 25 yards at least. This plantation to be carried on in front and beyond the new bank until it reaches a point at which the set of the river has passed to the northwards. There is a shallow stream in the river, and if the nanel be now planted it will probably thrive.

Third for the protection of the nanel plantation and the diminution of the current along the right bank, a set of cocoanut horse groynes (vaganies) should be constructed. Their direction* should be not less obtuse than 135 degrees with the axis of the current which here may be deemed to be parallel with the line of the bank, and their length should be such as to extend to two-thirds of the width of the nanel plantation; if placed at 75 yards intervals they will probably be fully effective. It is doubtful whether bamboo thorn tatties will be available for fastening upon them, and this is the best material, as the current is by them materially checked, yet not so much so as to cause scour. The Superintending Engineer, Tanjore, should be applied to

* Pointing down stream.

Proceedings of the Madras Government, Public Works Department,
17*th March* 1875.

for the services of three or four men well acquainted with the work to assist. Cocoanut leaf kects and brushwood will be the best substitutes for bamboo thorns.

It is believed that these simple and comparatively inexpensive works, which the District Engineer has been authorized to proceed with, will prevent any further damage from ordinary high freshes, but for the permanent safety of the towns works of much greater magnitude will be needed, and the details of these cannot be settled until the survey and levels with cross sections of the several branches at about quarter of a mile intervals have been completed. It will be necessary to establish regulating dams, with flood banks in connection therewith, for dividing flood waters approximately in proportion to the present capacity of the several channels into which the river is divided, and for preventing the Periapett branch from becoming year by year larger, and the silting up of the other branches still greater than it now is. As far as the future safety of Vaniembady and its townships is concerned this may with suitable arrangements be much more assured than was the case formerly, seeing that the total capacity of the river waterway has been greatly increased, and if each branch does its full share of the duty of carrying flood waters these will be likely to do much less harm. What is wanted is then—

1*st.*—A proper distribution by means of regulating dams, with embankments to prevent these being turned.

2*nd.*—The laying down of a proper alignment for each branch, and the working up to this by means of nanel plantations.

3*rd.*—The protection of the river banks throughout by nanel, peykarumbu, &c.

4*th.*—Probably some permanent groynes.

5*th.*—Such embankments as may be found to be requisite to prevent spill from one branch to another in the neighbourhood of the townships or elsewhere.

The discharge of the Venumpett and Nattrumpully streams, both of which fall into the Palar right branch below the head of the upper island, will need to be specially taken into account, the freshes in these streams being frequent and sometimes heavy.

The inhabitants of Periapett wish this branch of the river to be forced back into its old course, but this is manifestly economically impracticable, seeing that the old channel was one from which the river had naturally a tendency to depart; the limit of reformation here will be the retraction of the channel to the line which is the best for purposes of easy discharge without undue tendency to erosion.

(Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 422. ORDER THEREON, 17th March 1875, No. 740.

IRRIGATION, No. 27.

HIS EXCELLENCY the Governor in Council approves of and confirms the instructions given by the Chief Engineer for Irrigation to the District Engineer, Salem, for the immediate execution of the work emergently required for the protection of Periapett from further injury. The District Engineer should lose no time in submitting an estimate for the above work.

2. The survey required for determining the works to be designed for preventing future injury to Periapett and the other townships of Vaniembady should be completed as rapidly as possible, and thereafter the Chief Engineer for Irrigation will in communication with the District Engineer settle what the details are to be, with a view to the early preparation of the plans and estimates.

3. The Government entertain no doubt of their obligation to take prompt and adequate measures for the protection of this important town, but the work is one which cannot properly be charged to Agricultural funds, and these

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17th March 1875.

Proceedings will be communicated to the Financial Department for the determination of the source from which the money required is to be obtained. In the meantime current expenditure will be exhibited under "Advances, Miscellaneous Public Improvements."

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the District Engineer, Salem.
,, Chief Engineer for Irrigation.
,, Controller of Public Works Accounts.
,, Financial Department.
,, Revenue ,,
,, Accountant-General, Madras

Exd. E. C. Shunker,
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No 1047
Revenue Department
Govt. of {1875} Madras.

PUBLIC WORKS.

To

THE DISTRICT ENGINEER, SALEM,

&c., &c., &c.

Dated March 17th.

Recd. --a--23d Encl.

G O., 17th March 1875. No. 740.

MARCH.

Nos. 421-422

Periapett (*Salem District*).—Approving and confirming the instructions given by the Chief Engineer for Irrigation for the immediate execution of the work emergently required for the protection of — from further injury, and requesting the District Engineer to submit at once an estimate for the work, &c.

No 575
Comm.r Cotton
Board of Revenue

23d March 1875