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MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Revenue DEPARTMENT

G.O. No.

1455

B.P. No.

Press

Mis.

Dated

12.7.1875

196

Not to be folded or roughly handled

No. 450.

Read the

MEMO

In Proceedings Madras Government, 29th January 1875, No. 256, particulars were given of the damage to irrigation works in Tinnevely by the floods of the latter end of November. Among the works destroyed was the Yeral under-tunnel, which passes the drainage of a moderately large area of country under the north main channel from the Streeviguntum anicut. The destruction of this under-tunnel was occasioned, it was believed, by water entering at breaches in the river embankment, and by overflow from the Perunkulam surplus channel. The area*

* 92 square feet.

of waterway of the tunnel as built allowed a large increase on that† of the original design, but it was considered that in rebuilding it such further capacity as might be found to be required should be

† About 20 square feet, paragraph 19 of Note in Proceedings Madras Government, No. 1,498, 8th June 1874.

given, and accordingly, on the information previously given as to the area drained by it, the required dimensions were found to be about 165 square feet, and the design

No. 156, 17th January 1875.

submitted by the District Engineer was so far modified as to secure a waterway of

No. 191, 15th February 1875.

162½ square feet, capable of discharging, with a maximum velocity of 10 feet a second, 1,622½ cubic feet. Approval was given to the revised design in the memorandum

No. 380, 13th April 1875.

as per margin, and the tunnel has been nearly completed on an estimate of Rupees 9,450.

2. From the report made by the Assistant Engineer in charge of the District Engineer's Office, it now appears that the area of country drained through this under-tunnel is 11¼ instead* of 5 square miles, and it is not at all satisfactory that an

* 11¼ and 11½ in Mr. Hughes' letter, paragraph 5, 11½ in Mr. Grant's letter.

essential circumstance, which ought to

have been originally investigated completely, was not properly inquired into until after the reconstruction of the tunnel had so far advanced as to make any radical alteration of dimensions impracticable. It must be mentioned, however, that the fact that the area is so much larger than that formerly reported has been ascertained during the inquiry into the conditions of future safety of this part of the canal.

3. It has been explained in these later papers that the drainage after heavy falls of rain spreads over a wide extent of country, and that it may be assumed, therefore, that time will be available for its discharge. Probably then the dimensions allowed will suffice, if care be taken that the channel banks are of ample height to allow of a

12½ feet a second or a discharge of 2,000 cubic feet a second as a maximum equal to 6·6 inches from whole area drained.

head of 5¾ feet, and they will be certainly more than of sufficient height for this if they be made safe for the Perunkulam surplus.

4. With regard to the disposal of the Perunkulam surplus, it must be noticed, with reference to paragraph 4 of the Range Officer's letter, that it seems to be doubtful

whether there are natural facilities at the end of the Streeviguntum tank and by the Revenue Survey map to determine if it is feasible, it will be

10.40 square miles C = 45.

be passed into the river above the

26.16 square miles.

the surplus weir and sluices a short distance below the Yeral under-tunnel. When upland drainage is admitted to a canal or channel it is usually desirable to consider what difference between ordinary full supply level and maximum water level may be deemed admissible, and in the delta canals 2 feet has been fixed as the difference. If the channel banks in the present case will at present, or by moderate alterations, allow of the adoption of a similar difference, it will probably be convenient to so fix it because then a large part of the surplus will be got rid of by a weir requiring no regulation, whereas were the ordinary supply level not to be exceeded all discharge would need to be provided for by sluices, and these would require very careful attention. In ordinary seasons the discharge will not exceed one-third of the maximum, and if, therefore, one-half of the latter be provided for by a weir, and the other moiety by sluices, safety will be secured in a manner which will allow of the Conservancy Establishment having plenty of time to attend to the water levels and regulate the sluices accordingly, while only occasionally will it be necessary to allow the water in the channel to exceed its ordinary level.

5. The District Engineer should, therefore, arrange for discharging about 2,000 cubic feet a second over a weir having its crest at ordinary full supply level, and if 2 feet be the difference between this and maximum water level a weir 210 feet long will be needed. If also the tail water be assumed to be about flush with channel ordinary F. S. L., and if the sluice sills be flush with the bed of the channel, the velocity of discharge will be about $7\frac{1}{4}$ feet a second and the area of the sluice vents will be, say, 270 square feet and nine vents 5×6 will suffice. The details will have to be further considered by the District Engineer, the above particulars being intended to show in a general way how the subject should be dealt with.

6. The papers show clearly how necessary it is that the question of the disposal of the drainage from this considerable area should be treated comprehensively, and that the numerous tanks concerned should be put in order and provided with adequate escapes. Before the Revenue Survey Map was available the information needed was not readily accessible, but now there is nothing to prevent the irrigation works of this part of the taluq being made perfectly safe.

7. The Yeral under-tunnel will be rebuilt from repair funds; the extensive modification of the Perunkulam surplus works will be a capital charge against the Streeviguntum Anicut Project.

OOTACAMUND,
7th June 1875.

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

a part of this surplus out at the west end of the Streeviguntum tank and by the Revenue Survey map to determine if it is feasible, it will be

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

No. 451.

ORDER THEREON

IRRIGATION, No. 43.

sustained by the north main channel and safety have been investigated, no time being lost in providing adequately for the discharge of surplus, and for rendering all the tanks in the tract of country drained by the Perunkulam surplus channel perfectly safe.

2. Under the circumstances noticed in paragraphs 2 and 6 of the foregoing memorandum, the Government will refrain from commenting on the inadequate arrangements of the north main channel, but it is hoped that the lesson derived from the damage sustained will be made good use of, that the safety of the irrigation works of the district generally will be carefully provided for, and that the information obtainable from the Revenue Survey Maps will be turned to good account.

(True Extract.)

By order

Major, R.E.,

Jy. Joint Secretary to Government.

To the District Engineer, Tinnevely.
„ Chief Engineer for Irrigation.
„ Revenue Department.

Exd. S. T. Austin.
2 Spare Copies *will follow*

875, No. 1,745.

The papers submitted by the Officer-in-Chief Engineer throw further light on the causes of the extensive damage sustained by the north main channel and safety have been investigated, no time being lost in providing adequately for the discharge of surplus, and for rendering all the tanks in the tract of country drained by the Perunkulam surplus channel perfectly safe.

2. Under the circumstances noticed in paragraphs 2 and 6 of the foregoing memorandum, the Government will refrain from commenting on the inadequate arrangements of the north main channel, but it is hoped that the lesson derived from the damage sustained will be made good use of, that the safety of the irrigation works of the district generally will be carefully provided for, and that the information obtainable from the Revenue Survey Maps will be turned to good account.

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Rev. 1875: 2499

Sect. of 1875 Madras.

PUBLIC WORKS.

THE DISTRICT ENGINEER,

TINNEVELLY,

&c. &c. &c.

Dated June 21st.

Issued

Recd.

30th

Encl.

G. O., 21st June 1875, No. 1,745.

Dr. M. S.

JUNE

Nos. 450-451

N: 1455

Comm. to the
Boards of Revenue-

12 July/75. *AM*

Feral under tunnel, Tinnevely District.
Passing orders on memorandum of the
Officiating Chief Engineer for Irrigation on
the subject of the rebuilding of the

14. To the O. S. 2 of O. S. 17 July