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Government of Madras

Public Works DEPARTMENT

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*Proceedings of the Madras Government, Public Works Department,
28th July 1874.*

Read the following papers :—

No. 589. From the District Engineer, North Arcot, dated 25th June 1874,
No. 870.

No. 590. *Note by the Chief Engineer for Irrigation.*

The following tank estimates have been submitted by the District Engineer,
North Arcot :—

Tirupanamoor Tank, Estimate Rupees 6,730.

Ayacut area ...	...	...	...	...	...	...	Acres	344
„ revenue	...	...	...	...	...	...	Rupees	2,579
Average do.	...	...	...	...	...	...	„	2,414

No expenditure has been incurred on repairs in the last four years, nor for many years past.

The tank breached in 1872, the cause being the state of disrepair of the bund, which in parts was but little above the crest of the existing escape, 66 feet in length. The estimate provides for raising the bund to 7 feet above full tank level, lengthening the surplus weir to 100 feet, rebuilding the revetment and also a sluice, which was destroyed when the tank breached. The tank has a drainage basin of three square miles, and it receives the surplus of a tank above, the drainage basin of which, from the discharge of 944 cubic feet a second given, appears to be about two square miles. The maximum discharge from the whole basin of five square miles may then be taken at 1,650 cubic feet a second, instead of 2,114 cubic feet. The supply from the Palar being under control need not be allowed for, and the 400 cubic feet entered may be omitted. Then a depth of 3 feet on the surplus weir will rather more than suffice to dispose of a maximum flood, and, if a margin of $2\frac{1}{2}$ feet above this be allowed, it will be enough, and the bund may be made $5\frac{1}{2}$ feet above full tank level instead of 7 feet. This will reduce the estimate by about Rupees 1,000 and sanction may be given for Rupees 5,730, the items being—

	RS.
Raising and repairing the bund and rebuilding the revetment ...	4,032
Extending the surplus weir ...	668
Rebuilding sluice ...	1,030
	5,730

With regard to the sluice it may be noticed that the wings, as shown in the sections, are very slight; on that marked A B the mean thickness is about one-seventh of the height and on C D one-fifth. The front batter is just under one-twelfth, and were one-eighth allowed and the rear face built in steps, this alteration, with an increase of the base at A B from $6\frac{1}{2}$ to $7\frac{1}{2}$ feet, will make the wall sufficiently stable. One-half the thickness of concrete shown, or $1\frac{1}{2}$ feet, will suffice from 3 feet in rear of face wall to the rear retaining wall. The plug-hole should not be in line with the face wall, but at least 6 inches to the front of it.

Selery Tank, Estimate Rupees 490.

Ayacut area ...	...	...	...	...	...	...	Acres	30
„ revenue	...	...	...	...	...	...	Rupees	228
Average „	...	...	...	...	...	...	„	221

No expenditure has been incurred on repairs in the last four years.

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The tank breached in 1872; the estimate provides for repairing the bund, extending the existing simple form of escape to nearly three times its present length. As, however, the discharge per foot of length over rough stone escapes flush or nearly flush with the ground cannot safely be assumed to be more than 6½ cubic feet a second, it will be better to make this escape 133 feet instead of 99 feet in length. This will add 80 Rupees to the item for this work, and this amount may be deducted from the turfing which is nearly half the total of the District Engineer's estimate. The items will then be—

Repairing bund	...	...	...	...	...	...	...	...	Rs.
Turfing	...	...	...	...	...	...	...	...	168
Extending escape	...	...	...	...	...	...	...	...	148
Sundries, etc.	...	...	...	...	...	...	...	...	145
	...	...	...	...	...	...	...	...	29
Total...									490

Ayacut area...	Moram Tank, Estimate Rupees 1,260.	...	...	...	...	...	...	...	Acres	100
" revenue	...	...	...	...	...	...	...	...	Rupees	510
Average	...	...	...	...	...	...	...	...	"	394

No repairs are shown as having been carried out in the last four years, but the remarks on the west calingulah, or, as it would seem to be, surplus weir, indicate that some expenditure has been incurred. The estimate contains the following items:—

Improving west Calingulah	...	...	...	...	...	...	...	...	Rs.
Repairing south	...	...	...	...	...	...	...	...	940
" Bund	...	...	...	...	...	...	...	...	145
	...	...	...	...	...	...	...	...	175

Only one part of the bund is low; care should be taken that the wing-walls of the surplus weirs are of sufficient height, and that the south end of the south weir is not in danger of being turned. It seems not improbable that it would be economical to reconstruct the west weir on an improved cross section, with one or more vertical falls of 2 or 3 feet on to stone masonry. There is an abundance of material, but it may be difficult to so pack the rough stone as to secure stability. It may be hoped that the tank will be rendered so efficient as to secure the ayacut revenue, for the acreage is low compared with the catchment basin:—

Ayacut area	Puthramathy Cainenareddy Tank, Estimate Rupees 1,040.	...	...	...	...	...	...	...	Acres	42
" revenue	...	...	...	...	...	...	...	...	Rupees	306
Average	...	...	...	...	...	...	...	...	"	225

No repairs have been carried out in the preceding four years. The tank has no escape, and it was badly breached in 1872. The estimate provides for repairing the bund which is in very bad order, near the two ends, and which has probably never been properly put to rights since it was resumed by Government from the Dasabundamdars for reconstructing a sluice, the plan of which, as observed by the District Engineer, requires to be modified, and for building a new surplus weir. This latter work may perhaps discharge 8 cubic feet a second per foot of length, and if so a length of 70 feet, rather than 56 feet, instead of the 90 feet shown in the design would suffice, but on the whole it will

*Proceedings of the Madras Government, Public Works Department,
28th July 1874.*

probably be preferable to allow the 90 feet, and to add an apron 6 feet wide and 1½ feet thick, which will apparently cost less than 20 Rupees.

$$33 \times 2 \times \frac{1}{2} = 33 \text{ cubic yards.}$$

The sanction to be given will then be under—

Repairs.									Rs.
Bund	...	...	...	...	...	...	...	...	700
Reconstructing sluice, including enlarging tunnel	...	...	...	...	...	...	...	...	200
									900

Minor New Works.

Constructing a surplus weir	...	...	...	...	...	...	...	...	180
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The sections show the greater part of the widening of the bund on the outside; were there no special reason to the contrary, the inside of the old bund will be a preferable position. As noted on the sluice plan, the tunnel should be of not smaller dimensions than 2½ feet high by 2 feet wide, so that inspection and repair may be rendered practicable.

2. The earthwork rates in these as in former estimates are high, 1½ Annas being the rate in three of these estimates and 1¼ Annas in the fourth.

OOTACAMUND, (Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
11th July 1874. Chief Engineer for Irrigation.

No. 591. ORDER THEREON, 28th July 1874, No. 2,023.

IRRIGATION, No. 53.

The following tank estimates for the North Arcot District are sanctioned:—

Repairs.									Rs.
Tirupanamoor Tank	...	...	...	...	...	...	...	...	5,730
Selery do.	...	...	...	...	...	...	...	...	490
Moram do.	...	...	...	...	...	...	...	...	1,260
Puthramathy Cainenareddy Tank	...	...	...	...	...	...	...	...	900

Minor New Works.

Constructing a surplus weir for the Puthramathy Cainenareddy Tank...	180
--	-----

2. The alterations made in the amounts of some of these estimates are explained in the Note by the Chief Engineer for Irrigation. In passing orders on similar estimates, the subject of rates has been adverted to and does not therefore require to be again noticed in connection with these estimates, in which the same rates for earthwork have been entered.

(True Extract.)

Lieut.-Colonel, R.E.,

Joint Secretary to Government.

To the District Engineer, North Arcot.
" Chief Engineer for Irrigation.
" Officiating Controller of Public Works Accounts.
Exd. S. T. Austin.
Spare Copies

MEMORANDUM.

REQUESTED for reference the under-mentioned papers :—

- L.O. No 2924-96 September 1869.

{ Letter No 870 725 June 74 for the D.C. Board
- referred to in L.O. No 2023-28 July 74

+ supplied 6/9/74

OFFICE OF THE CHIEF ENGINEER
FOR IRRIGATION,
6—8—1874.

Dr. H. H. H.
Lead Clerk.

To

The Registrar of the *PT. L. L.*

No

Note by the Chief Engineer for Irrigation

The following Tank estimates have been submitted by the District Engineer, North West.

Simpanamoor Tank Estimate. Rupees 6730

Agacut area	Acres 344
— — revenue	Rupees 2579
Average do —	— — 2414

No expenditure has been incurred for repairs in the last 4 years, nor for many years past.

The tank breached in 1872, the cause being the state of disrepair of the bund, which in parts was but little above the crest of the existing escape 66 feet in length. The estimate provides for raising the bund to 7 feet above full tank level, lengthening the surplus weir to 100 feet, rebuilding the retirement, and also a sluice, which was destroyed when the tank breached. The tank has a drainage basin of 3 square miles, and it receives the surplus of a tank above, the drainage basin of which, from the discharge of 244 cubic feet a second given, appears to be about 2 square miles. The maximum discharge from the whole basin of 5 square miles may then be

be taken at 1650 cubic feet a second instead of 2114 cubic feet. The supply from the Palas being under control need not be allowed for, and the 400 cubic feet entered may be omitted. Then a depth of 3 feet on the surplus weir will rather more than suffice to dispose of a maximum flood, and, if a margin of $2\frac{1}{2}$ feet above this be allowed, it will be enough, and the bund may be made $5\frac{1}{2}$ feet above full tank level instead of 7 feet. This will reduce the estimate by about 1000 Rupees and sanction may be given for Rupees 5730, the items being

Raising & repairing the bund	
& rebuilding the revetment	4032
Extending the surplus weir	668
Rebuilding sluice	1030
	<u>5730</u>

With regard to the sluice it may be noticed that the wings, as shown in the sections, are very slight: on that marked A.B. the mean thickness is about $\frac{1}{4}$ of the height and on C.D. $\frac{1}{5}$. The front batter is just under $\frac{1}{2}$ and were one eighth allowed and the rear face built in steps the alteration, with an increase of the base at

at A.B. from $6\frac{1}{2}$ to $7\frac{3}{4}$ feet, will make the wall sufficiently stable. The half the thickness of concrete shown or $\frac{1}{2}$ feet will suffice from 3 feet in rear of face wall to the rear retaining wall. The plug hole should not be in line with the face wall, but at least 6 inches to the front of it.

Selery Tank Estimate Rupees 490

Agent area	acres	30
— revenue —	Rupees	228
Average — do —		221

No expenditure has been incurred on repairs in the last 4 years. The tank breached in 1872. The estimate provides for repairing the bund & extending the existing simple form of escape to nearly 3 times its present length. As however the discharge per foot of length over rough stone escapes flush or nearly flush with the ground cannot safely be assumed to be more than $6\frac{1}{2}$ cubic feet a second, it will be better to make this escape 138 feet instead of 99 feet in length. This will add 80 Rupees to the item for this work, and this amount may be deducted from the turping which is nearly half the

the total of the District Engineer's estimate. The items will then be

Repairing bund	168
Turfing	148
Extending escape	145
Sundries &c	29

Total Rupees 490

Murray Tank Estimate Rupees 1260

Hyacinth area	acres 100
— revenue	Rupees 510
Average	— 394

No repairs are shown as having been carried out in the last 4 years, but the remarks on the West catchment or, as it would seem to be, surplus weir, indicate that some expenditure has been incurred. The estimate contains the following items

Improving West catchment	Rupees 940
Repairing South	— 145
— do — Bund	— 175

Only one part of the bund is low. Care should be taken that the wing walls of the surplus weirs are of sufficient height, and that the South end of the South weir is not in danger of being turned. It seems not improbable that it would be economical to reconstruct the

the West weir on an improved cross section with one or more vertical falls of 2 or 3 feet on to stone masonry. There is an abundance of material, but it may be difficult to so pack the rough stone as to secure stability. It may be hoped that the tank will be rendered so efficient as to secure the hyacinth revenue, for the acreage is low compared with the catchment basin.

Puthramathay Canianareddy Tank Estimate Rupees 1040.

Hyacinth area	acres 42
— revenue	Rupees 306
Average — do —	— 225

No repairs have been carried out in the preceding 4 years.

The tank has no escape, and it was badly breached in 1872. The estimate provides for repairing the bund which is in very bad order near the two ends, and which has probably never been properly put to rights since it was resumed by Government from the Dasabund daindars, for reconstructing a sluice, the plan of which, as observed by the District Engineer, requires to be modified

modified, and for building a new surplus weir. This latter work may perhaps discharge 8 cubic feet a second per foot of length ^{and if so a length} of 70 feet rather than 56 feet, instead of the 90 feet shown in the design would suffice, but on the whole it will probably be preferable to allow the 90 feet, and to add an apron 6 feet wide and $1\frac{1}{2}$ feet thick, which will apparently cost less than 20 Rupees.

The sanction to be given will then be under

Repairs	
Bund.	
Reconstructing sluice including enlarging tunnel	700
minor new works	200
	900
Constructing a surplus weir	180

The sections show the greater part of the widening of the bund on the outside; where there is no special reason to the contrary the inside of the old bund will be a preferable position. As noted on the sluice plan the tunnel should be of not smaller dimensions than

$2\frac{1}{2}$

$$33 \times 2 \times \frac{1}{2} = 33$$

1. $17\frac{1}{2}$ feet high by 2 feet wide, so that inspection and repair may be rendered practicable.

2. The earthwork rates in these as in former estimates are high, $\frac{1}{2}$ annual being the rate in three of these estimates and $\frac{1}{3}$ annual in the fourth.

11th July 1874
Chief Engineer for Irrigation

To The Secretary to Govt. P. & D.

P. W. 1874 Dept.
No. 4534

From

The Chief Engr.
for Irrigation

Dated 11th } July 1874
Recd. 22 }

Encl. 22.

+ 18 sent to Secy. of Ag.
on 11th July 1874

L.O. No: 2027.28-7-74.

Note on certain
tank estimates sub-
mitted by the Dist.
Eng. N. Arcot.

No 590

Public Works Department
Proceedings of the Madras Government
From the Dy. Engr. to Secy. (H.B. No. 870 dated
25th June 1874)
To Chief Engr. for Secy. (H.B. No. 870 dated
11th July 1874)

The following tank
estimates for the North
Arcot District are sanc-
tioned

Repairs	
Tirupanamoor Tank.	Rupes 5730
Selery	do. 490
Moraw	do. 1260
Putthamathay Camenareddy	do. 900

Minor New works	
Constructing surplus weir for the Putthamathay Camena- reddy Tank	180

2. The alterations made
in the amounts of
some of these estimates
are explained in the
note by the Chief
Engineer for Irrigation.

having been previously
 similar estimates, the
 subject of rates has
 been adverted to and
 does not therefore
 require to be again
 noticed in connection
 with these estimates,
 in which the same
 rates for earthwork
 have been entered.

0270 by 15/7/74
 012 Amu
 000

The D.R. Northbrook
 -- Chief Engineer for the
 -- Controller of the
 S. Copies despatched 3/8/74.

N^o 589 @ 591.

Cir 17/1/74 RB 20/1/74

114534 ✓

Govt. of 1874 Madras.

PUBLIC WORKS.

To

The District Engineer
North Arcot

Dated

Recd.

Encl. 1

G. O. 28 July 1874, No. 2026

Nos. 589-590.

Banks in the North Arcot

Estimates for the
Repair of certain banks,
Submitted with remarks.