Public Works (1896) Department.

G.O., No. 57 I.

DATED 18-1-96

[Despatch Abstract.]

Mopand tank: Estimate of Rs23,800 for improvements to —, Nellore Dn, sanctioned with remark.

[P.W. 25
1,000—23-10-95]

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

IRRIGATION.
ACCOUNT.

Govt. of {1896} Madras.

PUBLIC WORKS.

Dated January, 18*th.*

Recd. *Encl.*

G.O. No. 57 I., 18th Jan. 1896.

JANUARY.

Mopaud Tank

Estimate of Rs. 23,800 for improvements to —, Nellore Division, sanctioned with remark.

No. 57 I., 18th January 1896.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

From the Executive Engineer, Nellore Division, to the Superintending Engineer, II Circle, dated 14th October 1895, No. 295 S.E.

In returning your endorsement No. 96 N.L., dated 9th May 1895, on this office No. 66 S.E., dated 24th April 1895, I have the honour to forward herewith estimates and plans * (as marginally noted) for the complete repairs of the Mopaud tank, amounting to Rs. 25,200.†

* 7 Plans.
4 Estimates.
1 General Abstract.
1 Data.
1 Hydraulic statement.
1 Report.
—
15
—

2. In this office No. above quoted, I stated that the estimate could be reduced to below Rs. 21,000, the amount of an estimate previously drawn up. I find, however, that this is not possible, if the restoration of the tank to its full capacity is the end in view.

† Corrected in Superintending Engineer's office to Rs. 23,800.

3. Even with the estimate at its present high figure, the work will pay most handsomely, and the benefit to the ryots, by enabling them to irrigate 1,200 acres of land, in addition to the present area of 1,100 acres, leaving out of consideration, the tirvajasti land will be enormous.

4. The Mopaud and Machavaram tanks give to Kandukur the kasba of the taluk of that name, its present importance—an importance which will be shortly emphasized when the Madras-Bezwada Railway is built. It will then only be about 7 miles away from the nearest station.

5. In this office No. 66 S.E., dated 24th April 1895, I expressed a hope that the weir would be built before the north-east monsoon, thereby enabling the extra revenue of Rs. 5,000 to be saved to Government, but owing to a series of unfortunate events, chief amongst them, the illness of the subordinate in charge (he is now on long sick leave) and the undermanned state of the Kandukur Sub-division, work has been greatly delayed. Materials have been collected for about three-fourths of the work, and the foundations of the weir dug as per the plan, I forwarded with this office No. 66 S.E., dated 24th April 1895.

6. On my inspection of work during the middle of last month, I stopped all further progress, chiefly because the reason for going on with the work in anticipation of the Chief Engineer's sanction, viz., saving revenue for Government, no longer operated, it being too late to complete the weir by the 15th October, but also because I was not satisfied that the rough stone was of sufficient size for a work of such magnitude, though the quality was excellent. In addition a careful inspection of the foundations showed that the soil was not sufficiently firm at the level to which they had been taken.

7. In sending up the fair plans and estimates, I have therefore increased the
depth of foundations by 2 feet. As the soil round is a mixture of black cotton and
tank silt, the depth of foundations, as originally designed, was not sufficient. This
has led to an increase of cost.

8. I have again gone into the question of a flush or ground escape at either
extremity of the tank. Towards the northern end this is out of the question, as the
fall behind to the natural escape channel is so great that such an escape would cer-
tainly lead to disaster. At the western end, where I originally proposed the building
of a weir, the soil is so bad that no ground or flush escape would stand. There is no
proper escape channel and retrogression of levels has already advanced in the years that
have elapsed (since the tank was allowed to escape at this end through the breach),
to an extent that is positively dangerous. This alone would have led to the abandon-
ment or thorough repair of the tank (by building a proper weir as here advocated).

9. A portion of the surplus of the Machavaram tank used to be allowed to
escape down the same channel, joining it lower down, and to save the bund from
being undercut, and the channel retrogressing in level, it was found necessary when
the repairs for that tank were carried out at a cost of Rs. 40,000 to close this
escape (B) and provide a weir on the same lines as the present lines (making M.W.L.
and F.T.L. the same) at the centre of the tank where there was a suitable site (A);
only here the site is rocky and the weir acts as a ground escape when the shutters
are open.

10. In addition to this, the surplus water from this western breach escape (C)
so damaged the crops on 200 to 300 acres that cultivation has ceased on them.
These formed only a portion of a tract of wet land abandoned, owing to its being
swamped, but the closing of the Machavaram western escape (B) diminished the
surplus and cultivation was partially renewed. At its present site D, the water will
be discharged into a distinctly marked vagu or escape channel; in fact it is the con-
tinuation of the Pandiragu, which is the name of the stream draining the catchment
and feeding the tank.

11. The sum spent on materials is Rs. 4,838 and work Rs. 729.

12. The latter includes the cost of prickly-pear removed for taking sections and clearing a path on the bank, and excavating the foundations of the weir. The site and design are similar to those approved of by Messrs. O'Connell and Paul. The latter, however, disapproved of arches over the vents, and wished to substitute iron rails. He did not, I consider, take into account the position of lascars lifting the shutters in a storm of wind and rain at night on a platform 3 feet wide.

13. The Mopaud tank discharges into the Manneru, a short distance above the bridge about to be built for the Bezwada-Madras Railway. If the tank were to breach when the Manneru is in flood, the embankment of the railway on the southern approach would certainly give way, if the bridge did not, and the canal embankments below would suffer. A weir on which dependence can be placed is therefore absolutely necessary. The cost of a flush crested overfull weir would be altogether prohibitive, and a weir of the design submitted, is, I am convinced, the only one practicable. If possible, I would like to see the concrete foundation laid in this official year, and the superstructure completed next year before the south-west rains.

No. 472 N.L.

Forwarded to the Chief Engineer for Irrigation for favour of obtaining the sanction of Government to the estimate, amounting to Rs. 23,800, for improving Mopaud tank in the Nellore division.

2. The circumstances of the tank are clearly stated by the Executive Engineer in the report to the estimate, and the question of its restoration has been considered by a number of officers, an estimate of Rs. 21,000 having been prepared as far back as 1893. Since 1882, the diminished capacity of the tank has resulted in an annual loss of Rs. 5,000, and the repairs now proposed are of a remunerative character. No

less than Rs. 20,500 of the estimate is for an overfall escape with screw-gearing shutters, a ground escape not being feasible. The tank affects the line of the Madras-Bezwada Railway, and the early sanction of the estimate is recommended.

(Signed) A. S. RUSSELL,
Offg. Suptg. Engineer, II Circle.

26th November 1895.

Enclosure.

Report to accompany the plans and estimates for the Mopuad Tank Improvements, Imperial List No. 22, II Circle.

	RS.
Amount of estimate	23,200

The Mopaud tank bund was breached at its western extremity in the south-west rains of 1882 to save the tank from surplusing at the northern end over the calingulah, an old work which was in such a dilapidated condition, and (even if in good order) of such inadequate capacity that it was feared it would be carried away if the water surplused over it. As the slope of the ground behind was rapid and the soil unfitted to stand a rush of such a volume of water (over 5,000 cubic feet a second) the collapse of the calingulah would have resulted in the draining of the tank and possibly its abandonment.

2. Since 1882 the diminished capacity of the tank has led to the yearly loss of revenue on nearly 1,200 acres amounting to Rs. 5,000. The loss to the ryots of course has been considerably greater, and the breach escape being situated at an unsuitable place, with no proper surplus channel, a portion of the ayacut of the tank is rendered uncultivable owing to the wash of flood water escaping from the tank.

3. It is therefore proposed to close this breach, and build an overfall escape fitted with screw-gearing shutters providing for the maintenance of the F.T.L and M.W.L. of the tank at the same level. The shutters will be 4 feet high and when closed the top of the shutters will be at F.T.L. of the tank. When fully opened, the vents (of which there are 26), each 8 feet wide, will discharge the estimated maximum flow off the catchment basin of 35 square miles. Due consideration has been given to the moderating influence of the upper tanks.

4. The escape channel is a natural drainage line of section and fall sufficient to carry this quantity without flooding any cultivated land.

5. The sluices will be worked by a conservancy establishment of two lascars, similar to that entertained for working the shutters of the Machavaram tank. In keeping the gearing in order and doing petty repairs to the bund and sluices, sufficient employment will be given to the two men all the year round. It would be unsafe to entrust the care and working of the gearing to the villagers. The experiment was tried in the case of Machavaram tank. It proved a failure and would have resulted in a great disaster had not the former system been reverted to. Huts will be provided at site for the two lascars.

6. There are two sluices in fair order. They will be provided with new heads and screw geared shutters.

7. The breach at the western end of the bund will be closed.

8. The bund for a very considerable length is overgrown with prickly-pear. This pest is not without its advantages It has prevented cattle trespass (a made road runs at the outer toe of the bund for some distance) and in front has acted as a wave breaker. It will be cleared off the top of the bund for an inspection path and at intervals clearances have already been made to enable levels to be taken. The soil is in many parts unsuited for a tank bund being tank silt, but this is the best that could be got at these places.

9. The necessity for protection of some sort is therefore imperative. Revetment would be too costly, and unless the rear slope were also revetted would not save the tank bund from being worn down by cattle, of which the number in the various villages under the tank is very great. The yearly maintenance would be as follows:—

	RS.
Repairs to bund sluices and weir	356
Establishment (two lascars on Rs. 6 a month)	144
Total ...	600

10. The extra revenue anticipated (the lands are ready, and channels are in existence) is Rs. 5,000. The net gain to Government would therefore be Rs. 4,400 a year, not taking into consideration the indirect benefit to the ryots.

11. Early sanction is requested in order that the foundations of the weir may be laid in this official year, and the line collected may not be wasted.

12. The total estimate including establishment and tools and plant provision is as follows :—

	RS.
Works	23,200
Establishment at 23 per cent.	5,336
Tools and plant	64
	28,600

13. This amounts to about 2½ years total assessment and between five and six years' loss of revenue.

There can therefore be no doubts as to the financial advantages.

14. The tank would be a source of serious damage to the Bezwada-Madras Railway if it breached.

13th October 1895. (Signed) C. H. D. MARJORIBANKS,
Executive Engineer, Northern Division.

No. 253 I.

Submitted to Government with a recommendation that the estimate forwarded by the Superintending Engineer, II Circle, be sanctioned.

2. In executing the work pipes on shutters and non-rising screws should be provided for the surplus weir instead of rising screws. The details of the arrangements are shown in the plan drawn in this office and appended to the weir plan forwarded by the Superintending Engineer.

18th Dec. 1895. (Signed) R. R. E. DRAKE-BROCKMAN, Colonel, R.E.,
Chief Engineer for Irrigation.

ORDER—No. 57 I., dated 18th January 1896.

The following estimate is sanctioned :—

Irrigation.
43. Minor Works and Navigation.
Minor works for which neither Capital nor Revenue Accounts are kept, P.W.D.
Original Works.
Nellore Division.

	RS.
Improvements to Mopaud tank, No. 22 of list of works appended to G.O. No. 407 I., dated 6th July 1887, estimate	23,800

2. This sanction is registered as No. 179 I. of 1895-96.

3. The attention of the Superintending Engineer, II Circle, is drawn to paragraph 2 of the foregoing endorsement of the Chief Engineer for Irrigation.

(True Extract.)

Under Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, II Circle,
with twenty enclosures.
„ Examiner, Public Works Accounts.
„ Revenue Department.

Exd. Shaik Karim.
Spare Copies

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 9 Jan

READ the following

Orig. sent

From Supg Eng, second Circle, No 472 N.I. d 26.11.95
No 253 I d 18.12.1895

Submitted to Govt with a recommendation that the estimate forwarded by the Supg. Eng, second Circle, be sanctioned.

2. In executing the work pipes on shutters & non-rising screws should be provided for the surplus weir instead of rising screws. The details of the arrangements are shown in the plan drawn in this office & appended to the weir plan forwarded by the Supg Eng.

Order thereon
No 57 I d 18th January 1896
The following estimate is sanctioned:—
Irrigation
43. Minor Works & Navign.

Perhaps the hon: Mr. Grose would like to see this, as it is an important work in the Nellore Division.

W

11/1/96

JG 12/1/96

W
9 Jan

Minor Works for which neither Capital nor Rev Accts are kept.
P. W. D.

Original Works.

Nellore Dist.

Improvements to Mopand tank, No. 22, of list of works appended to G.O. No. 407. I., d/ 6 July/87.

Estimate Rs 23,800

2. This sanction is registered as No. 179 I of 1895-96.

3. The attention of the Supg Eng, II Circle, is drawn to para 2 of the foregoing endorsement of the Chief Eng for Irrigation.

18/12

18/12

DE
2- FEB. 96

To
The Chief Engr for I.
Supg Engr II in Cirs
Ex. E. W.
Rev Dept.

20/12

E. I. Form No. 1—500—14-5-95

H. E. 20/12 R. 10/1/96. circ 10/1
R 14/1

P. W. CURRENT No. 1023/.

Estimate for improvements to Mopand Tank, Nellore Dt.

Encls: 22 (8 plans)
Recd: 20.12.95

~~The Hon'ble Mr H. T. Bliss, C.S.~~

~~The Hon'ble Mr G.~~

F. E. I. 18/1

18/1

Issue

Registd

18/1

18/1

Please say whether the diagrams in the margin of the CE's letter should be lithographed.

18/1

D. P. W. ---- 2nd Circle.

Mopad Tank Improvements.

Amount of Estimate Rs 23200

Ayacut Acres 2270. Assessment Rs 11,280

Average Cultivation of 10 years 1,095 acres

Do Revenue Rs 6,280-0-0

Imperial List No. 22.

Expenditures	
1890-91	= Rs 1021
1891-92	= Rs 640
1892-93	= Rs 439
1893-94	= Rs 556
1894-95	= Nil.

Report

To accompany the Plans & Estimates for the

The Mopad Tank bund was breached at its western extremity in the South West rains of 1882 to save the Tank from surplussing at the northern end over the Calingulah, an old work which was in such a delapitated condition, and, (even if in good order) of such inadequate capacity that it was feared it would be carried away if the water surplussed over it. As the slope of the ground behind was rapid and the soil unfitted to stand a rush of such a volume of water (over 5,000 cft. a second) the collapse of the Calingulah would have resulted in the draining of of the Tank & possibility its abandonment.

(2) Since 1882 the diminished Capacity of the Tank has led to the yearly loss of Revenue on nearly 1200 acres amounting to Rs 5,000. The loss to the Ryots of course has been considerably greater, and the breach escape being situated at an unsuitable place. with no proper surplus Channel, a portion of the ayacut of the Tank is rendered uncultivable owing to the waste of flood water escaping from the Tank.

(3) It is therefore proposed to close this breach, and build an overfall escape fitted with Screw gearing Shutters providing for the maintenance of the F.T.L and M.W.L. of the Tank at the same level. The Shutters will be 4 feet high and when closed the top of the Shutters will be at F.T.L. of the Tank. When fully opened, the Vents (of which there are 26 each 8 ft wide, will discharge the estimated maximum flow off the Catchment Basin of 35 Square miles. Due consideration has been given to the moderating influence

H.E. 20/12 R. 10/1/96.

of the upper Tanks.

(4) The Escape Channel is a natural drainage line of ~~sufficient~~ cross Section and fall sufficient to carry this quantity without flooding any cultivated land.

(5) The Sluices will be worked by a Conservancy Establishment of 2 lascars, similar to that entertained for working the Shutters of the Machavaram Tank. In keeping the gearing in order and doing petty repairs to the bund and sluices, sufficient employment will be given to the two men all the year round. It would be unsafe to entrust the care and working of the gearing to the Villagers. The experiment was tried in the case of Machavaram Tank. It proved a failure and would have resulted in a great disaster had not the former System been reverted to. Huts will be provided at site for the two lascars.

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(9) The necessity for protection of some sort is therefore imperative. Revetment would be too costly, and unless the rear slope were also revetted would not save the Tank bund from being worn down by cattle of which the number in the various villages under the Tank is very great.

The yearly Maintenance would be as follows

Repairs to Bund Sluices and weir =	Rs 356-0-0
Establishment 2 lascars on Rs 6 a month =	144-0-0
	600-0-0

(10) The extra Revenue anticipated (the lands are ready, and Channels are in Existence) is Rs 5000. The net gain to Government would therefore be 4400 Rs a year, not taking into Consideration the indirect benefit to the Ryots.

(11) Early Sanction is requested in order that the foundations of the weir may be laid in this official year, and the lime collected may not be wasted.

(12) The total Estimate including Establishment and Tools & Plant provision is as follows.

Works	23,200
Establishment at 23 %	5,336
Tools and Plant	64
	28,600

(13) This amounts to about $2\frac{1}{2}$ years total assessment and between five & six years loss of Revenue. There can therefore be no doubts as to the financial advantages.

(14) The Tank would be a source of serious damage to the Bezwada Madras railway if it breached.

C. O. D. Marjoribanks

13-10-95

Executive Engineer N. D.

CHIEF ENGINEER
FOR IRRIGATION,
2 DEC.95
No.

R 77

Mopad Tank Improvements

Report to accompany the Plans & Estimates for the

10231/95

1067 I. 18 Jan 1896

Irrigation Accounts

Letter from the Executive Engineer, Nellore Division, to the Superintending Engineer, II Circle, No. 295 SE, dated 14th October, 1895

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7 plans
4 Estimates
1 Gl. abstract
1 Data
1 Hydraulic statement
1 Report
15

x Corrected [illegible]

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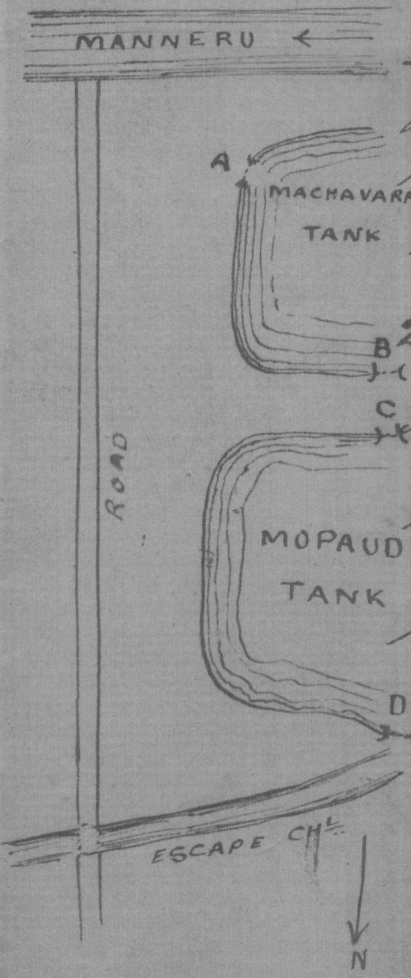
2. In this office No. above quoted I stated that the estimate could be reduced to below Rs 21,000, the amount of an estimate previously drawn up. I find, however, that this is not possible, if the restoration of the tank to its full capacity is the end in view.

3. Even with the estimate at its present high figure, the work will pay most handsomely, and the benefit to



A. Present escape of Machavaram tank
B. Old breach closed
C. Breach through which surplus escapes
D. Proposed weir.

to

to the ryots by enabling them to irrigate 1200 acres of land, in addition to the present area of 1100 acres, leaving out of Consideration the tirvajasti land, will be enormous.

4. The Mopad and Machavaram Tanks give to Kandukur, the kasaba of the Taluq of that name, its present importance, an importance which will be shortly emphasized when the Madras-Bezwada Railway is built. It will then only be about 7 miles away from the nearest station.

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under

2 Rev

under-manned state of the Kandukur Sub-Division, work has been greatly delayed. Materials have been collected for about 3/4th of the work, and the foundations of the weir dug as per the plans forwarded with this office No. 66 S.E. dated 24th April, 1895.

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8. I have again gone into the question of a flush or ground escape at either extremity of the tank. Towards the northern end this is out of the question, as the fall behind to the natural escape channel is so great that such an escape would certainly lead to disaster. At the western end, where I originally proposed the building of a weir, the soil is so bad that no ground or flush escape would stand. There is no proper

Escape

escape channel and retrogression of levels has already advanced in the years that have elapsed (since the Tank was allowed to escape at this end through the breach) to an extent that is positively dangerous. This alone would have led to the abandonment or thorough repair of the Tank (by building a proper weir as here advocated).

9. A portion of the surplus of the Mathavaram Tank used to be allowed to escape down the same channel joining it lower down, and to save the bund from being undercut, and the channel retrogressing in level, it was found necessary when the repairs for that Tank were carried out, at a cost of Rs 40,000, to close this escape (B) and provide a weir on the same lines as the present lines (making M.W.L & F.T.L the same) at the centre of the Tank where there was

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4 P

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No 472
426 M
26/30 11.95

Forwarded to the Chief Engineer for Irrigation for favour of obtaining the Sanction of Government to the estimate, amounting to ~~Rs~~ 23,800, for improving Moparu Tank in the Nellore Division.

[illegible] 15 as per E.E.'s letter

7 Plans sent in a separate packet

2. The

2 The Circumstances of the tank are clearly stated by the Executive Engineer in the report to the estimate, and the question of its restoration has been Considered by a number of Officers, an estimate of Rs 21,000 having been prepared as far back as 1893. Since 1882, the diminished capacity of the tank has resulted in an annual loss of Rs 5,000, & the repairs now proposed are of a remunerative character. No less than Rs 20,500 of the estimate is for an overfall escape with screw gearing shutters, a ground escape not being feasible. The tank affects the line of the Madras-Bezwada Railway, & the early Sanction of the estimate is recommended.

A. L. Russell
Offg Supdg Engr.
Circle

CHIEF ENGINEER
FOR IRRIGATION.
2- DEC. 95
No. 7762

From

The Supg Engineer
Second Circle

To The Chief Engineer
For Irrigation

Dated 26 } November 1895
Despd 30 }

Enclos 15

472
No. ~~426~~ M2

PW E.1
6023

Mofad Tank —

Forwarding for sanction
plans & Estimates for
improvements to —