Public Works (1896) Department.

G.O., No. 467

Dated 1-6-96

[Despatch Abstract.]

Pundiganoor tank : Estimate of Rs 3010 for excavating a channel and constructing five syphon sluices for the — Bellary Talluk, Sanctioned with remark.

P.W. 66.
1,000—23-10-95.

PRIOR 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 June, 1st.

Read. *Encl.*

G.O. No. 467 I., 1st June 1896.

JUNE.

Gundiganoor Tank

Estimate of Rs. 3,010 for excavating a channel and constructing five syphon sluices for the —, Bellary taluk, sanctioned with remark.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers:—

From R. SEWELL, Esq., Collector of Bellary, to the Superintending Engineer, Bellary District, dated 18th May 1894, Ref. No. 2670.

The Gundiganur tank near Havinahall, Bellary taluk, was repaired as a famine work in fasli 1301, and the tank now holds a sufficient stock of water to irrigate the registered ayacut under the tanks. In the jamabandi of Bellary taluk this year, H. Swami Rao of Havinahall represented that it is impossible to get water from the tank to his fields Nos. 173, 179 and 209 without a channel being dug from the sluice. This he is prepared to undertake at his own expense, if irrigation from it be permitted at the special rate of Rs. 2–8–0 sanctioned for the district. But he pleads that the vankas formed across the old channel from the sluice render the construction of the proposed channel impossible, and as no tank water could flow to his fields last year, he requests remission for his fields left waste.

2. The configuration of the ground under the tank and the possibility of cultivating under the old channels has altogether changed since the breach of fifty years ago. It is therefore impossible now for the Revenue authority to say whether or not the old channel can irrigate the fields in question. I have the honour, therefore, to request that you will be good enough to have the lands surveyed and levelled and a regular scheme of irrigation drawn up with details of lands capable of irrigation, with a note as to whether the Government or the ryot should dig and maintain the respective channels.

3. Until definite information is obtained as to what fields the tank and its channels can irrigate and what fields are not accessible to tank water, the Revenue authorities will not be able to decide on claims to remissions under the tank. I request that you will favour me with a reply as early as possible.

Enclosure.

Report to accompany estimate for constructing irrigation channels and syphon sluices for the Gundiganoor tank, in the Bellary taluk, Bellary district.

	Rs.
Amount of estimate	3,010

2. *Condition of the tank.*—This tank was lying in a ruined and abandoned state for forty or fifty years previous to 1892–93, but it was then taken up as a famine relief work and restored at a cost of Rs. 7,214. The breaches in its bank were closed, the bank and revetment put into thorough order, the irrigating sluice was provided with a new head with screw-gearing shutter, and a new surplus weir and new rough stone byewashes were constructed.

3. *The tank, a "Minor" Irrigation work.*—Previous to its ruin and consequent abandonment, the tank irrigated only 100 and odd acres; it has therefore, since its restoration, been classed as a "Minor" irrigation work, and is in charge of the Revenue Department.

Should be classed as a "Major" work.—In its present condition, however, it has a waterspread of 14,113,144 square feet and an approximate capacity of 42,339,432 cubic feet, which, allowing 60 cubic feet per hour per acre, is capable of irrigating 245 acres for 120 days. The tank moreover, since its restoration, has not failed to fill up every year, and it ought to be classed as a "Major" irrigation work. It has a hilly catchment of 36 square miles.

4. *Necessity for construction of syphon sluices.*—Previous to its restoration there were two large breaches in the bund of the tank—one close by the irrigating sluice and the other near the surplus weir. By the scour of the water passing for years through these breaches, the face of the land was cut up, and the fields originally irrigated by the tank have been separated from each other by streams (*vide* tracing from the survey map attached hereto). These stream beds now serve to carry away the surplus water from the tank weirs, and it is necessary to carry the water for irrigation across them. When the surplus weirs are discharging, these streams not only flow full, but the water also overflows into the fields; it is therefore not advisable to contract the waterway by building aqueducts for the irrigation water, and provision is therefore made in this estimate for five syphon sluices at the requisite places.

Note.—To confine the surplussing to one channel and do away with syphons 2 and 4, would cost more than the present arrangement.

7th March 1896. (Initld.) W. B. DeW.

5. *Necessity for providing the irrigation channels at Government expense.*—The cost of the syphon sluices amounting to Rs. 2,275, it is beyond the power of the ryots to contribute this sum; and as the 245 acres it is proposed to irrigate lie in the limits of two villages—87·65 acres in Gundiganoor village and 157·60 in Havinahall village—and land must be taken up for the channels, it is necessary that the work be done by Government, the ryots being made to contribute towards the cost of earthwork, if considered necessary.

6. *Dimensions of Irrigation channels.*—In estimating the dimensions of the irrigation channels their discharging capacity has been made large enough to carry twice the ordinary discharge required, *i.e.*, instead of 60 cubic feet per acre per hour, 120 cubic feet per acre per hour has been allowed. This is to allow for the extra quantity of water necessary to flood the fields previous to sowing.

7. *Dimensions of syphon sluices.*—For the same reason the barrels of the syphon sluices have been made large enough to pass the double allowance of water.

8. *General method adopted in computing dimensions of the channels.*—For instance—the channel A S_1 C D (see tracing) at its exit from the syphon sluice S_1 has to irrigate 104·89 acres, which at 120 cubic feet (60×2) per acre per hour, should give a discharge of 3·5 cubic feet per second. To give this discharge a channel with 2 feet bottom width, ratio of side slopes 1 to 1, fall ·00274 in unity, and depth of water 10½ inches is required by Bazin's formula; but as it is unnecessary to take the fractional depth of ½ feet in computing for earthwork, the dimensions taken in the estimate is 3′ × 1′.

9. *Computation for dimensions of barrel of syphon sluice No. 1.*—The dimensions of the pipes of syphon sluice S_1 has been obtained by the following calculation:—

Difference of level between inlet and outlet openings in cisterns = ·64
Discharge required = 3·5 cubic feet per second for 104·89 acres.

$$D = 5\,A\,\sqrt{h}.$$
$$3{\cdot}5 = 5\,A\,\sqrt{{\cdot}64}.$$
$$A = \frac{3{\cdot}5}{5\sqrt{{\cdot}64}} = \frac{3{\cdot}5}{4} = {\cdot}875 \text{ square feet.}$$

Dimensions given = 2 pipes of 9″ diameter = ·88 square feet.

10. *Pipes for syphon sluices Nos. 2, 3, 4 and 5.*—The estimate provides for earthenware pipes, 9″ diameter for syphon sluices Nos. 2, 3, 4 and 5. These syphons are required to pass 0·06, 0·18, 0·15 and 0·28 cubic foot per second, respectively, and the size of the pipe allowed is larger than is necessary, but it is advisable to have one dimension only; in case of repairs being necessary, the 9″ diameter pipe is provided for.

11. *Floor levels of cisterns.*—The floors of the cisterns of the syphon sluices are placed 2 feet below the level of the sills of the barrels. This is because the tank water contains a large quantity of silt in suspension, which would eventually choke up the barrels, unless space is provided in the cisterns to contain the silt which would be deposited. The ryots should be made to clear out the cisterns at least once a year.

12. *Materials—Burnt stone and slabs.*—From Kurugode, distance 4½ miles.

Broken stones for concrete.—From fields, average distance 2 miles.
Limestone.—From distance of 4 miles, but may be burnt near the work site.
Earthenware.—Pipes from Calicut in the Malabar district.

Labour—Stone masons.—From Bellary, 24 miles.

Unskilled labour.—From Gundiganoor, Havinahall and Sirigiri, distance 1, 1, and 2 miles, respectively. These are all workers in fields, and are obtainable only when no field operations are going on.

21st November 1895. (Signed) E. TAILOR,
Sub-Engineer.

From W. B. DeWINTON, Esq., Superintending Engineer, III Circle, to the Collector of Bellary, dated 10th March 1896, No. 3816.

With reference to your reminder to Reference No. 2670, dated 18th May 1894, I have the honour to forward herewith the plan, estimate, &c., as per margin, for excavating a channel and constructing five syphon sluices for Gundiganoor tank for your countersignature and transmission to Government through the Board of Revenue, with the suggestion that the tank be classified as Imperial as it will be capable of irrigating more than 200 acres after the completion of the necessary repairs.

2 Plans.
1 Report.
1 Detailed estimate.
1 Abstract estimate—general.
1 Data.
–
6
–

Dis. No. 969.

Submitted to the Board of Revenue, Revenue Settlement, &c., for favour of approval and transmission to Government for sanction.

2. The estimate with report and plan received from the Superintending Engineer is also submitted, as well as a copy of this office letter, Reference No. 2670, dated 18th May 1894.

16th March 1896. (Signed) F. A. COLERIDGE,
for Collector.

Forwarded to the Chief Engineer for Irrigation for favour of remarks.

21st March 1896. (Signed) P. RAJARATNA MUDALIAR,
Secretary.

No. 153 M.

Returned approved.

2. The undersigned concurs in the opinion expressed by the Superintending Engineer, III Circle, that the tank should be classed as a Public Works Department work. If the Board has no objection to the Superintending Engineer's suggestion, the estimate for improving the tank will, if retransmitted, be submitted for the sanction of Government in the Public Works Department.

31st March 1896. (Signed) R. R. E. DRAKE-BROCKMAN, Col., R.E.,
Chief Engineer for Irrigation.

Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), Mis. No. 1794, dated 13th April 1896.

Read—Endorsement from the Chief Engineer for Irrigation, No. 153 M., dated 31st March 1896.

Resolution—Mis. No. 1794, dated 13th April 1896.

The Board agrees with the Superintending Engineer that the tank should be classed as "Imperial." The estimate and plans will accordingly be retransmitted to the Chief Engineer for Irrigation, with the request that the sanction of Government in the Public Works Department may be obtained to the execution of the work.

(True Extract.)

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

No. 107 I.

Submitted to Government.

(Signed) R. R. E. DRAKE-BROCKMAN, Col., R.E.,
13th May 1896. Chief Engineer for Irrigation.

ORDER—No. 467 I., dated 1st June 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.
Bellary Division.
Excavating a channel and constructing five syphon sluices for Gundigancor tank.

	Rs.
Estimate	3,010

2. This sanction is registered as No. 45 I. of 1896-97.

3. The Superintending Engineer, III Circle, will submit as soon as possible the particulars required for including the Gundigancor tank in the list of Minor works for which neither Capital nor Revenue Accounts are kept, Public Works Department.

(True Extract.)

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

To the Chief Engineer for Irrigation.
" Superintending Engineer, III Circle, with five enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.

Exd. T. K. Narayana Aiyangar.
Spare Copies

A

No 4672, dt 1st June 1896.

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

B

UNDER date the

READ the following

Precis with Report

Letter from Collector of Bellary. No 2670. dt 18.5.96.
Do from Supdg Engr III No 3876 dt 10.3.96
Endorsement of Collector of Bellary No 969 dt 16.3.96
Do of 18th of Revs. No . dt 21.3.96
Do of Chief Engr for I. No 153 M dt 31.3.96
Proc 18th of Revs. Rev Settt. Land Records Agriculture
No 1794 dt 13.4.96
No 107. dt 13.5.96

Submitted to Govt.

Order thereon

The following estimate is sanctioned:—

Irrigation
43. Minor Works & Navigation
Minor Works for which neither Capital nor Revenue Accounts are kept, P.W.D.

J.24
20.5.96

Original Works.
Bellary Dist.

Excavating a channel & constructing five sluice clines for Gundigamoor tank.

Estimate Rs 3010

2. This sanction is registered as W. 453 of 1896-97.

3. The Supt/Engr. Cuddapah will submit as soon as possible the particulars required for including the Gundigamoor tank in the list of minor works for which neither Capital nor Rev. Accts are kept. P.W.D.

JH 9/5

Rmedk 13/6/96

To
The Chief Engr & Sy. Secy.
Supt Engr Cdp with 5 Cs P. 52
Rev. Dept

RCH 7/5

DESPATCHED
18 JUN. 96

encls.

S. W. CORRESPT No. 4917

Estimate for repairing channel & constructing five syphon channels for Gundigantapa Tank (letter sent to Collector) Accn: 29.5.96

Ref no 2670 Bellary Collector's office
dated 18.5.96.

From,
The Collector of Bellary.

To, The Superintending Engineer
Bellary District

Sir,

The Gundiganur tank near Havinahall Bellary taluk was repaired as a famine work in Fasli 1301 and the tank now holds a sufficient stock of water to irrigate the registered ayacut under the tanks. In the jamabandy of Bellary taluk this year, H. Swami Rao of Havinahal represented that it is impossible to get water from the tank to his fields no. 173, 179 and 209 without a channel being dug from the sluice. Also he is prepared to under

E. I. Form No. 1—500—14-5-95

to undertake at his own
expence if irrigation from
it be permitted at the special
rate of Rs. 2-8-0 sanctioned
for the district. But he
pleads that the tank as formed
across the old channels
from the sluice renders the
construction of the proposed
channel impossible and
as no tank water could
flow to his fields last
year, he requests remission
for his fields left waste.

2. The configuration of the
ground under the tank and
the possibility of cultivating
under the old channels has
altogether changed since
the breach of 50 years ago
It is therefore impossible
now for the Revenue authority
to

to say whether or not the old
channels can irrigate the
fields in question. I have
the honor therefore to request
that you will be good enough
to have the lands surveyed
and levelled and a regular
scheme of irrigation drawn
up with details of lands
capable of irrigation with
a note as to whether the Govern
-ment or the ryots should
dig and maintain the
respective channels.

3. Until definite informa
-tion is obtained as to
what fields the tank and
its channels can irrigate
and what fields are not
accessible to tank water
the Revenue authorities
will not be able to decide
on claims to remissions
under

under the tank. I request that you will favor me with a reply as early as possible.

I have &c
(Sd) R Sewell.
Collector.

/True copy/
(Sd) F A Coleridge
For Collector

/True copy/

Registered
Secretary-

Report to accompany Estimate for constructing irrigation channels and Syphon Sluices for the Gundigana tank in the Bellary Taluq: Bellary Distr.

3010

1 Amount of Estimate Rs 2520
2553/R

Condition of the tank.

2. This tank was lying in a ruined and abandoned state for 40 or 50 years previous to 1892/93, but it was then taken up as a Famine Relief work and restored at a cost of Rs 7244. The breaches in its bank were closed, the bank & revetment put into thorough order, the irrigating Sluice was provided with a new head with screw gearing Shutter, and a new Surplus weir & new rough stone ligewash were constructed.

The tank a
Irrigation
Should the
classed as a
"Major" work.

3. Previous to its ruin & consequent abandonment the tank irrigated only 100 and odd acres, it has therefore since its restoration been classed as a "Minor" irrigation work, and is in charge of the Revenue Department.

In its present condition however, it has a waterspread of 14,113,144 sq ft. and an approximate capacity of 42,339,432 cft, which allowing 60 cft per hour per acre is capable of irrigating 245 acres for 120 days. The tank

Notice

thus sum: and as the 2115 acres it is proposed to irrigate lie in the limits of two villages — 87.65 acres in Gumodegama village & 157.60 in Haremhal village — and land must be taken up for the channels, it is necessary that the work be done by Government; the ryots being made to contribute towards the cost of earthwork, if considered necessary.

Dimensions of irrigation channels.

6. In estimating the dimensions of the irrigation channels their discharging capacity has been made large enough to carry twice the ordinary discharge required i.e. instead of 60 cft per hour, 120 cft per acre per hour has been allowed. This is to allow for the extra quantity of water necessary to flood the fields previous to sowing.

Dimensions of Syphon Sluices

7. For the same reason the barrels of the syphon sluices have been made large enough to pass the double allowance of water.

General method adopted in computing dimensions of the Channels.

8. For instance — the channel A.S. C.D. (See tracing) at its exit from the syphon sluice S. has to irrigate 104.89 acres, which at 120 cft (60×2) per acre per hour, should give a

Necessity for construction of Syphon Sluices.

past crop since its restoration has not failed to fill up every year, and it ought to be classed as a Major irrigation work. It has a hilly catchment of 36 Square Miles.

4. Previous to its restoration there were two large breaches in the bund of the tank, one close by the irrigating sluice and the other near the surplus weir. By the scour of the water passing for years through these breaches the face of the land was cut up, and the fields originally irrigated by the tank have been separated from each other by streams (Vide tracing from the Survey map attached hereto). These stream beds now serve to carry away the surplus water from the tank weirs, and it is necessary to carry the water for irrigation across them. When the surplus weirs are discharging these streams not only flow full, but the water also overflows into the fields; it is therefore not advisable to contract the waterway by building aqueducts for the irrigation water, and provision is therefore made in this estimate for five Syphon Sluices at the requisite places.

Note: To explain the syphoning is an old & doubtful way with syphons 2 & 4 unlike art more than the present arrangement

L.S. Beal V.S. 7.3.16

5. The cost of the Syphon Sluices amounting to Rs 2150 it is beyond the power of the ryots to contribute this necessity for providing the irrigation channels at Govt expense.

a discharge of 3·5 cft per second. To give this discharge a channel with 2 ft bottom width; ratio of side slopes 1 to 1; fall 1 on 2 in unity, and depth of water 1 10½ inches is required by Bazin's formula; but as it is unnecessary to take the fractional depth of 7/8 ft in computing for earthwork, the dimensions taken in the estimate is 3+1



9. The dimensions of the pipes of Syphon Sluice No 1 has been obtained by the following calculation.

Difference of level between inlet & outlet openings in cisterns = .64

Discharge required = 3·5 cft per second for 104·89 acres

$D = 5A\sqrt{h}$

$3·5 = 5A\sqrt{·64}$

$A = \frac{3·5}{5\sqrt{·64}} = \frac{3·5}{4} = .875$ sq ft

Dimensions given = 2 pipes of 9" diameter = .88 sq ft

10. The estimate provides for earthenware pipes 9" diameter for Syphon Sluices No 2, 3, 4 & 5. These Syphons are required to pass 0·06, 0·12, 0·15 & 0·28 cft per second respectively, and the size of the pipe allowed is larger than is necessary, but it is

Computation for dimensions of barrel of Syphon Sluice No 1

Pipes for Syphon Sluices No 2, 3, 4 & 5.

is advisable to have one dimension on in case of repairs being necessary the 9" diameter pipe is provided for.

Floor levels of cisterns

11 The floors of the cisterns of the Syphon Sluices are placed 2 ft below the level of the sills of the barrels. This is because the tank water contains a large quantity of silt in suspension, which would eventually choke up the barrels unless space is provided in the cisterns to contain the silt which would be deposited. The ryots should be made to clean out the cisterns at least once a year.

12 Materials.

Burnt stone & slabs - From Kurugadi. Distance 4½ miles.

Broken stones for concrete - From fields average distance 2 miles.

Limestone - from distance of 4 miles but may be burnt near the work site

Earthen ware pipes from Calicut in the Malabar District

Labor

Stone Masons from Bellary - 24 Miles

Unskilled labor from Gundegannal Havinhal & Sirigeri - Distance 1, 1, & 2 miles respectively. These are all

pass by the ryots to continue their Govt expense.

all workers in fields, and are obtainable only when no field operations are going on.

E. Taylor.
Sub. Engineer
24/4/95

CHIEF ENGINEER FOR IRRIGATION 25 MAR 96

17 March 96
17/3/96

CHIEF ENGINEER FOR IRRIGATION 20 MAR 96 24/3/96

Ans. 5/5
4919/86

EXECUTIVE ENGINEER 30 MAR 96 BELLARY

your expense.

No 3876 Superintending Engineer's office
3rd Circle
Bellary. 10th March 1896.

From.
W. B de Winton Esqr.
Superintending Engineer
III Circle

To,
The Collector of Bellary.

Sir, With reference to your Reminder to Ref. No. 2670— dated 18th May 1894, I have the honor to forward herewith the plan, estimate &c, as per margin, for excavating a Channel and constructing 5 syphon sluices for Gundganoor tank for your countersignature and transmission to Government through the Board of Revenue with the suggestion that the tank be classified as Imperial, as it will be capable of irrigating more than

2 Plans
1 Report.
1 detailed Estimate
1 Abstract—do.—Genl.
1 Data
6

than 200 acres after the completion of the necessary repairs.

Shane en

(sd) W B Atkinson
Superintending Engineer.

/ True copy / Nr 969

Submitted to the Board of Revenue, Revenue Settlement &c, for favor of approval and transmission to Government for sanction.

2. The estimate with report and plan received from the Superintending Engineer is also submitted as well as a copy of this office letter Refno 2670/18.594.

16.3.96

(sd) L.A. Coleridge
For Collector.

/ True copy /

(sd) Illegible
Secretary.

your expense.

R 180 M/96

Letter from the Collr of Bellary No 969 dt 16.3.96. Gurrigunnur Tank Repairs. Submg Estte for Rs 3010 for approval and transmission to Govt

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Forwarded to the Chief Engineer for Irrigation for favor of remarks

(sd) P Rajahentra Mood
Secretary

21.3.96.

To Mr R.I with papers in reply to be returned.

No 753 M — Encs 6

Returned approved.

2. The undersigned concurs in the opinion expressed by the Supdg Engr. in Circle, that the tanks should be classed as a D.P.W. Work. If the Board has no objection to the Supdg Engrs suggestion, the Estte for improving the tanks will, if retransmitted, be submitted for the sanction of Govt in the P.W.D.

(sd) R K L Drake Brockman
CE

31.3.96

(Sett. 22—2,000—16-10-95.)

REVENUE BOARD OFFICE * MADRAS *

Proceedings of the Board of Revenue

(Revenue Settlement, Land Records and Agriculture).

Dated 13th April 1896

No. 1794 Revs.

READ endorsement from the Chief Engineer for Irrigation, dated 31st March 1896, No. 153 Irr.

Resolution dated 13 April 1896 No. 1794.

The Board agrees with the Superintending Engineer that the tanks should be classed as 'Imperial'. The estimate and plans will accordingly be retransmitted to the Chief Engineer for Irrigation with the request that the sanction of Government in the P. W. D

may be obtained, & the
execution of the work.

(True Extract)

Yours &c
Secretary

To
The Chief Engineer for Irrigation
with the plan & Estimates &c
referred.

Copy - Collector of Bellary

OFFICE OF THE
DIRECTOR OF IRRIGATION
MADRAS
No. 242 M 1896

(Sch. 20—2,000—3-9-04)

Board of Revenue

(Revenue Settlement, Land Records and Agriculture),

MADRAS.

To

The Chief Engineer for Irrigation

Former case
No 153 M dy 31-3-96
R 180 M - 21.3.96

Ogc. c
Log C 2/96

No. of Enclosures.

Proceedings, dated 13 — 4 — 1896
No. 1794 Revs.

Subject.

Minor Irrigation work in Bellary Dt.
Returning to him the estimate & plan of a certain — and requesting him to obtain the sanction of Govt to the P.W.D for its execution by the P.W.D.