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MADRAS RECORD OFFICE

Government of Madras

Public Works

DEPARTMENT

G.O. No.	1397	(W)	Press
B.P. No.			Mis.
Dated	5-6-		1876.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
5th June 1876.*

Read the following papers :—

No. 80. Endorsement of the Secretary to Government, Military Department, dated Fort St. George, 17th March 1876, No. 1,367.

From Major H. M. VIBART, R.E., District Engineer, Bangalore, to the Assistant Quartermaster-General, Mysore Division, dated Bangalore, 7th March 1876, No. 566.

With reference to G.O., No. 177 of 24th January 1876, I have the honor to forward plans and estimates as per margin

1 Estimate and Plan of Rs. 4,640, for wells.
1 " " " 13,540, for filter.
1 " " " 1,580, for tunnel.
1 General Estimate and Plan, amounting to " 23,000.

with the following remarks :—

1st.—*New Filter.*—It is proposed to build a filter (to replace the damaged one near Ulsoor Rock) near the Dhobies' Wells

and to discharge the filtered water from it into the pump well close to the engine-house, to supplement the supply from the Dhobies' Wells whenever it may be desirable to renew the filtering material in the filter (now in use) at the Ulsoor Rock.

The filter will be supplied by a line of pipe laid as shown in plan, the supply being regulated by a sluice valve. The bed of the tank will be deepened so as to form a channel to enable the tank water to reach the sluice even when the tank level is 7 feet 6 inches below the site of escape (that is about 2 feet lower than the tank water is at present). Allowance has been made for rebuilding the tunnel on road round the tank. It may be necessary, as the floor of the tunnel will have to be lowered 4½ feet.

In addition to this it is proposed to extend the Dhobies' Wells as shown in plan. On east the wells will be extended 75 yards by two wells connected with small tunnels. On west the wells will be extended 130 yards by three wells in the same way.

I beg to request that the plans and estimates may be returned with the approval of the Major-General Commanding the Division.

No. 116.

FORWARDED with plans and estimates to the Quartermaster-General for submission to His Excellency the Commander-in-Chief. Major Vibart's scheme for providing a new filter at the Ulsoor works has my complete approval.

BANGALORE,
15th March 1876.

(Signed) C. ELMHIRST, Major-General,
Commanding Mysore Division.

No. 1,907.

FORWARDED to Government for transfer and consideration in the Public Works Department, with reference to O.G., No. 177, of 24th January 1876, Public Works Department.

(By order,)

FORT ST. GEORGE,
16th March 1876.

(Signed) A. HOWLETT, Brigadier-General,
Quartermaster-General.

To the Secretary to Government, Military Department.

TRANSFERRED accordingly to the Public Works Department.

(By order,
(Signed) J. MICHAEL, Colonel,
Secretary to Government.

MEMORANDUM.

No. 80-A.

ULSOOR FILTER.

1. It is desirable that the District Engineer should show on what general data or assumptions his estimate for the filter at the Dhobies' Wells is based.

2. The following are some of the inquiries which suggest themselves, the replies to which shape the conditions which have to be satisfied by the design.

What is the maximum daily supply of water which will probably be required from the filter now to be constructed?

What is the maximum depth of water which can be obtained as a head on the filtering material, i.e., above the upper surface?

What is the quantity of water per unit of filtering surface which will pass from the filter in twenty-four hours, with the head allowed, and from what data is the calculation made?

What is the nature of the soil on which the bed and sides of the filter rest, is it pervious or retentive?

What is the minimum head of water under which the supply pipe from the reservoir (tank) will work, and what diameter of pipe is required to discharge the maximum daily supply required under the head noted?

What is the nature of the soil in which the channel in the bed of the tank is cut?

3. It is to be observed that the nature of the supply to the filter now under notice is essentially different from that to the filter at the Ulsoor Rock. The water will gravitate on to the first while it is pumped up to the other. A certain amount of waste from leakage is of little consequence in the one case, while it is of great importance in that where water has been raised by steam power.

The construction of a perfectly water-tight basin at great expense in the manner proposed seems to be unnecessary. It is thought the sides should be formed of

* Perhaps puddled at the back. concrete* at an angle of from 45° to 60°, and averaging 2 feet 6 inches in thickness

with a parapet wall of stone in chunam about 1 foot 6 inches above ground level, with orifices for overflow. The floor of puddled clay 2 feet 6 inches thick with a layer of broken stone 1 foot thick, the upper 4 inches being concreted by the addition of a proportion of lime and soorkee, on the top of the concrete the drains would be laid.

The gathering drain-pipe should increase in diameter as it approaches the orifice or outlet, or else a double and finally a treble row should be laid thus

4. The area of the proposed filtering basin is 555 square yards, and taking the results of English experience as a guide, with a depth of filtering material of about

5 feet, and a depth of water over the material of 4 or 5 feet, the filter would pass 280,000 gallons in twenty-four hours. This would be enormously in excess of the requirements which probably would never exceed some 20,000 gallons a-day delivered.

In the case in point the drains occupy 1 foot of the depth of the basin, and the filtering material $4\frac{1}{2}$ feet, leaving $2\frac{1}{2}$ feet, for the depth of water, supposing the basin were full. Under this smaller pressure the filtration would no doubt be slower than in the example quoted, but it is not understood how the assumption of the actual area necessary for the required supply has been arrived at.

5. A tank for the collection of the filtered water seems to be necessary although it has not been provided for. It should hold half a day's supply (or, say, 10,000 gallons), and it would be better to connect it directly with the pumps. The reason for this suggestion is that the present pump well is connected with a system of collecting wells and tunnels, and the filtered water on being passed into the pump well would disperse itself without materially raising the level of the water in which the suction pipe works.

6. The side slopes of the channel to be excavated in the tank seem to be steeper than 45°. The nature of the soil may admit of such slopes even under water. In average soil they would be rapidly degraded and might cause a slip in the inner face of the tank embankment.

7. There should be a masonry face wall to carry the end of the pipe where it opens into the channel, and the pipe should be laid in cement in the masonry. The back of the wall should be puddled, and the pipe where it passes through the bund should be cased in puddled clay.

10th May 1876.

(Signed) A. DEC. SCOTT, Major, R.E.

No. 81.

ORDER THEREON, 5th June 1876, No. 1,397.

MILITARY WORKS, No. 1.

THE District Engineer, Bangalore, submits an estimate of Rupees 15,120 for a new filter at the site indicated in paragraph 4 of Major Scott's memorandum recorded with G.O., No. 177, of 24th January. But he has omitted to provide a pure-water tank in connection with it, an omission which he has not explained, and which is objectionable on the grounds stated in paragraph 5 of Major Scott's present memorandum. It is further incumbent on him to state the grounds on which the dimensions of the filter have been assumed at 100 feet by 50 feet. The plans and estimates for this portion of the project will be revised by the District Engineer in direct communication with Major Scott, and submitted through that officer, who has studied the subject on the ground, and will see to the working out of its details. It would have been well had he determined, when last at Bangalore, with the District Engineer, the exact dimensions necessary, and the most economical mode of construction.

2. An estimate of Rupees 4,640 for five additional Dhobies' Wells is also submitted by the District Engineer. But no necessity has been shown for such extension; a similar extension was objected to by His Excellency the Commander-in-

*Proceedings of the Madras Government, Public Works Department,
5th June 1876.*

Chief, and finally decided against in G.O., No. 144, of 15th January 1873; and the project is not supported by the local Military Authorities. It will be laid aside.

(True Extract.)

Colonel,

Offg. Under Secy. to Govt., P.W.D.

*of the Madras P.W.D. is
not in favour of
the project. It is
not supported by the
local Military Authorities.
It will be laid aside.*

Pro

Chief, an
project is

Madras Office

The 12 enclosures of Current
Number 2007/76 have been
sent to D.E. Bangalore with
memo No. 1196-5th August 1876
Please mark this in Original
of G.O. 1397-5th June 1876.

Offg Chief Asst. P.M.D.

See to be done - please
note - 7/5/76

H. I. Form No. 34.

Urgent
M. M.

For R 2 B N/56

MEMORANDUM.

REQUESTED for reference the under-mentioned papers:—

Plans & Estimates with specification
with 86 N/1397-5th June 1876.

OFFICE OF THE CHIEF ENGINEER
FOR IRRIGATION,

28 - 7 - 1876.

Plaidman
In charge of correspondence
R. S.

Head Clerk.

To

The Registrar of the M. S.



N^o 2

Water Filter

Memorandum

It is desirable that the District Engineer should show on what general data or assumptions his estimate for the filter at the Shobier Wells is based. The following are some of the inquiries which suggest themselves, the replies to which shape the conditions which have to be satisfied by the design.

What is the maximum daily supply of water which will probably be required from the filter now to be constructed?

What is the maximum depth of water which can be obtained as a head on the filtering material, i.e. above the upper surface?

What is the quantity of water per unit of filtering surface which will pass from the filter in 24 hours, with the head allowed & from what data is the calculation made?

Received 1872-6-10

What is the nature of the soil on which the bed ^{is} of the filter rests - is it pervious or retentive?

What is the minimum head of water under which the supply pipe from the Reservoir (Tank) will work. And what diameter of pipe is required to discharge the maximum daily supply required under the head listed.

What is the nature of the soil
in which the channel
in the bed of the track is cut?

It is to be observed that the nature of the supply to the filter now under notice is essentially different from that to the filter at the Elson Brook. The water ~~is~~ will percolate on to the first while it is pumped up to the others. A certain amount of waste from leakage is of little consequence in the one case while it is of great importance in that where water has been raised by steam power.

perhaps paddled at the back.

The construction of a perfectly
water tight basin at great
expense - in the manner pro-
posed seems to be unnecessary.

It is thought the sides should be formed of concrete, at an angle of from 45° to 60° and averaging 2'-6" in thickness with a parapet wall of stone in chimney slant, 1'-6" above ground level, with openings for overflow. The floor of puddled clay 2'-6" thick with a layer of broken stone 1 ft. thick, the upper 4" being concreted by the addition of a proportion of lime & sorgho. On the top of the concrete the drains would be laid.

The gathering beam should increase in diameter as it approaches the output or inlet or else a double finned a tube row should be built.

Thus _____?

The area of the proposed
filtering basin is 55,500
yards. Taking the results
of English experience as a
guide, with a depth of
filtering material of about
5 feet & a depth of water
over the material of four or
five feet, the filter would
pass 200,000 gallons in
24 hours. This would be
enormously in excess of the
requirements which probably
would never exceed some
20,000 gallons a day
absorbed.

In the case in point the
drains occupy one foot of the
depth of the basin & the
filtering material ^{four} four & a half
feet leaving two & a half feet
for the depth of water supplying

the basin were full.
Under this smaller pressure
the filtration would no
doubt be slower than in
the example quoted but
it is not understood
how the assumption of the
actual area necessary for
the required supply has been
arrived at.

5
A tank for the collection of
the filtered water seems to be
necessary although it has
not been provided for. It
should hold half a day's supply
(or say ^{sales} 10,000?) and it
would be better to connect it
directly with the pumps.
The reason for this suggestion
is that the present pump well
is connected with a system
of collecting wells & tunnels
& the filtered water on being
pumped into the pump well
would disperse itself
without materially raising

the level of the water in
at the suction pipe works.

6. The side slopes of the channel to be
excavated in the tank seem
to be steeper than 45°.

The nature of the soil may
admit of such slopes even
under water. In average
soil they would be rapidly
degraded & might cause
a slip in the inner face
of the tank embankment.

7. There should be a masonry
face wall to carry the
load of the pipe when it opens
into the channel & the pipe
should be laid in cement
in the masonry. The back of
the wall should be puddled
& the pipe when it passes
through the bank should be
cooped
and in puddled clay.

Dated
10-5-76

per that

DISTRICT ENGINEER'S OFFICE,
BANGALORE. 7th March 1876

No. 566.

FROM

THE DISTRICT ENGINEER,
BANGALORE.

THE

Asst. Dy. Mr. General
Mr. Dy.

SIR -

With reference to Ld.
17.9.76 of 24 January 1876 I have
the honore forward plans and
Estimates as per margin with
the following remarks:
1st New Filter. It is proposed to
build a Filter (to replace the da-
maged one near Ulloori Rock)
near the Dhoby Wells and to
discharge the filtered water from
it into the Pump well close to the
Engine House to supplement the
supply from the Dhoby Wells
whenever it may be desirable to
renew the filtering materials
in the filter (now in use) at the
etc.

The Filter will be supplied
by

1. Estimate and Plan of Old 4660 for well
Do 13540 for Filter
Do 1580 for Tunnel.
1. General Estimate and Plan amounting
to Rs 23000-0-0

by a line of pipes laid as shown in Plan the supply being regulated by a sluice valve. The bed of the tank will be deepened so as to form a Channel to enable the tank water to reach the sluice even when the tank level is 7-6 below the silt of escape (that is about 2 ft lower than the tank water is at present). Allowance has been made for rebuilding the Tunnel on road across the Tank & it may be necessary as the floor of the tunnel will have to be lowered 4 ft.

In addition to this it is proposed to extend the Dhole's wells as shown in Plan. On East the wells will be extended 75 yds by 2 wells connected with small tunnels. On West the wells will be extended 130 yds by 3 wells in the same way.

I beg to request that the

the Plans and Estimates may be returned with the approval of the Major General commanding the Division.

I have the honor to be
 Sir
 Your most obedt servant.
 Major Robert Major D.E.
 District Engineer

1280
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 1420

1280
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 1420

Forwarded with plans and estimates to the Quarter Master General for submission to His Excellency the Commander in Chief. Major Roberts scheme for providing a new filter at the Ulsor works has my complete approval.

15th March 1876

Major General
 Commanding

17 March 1876

[illegible]

Confession 5 - No. 10/11/12

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From the Government
for the 1876

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Ms. 116

Towards for publication
to the Government in their
letter from St. Engineer
with Plans and Estimates
for new fills at the
Million Rock?

Aug 26 38
D. 26 38

Quarter Master General's Office.
Fort Saint George 16 March 1896.

Forwarded to Government

For transfer and consideration in the
Public Works Department, with reference
to 177 of 24 January 1896. P. W. S.

1/30/1900

James
Walter Walter Journal.

The Secretary to Government

Military Department.

No. 1
The above named person has been found
to be the owner of the same.
No. 2
The above named person has been found
to be the owner of the same.

The District Engineer
Bangalore submits an Estimate
of Rs 15,120 for a new filter
at the site indicated in para
4 of Major Scott's Memo-
randum recorded with G.O.
No. 177 of 24th January -
But he has omitted to
provide a pure water tank
in connection with it, an
omission which he has not
explained

explained, and which is objectionable on the grounds stated in para 5 of Major Scott's present Memorandum. It is further incumbent on him to state the grounds on which the dimensions of the filter have been assumed at 100 feet by 50 feet.

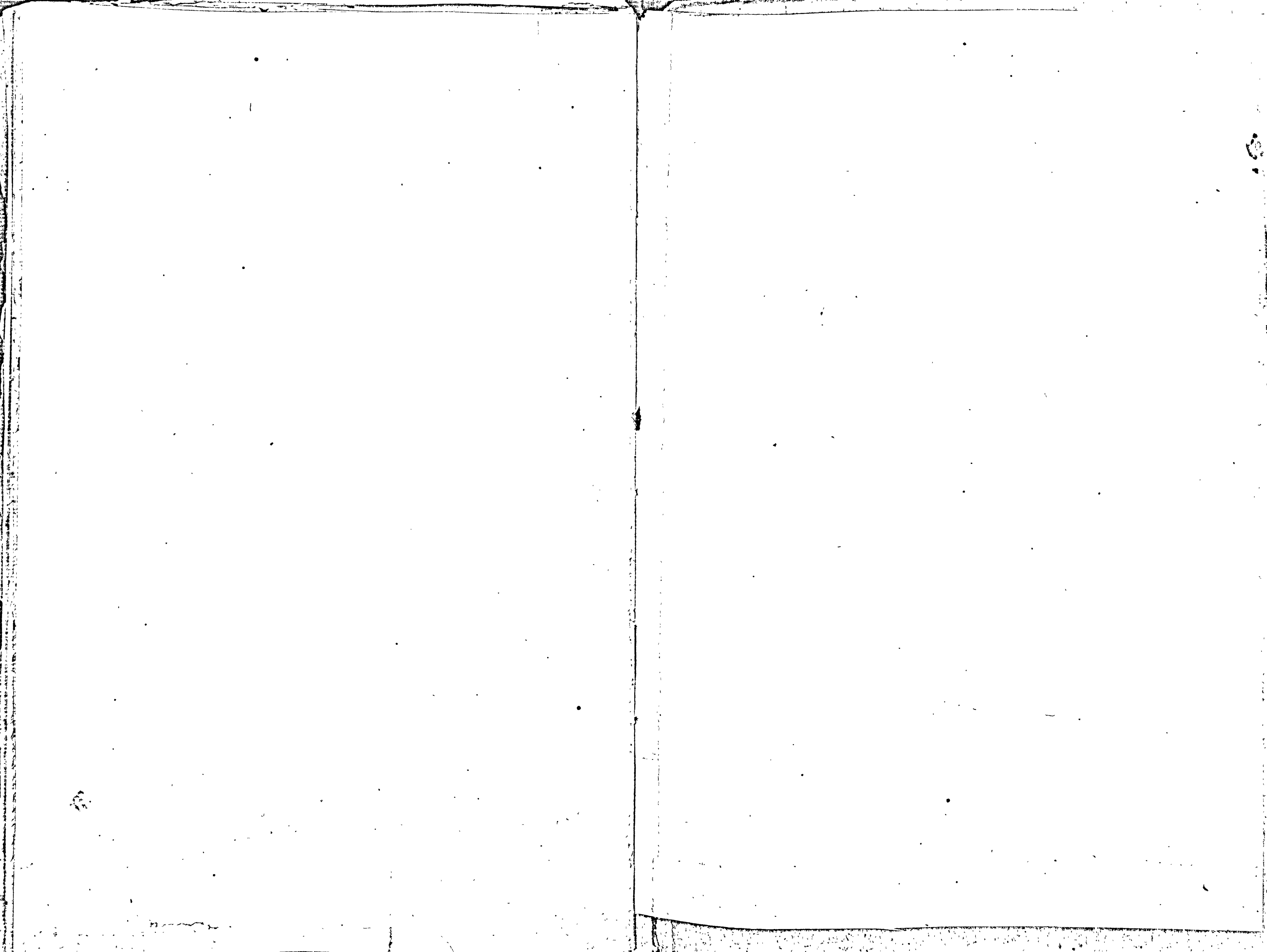
The Plans and Estimates for this portion of the project will be revised by the District Engineer in direct communication with Major Scott, and submitted through that Officer who has studied the subject on the ground, and will see to the working out of its details. It would have been well had

had he determined, when last at Bangalore, with the District Engineer the exact dimensions necessary, and the most economical mode of construction.

2. An Estimate of Rs 4640 for 5 additional Dhobies' Wells is also submitted by the District Engineer. But no necessity has been shown for such extension; a similar extension was objected to by His Excellency the Commander in Chief, and finally decided against in G.O. No. 144 of 15th January 1873; and the project is not supported by the local Military authorities. It will be laid aside.

S.E. Bangalore
Major A. de Scott R.E.
Military Dept.

Desd 17/6/76 H. Plan given to the
Irrigation Dept. Vidyadhar



2007/CA

Govt. of 1876: Madras,

PUBLIC WORKS.

The N. E. Bangalore

Date:

To:

By:

4 Plans given to
the Engineer in charge
regarding the attached
plans 28-7-76

G. O. 5 June 1876, No. 1397

No. 80/81

New Filler and 5 additional
Shobis' Wells at the
Dulcor Rock - Bangalore

Passing orders on
Plans & Estimates for
constructing

19-8-76