

(1) Number of pages _____

(2) Date of repair _____

(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.**Government of Madras.***Public Works* **DEPARTMENT.**

G.O. No.	393 (W)	Press Mis.
Dated	9-7-	1877.

Not to be folded or roughly handled

GOVERNMENT OF MADRAS

PUBLIC WORKS DEPARTMENT.

9th July 1877, No 393 W.

Buildings and Roads

Military Works

Read the following papers —

No 125. From Captain J L L. MORANT, R E, District Engineer, Nilgiris, to the Chief Engineer, Public Works Department, Buildings and Roads, dated Ootacamund, 10th April 1877, No 138

I RECEIVED your telegram of the 6th of April at 6-30 P M on my return from Coonoor. The next day I paid a visit to the Principal of the Lawrence Asylums, and 4 P M on Monday, the 9th instant, was fixed for a meeting of the Asylum Committee, which I and the Medical Officer attended. Messrs Webster and Knox were the only two members present. It was then decided that the two following works were of emergent sanitary importance —

(1) — A large iron tank cistern including a filter to be raised some 6 feet on iron pipes at the highest point to which the water is now pumped on the plateau to provide a daily supply of 5,000 gallons

(2) — Lion bell traps to be provided for the openings of all the drainage wells on the plateau.

2 The Committee consented that I should submit to you a plan and estimate for the first work; this I am preparing. The Reverend Principal was also to ascertain whether the pump could force the water some 15 feet higher than it does now, and to let me know the result on Wednesday. With regard to the second work I shall be obliged if you will kindly give me the benefit of your advice.

I have written to the District Engineer, Presidency, and the Public Works Storekeeper to ask whether any such traps are in store. If not, could you kindly tell me where they are to be procured?

3 In the mean while the sanitation of the asylums is quite safe, and in the Medical Officer's opinion no evil is likely to arise from the existing arrangements.

No 125-A From the same Officer, dated Ootacamund, 24th April 1877, No 157

In continuation of my letter No 138, dated the 10th of April 1877, I have the honor to forward a plan and estimate for improving the water-supply and drainage of the Male Branch of the Lawrence Asylums.

2 The improvement consists in dividing the existing reservoir into three parts so as to form a silt chamber, a filter bed, and a pure water cistern, in roofing the whole of this reservoir so as to preserve it from contamination; in raising a large iron tank on the edge of the plateau, to which point the water is now pumped, and from thence distributing it to the wash-house and kitchen, and in placing cast iron stink or bell traps over the drainage wells as shown on plan.

Check by Mr. Morant

3. If it be impossible to obtain an iron tank of the size specified, it would perhaps suffice to erect twelve or fifteen of the smaller ship tanks $4 \times 4 \times 4$ feet such as have been placed on the Madras Revenue Board Buildings. Each of those tanks can hold, I believe, about 400 gallons of water. I have not attempted to give any details of the large iron tank, as I have had no experience in such matters.

4. There are numerous cast iron pipes of about 6 inches internal diameter lying about the asylums, some of which I purpose utilizing in forming supports for the large iron tank. The foundation for these pipes will have to be sunk some depth owing to the cistern having to be built on the edge of the plateau.

5. The daily quantity of water required by the male institution is 5,000 or 6,000 gallons. The area of the filter bed is 157 square feet; 75 gallons of water are supposed to pass through every square foot of it in 24 hours, therefore in 24 hours it will filter 11,775 gallons of water. The pure water cistern holds 3,750 gallons of water. I have purposely made it smaller than the filter chamber, because the latter may not filter so fast as I anticipate. But if you think desirable the position of the partition wall can be altered without affecting the estimate.

No 125-B. From the same Officer, dated Ootacamund, 1st June 1877, No 208.

I HAVE the honor to submit the information required in your Deputy's memorandum, No 1,306, dated 17th ultimo, regarding the water-supply and drainage of the Lawrence Asylum.

2 In accordance with your paragraph 1, I enclose an estimate, amounting to Rupees 1,610, for a masonry cistern $10 \times 10 \times 10$ feet.

3 In reply to the close of paragraph 1, I beg to report that iron cisterns can be rivetted here, provided the holes are made in Madras, and the rivets fitted there first and then sent up loose.

4 In reply to your paragraph 2, I beg to submit an estimate, amounting to Rupees 938, for four small iron cisterns on iron pillars, the pillars being firmly bound together.

5. I regret that, owing to my utter inexperience in iron, I cannot supply the information required in your paragraph 3. I respectfully beg that when the cisterns are ordered, the matter be left to the Superintendent of the Public Works Workshops, Madras.

6 With reference to your paragraph 4, I beg to be allowed to explain that the stink traps or bell traps are also storm water traps, and that every shower of rain rushes down them forcing out the air along with the water. Similar traps have been provided at Wellington, and no complaints against them have been received during the past three years, they seem to be quite satisfactory. I can see no way of ventilating these (so called) sewers except at large cost. The drains which the traps cover are not sewers at all, though they may at times irregularly receive small quantities of decaying and perhaps of faecal matter. They receive little else than the rain which drains off the plateau and the water from all the baths of the institution. The faecal matter and urine in the latrines are both daily taken away from the latrines in carts.

7. The origin of the out-break of typhoid fever amongst the boys at the Lawrence Asylum was clearly traced by both the Medical Officer and myself. It was caused by the drinking water being fouled on its passage to the kitchen cistern by the percolation of urine (spilt from the carts which convey it away) first into the wash-house drain and then into the earthenware pipes which carried the drinking water. The Medical Officer at once opened out these drains and had the drinking water conveyed in carts from a point nearer its source. The fever then ceased.

8 With reference to paragraph 5, I beg to return the plan and estimate which accompanied your memorandum under reply, the cost of the iron tank is raised from 300 to 600 Rupees.

No 126

ORDER THEREON, 9th July 1877, No 393 W.

Heads of Service — Imperial

Fund — Ordinary

Class — Original Works

Main-head — Military

Sub-head — Miscellaneous — Military

Work — Constructing reservoir, cisterns, &c, at the

Lawrence Asylum, Ootacamund

Amount — Rupees 2,720

To be carried out by the Public Works Department

	RS
$\frac{3}{4}$ Constructing a filtering reservoir	930
$\frac{3}{4}$ Constructing ten iron cisterns to store filtered water on the plateau	960
$\frac{3}{4}$ Improving drainage of plateau	830
Total	2,720

THE plans and estimates, as corrected in the Chief Engineer's Office aggregating Rupees 2,720 for the works particularized below for the Lawrence Asylum at Ootacamund, are sanctioned —

2 Funds are appropriated from the Reserve under Military

3 This sanction has been registered as Imperial No. $\frac{30}{13}$ B of 1877-78.

(True Extract.)

Colonel, R.E.,
Secretary to Government, P.W.D.

To the District Engineer, Nilgiris
" Examiner of Public Works Accounts
" Educational Department

Exd. E C Shunker
Spare Copies

Head of Service Imperial

Fund. — Auxiliary

Class. Original Works

Main-head. Military

Head

Sub-head Miscellaneous Military

~~Project of which the works form part~~

Work. Constructing Reservoir at the Laurum Regium, Otacumund

Amount. Rs. 2720

To be carried out by the Public Works Department.

Printed in the margin of G.O. No. 393W 9th July 1877

District Engineer has
not applied for this
price of Iron Tanks.

Figure 7
Let the tank be made
Copper or Iron
at 14 Pcs
14 1/3 32 1/2
56 112
56 112
112 224

a cheaper way must

District Engineer has
not applied for the
price of Iron Tanks.

Probable Cost of
Iron Work for one Tank $10' \times 6\frac{1}{2}' \times 4'$
of $\frac{3}{8}"$ plate worked and ready
to be fitted together but
delivered loose, weighing
about 3250 lbs. @ $\frac{1}{2}/3$ per lb. \$ 555 - 7 - 6

Rivets of $\frac{3}{4}"$ iron weighing about
350 lbs @ $\frac{1}{6}/2$ per lb. 131 - 0 - 0

Packing Charges, &c. 3 - 8 - 6

Contingencies at 5 per cent 690 — " — "
35 — " — "

Total Cost of Tank \$ 725 — " — "

Carrage to Mettapolin 50 — " — "

Total \$ 775 — " — "

3100 -

W. B. Boulding
4/27/77

20th June 1877.

that a cheaper way must

P W.
DEPT

SECRETARY.

Madras

OFFICE NOTE

The Gent Supt J. W. W. L.

X'01

Sent the following Sub-
Carpenter apply to you
for the price of Iron
Tank: 10' x 6½' x 4'
if so please let me
know and if not
let me have the price
of tank Tank and
the cost of Carriage
to Rich's station
Simply boxed and
supplied with rods
in fixing to the
Completion at Oct 5-

Whism h/2
Sept 2-1892

19.0.77.

Reply over leaf
11 10/12/77

PUBLIC WORKS DEPARTMENT.

Letter from the District Engineer

Killgerran No 157 dated 24 April 1877.

FOR ORDERS

In circulating

for the orders of Government
the above estimate, the Chief
Engineer has the honor to
state that the proposed
iron cistern ten feet deep
will require to be of great
strength, and may take
a long time to make, and
its weight when full of
water will be too great
to

I cannot imagine that
the clearing up of our
ship's stores & tanks for the
can be the best way of
providing a storage tank
for her at the Allypore.
Surely there are other
means of providing what
is needed can be devised

I agree with you. & as to cistern
10 feet deep being unsafe
and with no Huddlestone
that a cheaper way must

to be placed with safety
on the iron pipes as proposed.

He recommends the purchase of a sufficient number of iron ships tanks 4' x 4' x 4' which can be obtained ready made in Madras and that be placed on masonry supports.

Enquiry has been made and the District Engineer has been informed that traps for the drains can be obtained at the Public Works Stores

be found by
making trials at the
cistern. Then in dropping
iron tanks up the drain.

As again the drains
can should be taken that
proper ventilation is
secured on the traps
proposed. (extensively
certain as they seem to be)
well shut in the sewer
gases & ~~for~~ properly
intensity the air.

By 12/5

Edmd Colonel R E
Lieut & Secretary to Govt
P. W. D.

FOR ORDERS

3562

41216

3552

4692 July/11 22393m

408.5.77

District Engineer's Office,

Ottacamanur

20 April 1877

No 157.

From:

The District Engineer,

Nadighumug.

To:

The Deputy Chief Engineer,

Roads & Buildings Branch,

Fort St George.

Sir,

In continuation of my letter No. 138 dated the 10th of April 1877, I have the honor to forward a plan and estimate for improving the water supply and drainage of the Male Branch of the Lawrence Aqueduct.

2 The improvement consists of my dividing the existing reservoir into three parts so as to form a silt chamber, a filter bed, and a pure water cistern; in roofing the whole of this reservoir so as to preserve it from contamination; in raising a large iron tank on the edge of the plateau to which point the water is now pumped and from thence distributing it to the wash-house and kitchen; and in placing cast iron strike or bell traps over the drainage wells as shown on plan.

3 If it be impossible to obtain an iron tank of the size specified it would perhaps suffice to erect 12 or 15 of the smaller ship tanks 4 x 4 x 4 feet such as have been placed on the Madras Revenue Board Buildings. Each of these tanks can hold 1000

about 400 gallons of water. I have not attempted to give any details of the large iron tank as I have had no experience in such matters.

4. There are numerous cast iron pipes of about 6 inches internal diameter lying about the Asylum some of which I propose utilizing in forming supports for the large iron tank. The foundation for these pipes will have to be sunk some depth into the cistern having later built on the edge of the platform.

5. The daily quantity of water required by the Male Institution is 5000 or 6000 gallons. The area of the filter bed is 157 square feet; 75 gallons of water are supposed to pass through every square foot in 24 hours - therefore in 24 hours it will filter 1175 gallons of water. The pure water cistern holds 3750 gallons of water. I have purposely made it smaller than the filter chamber, because the latter may not filter so fast as I anticipate. But if you think desirable the position of the partition wall can be altered without affecting the estimate.

I have the honor to be

Sir,

Your most Obedient Servant

J. E. Morant
Captain R. E.,
District Engineer.

N^o 125

No 208. District Engineer's Office.
Cotacaimund 1st June 1877.

From

The District Engineer
Nizaries

The Chief Engineer
Roads and Buildings
Fort St. George
Madras

Sir,

I have the honor to submit the information required in your Report's Memorandum No 1506 dated 17th ultimo regarding the water supply and drainage of the Lawrence Asylum.

2. In accordance with your para 1, I enclose an estimate amounting to Rs 1610 for a Provisional Cistern 20 x 10 x 12 feet.

3. In reply to the close of para 1, I beg to state that iron cisterns can be rivetted here, provided the holes are made in Madras and the rivets fitted there first and then sent up loose.

4. In reply to your para 2, I beg to submit an estimate amounting to Rs 988 for four small iron cisterns on iron pillars, the pillars being firmly braced together.

5. I regret that owing to my utter inexperience in iron, I cannot supply the information required in your para 3. I respectfully beg that when the cisterns are ordered, the matter be left to the Superintendent.

of the Public Workshops, Madras.

With reference to your para 4, I beg to be allowed to explain that the sink traps or bell traps are also storm water traps, and that every shower of rain rushes down thus forcing out the air along with the water. Similar traps have been provided at Wellington, and no complaints against them have been received during the past 3 years.

They seem to be quite satisfactory. I can see no way of ventilating these (so called) sewers except at large cost. The drains which the traps cover are not sewers at all, though they may at times irregularly receive small quantities of decaying and perhaps of fecal matter. They receive little else than the rain which drains off the plateau, and the water from all the latrines of the institution. The fecal matter and urine in the latrines are both daily taken away from the latrines in carts.

The origin of the outbreak of typhoid fever amongst the boys at the Lawrence Asylum was clearly traced by both the Medical Officer and myself. It was caused by the drinking water being polluted on its passage to the kitchen cistern by the percolation of urine (spilt from the carts which convey it away) first into the wash house drain and then into the earthenware pipes which carried the drinking water. The Medical Officer at once opened out these drains and had the drinking water conveyed in carts from a point nearer its source. The fever then ceased.

With reference to para 5, I beg to return the plan and Estimates which accompanied your Memorandum under reply, the cost of the sink traps raised from Rs. 300 to Rs. 600.

I have the honor to be

Sir

Your most obedient servant

J. H. Morant
Captain R.E.
District Engineer

Buildings & Roads

4 JUN 77
NR 5530

From
The District Engineer
Nigeria

No. 208.

Dated 1st June 1877.

Enclosures No. 4.
+ Return of to the
D. S. vide C. N. O.
6980 of 1877-
20th July 1877
Lawrence Asylum
Wotacamund - Submits
Estimates & information re-
garding the water supply
& drainage of the - and
returns the original Esti-
mate with Plans -

699: July/77 D. S. 125 B.

District Engineer's Office,
Wotacamund,
10th April 1877.

No. 138
From
The District Engineer's Office,
Nalgunda
To
The Chief Engineer
Buildings & Roads Branch
P. N. O.

Sir

I received your Telegram of the 6th of April at
6.30 P.M. on my return from Coonoor. The next day I paid
a visit to the principal of the Lawrence Asylum. At 4 P.M.,
on Monday the 9th Instant was fixed for a meeting of the
Asylum Committee which I and the Medical Officer attended.
Mr. Webster and Mr. Knox were the only 2 members present.
It was then decided that the 2 following works were of urgent
sanitary importance

1. A large iron tank system including a
filter to be raised some 6 feet on iron pipes
at the highest point to which the water is now
pumped on the plateau to provide a daily supply
of 5000 gallons
 2. Iron bell traps to be provided for the openings
of all the drainage wells on the plateau
- 2 The Committee consented that I should submit
to you a plan and Estimate for the first work. This I
am preparing. The Revenue Principal was also to ascertain

whether the pump could force the water some 15 feet higher than it does now, and to let me know the result on Monday.

With regards to the second work I shall be obliged if you will kindly give me the benefit of your advice.

I have written to the District Engineer, Presidency and the P. W. Storekeeper to ask whether any such traps are in store. If not, could you kindly tell me where they are to be procured.

3 In the meantime the sanitation of the bungalows is quite safe, and in the Medical Officer's opinion no evil is likely to arise from the existing arrangements.

I have the honor to be

your most Obedient Servant.

Frederick Morant Captain R.E.,

District Engineer,

L. 6 201195 of 6 April 177

P. W. D.

12 APR 77

3802

Buildings and Roads

From

The District Engineer
Nellore

To

The Chief Engineer
P. W. D.,
Buildings and Roads Branch

No. 138.

Dated 10 April 1877

C. 6 201195 of 6 April 177.

No of Enclosure

Nil.

L. 6 201195 of 6 April 177

Lawrence Asylum, Otacamund.

Regarding 2 works of sanitary improve-
ment to be carried out at the —

No. 393 W. P. W. D.

Proceedings of the Madras Government

Under date the 9 July 1877

Read the following

H. E. 138 of 10 April 1877

Letter from the Dist. Eng. Nellore (H. E. 157 of 24 April 1877)

Chief Engineer's Memorandum (No. 1306 of 17 May 1877)

Letter from the Dist. Eng. Nellore (No. 208 of 1 June 1877)

The Plans and
as corrected in the Chief Office
Estimates aggregating
Rs 2720 for the works
particularized below
for the Lawrence Asylum
at Otacamund, are sanc-
tioned.

30 Constructing a filtering Reservoir Rs 930

30 Constructing 10 Iron cisterns to store filtered water on the Plateau 960

30 Improving Drainage of Plateau 830

2720

Funds

P. 11. 10

2. Funds are appropriated
from the Reserve under
Military

3. This sanction has
been registered as Imperial

No. 30A of 1877-78

607 1877-78

4. The amount of
the grant is Rs. 10,000
and is to be paid in
three instalments of
Rs. 3,333 each.

5. The grant is to be
used for the purpose of

6. The grant is to be
used for the purpose of

7. The grant is to be
used for the purpose of

8. The grant is to be
used for the purpose of

M. Kiziri with Period
P. U. A. Plans & Estimate
Ecl. Dept.
Dated 13-7-77

1538

153329



Govt. of 1877 Madras
PUBLIC WORKS.

To
Dated
Issued
Recd
Immediate
9-7-77

Encl

O. G. No 1877, No 393W

Nos. 125-126

Lawrence Asylum at
Attacamund, Nilgiri

Dr - The enclosed plans
and estimates aggregating
Rs. 2720 for certain works
to the —, sanctioned
and funds provided

Enclure Register
21-7-77

recd - 13-7-77

recd - 13-7-77