L. & M.
9 000-8-8-94.

Local & Munl. (1895) Department.

MISCELLANEOUS.

G.O., No. 1177 M

DATED 24th July 1895

[Despatch Abstract.]

Disposal of rubbish.

Forwarding the Proceedings of the Sanitary Board on the proposal of the Municipal Commission, Madras, regarding the -------in the Madras Municipality to the Municipal Commissioners for remarks.

BACK PAPERS.

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

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.
Go	2123		[illegible]/95				

Fund was invested at any … the same rate
loan bore interest at 4 per …
I have already pointed ou…
has now been removed and …
~~concession as to~~ payment …
on the Sinking fund to the …
a 4 per cent loan of 14.30.000 …
identical in its financial re…
original loan of the same a…
in 1869-73.

5 The sanction of the Gov…
India will not be necessar…
decided to permit the Muny …
a loan in the publ… …nber 1894
be necessary to the disch…
… before due date and to …
… loan from the Governm…

I have the …
Si…
Your most …
…vant
… for …
Account…

---

(189) DEPARTMENT.

Local & Municipal Dept.

CURRENT No. 256 M

From

THE ACCOUNTANT-GENERAL,

MADRAS,

To

THE Chief Secy to Govt
L & M Depts

No.

Dated 24 } Jany 95
Received 25 }

No. 158

Subject.

Submitting [illegible] … papers … for … loan … The Municipality

BACK

G.O.	No.	Department.	Date.

FURTHE

G.O.	No.	Department.	Date.
Go	2123		[illegible]/9

nable it not merely to
desired improvements but
the balance of the original
this, it desires to be allowed
of the same amount in
et at 4 per cent.

rence to the proposed re-
rate of interest, I would
int out that apart from
nsideration to which Govern-
ld the Municipality to b
does not appear to be an
concession. It is true t
bu te of subject of its cr
vernment t
uce the interest
½. But I know
nt should be exp
the same rate
hat the Municip
ch as to float
pen market at
's alternative p
ent. Some gro
felt so long as the

Book

DEPARTMENT.

No.

From

FO

To

THE

SIR,

FORT ST. GEORGE,
Accountant-General's Office,
24th January 1895.

No. 158

Local & Municipal De
CURRENT No.

From
T. V. Rawlins Esquire,
ACCOUNTANT-GENERAL TO THE
GOVERNMENT OF MADRAS,

To
The Chief Secretary to Government
Local and Municipal Dept.

SIR,

With refe
Proceedings nce to paragraph 2 of
November 1894 1769 M. dated the 19th
submit the I have the honor to
2 wing remarks.

payment of g Fund for the re-
14,30,000 to original loan of
sented 1869-73, is now repre
to the no nt 3½ per cent Securit
rules recom lue of Rs 7,40,300. Unde
General nd ed by the Comptroller
neutr e th ded apparently to have
vrom of Go

---

the same rate
carry out the

the same rate
carry out the

Book DEPARTMENT.

FORT ST. GEORGE,
Accountant-General's Office,
24th January 1895.

No. 158

Local & Municipal Dept
CURRENT No. 258 M

From
~~J~~
W. Rawlins Esquire,
ACCOUNTANT-GENERAL TO THE
GOVERNMENT OF MADRAS,

To
THE Chief Secretary to Government,
Local and Municipal Deptt.

SIR,

With refe
Proceedings nce to paragraph 2 of
November 1894 1769 M dated the 19th
submit the I have the honor to
2 fol wing remarks.
payment of ng Fund for the re-
14 30,00 original loan of
sented 1869-73, is now repre
to the n ent 3½ per cent Securiti
rules recently lue of Rs 7,40,300. Under
General nd sed by the Comptroller
neutr the ended apparently to
version of Go ong as the

L & M DEPARTMENT.

Currt. No. 256-M.

From

Dated 189 .

FOR ORDERS.

In his letter read in G.O. $\frac{1860\text{-M}}{3\text{-}12\text{-}94}$ the President, Madras Municipal Commission, proposed to raise a loan of four lakhs to enable the Commissioners to renew & enlarge certain of the waterworks mains, & to take them to places not now served by them. Upon the recommendation of the Chief Engineer the proposal was, in G.O. $\frac{16\text{-M}}{5\text{-}1\text{-}95}$, sanctioned, & permission was granted to the Municipality to raise the loan of four lakhs in the manner suggested, – in the open market at 4 per cent with a sinking fund of Rs. 3060.

While this proposal was under consideration the President sent up his letter in G.O. $\frac{1769\text{-M}}{19\text{-}11\text{-}94}$ in which were embodied proposals by a Sub Committee of the Commissrs. appointed to consider the best method of disposal of rubbish in the City to borrow between three and four lakhs for providing incinerators (for this purpose). The Committee in dealing with the financial part of this scheme suggested a plan by which a total sum of 7½ lakhs would be rendered available for expenditure, & proposed that 3½ lakhs of this might be spent on incinerators & the rest on the water mains, – the which wd. render the raising of the four lakhs loan unnecessary.

The suggestions that the rubbish should be dealt with by incinerators has been referred to the Sanitary Board, which has not yet reported, & the scheme for raising the lakhs was sent to the Accountant General, opinion. His reply forms the present current for orders.

It seems clear that the Municipality will have to raise a large sum of money in the near future. There are ~~the~~ Mr. Cousins' watersupply & Col. Pennycuick's Coonum× schemes to be paid for, in addition to providing incinerators & improving the existing drainage system in accordance with the ~~orders~~ G.O. on Mr. Cousins' schemes, & carrying out other improvements.

It cannot yet be told what this sum will be, for Mr. Cousins' estimate for the watersupply has to be checked; the Commrs. have not yet replied to the communication asking whether they will pay for the hydraulic survey of the City; no definite proposals have been made in accordance with the G.O. on Mr. Cousins' schemes to improve the existing drainage ~~scheme~~ system; there× is no estimate for the Coonum purification scheme; the Sanitary Board have not approved even of the Incinerator system, much less said what it will cost; & Dr. King's letter on the unsatisfactory state of the Sewage Farm, & his Inspection Notes on the City suggesting main drain with pumping stations on mains system are also before the itary Board for final opinion, & the missioners for remarks, respectively.

Not only is it impossible to say what the schemes already sanctioned & those still in the clouds will cost, but it cannot be et decided what proportion of this cost ill have to be found by the Commissioners, what share Provincial funds will be likely o bear.

It would seem perhaps advisable, re, to wait until some clearer ide steps for the sanitary improvement of adras that are to be taken can be a[illegible] & an approximate notion of the amount

× Not this I take it; that will be paid for as I understand by Provincial & (perhaps) the H. I. B.? but even so this is so the water scheme will cost a great deal.

× There is — at any rate an approximate one. which Col. P. now thinks was too high

---

DEPARTMENT.

No.

From

Dated

189 .

FOR ORDERS.

× Dr. King is not an incinerator so he is not likely to give trouble about them though it is quite possible that he will have some other pattern to put forward & expensive proposals to make regarding them. The new mains have been approved of by the Chief Engineer & Col Moore has told me that arrangement for carrying out the work has been taken in hand.

they will cost, formed, before any more small loans or financial arrangements are made.

~~In any case that is~~, Should, however, Hon. Members think that this loan for the Incinerators× & the new mains× ought to be raised at once, (or supposing that the Sanitary Board disapprove of Incinerators & suggest an alternative scheme, that some steps for disposing of the rubbish should be taken at once), the Committee's proposals for raising the 7½ lakhs will be for consideration.

In 1869 the Commrs. borrowed from the Govt. of India Rs 12.80.000, & in 1873 a further Rs 1.50.000 for the water supply scheme. They had to pay interest at 6 per cent. upon this, and the loan was originally to be repaid in 1899. Four out of the 6 per c. was credited to Imperial funds, & the other 2 went to form a sinking fund which was invested in Govt. paper, the interest on it being similarly invested from time to time, for the repayment of the entire sum.

In 1883 the Commrs. proposed that instead of investing the interest on the sinking fund to increase that fund, they should be allowed to appropriate it to current needs, & leave the sinking fund to grow only by the payments of 2 per cent. on the Rs 14.30.0 ~~This plan would~~ Under this plan the sinking fund would amount to Rs 14.30.0

so be sufficient to pay off the original loan, in 1919 instead of 1899. That is, the term of the loan would be prolonged by twenty years. India agreed to this.—

The sinking fund will amount to Rs. 7.41.200 on 31st March 1895, & the interest due to the Commrs. upon it will be about Rs. 28.000.

The Commrs. propose to raise a new loan from the Govt. of India amounting to Rs 14.30.000 on the same conditions as to sinking fund as the original conditions of the 1869-73 loan, but at 3½ per cent. instead of 4 per cent: Out of this sum to repay off the ~~1869-73 loan~~ unpaid balance of the 1869-73 loan (Rs 14.30.000 less sinking fund accumulations of Rs 7.41.200 = Rs 6.88.800) & so have (Rs 14.30.000 less Rs 6.88.800 =) Rs 7.41.200 to spend on the present proposals.

The Accountant-General has apparently no objection to the scheme, but thinks it unlikely that the Government of India will lend the Commrs. money at 3½ per cent. though the Commrs. themselves cannot get it in the open market at less than per cent. The Acct. General's view seems very probably correct.

M. 4.2.95

I submit that if the Commrs. cannot get the money out of India on the terms proposed they should be allowed to go to the open market. They will make something out of the loan in the shape of premium which they would not get if India gave them the money at 3 1/2.

6/2/95

256 M

Madras Municipal Commissrs.

proposal to raise a loan of 7½ lakhs for water supply mains and incinerators.—

H.M. [illegible]

I should lay this scheme before India & ask at what rate whether they will lend the addl. 7½ lakhs (nearly) now required & if so on what terms

B.S. 7/2/95

W 15 Feb

J.G. 11/2

They could hardly expect any premium on a loan, the interest of wh. was 3½%. whether they got it from India, or in the open market.

W

They are going to offer 4 per cent in the open market.

21/2

I shd. have said 4%. I don't know whether this will command a premium

---

NOTE FOR THE CHIEF SECRETARY.

It is submitted that the reference to India must lie over until the San. Board reply to G.O. 1769 M. 19.11.94

Until their reply is received it will not be possible to tell what money the Commrs. will have to borrow, &

M. 16.2.95

it wd. be perhaps necessary to ask India to lend a little more if the Bd. suggest more expenditure, or to explain that we had borrowed more than we if they suggest less.

[illegible]

LOCAL AND MUNICIPAL DEPARTMENT.

ndum.

Current No. 256 M

Dated the 1st March 1895.

No. 292

The Sanitary Board is requested to state when the report called for in paragraph 10 of G.O. dated 19th November 1894 No. 1769 M may be expected.

15/2/95

M. 26.2.95

To the Sanitary Board.

Despd. 1/3/95

256m

Disposal of rubbish — Madras City

Council 2854

292
95

The Sanitary Board is requested to
state when the report called for in parag
[illegible] dated 9th November [illegible]
[illegible]

Copy to deputy [illegible]
[illegible]

FORT ST. GEORGE,

respect of that loan with reference to the
amended article 1412 of the Civil Account
Code. The Municipality will therefore

2561M

Disposal of rubbish — Madras

Book DEPARTMENT.

FORT ST. GEORGE,
Accountant-General's Office,
20th March 1895.

No. 714

From

ward is requested to
called for in paragr
…ation of the regu…

ROBERTS' PATENT.
SINGLE CELL DESTRUCTOR

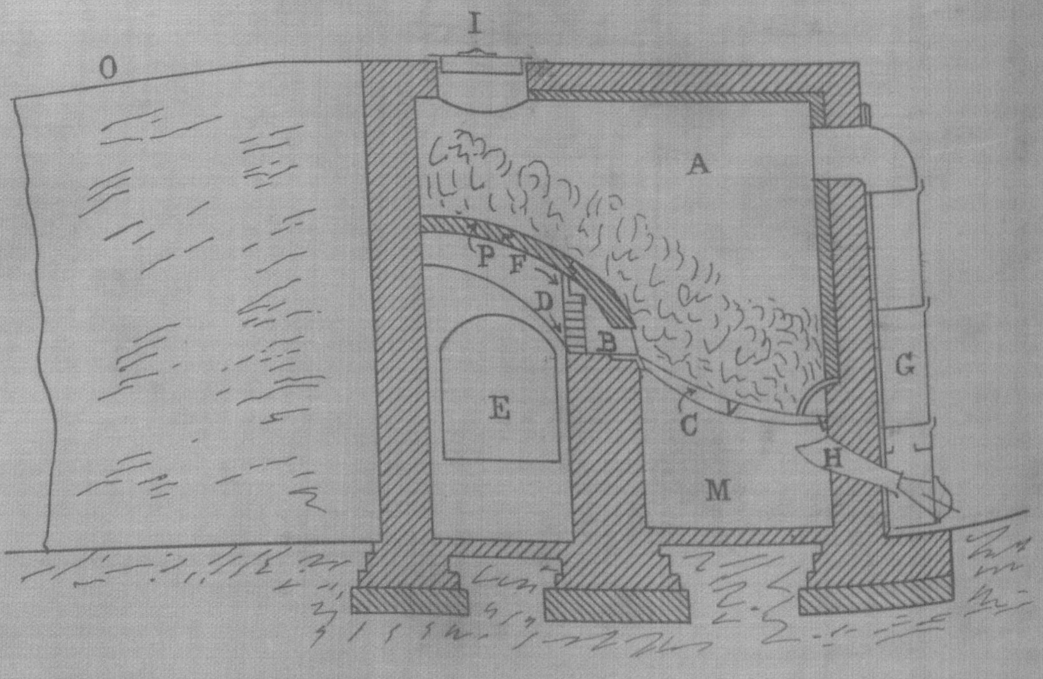


Fig. 3.

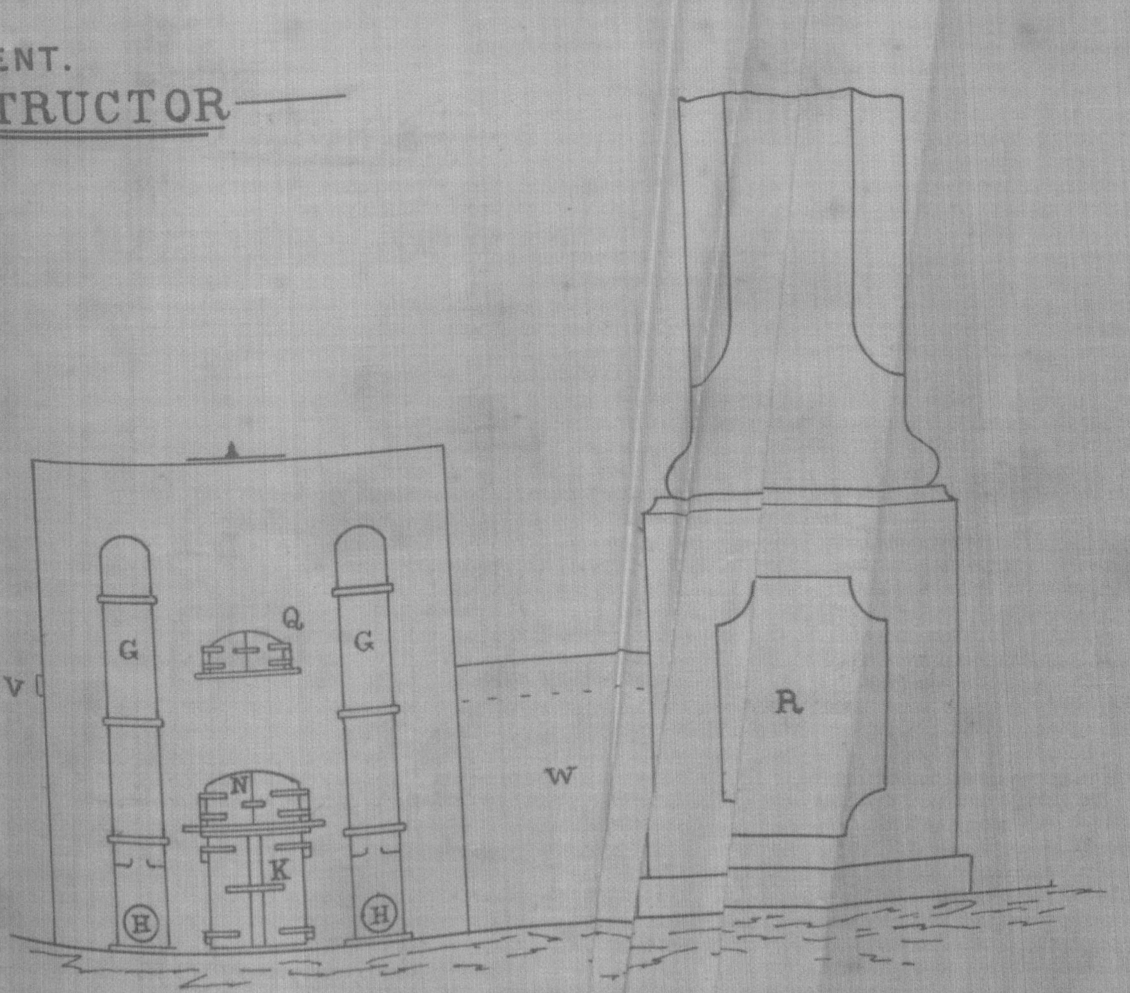


Fig. 4.

(TRUE COPY)
MEM. INST: C.
SANITARY ENGINE
TO GOVᵗ

…maxity will therefore

256 M

Disposal of rubbish — Madras City

Book DEPARTMENT.

FORT ST. GEORGE,
Accountant-General's Office,
20th March 1895.

No. 714

From

T. W. Rawlins Esquire,
ACCOUNTANT-GENERAL TO THE
GOVERNMENT OF MADRAS,

To

THE Chief Secretary to Government,
Local and Municipal Departm

SIR,

Memo 292
1-3-95

In continuation of my letter No. 158 date the 24th January 1895, I have the honour to stat that as the existing arrangements in connecti with the sinking fund for the repayment o the loan obtained from Government by t Madras Municipality in 1869-73 were specially sanctioned by the Government of India, it has been decided by the Comptrol General that no change need be made in respect of that loan with reference to th amended article 1412 of the Civil Account Code. The Municipality will therefore ontinue to enjoy the interest on the invested inking fund (which would ordinarily be — dded to capital) but as the investment will emain in Government paper the rate of interest ill be reduced from 4 to 3½

I have the honour to be,
Sir,
Your Most Obedt. Servt.,

J Ne

Accountant General.

Jm
20/3.

(189) DEPARTMENT.

LOCAL & MUNICIPAL DEPT.
RECEIPT No. 1034 M

From

THE ACCOUNTANT-GENERAL,

MADRAS,

To

THE Chief Secretary to Govt.
Local and Municipal Depts.

No. 714

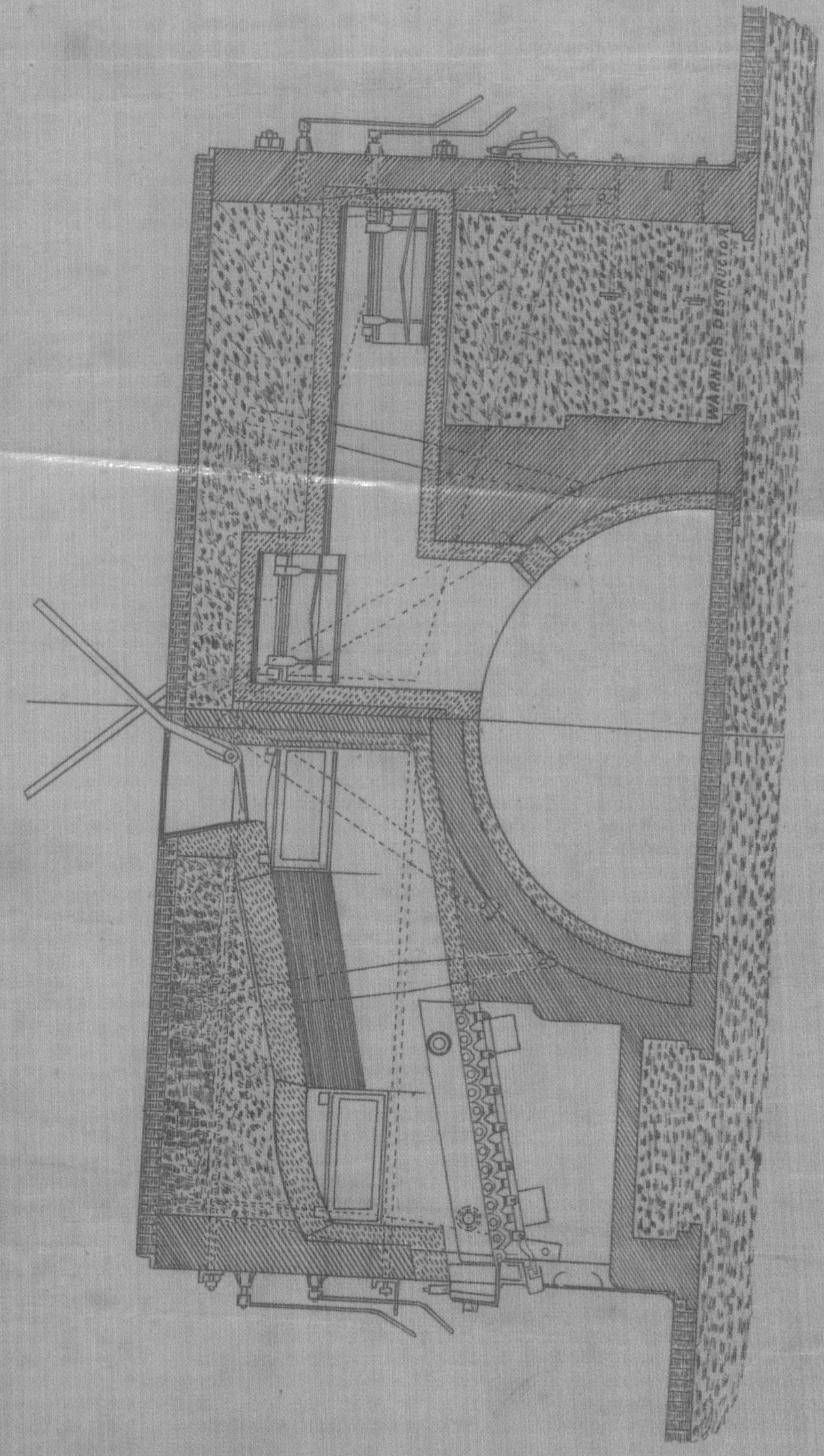
Dated 20 } March 1895
Received 21st }

No. ~~714~~

Subject.

Stating that the municipality may continue to enjoy the interest on the invested sinking fund but as the investment will remain in Govt. paper the rate of interest will be reduced from 4 to 3 1/2 %.

To be over pending receipt of the report of ~~called for from~~ the Sanitary Board in para 1 of G.O. ~~No. 714 newspaper~~ 10 Oct. 1895. No. 14



THE PERFECTUS DESTRUCTOR.

(TRUE COPY)
MEM. INST: C.E
SANITARY ENGINEER
TO GOVT:

Annex 292/95

(189) DEPARTMENT

[50—24-4-95.]

GOVERNMENT OF MADRAS.

SANITARY BOARD OFFICE.

ROBERTS

TWIN CELL

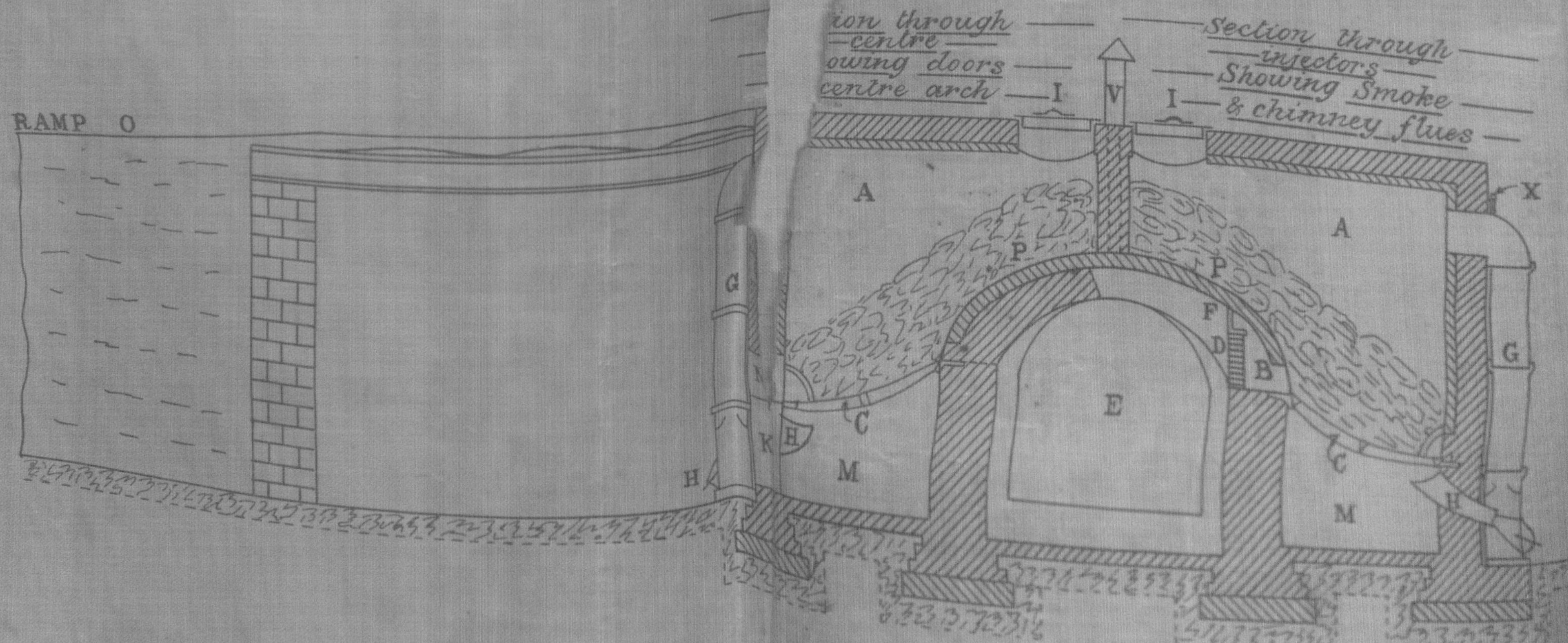


FIG. 1.

(189) Department

[60—24-4-05.]

GOVERNMENT OF MADRAS.

SANITARY BOARD OFFICE.

GENERAL SANITATION DEPARTMENT

PATENT

ESTRUCTOR

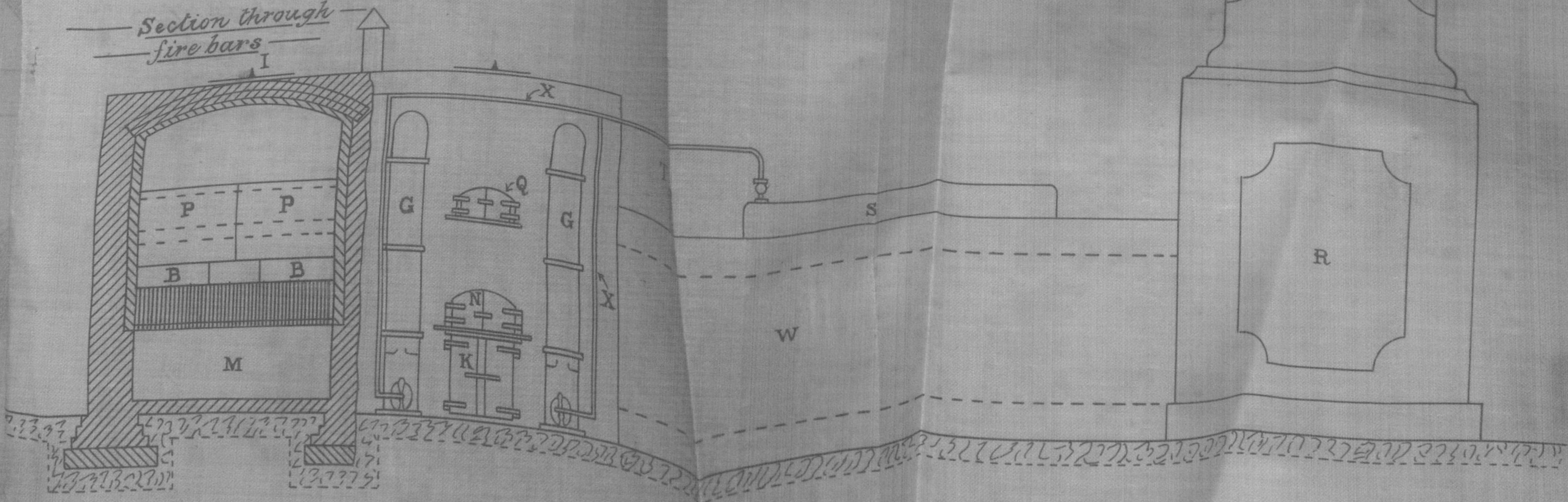


Fig 2.

(TRUE COPY)

Mem. Inst. C.E.
Sanitary Engineer
to Govt.

✓

[illegible] 293/95

[50—24-4-95.]

GOVERNMENT OF MADRAS.

SANITARY BOARD OFFICE.

GENERAL SANITATION DEPARTMENT.

Proceedings of the Sanitary Board, No. 9, dated 1st June 1895.

PRESENT.

SURGEON-LT.-COL. W. G. KING, M.B., C.M., D.P.H., AG. SANITARY COMMISSIONER, MADRAS.

J. A. JONES, ESQ., M.I.C.E., F.R.S.E., SANITARY ENGINEER TO GOVERNMENT.

READ the following:—

G.O. No. 1769 M., dated 19th November 1894 and Note by the President, Sanitary Board thereon.

Resolved that the Sanitary Boar report to Government as follows:—

1. The Board cannot place full re- liance upon data furnished by the Municipality, in regard t the amount of material to be de with. The measurement given is cart loads, and it is assumed a multiple of these represents a d -finite weight. There is, therefor, c -siderable room for error in the varying amounts carried by car

2. In Bombay, it is estimated tha

[illegible]

in dry weather the yield is 1.06 ton per 1000 and in wet weather (say four months) 1.3 tons, or an annual average per day per mille of 1.05 tons. If Madras be taken at the estimated population, in round figures, of 472,000 the yield of rubbish would be 495.6 tons per day. However, to prevent confusion, the amount quoted by the Municipality may be used to arrive at a sufficiently approximate estimate of the cost to be anticipated.

3. In addition to the estimated amount of rubbish, the Municipality reckon that 180 tons of drain sludge must be dealt with daily.

4. The Garlick incinerator is stated to be capable of burning 46.5 tons of wet and 66 tons of dry rubbish per day, per 3 cells employed. In reckoning the initial cost, the total incinerators required must be calculated ith reference to consumption during wet weather. Therefore, t 46.5 tons per day for 3 cells, s cells would be requisite at a [illegible] Rs 9,000 each or Rs 279,000 for te consumption of 476 tons of ubbish. Taking Messrs Garlick nd Christensen's approximate stimate into account for 32 cells

the amount required would

Rs 4,31,712.

5. This, however, takes no n of the 180 tons of sludge per day Board has no data on which judge the rate of consumption this material, but considers reasonable (unless extra expen-ture for "sludge presses" be in-quire) to assume that even carefully mixed with ordina refuse so as to make it fair equally distributed, at the le the difficulty of consumption 180 tons will be 25 per cent gre than in the case of ordinary rubbish. If this be so, an addi of 15 cells would be requisite, a total of 46 cells for the servic of the town. This would increa the initial estimate for cells alo to, say, for 48 cells, on the bas of Messrs Garlick and Christense Estimate to Rs 647,568.

6. In regard to the above estimate it may be useful to state that the Municipal Commissioner of Bombay replying to queries from a Committee appointed to investigate the question of rubbish dispos

in d
per on informed them that it
m estimated in Bombay for the
sumption of 1000 tons daily, the
'ital cost would amount to Rs 880,000 *
n for working expenses and repairs
nually Rs 130,660. He, however, in-
'ed the Committee that this es-
ate must not be regarded as
olutely accurate.
To the same Committee, Messrs Man-
and Alliot presented an estimate
80,000 (exchange rate being at 1-2 s.d
rupee) for incinerators to deal
h- it is presumed- approximately
tons daily, the population of Rangoon
ing over 180,000. The Committee
eckoned the annual working ex-
penses, including sinking charges,
ould amount to Rs 119,000.
In Bombay, with the Garlick ~
ncinerator the daily cost per ton of
ubbish consumed was annas 4-10
reckoned upon the "number of
persons employed and their wages"
without allowing for any extras or
epairs, and of course without reckon-
ing interest on capital sunk.

9. In

* If this estimate be accepted the cost for Madras
[illegible] 4085

9. In Calcutta, with the Harri
Incinerator the cost has been re
at 4 annas during 8 months dry
-ther, and 5 annas 3 pies per ton
rubbish consumed during 4 months
wet weather, excluding interest
and sinking fund but including
all other costs.
10. At the Bombay rate, the co
of consuming rubbish at Madras
at the Municipal estimate of
476 tons would be Rs 52,000. At
Calcutta rate of Rs 52,756. but, i
the estimated population of 472,0
be taken as yielding 1.05 tons per
mille and the proportionate cost
estimated by the Bombay Munici-
-pal Commissioner be accepted,
Madras will have to pay Rs 74,000
for the destruction of rubbish irr
-respective of interest and sinkin
fund, but including working ex
-penses and repairs.
11. To either of these estimates, if
the consumption of sludge be ta
into account and it be regard
as 25 per cent more difficult
to consume than ordinary rub
-bish, it would be necessar
[illegible] destructi

int reckoning for repairs, to add
um of Rs 34,000, thus:-

$472 + 1.05 = 495.60$

$180 \text{ tons} + 1/4(180) = 225$

$\therefore 495 : 225 :: 74000 : x = 34{,}000$ Rs

To arrange for more than two
cinerator stations for the town, would
ply greater annual cost for
p keep on account of staff.
n the other hand, by increasing
e number of stations, a saving
ould be effected in transport
y bullock power. As rubbish
s at present not removed from
the town precincts, except in the
ase of those parts of Black Town
within a reasonable distance
f Manalley, — no economy in
this direction is likely to be effected
by the use of Incinerators; on the op-
posite, with only 2 Incinerator stations
the total cost of transport will be
sensibly increased except in the
case of the portions just alluded
to, on account of the greater dis-
tances traversed. Again, as incinera-
tion does not finally get rid of
rubbish, there being a varying
proportion of from 14 to 33 per cent
[illegible]

of transport on this account [illegible]
be anticipated, although it
be possible to debit this cost to
filling in of tanks and other
provements of the town site,
situations where the use of
would be suitable.

13. It may in Madras be pos
that the cost of incineration
suggested in paras 10 and 11
be somewhat diminished,
compared with the figures
in Bombay and Calcutta.
seems unlikely that this w
be so to a degree materially to
the result, as the heavy items
expenditure are on account
skilled engineering staff.

14. It is, therefore, necessary
rive at a decision as to the
visability of the adoption of
ration generally. The only oth
method of rubbish disposal
that would be suitable in
case of Madras is by "dump
Of the two, incineration is
tarily the more satisfactory.
the Board is of opinion that
positions suitably removed
[illegible]

subsoil water would not
ngerous, and where air-borne
purities on account of the
ction of prevailing winds
d not be feared, this method
at once the merit of getting
d of harmful material from
town precincts and enabling
d to be improved for agri-
ltural purposes, and thus
timately forming a source of
financial profit.

No site suitable for "dumping"
sts within a distance of the
thern Range, that would
mit of the economical adop-
n of the method for that por-
n of the town. The Board is
refore of opinion that the cor-
ct course to pursue with the
bbish of the Southern Range
to effect incineration, and to
deavour to secure economy in
the manner of transport so as to
meet the increased charges
account of destruction. This
uld best be done by substitu-
ing cartage by traction by horse
[illegible] by power or grooved tramways
[illegible]

Where [illegible] a place RK

Is the Sanitary Board quite sure this is the cheapest way. RK

---

op[illegible]
[illegible] interminent
-ducing serious interference with
public traffic.

16. In respect to the Northern
Range, however, the Board is of
opinion that facilities exist for
safe and profitable "dumping".
In this case, it is considered
the sandy lands close to the
coast around and beyond the
existing Black Town sewage
offer suitable sites for dumping
and would by their improve-
-ment for agricultural purposes
thus secured prove a profitable
investment to the Municipality.
It but remains to show that
transport to this site can be effected
economically, when compared
with cartage now employed, or
which it would be necessary
to employ were rubbish fully
removed. Taking the popula-
-tion of Black Town that
would be economically served
by tramway at about 140,000
the following results are ob-
-tained:–

Estimate

Would not the Sanitary Com. require this site to be underdrained in the same way as the Farms. RK

ate for [illegible] light tram-
ed plant for the Conveyance
bbish for a population of

	£
at iles of Rails 24" guage 14 lbs yard with Corrugated sheet sleepers all fastenings complete at per mile	720.
es right & left — 100 yards	30
ght & left hand Crossings 8 No.	49
wo way crossings 4 No.	18
l crossing (wood planking) 30 yards	20
mile of light 10 lbs rails at trench ing ground and crossings —	70
ols &c	33
Total	940
Double tipping wagons complete C patterns 75 No.(a)	900
Total	£ 1840
	Rs 34,000
At Ex 1/1d	
Laying lines 2 miles	1,200
Cost of depôt	1,000
Carriage, contingencies &c	1800
Total	Rs 38,000
Add to this cost of 15 horses at Rs 500 —	7,500
Total outlay	Rs 45,000

(a) Each

[illegible] e of

The rubbish from 14,000 people per day [illegible]
140 tons

1 Cwt. of rubbish = $\frac{35}{17}$ Cft

140 tons — do — $= \frac{35}{17} \times 140 \times 20 = 576$

or $\frac{5765}{20} = 288$ wagon

But as four trips can be made in day the number of wagons requi

$= \frac{288}{4} = 72$ Say 75 wagons

(b) One horse can carry 100 Cft or train of 5 wagons of 20 Cft each

The number of horses required

75 wagons $= \frac{75}{5} = 15$ hor

Annual Maintenance charges of tramway and horses.

Interest on first outlay at 4 per cent on Rs 45,500	Rs 1820
Maintenance and repairs to wagons & tramways at 6 p.c on cost of tramway and wagons on Rs 38,000	" 2280
Maintenance charge of 15 horses at Rs 360 a horse(c)	" 5400
Total Annual Charges	Rs 9500.

No charge is made for transfer from carts to wagons as that cost is now incurred at the depôts. There will be a small expenditure at the depôts for emptying the tipping wagons.

[illegible] ate for [illegible] of eight [illegible]
[illegible] ching grounds by bullock carts by
[illegible] d.

terest on Cost of Carts on Rs 5500 (d) at 4 p.c. Rs 220
pairs to Carts at 10 p.c on Rs 5500 —— 550
intenance Charges of 55 pairs of bullocks at Rs 225 (e) each pair } —— 12370
Total Annual Charges Rs 13140.

ach horse costs a month for intenance including a driver } = Rs —— 20
nthly depreciation on first tlay on a horse —— } —— 10
nthly maintenance charge for each horse —— } 30
nnual — do — do —— 360

To Carry 140 tons of rubbish or the number Carts $\frac{140+20}{17}$ = 165 Carts. Each rt can make three trips daily; the number of Carts required will be $\frac{165}{3}$ = 55. This number can therefore be saved and the cost will be at Rs 100 = 5,500

(E) The hire charge of a pair of bullocks for a month = Rs 18-12-0
therefore — do — do — a year = 225-

17. In considering these figures, it must be borne in mind, that the estimate being but for a short length of tramway, the expenditure is high

[illegible] more [illegible]
tempt [illegible] of [illegible] eminent
sequently determined upon [illegible]
be relatively economical. For
Tondiarpet and Royapuram,
lie along the Tramway route were
also served by the Tramway only ex-
tra wagons and horses would be
required and the economy would
be still greater.

18. The Board considers that both
in regard to incineration and
dumping the [illegible] ce of certain
that can only be gathered by expe
in working in the special loc
to which they are applied, demand
that first attempts should be ten
tive. It, therefore, regards it as a
visable for the Municipality
once make a tramway to the dum
ing grounds to the North of Black To
for a distance of two miles follow
a route *via* the Trivatore High Ro
or by Soorriyanarayana Chetty's Stree*
On the gaining of further experience in
working this tramway might then

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* Note - As these streets are through populous Districts a tramwa
might pass along each and serve the Districts passed thro

[illegible] Municipal Department

ate for no means of the
p subo ... transport. The
r ui principles should be applied to
per-tham Range, with the addition
extending the incinerator station
the point of disposal. It is con-
sidered that if an incinerator of
four cells were situated at Kistnampet,
it could be usefully served by a grooved
tramway (Rs 37 to the yard) extend-
through the Triplicane High Road
istnampet a distance of 2¼ miles.
rail being grooved, no
impediment to traffic would
result. If experience showed the
method to be advantageous, the
ortion of this main line would
suitable for lateral extensions.
Approximate estimate for a line of
description may be taken at
*13,000 per mile.

With regard to the description
incinerator to be adopted, the Board has
amined the evidence collected by

With reference to para 17 it must be remem-
bered that the cost of the line per mile would
differ with its length and the number of
wagons employed, which would again differ with the
number of trips. Messrs Burn & Co, Calcutta state
such a line of 7 miles length conveying 250 tons of
rubbish in 4 trips daily they could land the
whole material in Madras at Rs 72,000.

the estimate being but for a short
length of tramway, the expenditure is
high

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personal experience of one of
bers who examined the arrangements
ments as to Garlicks Incinerator dated
at Bombay and the Harrington
and Roberts' Incinerators at Calcut
ta. It has also examined the
various claims of patentees of
types used in England and
America. It has come to the con
clusion that practically there is
little to choose between the types
of incinerators now in the ma
any claim for one form being
superior to the other being foun
upon arrangements aiding ea
of working, or purporting to secure
better destruction of fumes than, F. R.
in the case of the type from which
all have sprung, namely Fryer's
Incinerator. In consideration of the
mechanical additions, it believe
the Robert's *forced* *draught* incine-
-rator, as made by Messrs Burn & Co,
Calcutta, offers, besides the ordinary
advantages afforded by other
forms, facility for forcing the
unconsumed

to Government
Local & Municipal Department

ate [illegible] the
[illegible] should be applied to
[illegible] the [illegible]tial and represents a
[illegible] addition in working expense in other models.

20. There are outlying areas within the limits of the Municipality from which it would prove expensive to effect transport either by tramway or by cartage to any central point for incineration or dumping; in [illegible]itical cases, it is considered that it would be advisable to use Roberts' natural draught incinerators (for which an estimate is attached) which could be worked by coolies. To obtain an estimate for Robert's forced draught incinerators, it would be advisable for the Municipality to open communication with Messrs. Burn & Co. direct.

21. Of the types employed in England that known as the "Perfectus" seems to the Board best to meet the various requirements. In accordance with the directions of Government contained in para 1 of G.O. dated 19th November 1894, No. 1769 M., diagrams of these Incinerators are attached for information.

the estim[illegible] the expenditure is
length of tramway, the [illegible] high

W E King
Surgn. Lieut. Col.
Ag. Sanitary Commissioner
for Mad.

M.I.C.E., F.R.
Sanitary Engineer
to Government

To

The Chief Secretary
to Government
Local & Municipal Department

No. 1027/8

Office of Sanitary Board
General Sanitation Department
Fort Saint George 8th June 1895
Despd 10th

Local & Municipal Dep
1836 M

From

Surg: Lieut Col W. G. King M.B. C.M. D.P.H.
Ag. Sanitary Commissioner for Madras

To,

The Chief Secretary to Governme
Local & Municipal Departm
Fort Saint George

Sir,

I have the honor to forward here Proceedings of the Sanitary Board No. 9 dat 1st June 1895 on the proposal of the Municip Commission, Madras regarding the disposal of rubbish in the Madras Municipality as requ in G. O. No. 1769 M dated 19th Novr. 1894 - Local and Municipal.

I have the honor to be
Sir
Your most Obedient Servant

W G King
Surgeon Lieut Col.
Ag. Sanitary Commr. for Madras

L. & M.
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Madras.

[illegible]

Dumping [illegible]

the compensation which would have to be paid for the land which would be necessary to carry it out. All the land to the north of Madras is to the best of my recollection private property. I do not see in either case any allowance for a set off against working expenses in the shape of in the ~~first~~ ~~second~~ first instance the sale of the residuum of the incinerators as manure and in the ~~second~~ ~~first~~ second the return from cultivation or leasing of the land.

The report should of course be placed before the Commissioners for their remarks.

The estimated cost of the incineration system is a very large sum. but it seems to have been calculated fairly enough.

15/7/95

12/7/95

Disposal of rubbish — Madras Municipality.

FOR ORDERS.

H.M.

1177 M

C.S.

([illegible])

E 11/7

L. & M.

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