

(1) Number of pages

30

(2) Date of repair

(3) Initials of the Reference

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No.	89	(IV)	Press
			Mis.
Dated	10	1	1877

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
10th January 1877. No. 89.*

No. 169. Read the following Proceedings of the Madras Government in the Military Department, dated 21st December 1876, No. 6,677 :—

Read the following letter from Brigadier-General H. O'CONNELL, Quartermaster-General, to Colonel J. MICHAEL, C.S.I., Secretary to Government, Military Department, dated Fort St. George, 15th December 1876, No. 8,859.

With reference to O.G., No. 541, dated 8th February 1876, Public Works Department, and in substitution of this

Enclosures 6. (2 Plans.)

Amounting to Rupees 5,500 for the new system of drainage for the European Infantry Barracks at Cannanore.

This estimate has been reduced from Rupees 7,200 to Rupees 5,500 with certain modifications after a personal conversation between His Grace the Governor and the Assistant Engineer. The Commander-in-Chief recommends that, as 4,000 Rupees have been allotted in the Budget for the current year for this work, the necessary instructions may be issued in the Department Public Works for the immediate commencement of the work.

office letter No. 558, dated 16th September 1876, the Commander-in-Chief having approved the revised estimate and plan marginally noted, I am directed by His Excellency to submit them for the consideration and orders of Government.

2. If approved by Government, it is requested that the papers may be forwarded to the Department Public Works for disposal.

APPROVED.

(True Extract.)

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

No. 169-A. From Lieutenant A. E. DOBSON, R.E., Assistant Engineer in charge, Cannanore Division, to Lieutenant-Colonel R. B. KENNEDY, District Engineer, Malabar, dated Cannanore, 20th November 1876, No. 233.

I HAVE the honor to forward a tracing, mounted, of the proposed new system of drains for the European Barracks, Cannanore.

The alterations have been made after personal conversation with His Grace the Governor, who suggested one or two modifications, but otherwise approved of the scheme as to general details and section of drains, but, owing to the somewhat high estimate, wished to have it reduced if possible. The suggestions made by His Grace the Governor were as follow :—

1stly.—The substitution of common chunam for Portland cement allowed in the estimate on the ground of cost and its non-durability. I pointed out that the chunam being shell was not a good material, and also showed him the experiment of Major Merewether forwarded with G.O., No. 2,472, of 15th September 1876, on seeing this His Grace sanctioned the Portland cement for the drains.

2ndly.—The new alteration of the rain-water drains inside the barracks square marked XXII, XXIII, XXIV, &c., up to XXXIII, and the rain-water drains between old and new barracks marked I, II, III, as

Proceedings of the Madras Government, Public Works Department,
10th January 1877. No. 89.

these only carry rain-water. His Grace suggested that they should be left in *statu quo*, but be carefully picked out and repointed with chunam and plastered where necessary.

3rdly.—Not to start the drain from A and run from A XXXIV, as it takes no dirty water, also to increase the size of the flushing cistern and do away with pipes and pillars; this has been done. The drain from W II No. 1 will now run in a diagonal direction.

4thly.—Doubling the size of the proposed flushing cistern at IX.

These alterations have been made as suggested by His Grace the Governor, and the cost of the estimate has now been reduced from Rupees 7,200 to Rupees 5,500. I beg you will kindly submit the estimate to the Chief Engineer for final approval of Government, as I am anxious to undertake the work and finish it this official year, there being an allotment of Rupees 4,000 in this year's Budget, and the Brigadier-General Commanding and Regimental authorities are very anxious that this most desirable work should be put in hand and finished off as quickly as possible.

The section remains the same for all the drains, except the proposed drain No. 1, the sections of what it will now be are enclosed.

A specification revised, to suit the modification, is herewith forwarded.

No. 170.

ORDER THEREON, 10th January 1877, No. 89.

MILITARY WORKS, No. 4.

(a) Heads of Service.—Imperial.
Fund.—Ordinary.
Class.—Original Works.
Main-head.—Military.
Sub-head.—Military Buildings.
Section.—Accommodation for European Infantry.
Name of Work.—Improvements, &c., to drains of European Barracks at Cannanore.
Amount.—Rupees 5,500.
To be carried out by the Public Works Department.

The plan and estimate of Rs. 5,500 for alterations and improvements to the drains of European Barracks at Cannanore is sanctioned. The work should be put in hand immediately and funds can, if necessary, be provided in order to complete it during the present official year.

2. The delay that has been allowed to occur in the submission of the estimate

called for months ago, and for which no excuse can be imagined, is looked upon with considerable dissatisfaction.

3. The District Engineer will report at an early date what funds may further be required for the work in 1876-77.

4. This sanction is registered as Imperial No. 116—W. of 1876-77.

(True Extract.)

Major-General, R.E.,
Secretary to Government.

To the District Engineer, Malabar.
„ Examiner of Public Works Accounts.
„ Military Department.

Exd. S. T. Austin.
Spare Copies

No. 233.

Cannanore Division Office,
Cannanore 20th November 1876.

From

The Officer in charge

Cannanore Division, R.P.W.

To

The District Engineer

of Malabar R.P.W.

Calicut

Sir,

I have the honor to forward a tracing mounted of the proposed new system of drains for the European Barracks Cannanore.

The alterations have been made after personal conversation with His Grace the Governor who suggested one or two modifications, but otherwise approved of the scheme as to general details & section of drains but owing to the somewhat high estimate, wished to have it reduced if possible. The suggestions made by His Grace the Governor were as follows:—

1st. The substitution of common chunam for Portland cement allowed in the estimate on the ground of cost & its non-durability & pointed out that the chunam being shell was not a good material & also showed him the experiment of Major Meswether forwarded with G. O. 2472 of 15th Sept 76 on seeing this His Grace sanctioned the Portland Cement

cement for the drains.

2nd The new alterations of the Rain-water drains inside the Barracks square marked XXII-XXIII-XXIV &c up to XXXII, and the Rain water drains between old & new Barracks marked I II III as these only carry Rain water, His grace suggested that they should be left in situ but be carefully picked out & repointed with chunam & plastered where necessary.

3rd Not to start the drain from A & run from A- ~~XXXX~~ as it takes no dirty water. also to increase the size of the flushing cistern & do away with pipes & pillars - this has been done - The drain from W.H. No 1 will now run in a diagonal direction.

4th Doubling the size of the proposed flushing cistern at IX.

These alterations have been made as suggested by His grace the Governor & the cost of the estimate has now been reduced from Rs 7200 to Rs 5300. I beg you will kindly submit the estimate to the Chief Engineer for final approval of Government as I am anxious to undertake the work & finish it in this Official year - there being an allotment of Rs 4000 in this year's budget, & the Brigadier General commanding & Regimental authorities are very anxious that this most desirable

work should be put in hand & finished off as quickly as possible.

The section remains the same for all the drains except the proposed drain No 1 the sections of it will now be enclosed.

A specification revised, to suit the modification is herewith forwarded.

I have the honor
to be, Sir,
Your obedient servant,
J. C. Robson Esq. B.C.
Sjt. Engrs, Malabar

(True copy)

Asst. Engineer,
District Engineer, Malabar

P.W.D.
26 DEC 76
9372

Print

N-1694

L.R. 11163.

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6.

ABSTRACT

of the European

ESTIMATE

of the European

1871-1872

1873-1874

1875-1876

1877-1878

1879-1880

1881-1882

1883-1884

1885-1886

1887-1888

1889-1890

1891-1892

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2097-2098

2099-2100

2101-2102

2103-2104

2105-2106

2107-2108

2109-2110

2111-2112

2113-2114

2115-2116

2117-2118

2119-2120

2121-2122

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2155-2156

2157-2158

2159-2160

2161-2162

2163-2164

2165-2166

2167-2168

2169-2170

2171-2172

2173-2174

2175-2176

2177-2178

2179-2180

2181-2182

2183-2184

2185-2186

2187-2188

2189-2190

2191-2192

2193-2194

2195-2196

2197-2198

2199-2200

2201-2202

2203-2204

2205-2206

2207-2208

2209-2210

2211-2212

2213-2214

2215-2216

2217-2218

2219-2220

2221-2222

2223-2224

2225-2226

2227-2228

2229-2230

2231-2232

2233-2234

2235-2236

2237-2238

2239-2240

2241-2242

2243-2244

2245-2246

2247-2248

2249-2250

2251-2252

2253-2254

2255-2256

2257-2258

2259-2260

2261-2262

2263-2264

2265-2266

2267-2268

2269-2270

2271-2272

2273-2274

2275-2276

2277-2278

2279-2280

2281-2282

2283-2284

2285-2286

2287-2288

2289-2290

2291-2292

2293-2294

2295-2296

2297-2298

2299-2300

2301-2302

2303-2304

2305-2306

2307-2308

2309-2310

2311-2312

2313-2314

2315-2316

2317-2318

2319-232

of the European Association of the Americas

[illegible]

IN CHARGE

Booth's forward

Bought forward
 to 20 Boston my
 bill —
 Gain drain for
 1000000

Mouth forward
 to ad. Bottom only
 1. dd
 Again drain 10.00
 1. dd
 Bottom only
 1. dd
 to the drain. E to L
 1. dd

Asphalt-paved
to ad. Bottom only
_____ Redd _____
Main drain to ga.
Sticks _____
Bottom only _____
Walls _____
at the drain E to F
_____ drain _____
to ad. Bottom
_____ drain _____
to ad. Bottom

[illegible]

March 8 - forward
to ad. Bottom only
1. dd 1
Main drain hole
Atkide
Bottom only
Atkide
to the drain E to L
Atkide
Bottom
middle
of the bottom
water
off to base
Atkide

Brownst-forward
to ad. Bottom only
Redd
Main drain to R.
Atkide
Bottom on fr.
Atkide
The drain E to F
Aids
Bot. Bottom
Aids
E to F Bottom
with it Baidie
Aids
off
in drain
Aids
Bottom only
Aids
R Bottom only
Aids

Mouth-forward
 to a Bottom only
 ————
 Main drain to
 ————
 Bottom only
 ————
 to the drain E to E
 ————
 Bottom
 ————
 to the drain E to E
 ————
 Main drain
 ————
 Mouth
 ————
 Bottom only
 ————
 Mouth

[illegible]

Brought forward

To ad Bottom only

Rails —

Main drain to R.

at side —

Bottom on fire —

Rails —

for the drain E to F

Rails —

Bottom —

Rails —

E to F Bottom

Rails —

W H to B outside

Rails —

only

in drain

Rails —

O Bottom only

Rails —

P Bottom only

Rails —

Bottom on fire —

Rails —

Bottom

Rails —

from K L & Green

at side —

[illegible][illegible][illegible][illegible][illegible][illegible]

Drain P. I will be done away with as it is of no use. The drain from Bath Room V will instead of being angular have the angle rounded off to allow of the more efficient flow of water.

The drain A A will not be altered in direction as it is nearly straight, neither will R. R' for the same reason.

Drain from part VII (W. VIII wash house) will be taken up and run straight into the main drain at I to avoid the awkward angled

The other drains in this face remaining the same in direction.

Drain 2-18 the direction will remain the same, it carries only surface water.

Drain 18-0 direction will remain the same.

The Cook & Bath room drains from 18-2 & 18-3 being made to run directly into it.

All the drains, as far as possible, are to be open in order to allow of their being swept daily by the sweepers, and so prevent any accumulation of deposit for this reason therefore main drain at I from A - Banack railway near I will be

(II)
Open and
Close drains

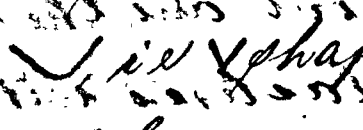
(III)
Section of
drain taking
Cook room &
bath room
water.

(V)

(IV)

(VI)

open, from thence to the sea closed, but in this closed part man holes of 2' square will be given, so that a boy can get down and examine the drain and see if there is any accumulation of dirt - these man holes will be 3' apart, so that a bamboo or pole can be used for cleaning out any dirt, should any ever accumulate.

All the open drains to be made of the section thus  shaped drain but the bottom will not be quite so far but round, the section will vary a little according to the ground, as shown in the various cross sections, the sides of the drain being continued up to meet the level of the ground, and if the drain is very deep not quite so far in as a survey, but the ground will be sloped off thus 

At the starting point A, the drain will be 6" deep and will vary in depth according to fall as shown in cross section.

This section to be used throughout for all open drains, main & minor drains, the latter will have a similar section but smaller owing to their smaller size.

The portion of the drain that are covered

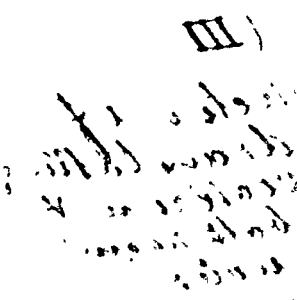
will be of this section  to allow water easily flowing. This section will be used in part of main drain & from Barroethoaching - sea & main drain ~~to~~ throughout.

These drains are floored with granite with square sides laterite (section). They will be left as they now are, but all joints will be carefully packed out and the sides most carefully plastered with two coats Chinam rubbed very smooth.

The directions of the drains having been carefully marked down the ground off the plan of the drains, the section will be carefully pegged out, rather with theodolite or level. The levels will be pegged at every 50 feet to ensure perfect accuracy. The main drains being laid out first and minor drains after.

The drains will be constructed in the following manner - the longitudinal section having been carefully pegged out as in V, the various cross sections will then be carefully marked out at 50 feet intervals built in, and when these have been

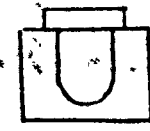
(IV)
Section of
rain water
drain.



(V)
Mode of
laying out
the work.

(VI)
The construction
of drain &
material
used.

carefully built, the different sections will be joined. The material to be used is in the first instance laterite in Chinam. The drains will be floored with one course of laterite in Chinam for open & two for covered drains, the upper stone being slightly hollowed, so, as to make the curve of the modified V. the proper curve to be given will be made in a xord bar. endel and all stones cut to it. The sides of the drain will also be two stones where necessary, as shown in sketch and well backed up with earth. Each stone being slightly retired and cut to proper angle, so, as to make the upper portion of the V.

The minor drains will only require one stone underneath and one at sides. For the covered drains section will be . The flooring will be two stones, the upper one cut as before & the sides (according to sketch) will be one stone 18" thick laid alternately as over head & two stretches. The sections of the other drains are the modified V.

The whole of every drain except Rain Plastering water drains vide para IV is to be thoroughly plastered with Portland Cement kept wet until it has set, as it is only by the use of this material that the drain can be kept clean, the porous laterite & common chuan brick of little use.

The outlets of bath rooms at the present moment are very defective, they are merely holes in the wall covered with gratings, and owing to the dirty soapy water they smell very badly. The pieces of wall are to be cut out and proper outlets given. Small iron pipe to be set in cement so that the water will run freely into its drain instead of now trickling down the wall and being partly absorbed by the laterite of the wall.

The falls of main drain at I-N has been increased from $\frac{1}{55}$ to $\frac{1}{40}$ and it will now be open & swept this increased fall will be ample. From Y to sea also ($\frac{1}{59}$ to $\frac{1}{18}$)

Drain at II has not been attended

Outlets of
Bath Rooms

Flushing
arrangement

Falls of
drains.

its fall is ample and the main drains generally have sufficient fall as shown in section

$$E' \text{ to } E = \frac{1}{40} \quad P' - P = \frac{1}{59}$$

$$N' \text{ to } N = \frac{1}{55} \quad A' - A = \frac{1}{49}$$

$$P' - P = \frac{1}{50} \quad R' - R = \frac{1}{61}$$

$$P''' - P' = \frac{1}{45} \quad VII - W' = \frac{1}{57}$$

all these are marked on the section plate lately submitted.

The cistern (near No. I.W.H.) to be removed and built on opposite side, where it is shown in plan. It is to be $36 \times 10 \times 15 \times 10$ to give full flushing power. All old material, as far as possible to be used. The bottom of the cistern to be raised 2 feet from bottom of drain and it is to be 3 feet deep inside, to give a good head of water. One outlet to be given for flushing main drain at I. A smaller cistern to be built at IX with flooring 2 feet above ground, size 10×6 , with two outlets which are to be used for flushing drain IX - 2 $\times$ IX - 0".

The cistern to be built as shown in the drawing & to be entirely plastered on the inside with Portland Cement & the outlets to be 6" square & closed by

been allowed to occur in the
submission of the Estimate
Called for months ago and
for which no excuse can be
imagined is looked upon
with considerable dissatisfac-
tion.

The District Engineer
will report at an early date
what funds may further be
required for the work in
1876-77.

This sanction is
as per original
registered N^o 11677 of 1876-77.

Amr Wks
4.1.77

S. R. Milsken ✓
L. P. M. A. ✓
Mily. Dept. ✓

Drpd 22-1-77

Cin 6-1-77

been allowed to occur in the submission of the Estimate called for months ago and for which no excuse can be imagined is looked upon with considerable dissatisfaction.

The District Engineer will report at an early date what funds may further be required for the work in 1876-77.

This sanction is requested as per proposal No. 11677 of 1876.

W.H.
4.1.77

Cin 6-1-77.

9372

Govt. of 1877 Madras.
PUBLIC WORKS.

To *The District Engineer Malabar*
Dated *1-1-77*
Issued *1-1-77*
Recd. Encl.

G. O. 10th Jan^y 1877, No. 89

Nos. 169 & 170.

Alterations & improvements to the drains of European Barracks at Cannanore

Malabar Str.—The Plan & Estimate of Rs. 5,500 for ———— sanctioned with remarks as to the delay in the submission of the Estimate.

Sanctioned