

(1) Number of pages _____

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(3) Initials of the Referencer _____

MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	683	Press
B.P. No.		Mis.
Dated	10-3-	1875
		195-

*Original*Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
10th March 1875.*

No. 278. Read the following letter from Colonel W. A. CROMMELIN, R.E., Deputy Secretary to the Government of India, Public Works Department, (Military Works,) to Colonel G. W. WALKER, R.E., Secretary to the Government of Madras, Public Works Department, dated Fort William, 23rd February 1875, No 295 M. W. —

I AM directed to acknowledge the receipt of your letter, No. 263, dated 29th January 1875, and in reply to state that,

* 1. Hospital Serjeant's Quarters for 2nd	RS	2,850	under the circumstances explained, the
Pavilion Hospital	..	9,200	Government of India confirm the sanc-
2 Road to Barracks	..	40,400	tion accorded by the Government of
3 Drainage of Barracks	..	32,400	Madras to the estimates, aggregating
4 Canteen for Parade Barracks	..	31,800	Rupees 1,16,650, for Military buildings
5. Recreation-room	..		at Bangalore.*
Total		1,16,650	

2. This sanction is registered in this office as No. 80 M.W. of 1874-75, and the enclosures of your letter are returned.

No. 279. ORDER THEREON, 10th March 1875, No. 683.

MILITARY WORKS, No. 7.

COMMUNICATED to the Military Department.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the Military Department.

.. Controller of Public Works Accounts.
.. District Engineer, Bangalore.

Exd. S. T. Austin.

Spare Copies

The

Specification to accompany
Plan and Estimate for Making
Roads ~~yes~~ from Trinity Church to
Provost Cells and around the Sagram
Barracks at Bangalore.

Amount of Estimate Rupies 9200--

New Road

Formation level of road in
cutting, will be a box cut in the
solid ground, any inequalities will
be filled in with good materials
and well tamped; on embankment
after the road level has been attained
the box will be formed as in the
cutting. The box thus formed should
be correctly sectioned and of an
uniform hardness throughout, it will
then be filled with $4\frac{1}{2}$ jelly (stone)
consolidated by rolling and after-
wards about an inch and a half of
good binding materials loosely thrown
over top, entirely covering the jelly when
the roller will again be used until the
road is perfectly consolidated.

The

The excavation for foundation
to be taken down to such a depth
as the District Engineer may consider
necessary and the bottom taken out
perfectly level.

Excavation
for
Tunnel

The foundation to be laid
with stone in chunam stones laid
closely fitted with good bond and
well flushed up with Chunam (3
parts of sand to two of fresh and
well burnt lime) slaked on the work.
every sixth stone at least to be a
through header.

Foundation

The superstructure is to be
of hammer dressed coursed rubble
stone in chunam each course to be
not less than 6 deep with level beds
closely fitted with good bond. Every
sixth stone at least to be a through
header and well flushed up with
Chunam (consisting of two parts of
fresh and well burnt lime).
The joints to be scraped out
and

Superstructure

Pointing

and pointed with strong lime putty.
The covering stones for
tunnel to be $7\frac{1}{2}$ feet long and not
less than 9 thick and the edges dressed
to fit close. The earth over the
covering stones to be filled in and
well rammed.

Covering
stones for
Tunnel

All materials used and
work done to be of the best descrip-
tion and subject to the approval
of the District Engineer of Bangalore
who shall have the entire power of
ordering the removal of any work
with which he is dissatisfied.

District Engineer's Office
Bangalore
10th January 1877

W. H. Bant
Captain R. E.
District Engineer, Bangalore.

File

Specification to accompany
 Plan and Estimate for Constructing
 Hospital at Port Louis
 Amount of Estimate Rs 5700-
 Excavations and the excavations for foundation
 to be taken out to such a depth as the En-
 gineer may consider necessary and
 the bottom taken out perfectly level
 any superfluous excavation to be filled
 in again and well rammed.

The foundation to be laid
 Foundation with stone in chunam stones laid closely
 fitted with good bond and well flushed
 up with chunam (3 parts of sand to two
 of fresh and well burnt lime sloped
 on the work. Every sixth stone at least to
 be a through header.

The Basement to be similarly
 Basement laid with good bond scraped out and
 plastered. The top course of the basement
 to be of flat stones of as great a length
 as possible.

The Superstructure to be of best
 Superstructure bricks (9 x 4 1/2 x 2 1/2) in chunam (3 parts of
 sand to two of fresh and well burnt
 lime) slated on the earth. The bricks
 to be

No. 113 of 1870/1
 Date: June 1870 27/18 1870

The Civil Engineer

13 Bangalore
 The 2nd July 1870
 for Civil & En-
 gineering
 Buildings
 at Bangalore

Dated 10th January 1870.

Head of Engineering to accompany
 Estimate for Works

made to form Trinity
 Church to form of 8 ft
 and around the 18 ft
 Baracks at Bangalore
 10th July 1870
 Estimate
 Rs 2200-
 1372/13

to be of best
 bricks (9 x 4 1/2 x 2 1/2) in chunam (3 parts of
 sand to two of fresh and well burnt
 lime) slated on the earth. The bricks
 to be

Ref. 9202

to be soaked in water before they are used.
and English bond to be observed throughout.
Openings to be provided in the walls in
the positions shown in the plan.

The bricks to be neatly Arch work
turned and only selected to be used.
The joints to radiate correctly accord-
ing to the nature of the arch. Bricks to be
ground down to required shape and the
key bricks to be well driven home joints
not to exceed $\frac{1}{2}$ inch thick and to be
scraped out before plastered.

The description of the Cornice
should be of the pattern supplied
by the Executive Engineer. Cornice bricks
to have proper bearing not less than 4 inches
and set with strong lime.

The joints to be scraped Plastering
out and the walls plastered inside and
outside with two coats of chunam 1st coat
to consist of one part of lime to $\frac{1}{2}$ of river sand
well ground together and the 2nd coat
to be of 3 parts of lime to one of white sand
well smoothed off.

The building to be colorwashing
bluish outside and to have uniform
color throughout to be approved of by the
Executive

Executive Engineer and to be whitewashed
inside each with two coats.

The following proportions to be used
in mixing the blue wash.
For blue wash 10 lbs. and
10 lbs. charcoal sufficient to give slate
color.

Part of stone chunam
Part of Gum

Measure of raw rice
For whitewash 10 lbs. one coat.

Part of stone chunam
Part of Gum

Measure of raw rice
The whole of the timber to be

Timber

of well seasoned and sound free
from all shakes and knots and
finished off. No timber to be put up
until passed by the Executive Engineer.

Roof

The roof of the main rooms
to be put supported on trusses shown
in plan each truss to bear on stone plates
not less than $(\frac{1}{2} + \frac{1}{2} + \frac{1}{2})$ The corners
rafters to be 12 feet apart from centre
to centre and to be well screwed with
proper nails. The whole to be nailed
with.

with $\frac{1}{2}$ inch reapers $2\frac{1}{2}$ inch and to be covered with flat and pan tiles with chumam borders. The various parts of the trusses to be fixed together to the joints by means of iron clamps $2\frac{1}{2}$ inch bolts with screw heads and nuts and struts to be fixed and screwed to the principal rafters to support purlins.

The roof of the various bath rooms and out houses to be terraced with brick on edge 3 of gully 3 courses of flat tiles and 3 coats of plastering well rubbed and smoothed supported on joists placed 12 feet apart from Centre to Centre resting on wall plates 4×2 and the portion of rear veranda between the bath rooms to be semiteraced with four courses of flat tiles laid in strong chumam 3 coats of plaster with planes $\frac{1}{2}$ inch reapers supported on rafters 12 ft apart from Centre to Centre resting on horizontal beams placed over the stone plates on the walls as shown in plan. The scantling of the various timbers to be of those written on the plan.

All

Wood Ciling - All wood work of the roof and inside doors to be coated with two coats of wood oil.

Flooring - The basement to be filled in with earth well watered and rammed till thoroughly consolidated. Over this a flooring of stone slabs having a smooth surface not less than 5 inch thick with edges dressed square to be laid in mortar joints scraped out and pointed with strong lime putty. The privies to be floored with one foot of clay and 6 of sand. The floors of the bath rooms to be laid with asphalt and a course of concrete mixed in proportion of 3 Parabs of stone jelly broken small 4 Parabs of clean sharp gravel and two parabs of fresh ground stone lime to be laid down 5 inch thick well rammed and smoothed. This must be perfectly dry before the asphalt is laid. Over this the asphalt mixed in proportion 4 measure of asphalt to 3 ft sand is to be laid $\frac{3}{4}$ inch thick to be well rubbed and smoothed off with wooden floats wherever -

blesters

to w blister appear there place must be -
w pried and smoothed with a
hot iron and well rubbed.

to Stone steps to be of one stone Steps
at the required dimensions according to the
nature and size of the steps having an
outer sides and edges dressed square and
upper surface smoothly dressed.

to 4 inch spouts having
and fixed inside not within 4 inches
wall and to be fastened to them by
iron clamps at every few feet as shown
on the plan.

to 6x5 with frames 4x3 hinges brass bolts &c
Complete including wood ciling to be
provided and fixed in the position
marked on the plan Shelves 1" thick 9 inches
broad to have 3 bearing in walls.

to 2 glazed doors (4x7) and 6 panelled doors
of which four of them (4x8) and other two
(3x7) and two battered doors 3x7 frames (4x3 1/2)
door planks 1 1/2" thick with strong pivots
hinges bolts & wrap bolts with plates
and knobs &c Complete to be provided
and fixed in the main building and
four

four battered doors (3x6) with frames
(4x3 1/2) door planks 1 1/2" thick and fittings
with pivots hinges &c to be provided and
fixed in the Cook houses and Compound
wall as marked on the plan.

Windows

Two Windows Venetian - red?
shutters outside and glazed shutters w. -
side (3x5) with framed (4x3) Venetian
plank 1/2" thick Venetian bar (1x1 1/4)
swivels 1/8" thick with strong 3 brass
plate hinges hooks and eyes 1/8" wide rings
buttons brackets and other fittings Com-
plete to be provided and fixed to the
main building.

Swing Windows

Two glazed swing windows of
which 8 are to be (4x1 1/2) and other two (3x1 1/2) with
frames (4x3) and other fittings &c Complete
to be provided, the large swing windows
to be fixed in the main rooms and the
small ones in bath rooms as marked
on the plan. The swing windows in
the main rooms to be provided with
sun shades made of teak frames and
thick Canvas painted with two coats of
metallic green paint and to be of the
pattern

pattern approved by the Executive Engr.

All outer doors windows and swing windows to be coated with two coats of metallic green paint over a priming coat of slate color

Paint

The doors of the cook houses to be coated with two coats of red metallic.

Red painting

Every thing necessary for the neat and workmanlike completion of the building to be provided whether particularly mentioned in the specification or not

All materials and workmanship employed to be of the best description and subject to the approval of the Executive Engineer of Bangalore who shall have the entire power of ordering the removal of any work with which he is dissatisfied.

The work of the work to be carried out as per Plan and Estimate according to the dimensions mentioned thereon.

Any portion of the Plan

Estimate of the probable cost laying Surface Drainage for 8 gram racks at Bangalore

Plan not understood Can be referred to the Executive Engineer and no excuse of the details not being clearly explained will be admitted hereafter.

Ex Engr's office
Bangalore
6th January 1871

Signed H. H. Wood Capt. R.E.
Executive Engineer Bangalore
(Four Copies)

Distt Engr's office
Bangalore
25th January 1875

Signed Robert Taptan R.E.
District Engineer Bangalore

Gravel	147	147
to room & privy for Dr.	1	147
arter Master Serje Dr.	1	193
ddler rooms	7	188
orkshop	1	157
able Cook rooms	2	380
wling Alleys	2	185
Carried over		6041

All outer doors windows Paint
and swing windows to be coated with
two coats of metallic green paint over a
priming coat of slate color.

The doors of the Cook's Room

From the Dutch Boy
of Bangor
the Chief Engineer
P. M. B.
P. W. C. - 10 March 1875 No 653
dated 25th
Rem. } January 1875
Specific ation for
for two separate attacks
to the two hospitals in
Francis on the
Fire-house at
Bangor
P. M. B. 1572/75
1874
23rd Dec. 1875 22/75

The whole of the work to be carried out as per Plan and Estimate according to the dimensions mentioned thereon.

Any portion of the
Plan

Estimate of the probable cost
of laying Surface Drainage for Pogram
Barracks at Bangalore

Particulars of work ^{Measurements} No. ^{Contents} L B A Total

~~9" V Drain around the Buildings~~

Double Skittle alley	1	288	288
Can'teen Artillery	1	556	556
Orderly room	1	220	220
Privy for Dr.	1	89	89
Main Guard	1	389	389
Two Troop Sergeants Quarters	2	271	542
Bath rooms for Dr.	2	62	124
Guard Room Artillery	1	697	697
Armourer Sergeant and orderly Clerk's Quarters	1	193	193
Cook room & privy for Dr.	1	147	147
Quarter Master Serjt's Dr.	1	193	193
Saddle rooms	7	188	1316
Workshop	1	157	157
Double Cook rooms	2	380	760
Bowling Alleys	2	185	370
Carried over			6041

Particulars of work	Measurements	Q B & Content	ftal
Brought over			6041
Privies for Sergeants	2 103		206
Double Privies	2 207		414
Double wash houses	2 201		402
Recreation room and Sergeants Mess	1 541		541
book room for Dr.	1 176		176
Plunge Bath	1 196		196
Provoct bells and Guard room	1 861		861
Wash house & Urinal for Provoct bells	1 132		132
Provoct Serjt's Quarters	1 259		259
Ration shed	1 149		149
book room	1 55		55
Band Master Sergeants and Drummer Major Quarters	1 197		197
book room for Dr.	1 90		90
Privy	1 101		101
Regimental Serjt Major Ldr with Store Room	1 235		235
Two Troop Sergeant Majors Quarters	2 271		542
Carried over			10597

Particulars of work	Measurements	Q B & Content	ftal
Brought over			10597
book room and Privy for N: 5 blocks of Barracks	1 220		220
book room Urinal & Privy	1 320		320
Pay master Serjt's Quarters	1 287		287
book room and Privy	1 294		294
Out houses for 15			1008
married Quarters	4 252		521
School room	1 521		
School Master's and Mistress's Quarters	2 160		320
book rooms and Privies	2 139		278
Orderly room	1 109		109
Two staff Serjt's Quarters	1 318		318
book room and Privy	1 105		105
Canteen	1 309		309
Wash house	1 126		126
Privy	1 164		164
Skittle & Bowling alley	2 220		440
Double book houses	2 380		760
- Dr. Wash houses	2 201		402
- Dr. Privies	2 207		414
Plunge bath	1 196		196
book room for Female Hospital	1 99		99
Carried over			17287

Particulars of work ^{Measurements} L 10 D Contents

Colonnade — Brought over — 17287
 Administration room — 2 191 — 382
 Medical Subordinate Quarters — 1 350 — 350
 Bath rooms for — 1 377 — 377
 Double separate wards — 1 128 — 128
 Cook room for — 1 372 — 372
 Single separate wards — 1 135 — 135
 Cook room for — 1 316 — 316
 Hospital Serjeants Dr. with out houses — 1 98 — 98
 Cook rooms for 9 Married Quarters Artillery — 2 359 — 718
 Privies for — 2 134 — 268
 Cook rooms for 8 — 2 282 — 564
 Privies for — 2 134 — 268
 Cook room for 3 Staff Serjeants Dr. — 1 116 — 116
 Privy for — 1 129 — 129
 Sick stable — 1 390 — 390
 Forge — 1 202 — 202
 Gun sheds — 2 379 — 758
 Collar Markers and Wheelers workshop — 4 235 — 940
 Carried over — 24090

Particulars of work ^{Measurements} L 10 D Contents Total

Brought over — 24090
 Harness rooms — 2 199 — 398
 Double Magazine — 1 294 — 294
 Single Magazine — 1 198 — 198
 Grain boiling shed — 1 231 — 231
 — 1 171 — 171
 Farrier Majors Dr. with out houses — 1 312 — 312
 Sick stables — 1 458 — 458
 Armourers shops — 1 199 — 199
 Forge — 1 361 — 361
 Government Dwel. — 2 10 — 20
 Living house — 1 210 — 210
 Total Rft of V drains 9 inches around the Buildings } 26722
 10 V Drain around the Blocks of Barracks and Married Quarters — 1 — 1
 Around the Barracks 8 802 — 6416
 Recreation ground Serjeants Dr. 1 541 — 541
 — 5 Barracks 1 658 — 658
 Fifteen M. Dr. for Cavalry 4 668 — 2672
 Total Rft of 10 V drains around the Barracks and Married Quarters } 10287

Particulars of work Measurement
 L B & contents Total

Branch Drains 12 V

Between the Barracks of Cavalry and Artillery	4	153	612
From Double Skittle Alley to N ^o 5 Range	1	255	255
- Dr. - Orderly room to Main drain	1	35	35
- Urinal to - Dr.	1	68	68
- Dr. - Main Guard to Dr.	1	30	30
- Dr. - Two Troop Sergeants Dr. to side drain	2	12	24
- Dr. - Guard room to Dr.	1	10	10
- Dr. - Dr. Mr. Serjt Dr. to Dr.	1	26	26
From Saddle room to Main drain	1	110	110
- Dr. - Bowling Alley to Cook room	1	35	35
- Dr. - Cook room to workshop	1	152	152
- Dr. - Workshop to Culvert	1	180	180
Drain between saddle rooms	1	40	40
- Dr. - Double wash house	1	15	15

Carried over — 1592

Particulars of work Measurement
 L B & contents Total

Brought over — 1592

Drain from Saddle rooms to Main drain	1	140	140
- Dr. - Bowling Alley to Dr.	1	15	15
- Dr. - Double Cook room to Dr.	1	30	30
- Dr. - Saddle rooms to Main drain from Barracks to Provost cells	2	65	130
- Dr. - between Double Privies	15	15	
- Dr. - from the above to Main drain	1	60	60
- Dr. - Privy for Sergeants to Main drain	1	10	10
- Dr. - Cook room for Recreation room to Plunge Bath	1	187	187
- Dr. - Ration shed Cook room & Saddle room to Main drain to P. Cells	1	140	140
- Dr. - between Troop & Regimental Serjt Major's Dr.	2	55	110
- Dr. - Dr. & 5 Range	1	55	55
- Dr. - Paymaster & Troop Serjt's Quarters	1	50	50
- Dr. - Privy & Cook room for Dr. to drain between Troop & Paymaster's Dr.	1	100	100

Carried over — 2634

Particulars of work Measurement
N. L B D. contents Total

Brought over 2634
 Drain from book room for
 N. 5 Range to Main drain 230 230
 - Dr. - Privy to above drain 1 65 65
 - Dr. - book room, privy and
 Urinal to - Dr. - 1 100 100
 - Dr. - between Married Dr.
 N. 1 & 2 Cavalry 1 100 100
 - Dr. - from the above Married
 Dr. to School room 1 97 97
 - Dr. - from the above School
 room to Main drain 1 10 10
 - Dr. - from N. 3 Married
 Dr. to Main drain 1 135 135
 - Dr. - N. 4 - Dr. - Dr. - 1 10 10
 - Dr. - from School master &
 Messing Dr. to the
 Main drain 1 240 240
 1 135 135
 - Dr. - from Female Hospital
 to Side Road drain 30 30
 - Dr. - from Artillery Male
 Hospital to Cook room 1 140 140
 - Dr. - from the above Cook
 room to Double
 Separate ward 1 73 73
 - Dr. - B.O. 3999

Particulars of work Measurement
N. L B D. contents Total

Brought over 3999
 Drain from the above ward
 to Main drain 1 50 50
 - Dr. - Hospital Serv. Dr. -
 to Main drain 1 10 10
 - Dr. - Med. Sub. Dr. to Dr. -
 between Cook room and single
 Separate ward 1 57 57
 - Dr. - Orderly room to canteen 1 700 700
 - Dr. - from Single was
 house to main drain 1 65 65
 - Dr. - Single Privy to Dr. -
 - Dr. - Double Cook room to
 Main drain 1 50 50
 - Dr. - Between double Privy
 - Dr. - Dr. - Double Privy
 Skittle & Bowling Alley 1 77 77
 - Dr. - Double wash houses
 - Dr. - from the above wash
 houses to Main drain 2 30 30
 - Dr. - Plunge bath to Dr. -
 - Dr. - from Skittle & Bowling
 Alleys to Main drain 1 86 86
 - Dr. - between Artillery
 Married Quarters 1 60 60
 Brought over 4769

Measurements

Particulars of work N. L. B. & contents Total

Brought over 2634

Drain from Cook Room 230 230

to Range to Main drain 65 65

Drain from Privy to main drain 100 100

Drain from between Married Dr. 100 100

Drain from N: 2 Cavalry 100 100

Drain from the above Married Dr. to School room 97 97

Drain from the above School room to main drain 10 10

Drain from N: 3 Married Dr. to main drain 135 135

Drain from N: 4 Dr. 10 10

Drain from School master & Mistress Dr. to the Main drain 240 240

Drain from Female Hospital to side road drain 30 30

Drain from Artillery Male Hospital to Cook room 140 140

Drain from the above Cook room to Double separate ward 73 73

Drain from the above Double separate ward 173 173

Drain from the above Double separate ward 173 173

Drain from the above Double separate ward 173 173

Drain from the above Double separate ward 173 173

Drain from the above Double separate ward 173 173

Drain from the above Double separate ward 173 173

Drain from the above Double separate ward 173 173

Drain from the above Double separate ward 173 173

Drain from the above Double separate ward 173 173

Drain from the above Double separate ward 173 173

Measurements Particulars of work N. L. B. & contents Total

Brought over 3999

Drain from the above ward to main drain 100 100

Drain from Hospital Serv. Dr. to main drain 100 100

Drain from Med. Subst. Dr. to Dr. 100 100

Drain from between Cook room and single Separate ward 100 100

Drain from Orderly room to canteen 100 100

Drain from Single wash house to main drain 65 65

Drain from Single Privy to Dr. 100 100

Drain from Double Cook room to Main drain 100 100

Drain from Between double Privies 100 100

Drain from Dr. Double Privy 100 100

Drain from Skittle & Bowling Alley 100 100

Drain from Double wash houses 100 100

Drain from the above wash houses to main drain 100 100

Drain from Plunge bath to Dr. 100 100

Drain from Skittle & Bowling Alleys to main drain 100 100

Drain from between Artillery Married Quarters 100 100

Drain from the above Married Quarters 100 100

Drain from the above Married Quarters 100 100

Drain from the above Married Quarters 100 100

Drain from the above Married Quarters 100 100

Drain from the above Married Quarters 100 100

Drain from the above Married Quarters 100 100

Drain from the above Married Quarters 100 100

Drain from the above Married Quarters 100 100

Drain from the above Married Quarters 100 100

Particulars of work Measurement
N. L B & contact Total

Brought over 4769

Drain from Cook rooms 1 210 210

Dr. Married Quarters

to main drain 1 180 180

Dr. Cook rooms 4 30 120

Dr. from 3 staff Serje

2nd to the corner

of Married Dr. 1 400 400

Dr. between gun shed

and Collar makers

workshop 2 23 46

Dr. between Collar makers

workshop 1 55 55

Dr. from Harnep rooms to

main drain 50 50

Dr. between Forge and

sick stables 1 43 43

Dr. Sick stable to side

road drain 1 116 116

Dr. Gram boiling shed to Dr.

50 50

Dr. Double Magazine

to Gun shed 1 124 124

Dr. Gun shed to Collar

makers workshop 2 23 46

Dr. from Collar makers

workshop to nullah 1 67 67

b. c. 6276

Particulars of work Measurement
N. L B & contact Total

Brought over 6276

Drain between Harnep

room and collar

maker's workshop 1 45 45

Dr. from single maga

zine to nullah 1 25 25

Dr. from boiling shed

to side road drain 1 56 56

Dr. between Dr. Dr. 1 15 15

Dr. from forge to

main drain 1 56 56

Dr. between forge and

Armourers shop 1 60 60

Dr. Farrier Major Dr.

to nullah 1 46 46

Dr. Government dwell

ing house to Dr. 1 20 20

Total Rpt of 12 V Drain 6599

Flat Drain 2 feet for stables

Drain in front of

Double and single } 14 326 4564

stall

Total Rpt of Flat stone drain for stables 4564

Particulars of work ^{Measurements} N: L B & Content ^{Estal}

1/2 feet V Drain

Drain from Cavalry
Canteen to side
road drain — 1 489 489
- Dr. - N: 1 Cavalry Barrack
to Culvert near the
Officers Racket Court — 1 250 250
- Dr. - Workshop to — Dr. — 1 160 160
- Dr. - between N: 1 & 2
Privies for Sergeants — 1 250 250
- Dr. - Plunge bath to
Main drain — 1 80 80
- Dr. - N: 4 Barracks to the
above main drain — 1 205 205
- Dr. - Band Master Serje
to Culvert near
the Provost Cells — 1 600 600
- Dr. - N: 2 Married Dr.
to Culvert — 1 138 138
- Dr. - between Troop Serje
to N: 5 Barracks to the
corner of N: 5 Married Dr. — 1 390 390
- Dr. - Administration room to
Hofpl. Serje Dr. — 1 239 239
C. P. — 2801

Particulars of work ^{Measurements} N: L B & Content ^{Estal}

Brought over — 2801

Drain from Cavalry Male
Hospital to single
Separate wards — 1 300 300
- Dr. - from the above ward
to nullah — 1 150 150
- Dr. - Staff Serje
to Culvert — 1 200 200
- Dr. - between N: 6 & 7
Barracks Dr. to the
corner of single privy — 1 310 310
- Dr. - from Double Privy to Dr. — 1 130 130
- Dr. - from Canteen to main
drain to Culvert — 1 215 215
- Dr. - N: 7 Barracks to
Culvert opposite
the Gun shed — 1 344 344
- Dr. - from Plunge bath
to the corner of
Double Cook room — 1 280 280
- Dr. - Artillery Married Dr. — 1 250 250
to Nullah — 1 200 200
- Drain from Sick stable to
Culvert near the
Pond — 1 290 290

Carried over — 5470

Particulars of work No. 2 B & contents Total

Brought over — 5470
 Drain from corner of stable
 to the above Culvert 1 166 " 166
 Drain along the both ends
 of the stables 1 734 " 734
 — from Recreation room
 to nullah near the
 Provost cells — 1 500 " 500

Total Rft of 1/2 ft V Drain — 7482

Main Drain 1/2 ft square

Drain from N: 2 Privy
 for Sergeants to Culvert
 near the Provost cells 1 480 " 480
 — Corner of N: 3 Married
 Dr: to Culvert 1 490 " 490
 — Corner of Hospital
 Serjt Dr: to Nullah 1 450 " 450
 — from Single Privy to Culvert 1 300 " 300
 — Double Cook room to Culvert 1 324 " 324
 — from the above Culvert
 to the Culvert between
 Water Troughs — 1 873 " 873

Total Rft of 1/2 feet Same Dr: Drain 2911

Particulars of work No. 2 B & contents Total

Stone covering for drain

Pathway between the Can-

-teen orderly room

and Main guard — 2 15

— near the Saddle room 1 15

— between the Barracks 10 15

— — — — — Cook room

and workshop — 3 15

— — — — — Saddle rooms 1 15

— — — — — Double privies

and wash house 3 15

— — — — — Bowling Alley

and Privy for Serjt 1 15

— — — — — Cook room

and Plunge bath 1 15

— — — — — Plunge bath

and Culvert 3 15

— — — — — N: 4 Barracks

to Main drain 4 15

— — — — — Bandmasters

Quarters and

Provost cells — 3 15

— — — — — Skittle and

Bowling Alley and

N: 5 Barracks — 2 15

Carried over 525

Particulars of work Measurements
N: L B & Contents Total

Brought over		525
Pathway between N ^o 5 Barracks and Serp ^t Dr ^o	1 15	15
Married Dr ^o		
and School Room	8 15	120
School Masters		
Quarters	1 15	15
Hosp ^l Cook Room		
and D. S. wards	2 15	30
Administration Room		
and Hosp ^l Serp ^t Dr ^o	1 15	15
Single Separate wards	2 15	30
Orderly Room & Canteen	1 15	15
Double Cook Room & Barrack	1 15	15
Double Privies Skittle & Bowling Alley & Single Privy	2 15	30
Double Cook Room		
H. S. & B. Alley	3 15	45
Married Dr ^o and their out houses	5 15	75
Forge and Sick		
Stable Artillery	2 15	30
Gun shed & workshop	8 15	120
Magazine & Gun shed	1 15	15
Stables	14 15	210
Forge, Ammunition shop & sick stable	3 15	45
Total Rft. of Stone Covering for Drains		1350

Particulars of work	Measurements N: L B & Contents	Total
Square drain around the Dyam ^l Sh ^l	1 7800	7800
Total Rft. of Square drain around the Dyam ^l Sh ^l		7800
Covering stone for the above drain	12 15	180
Total Rft. of Covering stone		180
Culvert		
Excavation for Culvert	1 39 4 1/2	234
Total Cft. of Excavation		234
Stone in Chumam		
Side walls of Culvert	2 39 1/4 1/2	146 1/4
Foundation for	2 39 1/4 1/2	117
Parapets at each end of Culvert	2 4 1/4 1/2	15
Total Cft. of Stone in Chumam		278 1/4
Paving		
Inside of Culvert	2 39 1/2	117
Parapets over	2 10 1/2 1/2	31 1/2
Total sq. ft. of Paving		148 1/2
Flooring		
Culvert	1 39 4	156
Total sq. ft. of Flooring		156
Covering stone		
For Culvert	31 4 1/4 1/4	31
Total N ^o of Covering stones		31
Stones over parapets	2 4 1/2 1/4	2 2
Gravelling		
Over Covering stone for drain		
inside of Barracks	1 1350 20	27000
Do. Do. for drain around the Barracks	1 180 20	3600
Over the Culvert	1 39 20	780
Total sq. ft. of Gravelling		31380

L. M.

Abstract Estimate of the probable
cost of Laying Surface Drainage for Agrom
Barracks at Bangalore.

Quantity	Description of work	Rate per	Amount	Total
26,922	1 1/2 ft of 9" V drain around the Buildings	6. 10096		
10,287	1 1/2 ft of 10" V drain around the Barracks and Married Quarters	6. " 3858		
6599	12" V Drain for branches	76 " 3093		
4564	Flat Drain 2 ft. in front of stables	6. " 1712		
7482	1 1/2 ft V Drain	12. " 5612		
2917	Main drain 1 1/2 square	14. " 3646		
1350	Stone Covering for the above drains	3. " 253		
7804	Main drain 1 1/2 square around the Agrom Barracks	14. " 9750		
180	Covering stone for the above drain	3. " 34		
Carried over				38054

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Abstract Estimate of the probable cost of Laying Surface Drainage for Agram Barracks at Bangalore.

Quantity	Description of work	Rate per	Amount	Total
26,922	1 ft of 9" V drain around the Buildings	6. Rft.	10096	
10,287	1 ft of 10" V drain around the Barracks and Married Quarters	6. "	3858	
6599	12" V drain for branches	76 "	3093	
4564	1 ft of 2 ft. w. front of stables	6. "	1712	
7482	12" V drain	12. "	5612	
2917	Main drain 1/2 square	14. "	3646	
1350	Stone covering for the above drains	3. "	253	
7804	Main drain 1/2 square around the Agram Barracks	14. "	9750	
180	Covering stone for the above drain	3. "	34	

Carried over — 38054

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11/18
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1372/15

Abstract Estimate of the probable
cost of Laying Surface Drainage for Agrom
Barracks at Bangalore.

Quantity	Description of work	Rate per	Amount Total
26,922	1 1/2 ft of 9" V drain around the Buildings	6. Ref. 10096	
10,287	1 1/2 ft of 10" V drain around the Barracks and Married Quarters	6. "	3858
6599	12" V Drain for branches	76 "	3093
4564	Flat Drain 2 ft. in front of stables	6. "	1712
7482	1 1/2 ft. V Drain	12. "	5612
~~2917~~	~~Main drain 1 1/2 square~~	~~14. "~~	~~3646~~
1350	Stone Covering for the above drains	3. "	253
7804	Main drain 1 1/2 square around the Agram Barracks	14. "	9750
180	Covering stone for the above drain	3. "	34

Carried over— 380 54

Quantity Description of work Rate Per Amount Total

Culvert Brought over 38054

234	bft of Excavation—	1 1/4	1
278	-- of Stone in chunam for side wall & foundation.	26	43
149	sq of pointing with lime putty—	18. sq	2
156	-- of Flooring to Culvert 15	2 3	
31	N ^o of coverings stones (4 x 1 1/4)	12. E	23
2	-- of Stone over parapet (4 x 1 1/2 x 4)	12. E	2
313.80	sq of Graveling—	1. sq	314

Sundries — 38462
Total Estimate Rupees — 40400

F.M.
 Dist^l Engr's Office
 Bangalore
 9th December 1873

Henry M. Baird
 Captain R.E.
 District Engineer Bangalore.

W. M. M.
 a 2nd Engineer
m.d.

Specification to accompany
Plan and Estimate for surface
drainage for Agham Barracks at
Bangalore.

Amount of Estimate, Rupees 40,400

The drainage scheme for Agam Barracks is designed for the purpose of carrying to a desirable distance the water from Bath rooms, Cook houses &c. and the rain water accumulating on the roofs of the several buildings. These drains are divided into two classes, viz— Catch drains, which are those round the buildings and leading from Bath rooms, Cook houses &c.; and leaders, which are those into which the Catch drains empty themselves: these latter being laid down so as to join with the several nullahs which drain the Plateau. The Catch drains will vary in size according to the quantity of water they are supposed to accommodate; and the leaders will be made

Where drains intersect road ^{borders} these covers will be laid over them. These points are marked P in the plan; these covers will overlap V Drains at least 8" on each side, to be one stone at least 12 feet long.

A Culvert in stone and chunam ^{Culvert} will be built at the point marked N.C., the floor will be laid of flat stones at least $\frac{1}{4}$ above bottom of foundation; between foundation and under the floor of water course, a bed of concrete 6" thick will be laid, the side walls will be 15 thick, and the covers will entirely cover the whole of Culvert.

The joints in all drains after ^{Pointing} being thoroughly raked out will be pointed with Portland Cement (1 of Cement to 2 Soorkee) this will be kept wetted for at least two days after the drain has been pointed.

Rubbish from V Drains must ^{Cleaning} be removed immediately after the draw has been laid, and no accumulation will be allowed about the Barracks.

Gravelling

Where covers have been placed over drains 6" of gravelling will be put down and properly rammed giving the approaches to covered drain a proper gradient at least 10 feet on either side.

General Construction

All drains to be executed in a workman like manner of the materials mentioned in the foregoing specification and at the rates laid down in the Abstract Estimate, if any excess of work be shewn the quantity will be paid for according to the rate for similar work in the Estimate: and if the Estimate shews quantities in excess of the actual work done a proportionate amount will be deducted therefrom.

Responsibility

Of Contractor

The contractor will be held responsible for the proper carrying out of the work and for accidents occurring through his not having properly guarded the foundations of drains, while they are being built, also for carelessly laying materials in - cautiously down in thoroughfares - whereby

whereby any accidents may happen to the inhabitants.

The work may be condemned by the District Engineer for the time being or by a duly qualified person set apart by him, who will be the sole judge of the materials and workmanship and who may order the removal of any materials or bad workmanship with which he may be displeased, the same being replaced at the Contractor's expense.

Ld
 Dist Engr Office
 Bangalore
 9 December 1873
 Henry M. Baird
 Captain R.E.
 District Engineer Bangalore

24
 Abstract Estimate of the probable
 cost of constructing a banteen for the European
 23
 originally submitted

Particulars	Amount	Total
	131	131
	96	227
	39	266
	39	305
	69	374
	23	397
	14	411
	87	498
	34	532
	55	587

1/2 of Plastering with two
 coats of Chunan 28 680
 1/2 of Whitewashing - Do 3 87
 1/2 of Oakwood wrought
 and put up } 38 4440
 Carried over 21958

whereby any accidents may happen to the inhabitants.

The work may be condemned by the Dis- being or set apart sole jud workmc order the or bad he may being re expense

Lt Col
Dist Engr
Bangalore
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Mr 184/74
In P
Lr No 5996 of 73
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Mr 1372/75

Abstract Estimate of the probable cost of constructing a banteen for the European Infantry Barracks at Bangalore (as originally submitted).

Quantity	Description of work	Rate	Amount	Total
25,087	cft of Excavation	1/31	1131	1131
5889	cft of Concrete	1/26	1196	1196
15,677	cft of Foundation Stone in Chumam	1/39	1839	1839
9,806	cft of Basement	1/36	1123	1123
30,485	cft of Superstructure	1/36	1123	1123
2876	cft of Arch work	1/36	1123	1123
819	cft of cornice work	1/36	1123	1123
7	sq of balustrade high	1/36	1123	1123
635	cft of stone slab tread for steps	1/34	1123	1123
10,132	sq of Dressing	1/34	1123	1123
12431	sq of Pointing with lime putty	1/55	1123	1123
27198	sq of Plastering with coat of Chumam	1/34	1123	1123
27198	sq of Whitewashing	1/34	1123	1123
12687	cft of Oakwood wrought and put up	38	4440	4440
				Carried over 21958

Quantity	Description of work	Rate	Per Amount	Estal
261	N ^o of Nails 8 long	B.O.	21958	
30	of Stone plates under beams (2x2x3)	88	11	
80.62	sq of flooring with brick on edge & jelly 3 courses of flat tiles & plaster ven	4.	8	
6.72	of Bengal roof with teak cepters nail 4 courses of flat tiles	278.8	2217	
22.079	of filling in basement		128	
82.62	sq of flooring with stone slabs	2.6	58	
82.62	of Levelling Course of concrete under the stone floor	2.5	1031	
26	pair of Fixed windows door with frame & glazed top ven	46	1196	
16	venetian door with frame & glazed top ven (4x8)	504	804	
6	panelled doors	46.4	278	
2	venetian, & glazed windows with glazed top (3x5)	46.8	93	
66	N ^o of glazed swing windows	Complete (4x12)	462	
1	N ^o of Grated door large	28.7	28.7	
1	" " " " Small	40	40	
89.68	sq of wood orling two coats	2.8	179	
		B.O.	29163	

Quantity	Description of work	Rate	Per Amount	Estal
54.07	sq of Painting with chocolate color paint	5.0	270	
807	ft of Wrought iron spouts	12.7	606	
4	N ^o of Sky lights (8x4) with glazed shutters	127.5	510	
2	do do (8x2)	108.6	217	
70	ft of shelves (12x1)	138	60	
33	ft of brackets (3x2)	16	46	
1	ft of Stand for barrels	5	5	
	Marking board	5	5	
			30,905	
			1495	
			32400	

Total Estimate Rupees 32400.

Herby Stuart Captain R.E.
District Engineer Bangalore

F.M.
Dist Engrs Office
Bangalore
26 January 1874

Specification to accompany
Plan and Estimate for constructing
a canteen for the European Infantry
Barracks at Bangalore.

Amount of Estimate ^{32,400} Rupees 28,700

Excavation

The excavation for foundation
to be taken down to such a depth
as the District Engineer may consider
necessary, and the bottom taken out
perfectly level any superfluous
excavation to be filled in with concrete.

Concrete

The lower steps of foundation
to be built with concrete the propor-
-tion of the concrete will be as follows-
5 parabs of good gneiss broken into
cubes of one to 2 inches free of quarry
sweepings. 1 Parab of good unslaked
lime. two Parabs of ground bricks,
the lime to be slaked while mixing
the concrete.

Foundation

The foundation to be laid
with stone in chunam stones laid
closely fitted with good bond and
well flushed up with chunam (3
parts of

Specification to accompany
Plan and Estimate for constructing
a canteen for the European Infantry
Barracks at Bangalore.

Amount of Estimate

32,400 Rupees 28,700

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Specification to accompany
Plan and Estimate for constructing
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Baracks at Bangalore.

Amount of Estimate Rupees ^{32,400} 28,700

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Specification to accompany
Plan and Estimate for constructing
a canteen for the European Infantry
Baracks at Bangalore.

Form
of the District Engineer
at Bangalore
to the District Engineer
at Bangalore
for the construction of
a canteen for the European
Infantry Baracks at Bangalore.
Rupees 32,400

Specification to accompany
Plan and Estimate for constructing
a canteen for the European Infantry
Baracks at Bangalore.

Specification to accompany
Plan and Estimate for constructing
a canteen for the European Infantry
Baracks at Bangalore.

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Specification to accompany
 Plan and Estimate for constructing
 a canteen for the European Infantry
 Barracks at Bangalore.

Amount of Estimate Rupees ^{32,400} 28,700

Excavation

The excavation for foundation
 to be taken down to such a depth
 as the District Engineer may consider
 necessary, and the bottom taken out
 perfectly level any superfluous
 excavation to be filled in with concrete.

Concrete

The lower steps of foundation
 to be built with concrete the propor-
 -tion of the concrete will be as follows-
 5 parabs of good gneiss broken into
 cubes of one to 2 inches free of quarry
 sweepings. 1 Parab of good unsalted
 lime. two Parabs of ground bricks,
 the lime to be slaked while mixing
 the concrete.

Foundation

The foundation to be laid
 with stone in chunam stones laid
 closely fitted with good bond and
 well flushed up with chunam (3
 parts of

parts of sand to two of fresh and well burnt lime) slaked on the work. Every 6th stone at least to be a through header.

The basement to lie ~ *Basement*
similarly laid with outer joints scraped out and pointed. The top course of the basement to be of flat stones of as great a length as possible.

The superstructure is to *Superstructure*
be of hammer dressed stone in chunam laid in even courses not less than 9" deep, and level beds closely fitted with good bond. every sixth stone at least to be a through header and well flushed up with chunam consisting of two parts of fresh and well burnt lime to 3 of sand. openings to be provided in the walls in the position shewn on the plan.

The arches to be neatly *Archwork*
turned with

27
turned with well dressed stone in chunam. The joints all to radiate correctly according to the nature of the arches. stones to be well dressed to the required shape and the key stone to be well driven home; joints not to exceed $\frac{1}{4}$ " thick. joints to be scraped out before plastered or painted.

Cornice
Work

The description of the cornice should be of the pattern supplied by the Dist^l Engineer. Cornice stone to have proper bearing not less than 6 inches and set with strong lime.

Steps

Stone slabs for steps to be of one stone of the required dimensions according to the nature and size of the steps. having the outer sides and edges dressed square and upper surface smoothly dressed.

Dressing

The arches over exterior doors, windows and ventilators ⁱⁿ swing windows are to be well dressed. The

The joints of outer walls to be scraped out and pointed with strong lime putty. Painting

The joints to be scraped out and the walls plastered inside with two coats of chunam. 1st coat to consist of 1 part of lime to $\frac{1}{2}$ of river sand well ground together and the 2nd coat to be of 3 parts of lime to 1 of white sand well smoothed off. Plastering

The rooms to be white-washed inside with two coats of chunam to be approved of by the District Engineer. Whitewashing

The following proportion to be used in mixing the white wash:

For Whitewashing 10 sq. ft. two coats.
1 Parah of stone chunam
 $\frac{1}{2}$ Pollum of gum
 $\frac{3}{4}$ measure of raw rice.

The whole of the timber to be of well seasoned and sound teak. Timber

teak free from all shakes and knots and neatly finished off. No timber to be put up until framed by the District Engineer.

Roofing

The roof of the banteen to be terraced with brick on edge, jelly 3" thick, 3 courses of flat tiles, and 3 coats of plastering well rubbed. Seats beams for the main rooms to bear on stone plates not less than $(2 \times 2 \times \frac{1}{3})$ and placed at 11 feet apart.

The joists are to be laid $1\frac{1}{2}$ apart from centre to centre. The front verandah to be Bengat terraced with 4 courses of flat tiles laid in strong chunam, ^{about 3 courses} of plaster with teak isepers $(2\frac{1}{2} \times \frac{3}{4})$ supported on rafters placed $1\frac{1}{2}$ apart from centre to centre resting on brissumers placed over the columns as shown on Plan.

Sky light

The sky light of the dimensions

The joints of outer walls to be scraped out and pointed with strong lime putty. Pointing

The joints to be scraped out and the walls plastered inside with two coats of chunam. 1st coat to consist of 1 part of lime to $\frac{1}{2}$ of river sand well ground together and the 2nd coat to be of 3 parts of lime to 1 of white sand well smoothed off. Plastering

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The whole of the timber to be of well seasoned and sound teak. Timber

Roofing

28
teak free from all shakes and knots and neatly finished off. No timber to be put up until

framed by the District Engineer. The roof of the banteen to be terraced with brick on edge, jelly 3" thick, 3 courses of flat tiles, and 3 coats of plastering well rubbed. Seats beams for the main rooms to bear on stone plates not less than $(2 \times 2 \times \frac{1}{3})$ and placed at 11 feet apart.

The joists are to be laid $\frac{1}{2}$ apart from centre to centre. The front verandah to be Bengal terraced with 4 courses of flat tiles laid on strong chunam, ^{3 courses of plaster} with teak rafters $(2 \frac{1}{2} \times \frac{3}{4})$ supported

on rafters placed $\frac{1}{2}$ apart from centre to centre resting on brackets placed over the columns as shown on Plan.

Sky light

The sky light of the dimensions

dimensions and at places as shown on section to be provided over the main room. There shall be four pillars 1 foot square built of brick in chunam at each corner of every sky light which shall be plastered with two coats of chunam on these frames or brisumiers (4x6) to be fixed. On which joists to be laid at 1 1/4 feet apart from centre to centre. The roof of the sky light to be terraced with brick on edge, jelly 3 thick, 3 courses of flat tiles and plastering, having a slope of 3 from centre to eave. The space between the pillars of the sky light to be filled with glazed shutters.

The basement to be filled in with earth, well watered and rammed, till thoroughly consolidated, over this a flooring of 3 inches concrete

Doors

24
concrete, well rammed and smoothed on which stone slabs to be laid - having a smooth surface not less than 4" thick with the edges dressed square. The joints scraped out and pointed with strong lime putty.

Forty two pairs of venetioned doors (4x8), 26 of which to be fixed venetioned with glazed top and the other 16 venetioned door with glazed top, frames (4 1/2 x 3 1/2) venetioned plank 1/4 thick venetioned bar (1 x 1 1/4) with strong hinges, bolts 9 brass locks &c complete to be provided and fixed to the exterior walls of the building and 6 pairs of Panelled doors (4 1/2 x 8) with glazed top, frames (4 1/2 x 3 1/2) door plank 1/4 with strong hinges, bolts, locks &c to be provided and fixed to the inside of building

Windows

Two pairs of venetioned windows (3 1/2 x 5) with glazed shutters 1/4 thick inside and glazed top frames (4 x 3) venetioned planks 1/2 thick - venetioned

Sixty six glazed ventilator^{ing} Ventilator^{ing}
Swing windows ($4' \times 1\frac{1}{2}'$) frames ($3'' \times 2\frac{1}{2}''$) Swing
and other fittings etc complete Windows
are to be provided and fixed over the
exterior doors and windows of
the building.

The grated door (20' x 20') to be made according to the pattern shown on the plan. The doors to consist of horizontal beam (10' x 6') to be fixed to the spring of an arch. Side and horizontal frames (4' x 3'). The side frames to run around the arch. The lower portion of the door to be made into four panels each of which to be inserted through the frames (6' x 3')

and fixed into the shape shown on the plan: three vertical frames (4 x 3) to be fixed to the upper portion of the door between the horizontal beams and frames on the pannels, through which the iron bar 1" or to be inserted at 6" apart and the same extended to the frame around the arch to be provided and fixed to the arch between the Canleer and serve out rooms and ^{are} other door of the similar kind (4 x 10) to be provided and fixed to the walls between Liquor and serve out room.

The wood works of the doors to be coated with two coats of wood oil. and the iron works with two coats of coal tar.

Woodruling

of coal tar:
The wood works of the
roof to be coated with two
coats of wood oil.

mentioned bar ($1 \times 1\frac{1}{4}$) with strong
 $\frac{1}{4}$ " brad plate hinges, strong hooks and
eyes $\frac{3}{8}$ " brad rings, buttons, brackets
and other fittings &c complete are
to be provided and fixed to the
small rooms.

Sixty six glazed ventilating
Swung windows ($4 \times 1\frac{1}{2}$) frames ($3 \times 2\frac{1}{2}$) Swung
and other fittings &c complete
are to be provided and fixed over the
exterior doors and windows of
the building.

The grated door (20×20) to be Grated
made according to the pattern shown doors
on the plan. The door to consist of
horizontal beam (10×6) to be fixed
to the spring of an arch. Side and
horizontal frames (4×3). The side
frames to run around the arch. The
lower portion of the door to be made
into four panels each of which to be
inserted through the frames (6×3)

and

26
and fixed into the shape shown
on the plan: three vertical frames
(4×3) to be fixed to the upper portion
of the door between the horizontal
beams and frames on the panels,
through which the iron bar $1 \times \frac{1}{4}$
to be inserted at 6" apart and the
same extended to the frame around
the arch to be provided and fixed
to the arch between the Canteen and
serve out room and other door
of the similar kind (4×10) to be
provided and fixed to the walls
between Liquor and serve out
room.

The wood works of the doors to be
coated with two coats of wood oil
and the iron works with two coats
of coal tar.

Wood oiling The wood works of the
roof to be coated with two
coats of wood oil.

The doors, windows and
ventilating ^{and} swing windows to be
painted with two coats of barrens
anti corrosive paint chocolate
color. Painting

The wrought iron spouts
having 3" inner diameter and
 $\frac{1}{16}$ " thick to be provided and fixed
on the outer side walls $\frac{1}{2}$ " and to
be fastened to them by iron clamps
at every five feet in the manner
directed by the District Engineer. Spout

The shelves to consist
of a plank 1" thick and $1\frac{1}{2}$ " wide
to run around the small room
supported on wooden brackets
(3" x 2") placed $1\frac{1}{2}$ " apart and inserted
1 foot in the wall. Shelves

The stand for barrels
($5\frac{1}{2}$ " x $2\frac{1}{2}$ ") to consist of four side
frames (4" x 3") and two frames (4" x 2")
to be fixed horizontally and vertically
with Stand for
Barrels

with six legs 4" sq^{re} and $1\frac{1}{2}$ " in height
The frames are to be well sunk
and screwed and neatly finished
off-

All materials used and work
done to be of the best description
and subject to the approval of
the District Engineer of Bangalore
who shall have the entire power of
ordering the removal of any work
with which he is dissatisfied.

A. M. S. Subst. Captain P. E.
District Engineer
Bangalore
25th March 1843

District Engineer
Bangalore

Military - 5th Division & P.W. Original Work

Bangalore

Abstract Estimate of 1870-71.

Work Constructing two Hospital Sijjants.
Quarters for Rone house Barracks, Bangalore.

Quantity	Description of Work	Rate Per	Amount Total
2,672 $\frac{3}{4}$	6 feet of Excavation	1 Cft	14
2,672 $\frac{3}{4}$	Do of Foundation Stone in chunam	2 6 Do	418
2,020 $\frac{3}{4}$	Do of Basement	2 6 Do	316
6,348	Do of Superstructure brick		
	in chunam	2 9 Do	1,091
409 $\frac{7}{8}$	Do of Arch work	4 Do	102
314	Rft of cornice work	12 Rft	236
103 $\frac{97 \frac{1}{2}}{100}$	Sq of Plastering, two coats		
	with chunam	2 8 Sq	260
67 $\frac{27 \frac{1}{2}}{100}$	Do of White washing, two coats	3 Do	13
36 $\frac{60 \frac{1}{2}}{100}$	Do of Blue washing	4 Do	9
155.8	6 ft of Teak wood wrought		
	and put up	3 8 Cft	545
2	St of Trusses, 16 feet span	52 each	104
7	Do of Stone plates $1\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{4}$	4 Do	2
148	Do of Nails, 7 inches long	7 Do	5
9 $\frac{57}{100}$	Sq of Roofing with teak reapers		
	nails, plate & pan tiles chunam borders	18 Do	171
	Do to complete		
		Carried over	3,286

Bangalore Bill

Encly in a letter to

St. 1. March 1874

Mr. 1372/75

P.W. 98-10 March 1875

Specification to be

made Estimate for

Constructing a Sijjant

for equipment of Sijjant

banking, at the Barracks at Bangalore

In No 1407 of 73

22314/73

Exp No 31421

1874
32,400
Estimate of Rs 28,700

Quantity Description of Work Rate Per Amount Total

Brought over 3286

10 $\frac{23\frac{1}{2}}{100}$ Sq ft of Terracing with brick
on edge, jelly 3" thick, 3
courses of flat tiles and
3 Coats of Chumam & complete 27 8 " Sq ft 281

1 $\frac{20\frac{1}{2}}{100}$ Sq of Semi Terracing with
plained teak resers 4 courses
of flat tiles & 3 Coats of
Chumam plaster 19 " " Sq 23

17 $\frac{70\frac{3}{4}}{100}$ Sq of Wood oiling, two coats 2 " " Sq 35

3493 $\frac{1}{2}$ Cft of filling in basement 1 Cft 9

12 $\frac{33}{100}$ Sq ft of Paving with stone
slabs set in mortar and
pointed with lime putty 15 " " Sq ft 185

1 $\frac{62}{100}$ Sq of Flooring with asphalt
 $\frac{3}{4}$ " thick 20 " " Sq 34

175 $\frac{1}{2}$ Pft of Stone Slabs tread
for steps 3 Pft 33

144 " of Zinc Spout 2" dia
meter including iron
clamps 9 " " Sq 81

Carried over 3967

Brought over 3967

4 Pairs of Pannelled Shutters
5'x6' for shelves with
frames, fittings and iron
works & complete 37 " " each 148

2 Sq of half pannelled & half
glazed doors 4'x8' with
frames and iron works
& complete 36 " " Sq 72

4 Sq of pannelled doors 4'x8'
with frames & iron works
& complete 40 " " Sq 160

2 " " 3'x7' " " " " 26 " " Sq 52

2 Sq of battened doors 3'x7'
with frames & iron works
& complete 21 " " Sq 42

2 Sq of Windows 3'x5' with
venetian shutters outside
and glazed shutters inside
with frames & iron works
& complete 32 " " Sq 64

8 Glazed swing windows with
frames & iron works & com-
plete 4'x12' 8 " " Sq 64

Carried over 1569

Quantity : Description of work : Rate Per : Amount : Total

Brought over 4,569

2 Glazed swing windows with
frames and iron work rec 6 8 " each 13
complete 1/3 x 1 1/2

8 No. of Sun shades over swing
windows including green
painting 4 " " - 32

5 25/100 Lys of Metallic green pain-
ting, two coats 5 25/100 Lys 26

1 Marking board 5 " each 5

2 Inventory boards 12 " - 2

4,647

Sundries 233

Total Rupees 4,880

Work houses and Privies

629 3/8 Cft of Excavation " 1 Cft 3

629 3/8 - 0 - of Foundation, stone in

Chunam 26 - 0 - 98

166 3/8 - 0 - of Basement 26 - 0 - 26

166 25/100 - 0 - of Superstructure, brick

in Chunam 29 - 0 - 286

49 - 0 - of Arch work, brick

in Chunam 12

Carried over 425 4,880

Quantity : Description of work : Rate Per : Amount : Total

Brought over 425 4,880

42 1/2 Rft of Lamin work " 12 " Rft 56

32 1/5 Lys of Plastering, two coats
with Chunam 2 8 " Lys 82

15 47/100 - 0 - of White washing 3 " - 3

17 13/100 - 0 - of Blue washing 4 " - 4

8-10-8 Lys of Oak wood wrought and

put up 3 8 " Cft 31

280 47/100 Lys of Terracing with brick

on edge, 3" of jelly, 3 coats 27 8 " Lys 77

of Plastering

1 47/100 - 0 - of Wood oiling 2 " - 3

70 Cft of filling in basement 2 1/2 Cft 1

15 1/2 Lys of paving with stone slabs

set in mortar and painted 15 " Lys 17

with lime putty

66 1/100 - 0 - of paving with 7 foot clay

and 6" sand 4 " - 0 - 3

18 Rft of Zinc Spouts " 9 " Rft 10

4 Pairs of Battened doors with

frames and iron work 18 " each 72

rec complete

Carried over 784 4,880

Quantity	Description of work	Rate	Per	Amount	Total
	Brought over			4,569	
2	Glazed swing windows with frames and iron work complete of 3' x 1 1/2'	6 8	each	13	
8	Set of sun shades over swing windows including green painting	4	" - ea	32	
5 25/100	Sq of Metallic green painting, two coats	5	Sq	26	
1	Marking board	5	each	5	
2	Inventory boards	12	" - ea	2	
	Sundries			4,647	
	Total Rupees			233	4,880

Work houses and Paved

629 3/8	lft of excavation	1	lft	3	
629 3/8	- do - of Foundation, stone in Chumau	26	- do	98	
166 3/8	- do - of Basement	26	- do	26	
166 25/64	- do - of Superstructure, brick in chumau	29	- do	2,86	
49	- do - of Arch work, brick in chumau	12	- do	12	

Carried over 425 4,880

Quantity	Description of work	Rate	Per	Amount	Total
	Brought over			425	4,880
78 1/2	Rft of basins work	12	" Rft	56	
32 1/5	Sq of Plastering, two coats with chumau	2 8	" Sq	82	
15 47/100	- do - of White washing	3	" - do	3	
17 1/10	- do - of Blue washing	4	" - do	4	
8-10-8	lft of Oak wood wrought and put up	3 8	" lft	31	
280 4/100	Sq of Terracing with brick wedge, 3' of jelly, 3 coats of plastering	27 8	" Sq	77	
1 47/100	- do - of Wood siding	2	" - do	3	
70	lft of filling in basement	1/2	" lft	35	
11 1/2	Sq of paving with stone slabs set in mortar and painted with lime putty	15	" Sq	17	
66 6/100	- do - of paving with 1 foot clay and 6" sand	4	" - do	3	
18	Rft of Zinc spouts	9	" Rft	10	
4	Pairs of Battened doors with frames and iron work complete	18	" each	72	
	Carried over			784	4,880

Quantity	Description of work	Rate	Per. Amount	Total
	Brought over		784	488
$1\frac{82}{100}$	Squares of metallic red painting	2	4	788
	Sundries		32	
2850 Rs	Total Rupees			820
	Grand Total Rupees			571

36
 it for making
 at Cello and
 ed agreeably
 tank Quarter
 ted 29 July

Recd: Engr's Office
 Bangalore
 6th January 1871

Signed / H. W. Wood Capt. R.E.
 Executive Engineer, Bangalore.

Recd of J. White Lieut. Col. R.E.
 Dy. Superint. Engineer, 5th D.

62
 62
 16
 160

Particulars of Work	N ^o	Measurement	L. B. & Contents	Total
---------------------	----------------	-------------	------------------	-------

Earthwork

1. - Primo Porroch _____
 2. - Primo Porroch _____

from Hamden Port to New.

From Barracks _____
Hostels in Family

Quarters light field
Batteries and ground

the Cavalry Guard Room
Recreation Room to

Let's do it

Total Cft of Earthwork 266160

Bravellina

From Trison Porro

Writ in the Afghan
Barrel

Carried Over 100,560

5-44
Darius S. P. H.

Maalot

PM 90-10 Humphreys, W. 683

8. 4. 29/71-

Ans. $\frac{1372}{10} / 45$

Abstract Volume for

Constructing the Hospital
Department

Robert Burns, Esq.,
 Glasgow.

Daughter—

Journal of Education No. 5770.

$$\begin{array}{r} 18/4 \\ \hline 23 \\ \hline 8 \end{array}$$

Particulars of Work No. L. B. D. Measurement Contents Total

Particulars of Work No. L. B. D. Measurement Contents Total

Travelling (Contd) Brought forward 100560

Superstructure (Contd) Brought forward 1165 1/6

From Hospital by Lorry 2 1/2
light field Batteries and
around the Cavalry Guard
Room Recreation Rooms
Warren Barracks 1 6000 2 1/2 144000

Wing walls 4 6 2 2 1/4 108
Blocking Course 2 47 1/2 2 1 190
Parapet walls 2 47 1/2 1 1/2 2 1/4 320 5/8

Total of Superstructure in Chunam 1783 5/6

Total Squares of stone jelly and
gravel 6" thick well watered
and rammed 2445 60

Covering stone over vents
(21 x 6) 126 7 1/2 1 1/4 3/4 126 126

Tunnel of 6 vents

Rft of stone slabs over
parapet walls 2 48 1 3/4 1/4 96 96

Excavation

Abutments 2 27 3 2 1/2 105
Piers 5 27 3 2 1/2 1012 1/2
Cutwaters 10 10 3 2 1/2 134 1/4
Wing walls 4 47 1/2 2 1/2 2 1/2 862 1/2

Paving

Abutments 2 27 " 2 1/4 121 1/2
Piers on both sides 10 27 " 2 1/4 607 1/2
Cutwaters including caps 10 4 " 3 120
Wing walls 4 8 " 4 1/4 136
Blocking Course 2 47 1/2 " 1 95
Parapet walls around 2 98 " 2 1/2 490

Total Cft. of Excavation 1711 1/2

Total Squares of Paving 1570

Total Cft. of Foundation Stone in Chunam 1711 1/2

Superstructure

Abutments 2 27 2 1/2 2 3/8 334 3/8
Piers 5 27 2 1/2 2 1/4 769 3/8
Cutwaters 10 2 1/2 3/4 2 1/4 42 3/6
Caps to Cutwaters 10 2 1/2 3/4 1/2 9 3/8

Carried Over 1165 5/6

Emile J. A. de la

Major R. H. de la
Under Secretary to Govt. of India

Abstract Estimate for making roads from Trinity Church to Porroet Wells and around the Agram Barracks at Bangalore

Quantity	Description of work	Rate per Amount Total
<u>New Roads</u>		
266.160 Cft	of earth work	" 12 Cft 20/4
2445.60	Lqrs of Stone Jelly and gravel 6" thick well watered and rammed	24. Lqrs 5503
<u>Tunnel of 6 vents</u>		
1711	Cft of excavation	" 1 Cft 9
1711	" of Foundation stone in Churnam	" 26 267
1782	" of Superstructure stone in Churnam	" 29 307
126	No of covering stones over vents (7 1/2 x 1 1/4 x 3 1/4)	16 each 173
96	Rft of Stone slabs over parapets (1 3/4 x 1 1/4)	" 3 Rft 18
1570	Lqrs of Painting	18 Lqrs 24
		8380
	Sundries and for repairing the old tunnels 90% and 10% per cent	820
	<u>Total Estimate Rupees</u>	<u>9200</u>

A B. If the breadth of the road be reduced to 6 yards 6,900 Rupees will be sufficient.

District Engineer's Office
Bangalore 12 Mar 1874

(By Order)

Hof R. H. Bottomley
Asst. Secy. to Govt.
Engineer's Office

Hof R. H. Bottomley
District Engineer Bangalore

Hof R. H. Bottomley
Asst. Secy. to Govt.
Engineer's Office

Asst. Secy. to Govt.
Engineer's Office

Bangalore Works

1372/95

12653

Abstract Estimate for making roads 900 from Trinity Church to Porroet Wells and around the Agram Barracks at Bangalore

Abstract Estimate 900

1814/23

Abstract estimate of the probable cost for
Constructing a Recreation Room for a Regiment of
European Infantry proposed to be built at the
"Parade Barracks" at Bangalore prepared as per CO
No 2572 dated 21st October 1873.

Quantity	Description of Work	Rate per	Amount	Total
		1 Cft	113	
21702	Cft of Excavation	33	941	
1632	" of Concrete			2633
14041	" of Foundation Stone in Chunam	3	1044	
5367	" of Basement do	36	3983	
18208	" of Superstructure do	63	762	
1950	" of Archwork do	12 Rft	441	
588	Rft of Cornice work do	4	211	
842	" of Stone Slabs for Steps	3	1782	
9503	Sqft of Dressing			332
13283	Sqrs of Plastering inside with two coats of Chunam	28	25	
13283	" of whitewashing do	3	126	
10105	" of Pointing with lime putty	14		
1619	Cft of Teakwood wrought and put up	38 Cft	5816	
1686	N ^o of nails 8" long	8 each	70	
7110	Sqrs of Roofing with Teak Reapers nails flat and fan tiles and Chunam borders about 6 feet apart and 9" in breadth	18	1280	
7722	" of Kinn Terracing with 4 Courses of flat tiles and 3 coats of Plastering 9"3	19	1467	

Trusses 20' span
2-9-9 Cft of Teakwood wrought and
put up @ 4 Rs 39-0-0
57 1/2 lbs of wrought Iron
@ 3 Rs per lb 11-0-0
Total for iron Trusses 50-0-0
16 N^o of Trusses complete 50 " each 800
Carried over 21826

Bangalore Mill

Mr. 1372/38
MCE-10-11-1873

Abstract estimate for
building 1000 sq. feet
family Church to be
cells and around the
Agram Barracks at
Bangalore

Estimated Price Rs 9200
1874
23/8

Quantity Description of Work Rate per Annum

Brought forward 21826

144.87 Sgrs of wood along two Coats 2 . . . 200
19047 Cft of Felling
9988 Sg
9988

Bangalore Dist

46 Pa

46 N

6173 Sg

720 R

Abstract Estimate
for constructing a Re-
creation Room for a
Regiment of European
Infantry at the Parade
Barracks at Bangalore

Estimate Rs 282.00

District In-
Bangalore

as per the
Enclosure
Brought

Major R.
Under Secretary to Govt. P. Bd.

LDH

Approximate Estimate for constructing
Recreation Room for Parade Barracks at Bangalore.
(as originally submitted)

Quantity	Description of work	Rate	Per	Amount	Total
				131	
25087	Cft of Excavation	3	3	1196	
5889	Concrete	3		2939	
15677	Foundation stone in chunam	3		1839	
9806	Basement	3	6	6669	
30485	Superstructure	6	3	1123	
2876	Arch work	12	Rft	614	
819	Rft of Cornice work	12	6	99	
8	N of Columns	4	Rft	134	
535	Rft of Stone slabs for Steps	3	Sgr	1900	
10132	Sgr of Dressing	1	4	155	
124.31	Sgrs of Pointing with lime putty	1	4		
271.98	Plastering with two coats of chunam	2	8	680	
			3	51	
271.98	White washing - do				
1268.7	Cft of Teak wood wrought and put up	3	8	4440	
			8	11	
261	N of Nails 8" long	4	Bcks	8	
30	Stone plates under beams				
5062	Sgrs of Terracing with brick on edge jelly 3" thick 3 courses of flat tiles & plastering complete	27	8	2217	
	Carried over			24206	

Estimate for the work to be done in the
Brought over 24206

6.72	Sqrs of Bengal terrace with brick piers, nails & courses of flat tiles & plastering	19	Sqrs	128
22079	Cft of Filling in basement 1/2 cft	58		
82.52	Sqrs of Flooring with Stone Slabs	12 8	Sqrs	10 31
82.52	Levelling Course of Concrete under the Stone floor	5		1 13
8	Pair of Venetian door with frames & glazed top 4x8	50	Each	4 02
8	Pair of Panelled door 4x8 with frames & complete	46	Each	3 70
32	Pair of Venetian & glazed windows with glazed top see 3 1/2 x 5	46	Each	14 88
60	No of Glazed swing windows with frames & complete 4 x 1 1/2	7	Each	4 20
	Carried over			28516

	Brought over	28516
89.68	Sq ^{re} of Wood ceiling two Coats 2	Sq ^{re} 179
35.12	Painting with Chocolate color paint two coats	5 176
807	Rd ^g of Wrought Iron shaft 4" dia	12 605
4	No of Sky lights (8x4) with glazed shutters	135 1 Each 540
2	Do Do (8x2)	108 6 " 217
1	No of Marking board	5 " " " 5
		30238
	Sundries at 5 Percent	1562
	Total Estimate Rupees	31

Sub
Distt Eng^s Office
Bangalore
26th January 1874.

Henry West Captain
District Engineer Bangalore

No 295- M W
GOVERNMENT OF INDIA
PUBLIC WORKS DEPARTMENT.
MILITARY WORKS

To, The Secretary to the Government of Madras,
in the Public Works Deptt.

Fort William, 23rd February 1854

Sir,

Sir, I am directed to acknowledge the receipt of your letter, No 263, dated 29th January 1875, and in reply to state that under the circumstances explained the Government of India confirm the sanction

India confirm the sanction
accorded by the Government
of Madras to the estimates
aggregating Rs. 1,16,650 for
military buildings at Bangalore.

2. This sanction is registered in this office as N. 80 In. W. of 18th 4/75 and the enclosures of your letter are returned. I have the honor to be,

Have the honor to be,

Yours most obed^t. Servant
C. R. B.

Yours most
 Wm. Munro
 Col. R. B.
 Deputy Secretary to the Govt of India

*All communications
should be addressed to
the Secretary*

-Q. No 683 of 10-3-75

Aug 10

P.W. 1875 Dept
Pro. of foot for market
No 1372;
From
The Government of
India.

Dated 23rd February 1875
Recd 2nd March 1875
11-Ens Recd No 2956 W.

On forming the
sanction accorded
to the Estimates
aggregating Rs 116,650
for certain Military
Buildings at Bangalore

683
Come to the Military Dept.

To the India Dept
Combined

11-3-1875 Bangalore

Def No 11-8-75-

12 278-279

29th June 75 No 537-580
582.

with the

1372

Gobt. of 1878 Madras.

PUBLIC WORKS.

To Mr. Milly. Dept.

Date

Recd

Encl

10 Mar 1878, No 183

Nos. 278-279

Att. Genl. & Mr. Milly
at Bangalore - letter
from the Govt. of India
confirming the sanction
accorded to the Estimates
aggregating Rs. 116650
for 'Puram' Bungalows,
transferred to the Milly. Dept.

GP 29th June 1875 No 537-500
582.