

*Proceedings of the Madras Government, Public Works Department,
13th September 1875.*

No. 304. Read the following Proceedings of the Madras Government in the Military Department, dated 9th August 1875, No. 3,818:—

Read the following letter from Brigadier-General A. HOWLETT, C.B., Quartermaster-General, to Colonel A. C. SILVER, Secretary to Government, Military Department, dated Head Quarters, Ootacamund, 2nd August 1875, No. 241-4,787.

I HAVE the honor, by order, to forward, for the approval of Government, a revised estimate (Rupees 4,400) with plan and specification, for constructing a Rifle Range at Palaveram, showing an increase of Rupees 1,680 over the original estimate of Rupees 2,720, approved in G. O., 4th June 1874, No. 1,774.

2. The work, as per original estimate, was not found to be altogether satisfactory. A Board of Survey was assembled to report what alterations were necessary, and the result is the revised estimate now submitted.

3. These butts being most important ones, His Excellency the Commander-in-Chief trusts the revised estimate will be approved, and, with its accompaniments, transferred to the Public Works Department for disposal as early as possible.

4. The Collector of Chingleput has been called upon to state the amount of compensation required for the land referred to by the Superintending Engineer in paragraph 4 of his letter, No. 1,363, dated 10th July 1875.

5. A list of the documents forwarded is annexed.

List of Documents forwarded.

Letter from Superintending Engineer, Chingleput District, forwarding—

- 1 Plan.
- 1 Revised Estimate (Rupees 4,400) with specification attached.
- 1 Comparative Statement.
- 1 Memorandum A showing the works for which extra grant is required.
- 1 Proceedings of Board of Survey assembled at Palaveram on the 10th March 1875, to report upon the Rifle Ranges lately erected at Palaveram.
- 1 Copy of letter from the Executive Engineer, Mount Range, No. 600, dated 10th June 1875.
- 1 Letter No. 291-142, dated 19th July 1875, from the Assistant Adjutant-General for Musketry, with three enclosures.

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

Approved.

(True Extract.)

(Signed) A. C. SILVER, Colonel,
Secretary to Government.

*Proceedings of the Madras Government, Public Works Department,
13th September 1875.*

No. 305. ORDER THEREON, 13th September 1875, No. 2,636.

MILITARY WORKS, No. 9.

	RS.
* Items Nos. 8 and 9 ...	652
Item No. 14 ...	248
Total ...	900

held at the disposal of Government in G.O.,
No. 2,028, dated 17th July 1875.

FORWARDED to the District Engineer for his information. The work will be proceeded with as rapidly as practicable, and an allotment is made of the amount required (Rupees 1,680), Rupees 900* being derived from the balance at the disposal of the Government under New Works, Military. The remainder will be covered by savings anticipated during the year.

2. The Government must observe that some delay and expense has apparently been occasioned by the absence of cordial co-operation between Captains Caldwell and Smith, and that the former in his proceedings has displayed some inconsistency, inasmuch as after having signified his full approval of the original plan and determined its acceptance by the Military Authorities and by Government, he afterwards pressed for alterations, which however have been recommended by the Board of Survey.

3. In their Order of the 16th September 1874, No. 2,637, the Government had occasion to remark on mistakes in the arrangements at the Vizagapatam Rifle Range, arising from similar want of forethought on the one side or the other. They expect that officers of different departments will on such occasion communicate freely and constantly during the progress of the work, which should be occasionally visited in concert in order that mistakes arising from misconception of each others views may be avoided.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,

Secretary to Government.

To the Superintending Engineer, Chingleput.

„ District Engineer, Ganjam.
„ do., Vizagapatam.
„ do., Bellary.
„ do., Presidency.
„ do., North Arcot.
„ do., Bangalore.
„ do., Trichinopoly.
„ do., Nilgiris.
„ do., Malabar.
„ do., South Canara.
„ do., Tinnevely.

„ Military Department.

Controller M. Acet's mtr, A.C.

Exd. S. T. Austin.

Spare Copies

*Proceedings of the Madras Government, Military Department,
9th August 1875.*

Barracks and Buildings—Ranges.

Read the following papers:—

No. 185. From Brigadier-General A. HOWLETT, C.B., Quartermaster-General, to Colonel A. C. SILVER, Secretary to Government, Military Department; dated Head Quarters, Ootacamund, 2nd August 1875, No. 241-4787.

I have the honor, by order, to forward, for the approval of Government, a revised estimate (Rupees 4,400) with plan and specification, for constructing a Rifle Range at Palaveram, shewing an increase of Rupees 1,680 over the original estimate of Rupees 2,720, approved in G.O., 4th June 1874, No. 1774.

2. The work, as per original estimate, was not found to be altogether satisfactory. A Board of Survey was assembled to report what alterations were necessary, and the result is the revised estimate now submitted.

3. These butts being most important ones, His Excellency the Commander-in-Chief trusts the revised estimate will be approved, and, with its accompaniments, transferred to the Public Works Department for disposal as early as possible.

4. The Collector of Chingleput has been called upon to state the amount of compensation required for the land referred to by the Superintending Engineer in paragraph 4 of his letter, No. 1363, dated 10th July 1875.

5. A list of the documents forwarded is annexed.

List of Documents forwarded.

Letter from Superintending Engineer, Chingleput District, forwarding—

- 1 Plan.
- 1 Revised Estimate (Rupees 4,400) with specification attached.
- 1 Comparative Statement.
- 1 Memorandum, A, showing the works for which extra grant is required.
- 1 Proceedings of Board of Survey assembled at Palaveram on the 10th March, 1875, to report upon the Rifle Ranges lately erected at Palaveram.
- 1 Copy of letter from the Executive Engineer, Mount Range, No. 600, dated 10th June 1875.

Letter, No. 291-142, dated 19th July 1875, from the Assistant Adjutant-General for Musketry, with three enclosures.

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

No. 186. ORDER THEREON, 9th August 1875, No. 3818.

Approved.

(True Extract.)

Mineral

Secretary to Government.

To the Public Works Department, with 11 enclosures. *and to Spare copies.*
„ Quartermaster-General.

Exd. A. Raitt.

No. 1363 Superintending Engineer's Office
Grundy 10th July 1875

From The Superintending Engineer
Chingleput District

To The Dy Assistant Quarter Master General
Centre District

Enc. 7
1 Plan
1 Revised Estimate
1 Specification Report
1 Camp Statement
1 Memo A
1 Pro. of the Board dated 30th April 1875
1 Copy of Exec. Order
1 Mount Range
10 June/75

With reference to your letter No. 2063
dated 30th April 1875, I have the honor
to forward a revised Estimate and Com-
parative Statement amounting to Rupees 4,400.

for Constructing Rifle Butts at Palavaram
showing an increase of Rupees 1680 over
the original Estimate (Rupees 2720) sanctioned
by Government in their order No. 1774 dated
1st June 1874 in the Military Department.

The improvements proposed by
the Board of Survey in their Proceedings
herewith returned of 10th March 1875, have been duly attended
to. These alone cost Rupees 1089-1-9 as per
Memorandum A enclosed. The remaining
excess (Rupees 590-14-3) is due to circumstances

29 July 1875
10 June/75
14-340-341

P. W. 1875-264
Capt. of 11875
MILITARY

THE PUBLIC WORKS DEPARTMENT.

Secy, Secy, Secy.

10-6-1875

Dated August, 9th.

Recd. 28

G.O. 3rd August 1875, No. 3215.

AUGUST.

Nos. 185-186.

Approving of the revised estimate for con-
structing a Rifle Range at Palavaram.

16. 2626 129-25

No. 8-9-75 1875 13-75
10 June/75

not known at the time of preparing the original Estimate. Vide remarks opposite each item in the Comparative Statement.

3 I enclose copy of a letter from the Executive Engineer Mount Range No 600 dated 10th ultimo for the information of the General Commanding the Centre District. Should the revised Estimate meet his approval, I request that it may be submitted to Government for sanction and for an allotment of funds.

Amount of Revised Estimate — 4400—

Expenditure Charged to South

Indian Railway as per G.O.

No 674 of 9th March 1875 — 1838—

2562—

Deduct Expenditure up to 31st

March 1875 — 882—

Balance requiring sanction and an

allotment for 1875/76 — 1680—

4 Compensation for land referred to in para 22 of Captain Smith's

letter is not included in the Estimate which should be determined by the collector

I have the honor to be
Sir

Your most obedt servant

H. B. Ball RE
Suff Engineer Cleghat.

N^o 2586

N^o 2. Range Office
16th January 1875

From

The Executive Engineer
N^o 2. or Mount Range
Chingleput District

To

The Superintending Engineer
Chingleput

With reference to your N^o 2 of 19th Dec
I have the honor to report that as it was not
marked immediate on the cover it remained
unopened till after the Christmas Holidays

I observe that Captain Callwell states
in his letter that the line of fire to N^o 5 butt
as proposed by him is more suitable than that
planned by me. and ordered by you in your
N^o 3050 of 1st December 1874 to be constructed

My line is on better ground and drier
and only crosses one nullah whereas the other
line crosses two and terminates in much low
ground near the tank.

If the gardener requires compensation
at all he would do so in any case as
he would not be allowed to work at

Ch

From

The Chief of Engineer
Chingleput

To

The Deputy Assistant
Supt. M^o R. C. G.
Chingleput

Dated 10th July 1875
Recd. 12th July 1875

N^o 2586

Estimate of works & compensation
to be made for construction
of 1000 ft of line of fire

to be made for construction
of 1000 ft of line of fire
to be made for construction
of 1000 ft of line of fire

to be made for construction
of 1000 ft of line of fire
to be made for construction
of 1000 ft of line of fire

CP 13 September 75
N^o 304

his cultivation during practice was were the
line of fire clear of the angle of his garden.

Under these circumstances as you issued
no orders on Captain Callum's No. 468. I
considered it best to let the work proceed
as originally commenced.

I have &c

Signed M. Smith Captain R.E.
Executive Engineer

"True Copy"

Francis Callum

Captain

Adj Genl of Inftry Madras Regt

Ms 26/7/75

No 57
102

Bangalore 13th Feb 1875

To

The Superintending Engineer
Chingleput

Sir,

With reference to your No. 3600 of 26th Dec
forwarding a copy of a letter from the Executive
Engineer Mount Range regarding the proposed
alteration of the line of fire No. 5 Butta Callawaram

I have the honor to state that I can only
conclude that he has mistaken the line I proposed
to take, as the principal reason I had for proposing
the alteration was that by personal experience
walking and riding over the ground I found so
much drier, also better and more suitable
ground in every way, and I think higher
near the tank (it certainly looks so)
moreover a longer range can be obtained

I have the honor &c

Signed F. Callum Capt
Adj Genl

"True Copy"

Francis Callum
Captain

Adj Genl of Inftry Madras Regt

Know

13

The Asst. Adj. General
Chief Inspector of Musketry
Madras Presidency

To

The District Engineer
Chingleput

No 468 of 1874
Dated Bangalore 17th December 1874

Referring to the plan for the new Rifle Range under construction at Pallaveram has the honor to request permission to alter the line of fire the Range further to the east. The construction of the Range has only just commenced and the proposed alteration can be carried out without any additional expense. The line on the Plan runs through a garden it is proposed to carry it clear and to the east of it, where the ground is higher, drier more suitable in other respects.

/Sig/ P. J. Ballantyne Capt
Asst. Adj. General
Madras

"Enclosed copy"

/Sd/ J. J. Ballantyne
Asst. Adj. General
Madras

CP 13 September 75
No 304

Misc 6
8/75

291
142

Office of Chief Inspector of Musketry,

BANGALORE 19th July 1875.

FROM,

THE ~~DEPUTY~~ ASST. ADJT. GENERAL FOR MUSKETRY.

To

THE Deputy Asst. Q^r M^r General
Central District

SIR,

In returning the accompanying proceedings as requested by your N^o 2911. of 14th July I have the honor to make the following remarks on certain paras in the letter N^o 600 from the Executive Engineer Mount Range.

1. In para 14 he states, "the absence of Buttresses is strictly in accordance with standard plan para 201b." The revised standard plan states, "no Buttresses are required, with Butts composed of earth thrown up at an angle of 45° or less," but this N^o 1 Butts has been made unnecessarily high, and has not the required slope, and in time the earth must wash down over the target platforms - as there is so little room between them, and the Butts, in my opinion, it will be better to cut the latter to the required slope instead

2013 September 78
N^o 304

M. S. S. S.
3/2/76

instead of constructing Buttruses.

2. Para 15. I have no doubt when originally marked out the platforms were intended to be 10 feet from the Butt, but I inspected the range before it was taken into use, the top of the Butt was then only about 6 feet from the platforms.

3. Para 17. The whole of the ground in front of the Targets slopes, and the local rain fall soon runs off, but if there is no catch drain the water from the back soaks through and keeps the ground in front of the targets continually sloppy in wet weather, making it almost impossible to mark or to compare the targets after the practice.

4. Para 21. Revised Standard Plan. December 1873. states the roof of markers and Butchut Butts should be constructed of as light a description as the materials available will allow: but they should be of moderately permanent character.

5. Copies of the correspondence regarding the proposed alteration of

N^o 5 Range are herewith attached.

I have the honor to be
Sir
Your most Obedt Servant &
I remain all most Obedt
Asst. Adj. Genl. Chief Dept. of Engrs
Madras

No. 600 10th June 1875

From
The Executive Engineer
Moulvatan Range
To The Superintending Engineer
Chingleput

Sir, I have the honor to submit herewith a revised estimate amounting to Rs. 4405 for constructing a Rifle Butts at Palaveram.

2. The total excess over the original estimate is Rs. 1686.

3. This may be divided into two parts viz Rs. 590 and Rs. 1096.

4. The first of these comprises excesses owing to unforeseen circumstances of ground &c.

5. The second amount is due to alterations proposed by the Board of survey assembled on the 10th March 1875.

6. With regard to the first it must be remembered that on 18th April 1874 I submitted a tentative estimate simply showing the prices of Butts in certain proposed positions, this estimate I forwarded for the consideration of the Military authorities more with a view to obtaining their

CG 13 September 75 N 304

From
THE EXECUTIVE ASST. ADJT. GENERAL
FOR MYSORE.
To
The Dy. Asst. Adj. Genl.
Cantonment Division
Dated Bangalore 19 July 1875.
Received

No. 291 of 1875.

Reference was made to the
letter on the proposed alterations
to the Rifle Range at
Palaveram and subject
certain observations &c.
Remarks of the Dy. Asst. Adj. Genl.
Moulvatan Range

11/5/75

Received
22/5/75
29003322

opinion of the proposed lines which were rather dangerously close to one another owing to the circumscribed space.

7. I heard nothing further about the matter until 10th September 1874 that is just at the commencement of the rains and the firing season, when my tentative estimate was approved and I had orders to carry out the work at once.

8. I should have preferred spending a few rupees with a view to rendering the old Butts efficient for that season and for this purpose submitted an estimate for Rs. 210. But after being allowed to expend Rs. 209-15-6 on this, I was ordered at once to commence on the new work.

9. Now no provision was made for clearing the lines of fire as it was not known whether the said lines were approved until the order for immediate work came.

10. Therefore in order to allow the troops to utilise the new range, extensive additional work had to be done.

11. I have several times been on the point of submitting revised estimates

for this work but I was always prevented by some fresh work being ordered. I had drawn out a new estimate and comparative statement when I was told to attend a Board of survey which I was prevented by indisposition from doing; so I knew it would be useless submitting any estimate until I heard the result of the Board.

12. These were communicated with your No. 302 of 8th instant but I have been unable till this (26th May) morning to inspect the Ranges again.

13. With regard to the second amount Rs. 1096 this is caused by items suggested by the Board of survey and on which I have to make the following remarks.

14. The absence of Buttnesses is strictly in accordance with standard plan bad soil and if these were required I submit I should have been informed thereof as a special case. They were added to IV and V Butts at the suggestion of Mr. Asst. Adjt. General for Musketry. The

15. The target platform was placed at a distance of 10 feet from the toe of the butt according to standard plan but the earth thrown down by the bullets has advanced the toe, this should be recession by fatigue parties now and then.

16. The target platforms are pretty level and are counter sunk but owing to rain and unevenness in the soil therefrom they are now in some places about 2' above ground. The Board apparently forget that 8" rain in 24 hours will disturb any soil no matter how stiff. This will therefore be an annual repair and should as at home be carried out by fatigue parties as the stones composing these platforms, the old ones were used which were never complained of before.

17. The target platforms can only be shifted outward about 3 feet otherwise the ricochet markers will not have a clear view.

18. I cannot see the necessity for the drain however as it is suggested I have allowed for it, the whole of the ground in front of the targets slopes well away to the front and is as near as possible a plane, thus water cannot possibly lodge on it, a little water from the back may run round the ends of the butt to the front but if it does it will not lodge; had much run down in this manner from the hill as described it would have soon cut a gully whereas the ground is perfectly smooth. I consider the proposed drain an

unnecessary

unnecessary expense as it would not shelter the ground in front of the target from local rain fall and it is this of anything which would make it slushy but the slope is so steep that nothing can lodge on it.

19. This remark on drainage applies to all the ranges.

20. The shoulders will be added to markers and ricochet butts where pointed out. These are required because those butts were built at the wrong angle 45° as no angle is marked on the standard plan.

21. I do not know what para 284 of Musketry regulations may be but I can distinctly state that the markers butts are infinitely better than those in use here before. Moreover they were built in strict accordance with standard plan or where altered it was for the better, for instance, I allowed masonry pillars to support the bressumers and more stone revetment. It is simply impossible to make a mud structure in this country to withstand the rain-fall and I understand annual repairs were always required of the old ones, if Captain Allwell wants a permanent structure he must alter the standard plan and allow proper masonry walls

shielded with earth with a corrugated iron roof also protected with earth. sods would be best to be removed after rains, nothing else will stand the rains and certainly no roof whatever but iron will be weaker proof at the slope as per standard plan and most roofs would wash away.

22. With regard to No. I range all I can say is that after waiting 5 months my proposed line was sanctioned with orders to proceed rapidly, and I could not alter the line at Captain Caldwell's orders especially as I knew the proposed line was the only one which allowed nearly 600 yards (the then No. 1 Range) without crossing the Artillery line of fire. The line proposed will cut this line of fire at 440 yards and as to its non-interference with the garden I should be very sorry to carry on agriculture therein with No. 1 sections firing 2 or 3 hundred yards behind me with their line of fire only slightly to the left. In any case the owner must have some compensation for his land.

23. The 800 yards range on the present No. I is on good high ground with a slope to the Nullah and therefore well drained but this range was not required when the tentative

estimate was made out. 24. I am sorry that there should have been any interruption in the firing this year but it must be remembered that the work never was given a fair chance; what with late sanction, incomplete estimates, very heavy rain and firing going on during construction. Under the circumstances I think I have as much right to complain of interference to my works by the firing as the Board to complain of interference to firing by my work. Had my original suggestion to make good the old ranges for one season been carried out instead of the very late orders for entirely new works I am satisfied there would have been no "annoying delays" as now complained of.

25. If these "annoying delays" are to be stopped entirely I recommend Masonry Markers built screened with an eastern traverse be substituted in standard plan for the present temporary structures.

(True Copy)
Signed A.C. Smith Capt. R.E.
Executive Engineer
Sup. Engineer Chubb

Specification to Revised Estimate for
Constructing New Butts at Palaveram.

No. 1 and 3 Double Stop Butts and No. 2 single Stop Butt to be constructed with mud the measurements of No. 1 and 3 will be that as shown in standard plan the length of No. 2 will be one half of that of No. 1 or 3 other measurements will be the same.

The top length of No. 4 Butt is 150 feet top breadth 4 feet and height 12 feet the side slopes 1 to 1 with two additional buttresses behind the target plat form measuring $36 \times 3 \times 12$. No. 5 Butt is constructed by means of ~~scraping~~ at the foot of the hill its length and height being the same as that of No. 1 or 3 also with additional buttresses the same as that of No. 4 Stop Butt.

The markers and Recoil Butts are constructed according to the standard plan with the addition of pillars constructed with brick in Chunnam to support the bressummers, the roof will be composed of Palmyrah rafters, reapers and mats with a depth of 6" of earth above.

The marking stones of Nos. 1-2-3-4-5 ranges to be placed every 50 yards and the numbers to be placed so as to read them while facing the target the top of the stones to be level with the ground also levelling and clearing the ranges

of

CB-13 Sept 1975

12304

Mr 5426/75

29/05/82

of all obstacles which intercepted a clear view of the targets.

This estimate provides for improving the shoulders of markers and Ricochet Butts Buttresses to Nos 1, 2 & 3 Stop Butts, a catch drain between Nos 1 & 2 Butts a drain behind the platform Targets of No 3 Butt altering the Range of No 5 which necessitate the demolition and reconstruction of one marker & one Ricochet Butts, advancing the Target platform and bringing them more to the flanks which also necessitates the shifting of the marking stones of the ranges.

(Signed) J. Armitage Supt R.E.
Overseer D.P.W.

Mount Range Office
8th June 1875
R.E.

Admiral Captain R.E.
Executive Engineer

A Memorandum

Particulars	Works executed as proposed by the Board of Survey	Works executed on account of unforeseen circumstances
Carte work _____ Cys —	457 - 7 - "	" - " - "
Rough stone revetment _____ do —	18 - " - "	43 - 10 - "
Roofing with palmyra rafters peepers and mats & complete _____ Sqr —	20 - 10 - "	" - " - "
Double palmyra Bressummers _____ Cft —	" - " - "	" - " - "
Roofing with 1/4 Palmyra rafters 1/2 Bamboo Mats & _____ Sqr —	7 - 14 - "	" - " - "
Teak wood _____ Cft —	" - " - "	32 - " - 6
Removing & refixing marking stones _____ Cys —	6 - 15 - "	" - " - "
Removing earth work _____ do —	6 - " - "	" - " - "
Do masonry _____ do —	" - " - "	" - " - "
Do Prickly pears and burying in the ground _____ } Cys —	48 - 8 - 6	" - " - "
Brick work in Chumam _____ do —	59 - " - 9	119 - 3 - 9
Brick work in Clay _____ do —	1 - 8 - "	11 - 4 - "
Plastering _____ Sqr —	1 - 11 - "	15 - 12 - "
Removing Rough stone _____ Cys —	73 - 8 - "	299 - 4 - "
Removing Chalum _____ Sqr —	19 - 4 - 5	" - " - "
Grooves in the granite stone to fit the target _____ Cft —	" - " - "	69 - 12 - "
Removing and refixing do _____ Cft —	14 - 1 - "	" - " - "
Leveling earth work _____ Cys —	331 - 5 - "	" - " - "
Lurping _____ Sqr —	44 - 7 - 9	" - " - "
Cutting Palmyra trees _____ do —	1 - 14 - "	" - " - "
Do Country trees _____ do —	" - 4 - "	" - " - "
Removing granite stone _____ do —	2 - " - "	" - " - "
	1114 6 5	
Deduct decrease in contingencies —	25 4 8	590 14 3 = 1680.
	1089 2 7	

Clegh-Saff Eng's Office
Grundy 10 July 1875

Admiral Coll R.E.
Supt Engineer Clegh-Saff

Indepm

C. N. 5426

There is only a sum of Rs. 1880 at the disposal of Govt under New Wako Military. A sum of Rs. 882 was allotted to the Rifle Range at Palaveram in G. O. No. 831 of 24/3/75.

24/8/75

Sp

3-13 September/75

in B K 304

26/75

being

Description work	Sanctioned Estimate			Work Executed			Remaining to be executed			Total of Columns 8, 9 & 10		Difference	Remarks					
	2%	Rate	Amount	2%	Rate	Amount	2%	Rate	Amount	2%	Rate			Amount				
Earth work	Cu yds	836 1/2	4	2090 2	929 7/8	4	2324 7	892 1/2	4	2232	1019 1/4	4	254 1/2	9	4577	Under the instructions of Assistant Adjutant General of Mysore instruction No 4 Slope Butts was constructed as an Embankment instead of sharpening out the side of the hill which has caused this increase the amount of cubic yards 892 1/2 is proposed by the Board of survey.		
Rough stone revetment	Sq	83 1/2	12	62 10	101 5/8	12	106 4	24	12	18	165 3/4	12	124 4		61 10	Since Ricochet Butts omitted through oversight the amount of 6 Yds 2 1/2 is proposed by the Board.		
Profing with Palmyrah soles reapers and mats & campting	10 35/100	15		155 4	10 35/100	15	155 4	1 3/8	15	20 10	11 22/40	15	175 14		20 10	Proposed by the Board.		
Double Palmyrah Resummur	171	4		42 12	171	4	42 12				171	4	42 12					
Profing with 1/4 Palmyrah - 1/2 Bambusa mats & squares								1 1/8	7	7 4	1 1/8	7	7 14		7 14	D ^o		
Leak wood work	6 1/2	12 1/2	3	37 8	22 1/4	3 2	69 8 6				22 1/4	3 2	69 8 6		32 6	The calculation in the original estimate is wrong.		
Removing & refixing Marking stones	80	1 6		7 8	77	1 6	7 3 6	77	1 6	7 3 6	154	1 6	14 7		6 15	Proposed by the Board.		
Removing Earth work	Cy	2259	2	282 6	2259	2	282 6				2259	2	282 6					
3% Masonry	12 1/2	8		6 4	12 1/2	8	6 4	12	8	6	26 1/2	8	12 4		6	Unforeseen obstruction in line of fire Proposed by Board.		
0% Bricks piers and burying in the ground							1553		6	48 8 6			1553		48 8 6	Vide remarks of item Earth work for levelling.		
Brick work in Churn							27 1/4	4 6	119 3 6	13 1/2	4 8	59 1	40 3/4	4 6	178 4 6	As the construction of the Markers and Ricochet Butts was during the wet season and the roof was generally washed down after a heavy fall of rain Bricks in Churn Pillars were resorted to prevent further damages the amount of 6 Yds 13 1/2 is proposed by the Board.		
Brick work in clay cubic yards							3 3/4	3	11 4	1/2	3	1 8	4 1/4	3	12 12	12 12	Estimated for original Estimate but omitted in the Abstract the amount of 6 Yds 1/2 is 6	
Plastering Squares							7 2 4	15 12	3/4	2 4	1 11	7 3/4	2 4	17 7		17 7	Vide remarks of item Brick in Churn, the amount of squares 3/4 is proposed by the Committee.	
Removing Rough stone 6 Yards							399	12	299 4	98	12	73 8	497	12	372 12	372 12	D ^o D ^o of item earth work for levelling, the amount of 6 Yds 98 is D ^o D ^o	
Removing Cholum Squares							61 3/4	6	19 4 5			61 3/4	6	19 4 5		19 4 5	D ^o D ^o	
Grooves in the Granite stone to fit the Target cubic feet							93	12	69 12			93	12	69 12		69 12	Old Materials was allowed for but proved to be insufficient as they were broken.	
Removing & refixing D ^o Rft										225	1	14 1	225	1	14 1		14 1	Proposed by the Committee.
Levelling Earth work cubic yards							316 4	1 6	296 10	370	1 6	34 11	3534	1 6	331 5	331 5	As the ranges could not be fixed till after the sanction and construction of the butts the amount of earth work on each range was not Estimated for since the increase of Quantity in them item the amount of cubic yards 370 is proposed by the Board.	
Turfing Square yards							1423 1/2	6	447 9	1423 1/2	6	447 9	447 9		447 9	Proposed by the Board.		
Cutting Palmyrah trees	N ^o						10	3	1 14			10	3	1 14		1 14	Vide remarks of item Earth work levelling.	
D ^o Country trees	N ^o						2	2	4			2	2	4		4	D ^o D ^o	
Removing granite stone	N ^o								2 1		2	2 1		2		2	Proposed by the Board.	
Contingencies			35 10				4 2 7			12 2 9			16 5 4		19 4 8			
Total Rifles			2720				3880			526			4466		1705 4 8	19 4 8		

19 4 8

1686

Total Excess on original Estimate

Assistant Range Officer
10th June 1875

For only
Colonel R. Smith Captain R.E.
Superintendent of the Ordnance Engineer

(Signed) J. Ammitage Lt. R.E.
Order D. S. W.

No 2636

Public Works Dept.

Impd Ma

Proceedings of the Madras Government

Under date the 13 Sept 1875

Read the following

Print in full

Pro. Military Dept. (H.C. No 3818 of 9th Aug 1875)

Forwarded to

the District Engineer for his information.

The work will be proceeded with as rapidly as practicable and an allotment is made of the amount required.

(Rs 1680) Rupees 900

being

Stems No 8 quadg. No. 652
Stem No 14 — " 248

Total Rs 900

held at the disposal of Govt in G.O. No 2028 of 17 July 1875

Comparative statement
for constructing New Barr
at Ootacamund

Mount Range Office

Ms. 2636
4/75

26/
5/75

being derived from the
balance at the disposal
of the Govt. under New
Works Military. The
remainder will be cover-
ed by savings antici-
pated during the year.

The Govt. must observe
that some delay and
expense has apparently
been occasioned by the
absence of cordial co-
operation between Captain
Callwell and Smith
and that the former
in his proceedings has
displayed some incon-
sistency in as much as
after having signified
his full approval of
the

the original plan and
determined its acceptance
by the Military Autho-
rities and by Govt, he
afterwards prepared for
alterations which however
have been recommended
by the Board of Survey

In their order of
the 16th Sept 1874 No.
2637 the Govt. had oc-
casion to remark on
mistakes in the arrange-
ments at the Vizagapatam
Rifle Range arising
from similar want
of forethought on the
one side or the other.

They expect that officers
of different departments
will

will on such occasion
 communicate freely and
 constantly during the
 progress of the work,
 which should be oc-
 casionally visited in
 concert in order that
 mistakes arising from
 misconception of each
 others views may be
 avoided.

Dud. S.

G.M.W.

S.C. Dis. P. 29 Sept
 1875

N^o 304/5

Controller - 3501A
 P.W. Accts - 2-75-10-75

M. Chingleput 6
~~Chingleput~~
 S. S. Kanjann 7
 Vizianpatnam 4
 Bellary 6
 Presidency 6
~~Chingleput~~
 North Arcot 1
 Bangalore 2
 Coimbatore 5
 Nilgiris 3
 Malabar 8
 Chingleput 15

95
 16

Office

of Canons
 1875

5426

Gobt. of 1873 Madras.
PUBLIC WORKS.

To

Mr. J. H. J. J.
Chingleput.

Dated

Issued

Recd.

Encl.

G. O.

13 Sept 73

No.

2131

No. 304-315

Rifle Range at Palaveram
Chingleput Str. - Passing
here on Props: in the
Military Dept., approving
the revised estimate
for constructing a