Archives I—10,006—16-8 77.

(1) Number of pages 30

(2) Date of repair 7-10-86

(3) Initials of the Referencer

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P.W- DEPARTMENT

G.O. No. 4426-7 (W) Press.
B.P. No. Mis.

Dated 20-11-1878 197 .

BI-28

Not to be folded or roughly handled

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

20th November 1878, No. 4,426 W.

Buildings and Roads.
Military Works.

Read the following paper :—

No. 236. From the District Engineer, Presidency, dated 16th November 1878, No. 4,766.

No. 237. ORDER THEREON, 20th November 1878, No. 4,426 W.

ORDERED to be forwarded in original to the Government of India with reference to Colonel Pollard's marginal No. 1,444, dated 17th October 1878. letter.

(True Extract.)

(Signed) E. A. FOORD, Colonel, R.E.,
Secretary to Govt., P.W.D.

Exd. E. C. Shunker.
Spare Copies

BUILDINGS AND ROADS.
MILITARY WORKS.

Govt. of {1878} Madras.

PUBLIC WORKS.

To

Dated November 20th.

Issued

Read

Encl.

G. O., 20th November 1878, No. 4,426 W.

NOVEMBER.

Nos. 236-237.

Construction of modern fortifications.—Letter from the District Engineer, Presidency, furnishing required information as to cost of certain description of work used in the —, forwarded in original to the Government of India.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

20th November 1878, No. 4,426 W.

Gqs and Roads.
Estatary Works.

Read the following paper:—

No. 236. From the District Engineer, Presidency, dated 16th November 1878, No. 4,766.

No. 237. ORDER THEREON, 20th November 1878, No. 4,426 W.

ORDERED to be forwarded in original to the Government of India with reference to Colonel Pollard's marginal No. 1,444, dated 17th October 1878. letter.

(True Extract.)

(Signed) E. A. FOORD, Colonel, R.E.,
Secretary to Govt., P.W.D.

No. 238. (DOCKET No. 4,427 W, dated 20th November 1878.)

COPY of the above forwarded to the Government of India.

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

Exd. E. C. Shunker.
Spare Copies

BUILDINGS AND ROADS
MILITARY WORKS.

Govt. of [1878] Madras.

PUBLIC WORKS.

To

THE SECRETARY TO THE
GOVERNMENT OF INDIA.

Dated November 20th.

Issued

Read. Encl.

G. O. 20th November 1878, No. 4,427 W.

NOVEMBER.

Nos. 236 238.

Construction of modern fortifications.

4428
-3-

SCHEDULE OF SPECIAL RATES
REQUIRED BY
DEFENCE COMMITTEE.

No. I A.
CEMENT CONCRETE.

NOTE.—This description of concrete is intended for the facing of the superior slope of the parapet under the muzzle of the 38 ton gun. It will be laid in a slab 12" thick.

ITEMS.	QUANTITY.		RATE	PER	AMOUNT Rs.	REMARKS.
Portland cement, ...	C. ft.	69	4/	Cft.	276	The quantity of sand here given is approximate.
Sand, ...	C. ft.	65	-/-/6	Cft.	2-0-6	200 gallons of water should be used.
Labour and contingencies,	...	...	...	...	1-15-6	
Total per 100 C. ft. of finished work, ...					280-0-0	The crushing strain per S. ft. will probably be found to be 225 tons.
						The concrete not to be rammed.

No. I B.
CEMENT CONCRETE.

NOTE.—This description of concrete is intended for the superior slope of the parapet under the muzzle of the 12 ton gun.

ITEMS.	QUANTITY.		RATE	PER	AMOUNT Rs.	REMARKS.
Portland cement, ...	C. ft.	30	4/	Cft.	120-0-0	Not to be rammed.
Sand, or fine gravel or soorkee screenings (*approximate*), ...	C. ft.	90	-/-/9	"	9-13-6	166 gallons of water to be used.
Labour and contingencies,	...	...	...	...	1-2-6	Expected crushing strain—94 tons on the S. ft.
Total per 100 C. ft. of finished work, ...					131-0-0	

No. II A.

CEMENT CONCRETE.

NOTE.—Nos. II A., II B., and II C. are alternative specifications for the concrete to be used in building up the emplacements of 38 ton guns, round the racer curbs, &c.

Items.	Quantity.		Rate.	Per	Amount Rs.	Remarks.
Portland cement, ...	C. ft.	26	4--	Ct	104--	Not to be rammed.
Mixed Ballast (*approximate*), ...	C. ft.	107	-14	-	11-11-3	72 gallons of water to be used.
Labour and contingencies,	...	...	...	...	1-4-9	Expected crushing strain 112 tons on the S. ft.
Total per 100 C. ft. of finished work, ...					117--	

No. II B.

CEMENT CONCRETE.

Items.	Quantity.		Rate.	Per	Amount Rs.	Remarks.
Portland cement, ...	C. ft.	20	4--	Ct	80--	Not rammed.
Broken granite or other hard stone (*approximate*),	C. ft.	110	-14	-	6-11--	93 gallons of water.
Labour and contingencies,	...	...	...	...	1-2--	Expected crushing strain 107 tons on the S. ft.
Total per 100 C. ft. of finished work, ...					88--	

No. II C.

CEMENT CONCRETE.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Portland cement, ...	C. ft.	19	4--	Ct	76--	Not rammed.
Broken well-burnt bricks or pottery (*approximate*),	C. ft.	107	-13	-	8-5-9	128 gallons of water.
Labour and contingencies,	...	...	...	...	1-10-3	Expected crushing strain 106 tons on the S. ft.
Total per 100 C. ft. of finished work, ...					86--	

No. III A.

CEMENT CONCRETE.

NOTE.—Nos. III A., III B., and III C. are alternative specifications for concrete to be used in the 12 ton gun emplacement, and for rough filling in large masses.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Portland cement, ...	C. ft.	12	4--	Ct	48--	Not rammed. The ballast to include 33 C. ft. of lumps, weighing 14 to 28 lbs. each, forced in by hand.
Mixed Ballast (*approximate*), ...	C. ft.	120	-13	-	13-2--	
Labour and contingencies,	...	...	...	...	1-14--	60 gallons of water.
Total per 100 C. ft of finished work, ...					63--	Expected crushing strain 32 tons on the S. ft.

No. III B.

CEMENT CONCRETE.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Portland cement, ...	C. ft.	10	4--	Ct	40--	Not rammed. Large lumps of stone to be forced in by hand, as in No. III A.
Broken stone (*approximate*),	C. ft.	124	-13	-	7-12--	
Labour and contingencies,	...	...	...	...	1-4--	83 gallons of water.
Total per 100 C. ft. of finished work, ...					49--	Expected crushing strain 32 tons.

No. III C.

CEMENT CONCRETE.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Portland cement, ...	C. ft.	9	4--	Ct	36--	Not rammed. Whole bricks (33 C. ft) to be forced in by hand. This rate includes the cost of 33 C. ft. of whole bricks
Broken well-burnt bricks or pottery (*approximate*),	C. ft.	118	-16	-	11-4--	
Labour and contingencies,	...	...	...	...	1-15--	110 gallons of water.
Total per 100 C. ft. of finished work, ...					49--	Expected crushing strain 32 tons.

No. IV A.

ORDINARY CONCRETE FOR FOUNDATIONS.

NOTE.—Nos. IV A., IV B., and IV C. are alternative specifications for Concrete in Foundations.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	20	~ 2-7	C ft.	3-3-8	Rammed in layers.
Soorkee ditto, ...	C. ft.	20	~ 2-8	"	3-5-4	Approximate quantities.
Broken bricks, ...	C. ft.	80	~ 1-3	"	6-4-0	
Soorkee screenings, ...	C. ft.	28	~ 2-10	"	4-15-4	
Labour and contingencies,	...	...	...	...	2-3-8	
Total per 100 C. ft. of finished work, ...					20-~-	

No. IV B.

ORDINARY CONCRETE FOR FOUNDATIONS.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Lime—Dry Powder, ...	C. ft.	18	~ 2-7	C ft.	2-14-6	Rammed in layers. Not used
Pumice ditto, ...	C. ft.	5				
Sand, ...	C. ft.	18	~ ~ 6	"	~ 9 ~	Approximate quantities.
Coarse gravel or stone ballast (*free from sand*),...	C. ft.	80	~ 1-3	"	6-4-~	
Fine gravel screening $\frac{1}{8}$" to $\frac{3}{4}$"	C. ft.	28	~ 1-10	"	3-3-4	
Labour and contingencies,	...	...	...	...	2-1-2	
Total per 100 C. ft. of finished work, ...					15-~-	

No. IV C.

ORDINARY CONCRETE FOR FOUNDATIONS.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	16	~ 2-7	C ft.	2-9-4	Rammed in layers. Not procurable
Pumice ditto, ...	C. ft.	8				
Sand, ...	C. ft.	16	~ ~ 6	"	~ 8 ~	Approximate quantities.
Broken stone, ...	C. ft.	80	~ 1 ~	"	5-0-~	
Fine gravel or stone chips screenings $\frac{1}{8}$" to $\frac{3}{4}$" ...	C. ft.	28	~ 1-10	"	3-3-4	
Labour and contingencies,	...	...	...	...	1-11-4	
Total per 100 C. ft. of finished work, ...					13-~-	

No. V A.

ROUGH CONCRETE.

NOTE.—Nos. V A., V B., V C., and V D., are alternative specifications for rough filling in large masses.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	14	~ 2-7	C ft.	2-4-2	Rammed in layers.
Pumice ditto, ...	C. ft.	4				Not procurable
Sand, ...	C. ft.	14	~ ~ 6	"	~ 7 ~	
Coarse gravel, or stone ballast free from sand, ...	C. ft.	65	~ 1 ~	"	4-1-~	
Fine gravel screening $\frac{1}{8}$" to $\frac{3}{4}$"	C. ft.	25	~ 1-10	"	2-12-10	Approximate quantities.
Stone lumps, weighing 14 to 28 lbs, laid in by hand, ...	C. ft.	30	~ 1-9	"	3-4-6	
Labour and contingencies,	...	...	...	...	2-1-6	
Total per 100 C. ft. of finished work, ...					15-~-	

No. V B.

ROUGH CONCRETE.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	13	~ 2-7	C ft.	2-1-7	Rammed in layers.
Pumice ditto, ...	C. ft.	6				Not used
Sand, ...	C. ft.	13	~ ~ 6	"	~ 6-6	
Coarse gravel, or stone ballast, free from sand, ...	C. ft.	65	~ 1 ~	"	4-1-~	
Fine gravel screening $\frac{1}{8}$" to $\frac{3}{4}$"	C. ft.	25	~ 1-10	"	2-13-10	Approximate quantities.
Stone lumps, weighing 14 to 28 lbs, laid in by hand, ...	C, ft.	30	~ 1-9	"	3-4-6	
Labour and contingencies,	...	...	...	...	1-4-7	
Total per 100 C. ft. of finished work, ...					14-~-	

No. V C.

ROUGH CONCRETE.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	16	~2-7	Cft	2-9-4	Rammed in layers.
Soorkee ditto, ...	C. ft.	16	~2-8	"	2-10-8	
Coarse gravel, or stone ballast, free from sand, ...	C. ft.	65	~1-3	"	5-1-3	Approximate quantities.
Soorkee screenings $\frac{1}{8}$" to $\frac{3}{4}$"	C. ft.	25	~2-10	"	4-5-10	
Stone lumps weighing 14 to 28 lbs. laid in by hand, ...	C. ft.	30	~1-9	"	3-4-6	
Labour and contingencies,	...	...	...	...	1-0-5	
Total per 100 C. ft. of finished work, ...					19-0-0	

No. V D.

ROUGH CONCRETE.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	16	~2-7	Cft	2-9-4	Rammed in layers.
Soorkee ditto, ...	C. ft.	16	~2-8	"	2-10-8	
Broken bricks,... ...	C. ft.	65	~1-3	"	5-1-3	Approximate quantities.
Soorkee screenings $\frac{1}{8}$" to $\frac{3}{4}$"	C. ft.	25	~2-10	"	4-6-10	
Bricks, forced in by hand,	C. ft.	30	~2-3	"	4-3-6	
Labour and contingencies,	...	...	...	...	1-1-5	
Total per 100 C. ft. of finished work, ...					20-0-0	

No. VI A.

COURSED RUBBLE MASONRY.

(For Specification see Bombay specifications by Capt. Marryat—"2nd sort—No. XI".)

NOTE.—Nos. VI A., VI B., and VI C. are alternative specifications for walls &c:—

Items.	Quantity.		Rate.	Per.	Amount Rs.	Remarks.
Lime—Dry powder ...	C. ft.	22	~2-7	Cft	3-8-10	Not procurable
Pumice ditto, ...	C. ft.	6				
Sand	C. ft.	22	~0-6	"	~11-"	Approximate quantities.
Through stones ...	No.	13 or 19½	~12-"	"	14-10-"	Stones taken as equal to 1½ Cft. each
Rubble stone	C. ft.	80	~1-9	"	9-3-6	
Labour and contingencies,	...	...	...	...	3-14-8	
Total per 100 C. ft. of finished work, ...					32-0-0	

No. VI B.

COURSED RUBBLE MASONRY.

Alternative to No. VI A.

Items.	Quantity.		Rate.	Per.	Amount Rs.	Remarks.
Lime—Dry powder ...	C. ft.	20	~2-7		3-3-8	Not used
Pumice ditto, ...	C. ft.	10				
Sand	C ft.	20	~0-6		~10-"	Approximate quantities.
Through stones ...	No.	13 or 19½	~12-"		14-10-"	Stones allowed as equal to 1½ Cft.
Rubble stone	C. ft.	80	~1-9		9-3-6	
Labour and contingencies,	...	...	...	...	4-4-10	
Total per 100 C. ft. of finished work, ...					32-0-0	

No. VI C.

BRICKWORK.

Items.	Quantity.		Rate.	Per.	Amount Rs.	Remarks.
Lime—Dry powder ...	C. ft.	18	~2-7	Cft	2-12-6	
Soorkee ditto, ...	C. ft.	18	~2-8	"	3-0-0	Bricks 9"×4½"×2½"
Bricks—allowing for wastage,	No.	*1000	10-0-0	1000	10-0-0	* Approximate, depending on size of bricks.
Labour and contingencies,	...	...	...	...	3-1-6	
Total per 100 C. ft. of finished work, ...					19-0-0	

No. VII A.

RUBBLE ARCHING.

NOTE.—Nos. VII A., VII B., and VII C. are alternative specifications for arching of Casemates, passages &c.,

I.—Arches 4′ span, height to spring 6′, semicircular arch.

Items.	Quantity.		Rate.	Per.	Amount Rs.	Remarks.
Lime—Dry powder ...	C. ft.	27				No data
Pumice ditto, ...	C. ft.	13				
Stone slabs, rough, each about $1\frac{1}{2}' \times 1' \times \frac{1}{2}'$ ...	C. ft.	100				Approximate.
Scaffolding and centering,	...	...	...	...		
Labour and contingencies,	...	...	...	...		
Total per 100 C. ft. of finished work, ...						

II.—Arches 12′ span, height to spring 7′, rise $\frac{1}{3}$.

Items.	Quantity.		Rate.	Per.	Amount Rs.	Remarks.
Lime—Dry powder ...	C. ft.	27				No data
Pumice ditto, ...	C. ft.	13				
Stone slabs, rough, each about $1\frac{1}{2}' \times 1' \times \frac{1}{2}'$ ...	C. ft.	100				Approximate.
Scaffolding and centering	...	...	...	...		
Labour and contingencies,	...	...	...	...		
Total per 100 C. ft. of finished work, ...						

III.—Arches 17′ span, height to spring 7′, rise $\frac{1}{3}$.

Items.	Quantity.		Rate.	Per.	Amount Rs.	Remarks.
Lime—Dry powder ...	C. ft	27				No data
Pumice ditto, ...	C. ft.	13				
Stone slabs, rough, each about $1\frac{1}{2}' \times 1' \times \frac{1}{2}'$ ...	C. ft.	100				Approximate.
Scaffolding and centering,	...	...	...	...		
Labour and contingencies	...	...	...	...		
Total per 100 C. ft. of finished work, ...						

No. VII B.

RUBBLE ARCHING.

I.—Arches 4′ span, height to spring 6′ semicircular arch.

Items.	Quantity.		Rate.	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	32				No data
Pumice ditto, ...	C. ft.	8				
Stone slabs, rough, each about $1\frac{1}{2}' \times 1' \times \frac{1}{2}'$ ...	C. ft.	100				Approximate.
Scaffolding and centering	...	...	...	...		
Labour and contingencies	...	...	...	...		
Total per 100 C. ft. of finished work, ...						

II.—Arches 12′ span, height to spring 7′, rise $\frac{1}{3}$

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	32				No data
Pumice, ditto, ...	C. ft.	8				
Stone slabs, rough, each about $1\frac{1}{2}' \times 1' \times \frac{1}{2}'$, ...	C. ft	100				Approximate.
Scaffolding and centering,	...	...	...	...		
Labour and contingencies,	...	...	...	...		
Total per 100 C. ft. of finished work, ...						

III.—Arches 17′ span, height to spring 7′, rise $\frac{1}{3}$.

Items.	Quantity.		Rate.	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	32				No data
Pumice ditto, ...	C. ft.	8				
Stone slabs, rough, each about $1\frac{1}{2}' \times 1' \times \frac{1}{2}'$, ...	C ft.	100				Approximate.
Scaffolding and centering,	...	...	...	...		
Labour and contingencies,	...	...	...	...		
Total per 100 C. ft. of finished work, ...						

No. VII C.

BRICK ARCHING.

I.—Arches 4′ span, height to spring 6′, semicircular arch.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	18	-2-7	Cft	2-14-6	
Soorkee ditto, ...	C. ft.	18	-2-8	"	3-0-0	
Bricks, ...	No.	*1200	9-0-0	1000	10-12-10	* Approximate—depending on size of bricks, &c.
Scaffolding and centering,	...	...	...	...	5-0-0	
Labour and contingencies,	...	...	...	...	4-4-8	
Total per 100 C. ft. of finished work, ...					26-0-0	

II.—Arches 12′ span, height to spring 7′, rise $\frac{1}{3}$

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	18	-2-7	Cft	2-14-6	
Soorkee ditto, ...	C. ft.	18	-2-8	"	3-0-0	
Bricks, ...	No.	*1200	9-0-0	1000	10-12-10	* Approximate—depending on size of bricks, &c.
Scaffolding and centering,	...	...	...	...	6-0-0	
Labour and contingencies,	...	...	...	...	4-4-8	
Total per 100 C. ft. of finished work, ...					27-0-0	

III.—Arches 17′ span, height to spring 7′, rise $\frac{1}{3}$

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Lime—Dry powder, ...	C. ft.	18	-2-7	Cft	2-14-6	
Soorkee ditto, ...	C. ft.	18	-2-8	"	3-0-0	
Bricks, ...	No.	*1200	9-0-0	1000	10-12-10	* Approximate—depending on size of bricks, &c.
Scaffolding and centering,	...	...	...	...	7-0-0	
Labour and contingencies,	...	...	...	...	4-4-8	
Total per 100 C. ft. of finished work, ...					28-0-0	

Rubble 8

No. VIII A.

RUBBLE ARCHING IN CEMENT.

Arches 4′ span.

NOTE.—Nos. VIII A., and VIII B. are alternative specifications for arching of passages under heavy gun emplacements.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Portland cement, ...	C. ft.	12				
Sand, ...	C. ft.	28				No data
Stone slabs, rough, each about $1\frac{1}{2}' \times 1' \times \frac{1}{2}'$ ...	C. ft.	100				Approximate.
Labour and contingencies,	...	...	...	...		
Total per 100 C. ft. of finished work, ...						

No. VIII B.

BRICK ARCHING IN CEMENT.

Arches 4′ span.

Items.	Quantity.		Rate	Per	Amount Rs.	Remarks.
Portland cement, ...	C. ft.	9	4-0-0	Cft	36-0-0	
Sand, ...	C. ft.	27	-0-6	"	-13-6	
Bricks, ...	No.	*1,200	9-0-0	1000	10-12-10	* Approximate—depending on size of bricks, &c.
Labour and contingencies,	...	...	...	...	5-5-8	
Total per 100 C. ft. of finished work, ...					53-0-0	

No. IX A.

ASPHALTE.

For Flooring of Magazines.

Items.	Quantity.		Rate.	Per.	Amount Rs.	Remarks.
Flushing up existing concrete with fine concrete (*4 of gravel or soorkee screenings to 1 of mortar.*)	S. ft.	100	— — —	—	3 — —	The proportions in which the Asphalte, Bitumen, and Sand, are to be mixed will depend on the quality of Asphalte, or nature of patent Asphalte that may be used, and also, perhaps, on local conditions.
Asphalte, ...	lbs.	400	— —	—	10 — 8 —	
Bitumen, ...	lbs.					
Sand, ...	C. ft	6	— — 6	C/f	— 3 —	
Labour, fuel, and contingencies, ...	...	...	...	...	5 — 5 —	900 lbs. to the 100 S. ft to be used, this should give a thickness of $\frac{3}{4}$"
Total per 100 S. ft. of finished work ...					19 — —	

No. IX B.

ASPHALTE.

For Roofs of Magazines.

Items.	Quantity.		Rate.	Per.	Amount Rs.	Remarks.
Flushing up existing concrete with fine concrete (*4 of gravel or soorkee screenings to 1 of mortar.*)						The proportions in which the Asphalte, Bitumen, and Sand, are to be mixed will depend on the quality of Asphalte, or nature of patent Asphalte that may be used, and also, perhaps, on local conditions.
Asphalte, ...	S. ft.	100				
Bitumen, ...	lbs.					
Sand, ...	lbs.					
Labour, fuel, and contingencies, ...	C. ft.					600 lbs. to the 100 S. ft. to be used, this should give a thickness of $\frac{1}{2}$"
	...	...	...	...		
Total per 100 S. ft. of finished work, ...						

No. X.

DOORS FOR MAGAZINES.

Teak. $1\frac{3}{4}$" framed—panelled with two layers of $\frac{7}{8}$" battens, grooved, dowelled and beaded on the outside. One layer vertical, the other diagonal, forming braces. Double hung, opening 6′ 6″×3′ 6″ in the clear. Frames 5″×4″. Brass furniture. Not to be lined with copper.

Cost per Door, including fixing ... ... Rs

6-6×3-6 = 23 Sft @ 1/- per Sft Labour per Door

No. XI.

WOOD FLOORING FOR CARTRIDGE STORES.

The wooden floor in a Cartridge Store to be moveable, consisting of 1″ teak boards 6″ wide, laid with close joints and fillets, secured with brass screws to $\frac{5}{8}$" teak battens 6″ wide, and at about 6″ clear intervals, to be made up in such sections as may be convenient for taking in and out of the doorways. This wooden flooring rests on the solid Asphalte flooring beneath.

Estimated cost per foot Super. 1/ ... ... Rs

No. XII.

WOOD FLOORING FOR SHELL STORES.

The wood floor in a Shell store to consist of $2\frac{1}{2}$" teak planks, 9″ wide, resting on the solid floor beneath. Each plank can be removed separately. The planks are kept in their places by tenons fitting into longitudinal timbers 6″×$2\frac{1}{2}$" laid flat against the walls.

Estimated cost per foot Super. 1/3 ... ... 1/3 Rs

Lt/ G. Maitland Captn
Exr. Engr in ch: of
Batteries —

P.W. 12956/78
3.

Defence Committee

Accompaniment to Secretary's No. 99 dated Simla, 27th September 1878.

SCHEDULE OF SPECIAL RATES

REQUIRED BY THE

DEFENCE COMMITTEE.

P.W. 12956/78

"Simla Advertiser" Press.

Copy of a letter from the President Defence Committee to the Inspector Genl: of Military Works No. 99 dated 27th September 1878.-

As in preparing Estimates for various Forts and Batteries it is found that the existing local schedules of rates do not provide for certain descriptions of work required in modern fortification, I have the honor to enclose a printed schedule of special items for which rates are required by the Defence Committee and to beg that copies of this Schedule may be sent to each of the places named in the attached list in order that the Columns left blank may be filled in by the Executive Officers.-

2. All the specifications should in every instance be priced - excepting in cases where the material specified is not procurable.

For

* with 24 spare copies.-

For instance Specification No. VI A need not be priced, in the case of a place where punice is not to be had.

3. I have to request that this information may be obtained at as early a date as possible, to enable the Committee to prepare Estimates of the proposed works. And it is also possible that the answers received may suggest some modifications in minor details of the working drawings, with a view to economy.—

P.W. 1207/

P.W. 12956/3/78

Accompaniment to No. 99 D/27th September 1878

Place	No. of copies to be sent	Sites for which plates are required
Madras	2	Madras
Kurrachee	6	1. Top of Manora Point 2. on Sand ridge 3000 yds N of light house 3. Near Keamari beacon.
Aden	6	1. Steamer Point. 2. Flint Island. 3. Seera Island.
Rangoon	4	1. Chokey Point 2. Monkey Point
Moulmein	2	Natmoo.
Bombay	8	1. Top of Kumballa Hill. 2. Malabar Point. 3. Colaba Point. 4. Oyster Rock.

28.

P.W. 1207/

4486/73

No. 1444 M.W.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

Military Works.

All communications should be addressed to the Secretary.

Simla, 17th October 1878.

Copy of the following with copy of enclosures, forwarded to the Govt. of Madras in the Public Works Deptt. with request that the required information may be submitted at an early date.

By order,

Charles Pollard Colonel R.E.

Deputy Secy. to the Govt. of India

No. 7135 dated 27th September 1878.

From The Inspector General of Fortifications.

To The Secretary to the Govt. of India.

P.W. Department.

x with 23 copies of the schedule of special rates required by Defence Committee and a copy of the list referred to in the letter No. 99.

In forwarding a copy of a letter No. 99 of this date from the President of the Defence Committee in which application is made for detailed particulars as to the cost at various places which are named of certain descriptions of work used in the

the construction of modern fortifications I have the honor to request that the Government will cause the required information to be supplied at as early a date as possible.—

No 12076

No 2856

Recd 28th Oct 1878

No 750 T

28 OCT 78

Forwarded to the District Engineer Presidency for early attention— To be returned—

Ellerton Maj. RE.

Under Secy to Govt. P.W.D.

Fort St. George 28th Oct 1878

No 4426 W Public Works Department.

14

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the 20th Nov. 1878.

Read the following :—

From

The H.E. Presidency (H.E. No 4766 d/16th Nov. 1878)

Ordered to be forwarded in original to the Govt. of India with reference to Govt. Letter (H.E. No 4427 W d/20th Nov. 78

No 1446 d/17 Dec. 78

Copy of the above forwarded to the Govt. of India.

CH

CH No 12956 & Enclosure

No 5 - Dispd to Govt of India - 20-11-78

Ld. dispd 3-12-78

H.S. 8/11

Cr 12956

Govt. of {1878} Madras.

PUBLIC WORKS

To

Dated

Issued

Recd. Encl.

G. O., 20 June 1878, No. 4426 & 4427

No 236 & 237

236

Construction of modern Fortifications. Letter from the D.C. Residency furnishing report & information as to cost of certain description of work under & translated & original to the Govt.

Construction of modern Fortifications.