

**Primary Battery File**

**National Archives, Washington D.C.**

**Record Group 77**

**Correspondence of the Chief of Engineers**

**Entry 103**

**File, Fort, Battery:**

**38669**

**Ft. Wool**

**Btty Gates, Dyer and Claiborne**

ENGINEER OFFICE, U. S. ARMY,  
166 GRANBY STREET,

Norfolk, Va., July 10, 1901.

Brig. Gen. George L. Gillespie,  
Chief of Engineers, U. S. Army,  
Washington, D. C.

General:

In pursuance with instructions contained in letter from your office, dated March 18, 1901, 38669, I have the honor to submit herewith, plans and estimates for emplacements for two 6-inch guns at Fort Wool, Va.

The obsolete granite construction occupies nearly all of the available space at this locality, and, in preparing a project for new work, the expense connected with the demolition of this old work adds to the perplexities of the situation.

It is believed to be the best and most economic solution to incorporate as much of the old work as possible, and utilize the masonry as far as new conditions will justify.

The island being artificial, leaves some room for doubt as to its stability. I am of the opinion, however, that though some slight subsidence may be expected, the fact that none has been observed for over 30 years strengthens the belief that little further may be expected from the slight additional loading resulting from the new constructions, particularly since this loading is rather uniformly distributed over a considerable area.

The type plans furnished by the Department did not fit very well in the old construction, and inquiries were set on foot to ascertain if other plans had not been adopted elsewhere. Through the courtesy of Captain Henry Taylor, Corps of Engineers, U. S. Army, I was provided with plans of a R. F. battery, authorized to be built at Fort Standish, Mass. These plans have been applied, with necessary modifications to suit the existing conditions, for the installations at Fort Wool.

The estimated cost of the emplacements for two 6-inch R. F. guns, as shown in the accompanying drawings, is, with sand parapet, \$29,105.72; or, with a concrete parapet, as shown on smaller drawing, \$31,855.44. This is exclusive of any charges for erection of wharf or electric generating plant, the cost of wharf having been included in a former estimate, and the electric generating plant will be estimated for in a project for the service of search-lights and general electric illumination of the fort.

Owing to the fact that during storms salt-spray will deluge the slope of the sand parapet and render it difficult to cultivate grass or plants to prevent deterioration by wave wash or winds, it is possible that the concrete parapet may prove the better, and eventually the cheaper construction. This arrangement will leave a passage-way around the work, and admits of being greatly strengthened in times of war, by a sand-bag covering of slight dimensions and easy construction.

The parade of the old work is below flood level and should be raised to reference 10' above mean low water.

This will cost as follows:

5,745 cubic yards of sand in position,	
@ 85¢,	\$4,883.25
1,045 cubic yards of clay in position,	
@ \$1.25,	1,306.25
1,045 cubic yards of soil in position,	
@ \$1.25,	1,306.25
6,266 square yards of sod in position,	
@ 55¢,	3,446.30
	10,942.05
Contingencies 10 per centum,-	1,094.20
Total,	\$12,036.25

While the leveling up of the parade is not of immediate consequence, and may be postponed until the work is about completed, it is introduced here for future reference, in the event that the work cannot be done at once.

Very respectfully,

Your obedient servant,

*James D. Luman*  
Major, Corps of Engineers,

5 inclos., 4 in sep. pkge.

U. S. Army.

1555 F. W.

Through:

Colonel Peter C. Hains,

Corps of Engineers, U. S. Army,

Division Engineer, Southeast Division.

38669

Norfolk, Va., July 10, 1901.

6602.

QUINN,  
Maj. James B.

compliance with instructions contained in E D. 38669 of 18, 1901, submits plans and estimates for two emplacements for 6-inch guns at Fort Wool, Va. - 05.72, if with sand parapet; 31 55.44, if with concrete parapet. For reasons given, favors the latter.

states the parade of the old fort should be raised to reference - 10' above m.l.w. This will cost \$12,036.25, but is not of immediate importance.

REPRODUCED AT THE NATIONAL ARCHIVES

1st. Indorsement.  
U.S. Engineer Office,  
Baltimore, Md., July 15, 1901.

Respectfully submitted to the Chief of Engineers, U.S.A.

The type plans for 6-inch emplacements are not adapted to Fort Wool and the modified plans herewith seem better suited to meet the conditions there. I do not think it will be practicable to grow grass on the slopes owing to the salt spray that flies over the work in storms, but sod will probably hold the sand even if the grass does not grow. In this work I prefer the sand cover to a parapet of concrete, unless the latter were sloped to the foot at one on one.

While the raising of the terreplein is eventually advisable it is considered best to delay that work until the project for Fort Wool is completed, when the remaining part of the old structure should be remodeled to conform in utility and appearance to the modern emplacements.

The plans are recommended for approval.

*John A. Quinn*

Colonel, Corps of Engineers, U.S.A.,  
Div. Eng. S.E. Div.

2d Indorsement.  
Office Chief of Engineers,  
U. S. Army.

July 18, 1901.  
Respectfully returned to Major Quinn, approved, as modified in the 1st indorsement, the concrete para-

pet being adopted, with the addition of enough material to give a concrete exterior slope of 1 on 1, the exterior crest being kept in the position now shown for the concrete parapet. This will somewhat increase the quantity of concrete.

An allotment of \$34,000 is hereby made from the appropriation for "Gun and Mortar Batteries," for construction of gun batteries, Act of March 1, 1901, for the construction of the two emplacements, leaving the left flank in such a condition as to permit the addition of one or more emplacements in the future.

Extreme care should be devoted to the exclusion of water from the magazines and rooms. In the case of some powder magazines it has been found advisable, in addition to the regular ordinary waterproofing as shown on Major Quinn's plans, to have a thin inside lining of very porous ordinary brick separated by a 2-inch air space from the concrete walls, and a light interior metallic roof, covered on top with a thin layer of some material which is a non-conductor of heat, like asbestos cement or equivalent, with an air space between it and the concrete overhead. Condensation will thus be reduced to a minimum, it is believed. The magazine thus forms a separate interior room, separated from the body of the masonry. Major Quinn is authorized to modify the within plans to this extent, if, in his opinion, the change is desirable.

With these changes in view, the allotment has been made somewhat

greater than the estimate. Positive drainage should be provided for every point of the battery, especially the air space round the powder magazines, and the floors should have a decided slope to the drains, so that if water does gain access to all the rooms it shall have immediate opportunity to run out again.

These papers to be returned.

By order of the  
Chief of Engineers:  
*Augustus V. Clark*  
Major, Corps of Engineers

38669  
Incl. 2 accomp.  
Incls. 3-6 in sep. roll.

Through Col. PETER C. METZ,  
Chief of Engineers,  
Division Engineer, Southern Division.

3rd. Indorsement.  
U.S. Engineer Office,  
Baltimore, Md.

July 20, 1901.  
Respectfully transmitted to Major James B. Quinn, Corps of Engineers, inviting attention to the preceding indorsements.

*John A. Quinn*

Col. Corps of Engineers, U.S.A.  
Div. Eng. S.E. Div.  
*John A. Quinn*  
July 23, 1901

*22 Dec 1903*  
Captain, Corps of Engineers,  
2048 F. W. U.S. Army.  
9

1 inclosure accomp.,  
3 inclosures in sep. pkge.

Through:

Lieut. Col. James S. Quinn,  
Corps of Engineers, U.S. Army,  
Division Engineer,  
Southeast Division.

5th indorsement.  
OFFICE OF DIVISION ENGINEER,  
SOUTHEAST DIVISION.  
Savannah, Ga., Nov. 12th 1903.

1. Respectfully submitted to the Chief of Engineers, U. S. A., with recommendation that the arrangement of emplacements for the four 6-inch guns on the Northern faces be approved, although no air spaces above the ceiling, for the purpose of reducing condensation, have been provided for. An adaptation to circumstances of site precludes the exact conformation to type plans, without an excessive expenditure for demolition of old work.

2. The emplacements for the two guns at the Eastern end had better be held up until the behavior of the foundation for the remainder of the emplacements has developed the possibility for heavier mounts, as the location of 6-inch guns in this particular location would

be equivalent to the practical abandonment of an expensive and advantageous site for efficient armament, since the 6-inch, at the ranges required, would be ineffective and for all practical purposes might be non-existent.

*James S. Quinn*  
Lt. Col., Corps of Engineers,  
Div. Engr., S. E. Div.

9379

1 enclo. accompng.  
3 inclos. in sep. roll.

REC'D. OFFICE CHIEF OF ENGRS. NOV 14 1903

6th indorsement.

WAR DEPARTMENT,  
OFFICE OF THE CHIEF OF ENGINEERS,  
WASHINGTON.

November 19, 1903.

1. Respectfully returned to Captain Winslow, approved for the six 6-inch emplacements.

2. To economize space on the loading platform, steps in the traverse walls should replace the iron steps leading to the superior slope, as shown in emplacements 2-6.

3. No definite space appears in the drawing to be allotted to armament chests, rammers, etc., in emplacements 1, 2, 4, and 6. The dimensions of the floor space provided for armament chests should be at least 4'6"x2'-0", and storage room for the rammers, etc., should

9th indorsement.  
OFFICE OF DIVISION ENGINEER,  
SOUTHEAST DIVISION.

Savannah, Ga., Nov. 30th 1903.

Respectfully submitted to  
the Chief of Engineers, U. S.  
Army, with recommendation that  
the arrangements for ammunition  
chests and rammers, explained  
in the 8th indorsement hereon,  
be approved.

*James T. Quinn*  
Lt. Col., Corps of Engineers,  
Div. Engr., 3. E. Div.

1 encl. accomp.  
3 enclos. in sep. roll.

9379

RECD. OFFICE CHIEF OF ENGRS. DEC 29 1903

10th indorsement.  
WAR DEPARTMENT,  
OFFICE OF THE CHIEF OF ENGINEERS,  
WASHINGTON.

December 7, 1903.

1. Respectfully returned to  
Captain Winslow, approved.
2. These papers to be returned.  
*By command of Brig. Gen. Gillespie:*

*Frederic V. Abbott*  
Lieut. Col. Corps of Engineers.

38669  
17

Incl. 21 accomp.  
Inclos. 22-24 in sep. roll.  
Through Lieut. Col. JAMES B. QUINN,  
Corps of Engineers,  
Division Engineer, Southeast Division.

11th indorsement.

U. S. ENGINEER OFFICE,  
SAVANNAH, GA.

December 11, 1903.

*Respectfully forwarded  
to Captain Winslow, in-  
viting attention to the 9th.  
and 10th indorsements  
hereon.*

*James T. Quinn*  
Lieut. Col., Corps of Engineers,  
Division Engineer, 3. E. Division.

1 Encl. accomp.  
38 enclos. in sep. roll.

K 12th indorsement.  
Engineer Office, U.S. Army,  
Norfolk, Va., Dec. 14, 1903.

Respectfully returned to the  
Chief of Engineers, U.S. Army, as  
directed in the 10th indorsement  
hereon.

*Frederic V. Abbott*  
Captain, Corps of Engineers,  
2048 F. W. U.S. Army.

1 inclosure accomp.,  
2 tracgs. and 1 bl. pt. in sep. pkge.  
RECD. OFFICE CHIEF OF ENGRS. DEC 15 1903

Norfolk, Va. *July 19, 1906*ESTIMATE FOR CONSTRUCTION OF EMPLACEMENTS FOR TWO 6-INCH RAPID-FIRE GUNSAT FORT WOOL, VA.

Moving and arranging machinery, engines, derricks, etc.,----	\$ 500.00
Removing existing stone work and preparing site,-----	2,000.00
Mixing, placing and ramming about 1,870 cubic yards of Portland concrete in main work, @ \$7.50,-----	14,025.00
Mixing, placing and ramming about 130 cubic yards of Portland concrete under slope and in retaining wall, @ \$7.50,-----	975.00
5,100 square feet of granolithic finish, @ 35¢,-----	1,785.00
30,000 pounds of steel I and channel beams, @ 3¢,-----	900.00
Handling, fitting and setting steel beams,-----	200.00
6,000 pounds of iron for doors, gates, etc., @ 5¢,-----	300.00
22,000 feet, B. M., of lumber for sheathing, bracing, etc., @ \$16.00 per M feet, B. M.,-----	352.00
Labor putting up sheathing, bracing, etc.,-----	600.00
600 square feet partition tile, 4" X 12" X 12", @ 9¢,----	54.00
800 square feet partition tile, 6" X 12" X 12", @ 10¢,---	80.00
Handling and placing partition tile,-----	75.00
2,500 square feet water-proof paper, @ 1-1/4¢,-----	31.25
Placing and arranging water-proof paper covering, etc.,----	50.00
20 barrels of asphalt, @ \$6.00,-----	120.00
3 barrels of coal-tar, @ \$5.00,-----	15.00
50 gallons P. & B. Ruberine paint, @ \$1.40,-----	70.00
200 feet C. I. drain pipe and fittings, @ 22-1/2¢,-----	45.00
16 C. I. frames and covers for catch-basins, @ \$3.00,---	48.00
Building catch-basins, cutting drains, connecting pipe, etc.--	150.00
2 C. I. columns 7 feet long, about 400 pounds, @ 3¢,---	12.00
200 feet galvanized-iron pipe, 1-1/4", with fittings, for railing, @ 12-1/2¢,-----	25.00
100 feet of trolley track and trolleys, @ 22-1/2¢,-----	225.00
4 hoist blocks, @ \$15.00,-----	60.00
2 chain ammunition hoists, complete, with tables, etc., @ \$500.00,-----	1,000.00
25 hold-down plates for railing, @ 50¢,-----	12.50
Hardware, nails, locks, hinges, etc.,-----	75.00
Taking down sheathing, dressing walls, etc.,-----	250.00
2,000 cubic yards of sand in position for slopes and parade, @ 85¢,-----	1,700.00
100 cubic yards of clay in position, @ \$1.25,-----	125.00
100 cubic yards of soil in position, @ \$1.25,-----	125.00
500 square yards of sod in position, @ 55¢,-----	275.00
Electric wiring, lamps, etc.,-----	150.00
Speaking tubes, mouth-pieces, etc.,-----	50.00

26,459.75

Contingencies 10 per centum,----- 2,645.97

Total,-----\$29,105.72

Official:

*James M. D. Linn*Major, Corps of Engineers,  
U. S. Army.



JUL 16 1901  
38669  
2  
WAR DEPARTMENT

Wash D. C.  
July 10, 1901

General  
Private James H.

Estimate for construction  
of battery of two 6-in.  
Q. F. guns at Fort  
Mifflin, Pa. West with  
and mortar \$29,105.<sup>12</sup>/<sub>100</sub>

✓

REC'D. BACK, OFFICE CHIEF OF ENGINEERS  
JUL 10 1901

Recd. by E. O. North, Pa., July 23, 1901.

V

EXTRACT FROM PROCEEDINGS OF THE BOARD OF ORDNANCE AND FORTIFICATION.

Washington, D.C., October 16, 1902.

\* \* \* \* \*

The Board then considered the report of the special board of officers convened in accordance with the provisions of the fortifications appropriations act approved June 6, 1902, for the test of disappearing gun carriages, and in connection therewith the letter of the Chief of Ordnance, dated ~~October 3~~ <sup>1902</sup>, replying to certain criticisms by the board on the 6-inch disappearing carriage, the papers being referred to the Board by the Secretary of War.

Referring to the last paragraph of the letter of the Chief of Ordnance, wherein it is stated that the manufacture of disappearing carriages for 6-inch guns has been suspended, the Engineer member of the Board moved that the Secretary of War be requested to inform the Chief of Engineers that, if the site at Fort Wool, Va., be found unfavorable for the emplacement of large caliber guns (8, 10 or 12 inches) as set forth in the project for the defense of Hampton Roads, he is authorized to emplace guns of 6-inch caliber mounted on disappearing carriages at that point, as previously authorized by the Secretary of War January 15, 1902, in second endorsement on letter of the Chief of Ordnance of January 9, 1902, to the Chief of Engineers relative to emplacements for 6-inch rapid fire guns at Fort Wool, Va.

Seconded by Major Pratt. The motion was carried.

\* \* \* \* \*

G. L. GILLESPIE,  
Brigadier General Chief of Engineers,  
Senior Member Present.

HARRY TAYLOR,

-3-

Amount brought forward,-----	\$49,661.85
Transportation for workmen, hauling water,-----	1,700.00
materials, etc.,-----	400.00
Services of watchman,-----	1,538.15
Material and labor for electric wiring,-----	
	\$53,300.00
	6,700.00
Contingencies,-----	
Total,-----	\$60,000.00

5. The estimate for battery of four 6-inch rifles is as follows:

Removing old work from site and erecting plant,-----	\$ 3,000.00
Preparing for concrete,-----	2,588.00
Mixing, placing and ramming about 9,350 cubic yards of Portland concrete, @ \$8,-----	74,800.00
3,463 cubic yards of sand, @ 80¢,-----	2,770.40
13,720 square feet of granolithic work, @ 30¢,-----	4,116.00
Steel beams and setting same,-----	4,582.50
Tiling and hollow brick, and placing same,-----	4,742.50
Material and labor for water-proofing,-----	474.00
Taking down old sheathing, dressing finished walls, etc.,-----	400.00
Hold-down and ring bolts, and setting same,-----	732.00
Material for drainage system, and placing same,-----	361.50
Material and labor for platform railings,-----	275.00
16 iron doors for booths, truck recesses, hoists, etc., with necessary track, hinges, etc.,-----	400.00
4 chain ammunition hoists, @ \$800,-----	3,200.00
Making and hanging doors,-----	500.00
Painting and whitewashing,-----	425.00
150 tons bituminous coal, @ \$6,-----	900.00
Transportation for workmen, hauling water, materials, etc.,-----	2,500.00
Services of watchman,-----	750.00
Material and labor for electric wiring,-----	2,483.10
	\$110,000.00
Contingencies,-----	10,000.00
Total,-----	\$120,000.00

6. The estimate for plant for light and water supply is as follows:

Removing present work from site of power house and cistern,-----	\$ 500.00
Power house, 25' X 50' X 14' high, (concrete structure),-----	4,000.00
Cistern, 20' X 40' X 6', complete, (capacity 36,000 gallons),-----	1,800.00
Amount carried forward,-----	\$ 6,300.00

OFFICE OF CHIEF OF ENGINEERS

WAR DEPARTMENT

4

39091

31 AUG

65  
7  
THE BOARD OF ENGINEERS  
RECEIVED AUG 1 1901

Major James B. Quinn

Estimate for construction of  
emplacements for two 6-inch rapid-  
fire guns at Fort Monroe, Va., on  
modified plan. Estimated cost, exclu-  
sive of electric lighting, \$24,016.  
08.

UNION, VIRGINIA.  
(last building firm)

Water supply, 100 feet of 12-inch galvanized iron pipe with fittings, @ \$2.00, 200.00  
Electric wiring, lamps, etc., 100.00  
800 square yards of sod in position, @ 50¢, 400.00  
100 cubic yards of soil in position, @ \$1.00, 100.00  
100 cubic yards of clay in position, @ \$1.00, 100.00  
3 stone lintels, 8" x 12" x 6', 100.00  
3 stone lintels, 8" x 12" x 6', 100.00  
Laying down sheeting, 8" x 12" x 6', 100.00  
Hauling, walls, ladders, hinges, etc., 100.00  
35 fold-down plates for railing, @ 50¢, 17.50  
2 chain communication hoists, complete, with cables, etc., 1,000.00  
100 feet of 12-inch galvanized iron pipe with fittings, @ \$2.00, 200.00  
Building cast-iron and cutting drains, @ 2-1/4", 60.00  
2 1/2 I. frames and covers for catch-basins, @ \$2.00, 5.00  
300 feet of 1-1/4-inch galvanized iron pipe with fittings, @ \$2.00, 60.00  
50 gallons of 1/2 rubbering paint, @ \$1.40, 70.00  
3 barrels of coal-tar, @ \$5.00, 15.00  
Placing water-proof paper in position, @ \$6.00, 30.00  
3,000 square feet of water-proof paper, 150.00  
Hauling and placing partition sills, @ 1-1/4", 45.00  
1,400 square feet of partition sills, @ 10¢, 140.00  
Labor putting up sheeting, 100.00  
20,000 feet, 7.5¢, 1,500.00  
5,000 pounds of steel, 100.00  
4,500 square feet of 1/2 rubbering paint, 100.00  
Mining, blasting, etc., 100.00  
Setting up and running engine, 100.00  
Lighting up and running engine, 100.00

300.00  
200.00  
10,050.00  
1,575.00  
300.00  
300.00  
468.80  
146.00  
30.00  
25.00  
45.00  
150.00  
15.00  
30.00  
40.00  
45.00  
25.00  
24.00  
150.00  
325.00  
60.00  
1,000.00  
15.50  
75.00  
250.00  
34.00  
11.50  
3,880.00  
162.00  
162.00  
440.00  
300.00  
50.00  
60.00  
3,533.28  
3,533.28

Continuation to per centum  
Total, \$24,016.08

Engineer Office, U. S. Army,  
New York, N. Y., July 22, 1901.

Official:

RECORDED, OFFICE CHIEF OF ENGINEERS  
with me, 2. SEP 8 1901  
RECORDED, OFFICE CHIEF OF ENGINEERS

ENGINEER OFFICE, U. S. ARMY,  
~~THE GRANBY STREET~~  
CUSTOM HOUSE,

Norfolk, Va., March 6, 1902.

Brig. Gen. George L. Gillespie,  
Chief of Engineers, U. S. Army,  
Washington, D. C.

General:

1. In pursuance with instructions contained in letter from your office, dated January 21, 1902, 38669, relative to estimates, etc., for emplacements for two 6-inch R. F. guns on disappearing carriages at Fort Wool, Va., I have the honor to present the plans which are sent, in a separate package, by to-day's mail, and the following estimate:

ESTIMATE.

Removing a portion of old work and preparing site,-----	\$ 1,500.00
Setting up engines, derricks, mixers, etc.,-----	500.00
Mixing, placing and ramming in position about 1,875	
cubic yards Portland concrete (emplacements) @ \$7.50,---	14,062.50
Mixing, placing and ramming in slope about 1,925 cubic	
yards Portland concrete, @ \$7.50,-----	14,437.50
4,500 square feet granolithic finish, @ 35¢,-----	1,575.00
36,000 feet, B. M., yellow pine lumber, @ \$17.00,-----	612.00
Labor putting up sheathing, bracing, etc.,-----	360.00
32,000 pounds steel beams, @ 3¢,-----	960.00
Handling, fitting and setting steel beams,-----	200.00
1,200 pounds cast-iron, @ 3¢,-----	36.00
1,400 square feet partition tile, @ 10¢,-----	140.00
2,000 square feet hollow brick and flange covers, @ 17¢,-	340.00
Handling and setting hollow brick and partition tile,---	125.00
4,800 square feet waterproof paper, @ 1-1/4¢,-----	60.00
Laying and covering waterproof paper with asphalt, etc.,--	40.00
15 barrels asphalt, @ \$6.00,-----	90.00
3 barrels coal-tar, @ \$5.00,-----	15.00
1,500 cubic yards sand for use in concrete and fill,	
@ \$1.00,-----	1,500.00
Carried forward,-----	\$36,553.00

Brought forward,-----	\$36,553.00
24 steel hold-down bolts and nuts, 1-1/2-inches in diameter and 7 feet long, 950 pounds, @ 6¢ per lb.,---	57.00
30 tons Bituminous coal, @ \$3.25,-----	97.50
20 tons Anthracite coal, @ \$4.26,-----	85.20
200 lineal feet 4-inch cast-iron drain pipe, @ 20¢,-----	40.00
6 4-inch cast-iron ells, @ 25¢,-----	1.50
6 4-inch cast-iron tees, @ 25¢,-----	1.50
200 lineal feet of 2-inch galvanized pipe for hand rail, @ 18¢,-----	36.00
Galvanized connections for hand rails,-----	25.00
Hardware, hinges, nails, locks, etc.,-----	110.00
Taking down old sheathing, dressing walls, etc.,-----	150.00
Setting base rings, etc.,-----	70.00
2 chain ammunition hoists, complete, with tables, etc.,--	1,400.00
75 lineal feet trolley track, trolleys and blocks,-----	200.00
Electric wiring, lamps, etc.,-----	200.00
Speaking tubes, mouth-pieces, etc.,-----	50.00
Making doors and windows,-----	30.00
	<u>\$39,106.70</u>
Contingencies 10%,-----	3,910.67
Total,-----	<u>\$43,017.37</u>

2. The location of the guns in the circular end of the old masonry fort, as provided in approved project of The Board of Engineers, makes it necessary to remove much of the old masonry to provide the necessary room for the new construction. The scarp wall has not been disturbed, but is incorporated in the new parapet.

3. The location of the magazine and shell rooms has been made to conform as nearly as possible to the models supplied by the Department, and only such modifications introduced as were necessary to adapt the construction to the peculiarities of the location.

4. The parapet exterior to the stone scarp wall is composed entirely of concrete, since a sand parapet could not be maintained in this locality, owing to action of waves in severe storms, and impossibility of maintaining grass slopes by reason of the salt spray keeping the slopes drenched almost continuously.

5. The space from foot of scarp wall to high water line is not

sufficient to permit the construction of a sand slope of equivalent thickness of sand without the construction of concrete protection that would very nearly equal, in volume, the concrete in the solid parapet.

6. To provide against possible overflow from high tides, the reference of magazine floors is made 10 feet above mean low water. In 1887, the tide rose high enough to flood the floors of the casemates at Fort Wool.

7. The estimate does not include anything for an electrical generating plant, it being presumed that a separate estimate will be required at a later date to provide such installation of this character as will be necessary to provide for illumination of post, searchlights, etc.

8. Owing to the rather inaccessible location, the estimates have been made as low as the conditions will warrant.

9. The allotment made July 18, 1901, 38699, for two emplacements for guns of the caliber noted, amounted to \$34,000; of this amount, the sum of \$33,925 is now available for expenditure, \$75 having been disbursed in the preparation of plans.

Very respectfully,

Your obedient servant,

*James A. Quinn*

Major, Corps of Engineers,

U. S. Army.

1902

## 2

March 6, 1902.

REPRODUCED AT THE NATIONAL ARCHIVES

compliance with E.D. 38669,  
plans and estimates for  
placements for 6" R.F.  
bearing guns at Fort Wool,  
\$43,017.37.

The allotment made July 18, 1901 (38699-1)--\$34,000-- is available for expenditure, less \$75., which has been expended preparing plans.

800/44

for 8 months, viz., 1. 27, and 72

HEAD, BACK, NEEDLE CHIEF OF BERS, MAR 20 1902  
*brock & account*  
 # BROCK EIGHT 545-0 FINE MAR 27 1902  
 # BROCK EIGHT 545-0 FINE MAR 17 1902

March 12, 1902.

1. The location of these two

For this reason I concur with

2. I would suggest however, that

exterior slope, that the latter

down solid to the old work in-

Ed. Weiss

Div. Eng. S. E. Div.

Office Chief of Engineers,

March 14, 1902.

Subject to the modifications in

the 1st indorsement the within plan is approved. Positive drainage should be provided for the counterweight wells, and the floors of all rooms should have ample slope to large and easily cleaned

Director, Chief of Division

4.

Incl0.8 in sep.roll.

Through Col. PETER O. HAINS,

Corps of Engineers,

Division Engineer, Southeast Division

Baltimore, Md.,

March 17, 1902.

Respectfully transmitted to  
Major James B. Quinn, Corps of  
Engineers, inviting attention to  
the foregoing indorsements.

1000

Col., Corps of Engineers, U.S.A.,  
Div. Eng. S. E. Div.

Recd. E. O. Norfolk Va. Mar. 18, 1902

Norfolk, Va., Mar. 19, 1902.

James D. Drake

10.

1 incl0.in sep.pkge.

HEAD. OFFICE CHIEF OF ENGRS. MAR 20 1992



38669  
30315

2061

WAR DEPARTMENT

Oct. 18, 1902.

Board of Ordnance and Fort'n,  
Capt. Harry Taylor,  
Recorder.

REPRODUCED AT THE NATIONAL ARCHIVES

THE BOARD OF ENGINEERS.  
Furnishes extract from proceed-  
ing of said Board of Oct. 16, 1902,  
relative to  
ing guns of 6-inch caliber  
ed on disappearing carriages  
rt Wool, Va., under condi-  
indicated herein.

1st Indorsement.

Office Chief of Ordnance,

U. S. ARMY.

October 21, 1902.

Respectfully referred to the Chief  
of Ordnance, U. S. Army.

It is requested that two disap-  
bearing carriages for 6-inch rapid-  
fire guns be provided under the  
within approval of the Secretary of  
War. They, and probably four others,  
dependent on the action of the  
Board of Ordnance and Fortification  
on October 22, 1902, will be re-  
quired at Fort Wool. Two of these  
carriages are those for emplacements  
to be built under the Act of March  
1, 1901, which were the subject of  
correspondence, O.D.36315, and were  
approved January 15, 1902, by the  
Secretary of War; the remaining  
four are to be emplaced with funds  
now in hand, appropriated by Act of  
June 6, 1902. Supposing favorable  
action is taken by the Board on  
October 22, this will leave forty  
of the emplacements covered by that  
Act for which the type of mounting  
is still unsettled. According to  
the records of this office, forty-  
four Ordnance Department pedestal  
mounts remain to be supplied for  
the emplacements already built, or  
to be built from funds appropriated  
by the Act of March 1, 1901. It is  
understood that these forty-four  
carriages have been begun by the  
Ordnance Department.  
The return of this paper is re-  
quested.

38669

Brig. Gen. Chief of Engineers,  
U. S. Army.

36315-6.

Mi.

1st Endorsement.

OFFICE OF THE CHIEF OF ORDNANCE  
Washington, October 24, 1902.

1. Respectfully returned to  
the Chief of Engineers, U.S.A.,  
with the information that it is  
hoped that the first of the two  
disappearing carriages for 6-in.  
rapid-fire guns for Fort Wool,  
requested in preceding endorse-  
ment hereon, will be delivered  
in nine months, and the remain-  
ing carriage will be delivered  
in about ten months from date.  
The Department now has in pro-  
gress a design of disappearing  
carriage for 6-inch rapid-fire  
gun which will embody im-  
provements over the design of  
carriage now in service, and  
effort will be made to complete  
the platform sheet at the ear-  
liest practicable date, in or-  
der that the information per-  
taining to the engineering  
features may be in the hands  
of the Engineer Department in  
proper season.  
2. It is noted that possibly  
four additional carriages of  
the same type will be required  
at the same fortification,  
leaving forty of the emplace-  
ments covered by the Act of  
June 6, 1902, for which the  
type of mounting is still un-  
settled. This Department now

has under construction forty-  
four (44) pedestal mounts for  
6-inch rapid-fire guns, re-  
quired for the forty-four (44)  
emplacements already built or  
in process of construction  
from funds appropriated by the  
Act approved March 1, 1901.

William Leger

Brig. Gen., Chief of Ordnance

3rd Indorsement.

Office Chief of Engineers,

U. S. ARMY.

October 28, 1902.

Respectfully referred to  
the Board of Engineers, for in-  
formation.

As soon as the new plat-  
form sheet is received from  
the Chief of Ordnance it will  
be sent to the Board of Engi-  
neers to permit the Board to  
complete its type drawings  
of the emplacements for the  
carriages. The drawings  
should be completed as far

REPRODUCED AT THE NATIONAL ARCHIVES

THE BOARD OF ENGINEERS.  
Furnishes extract from proceed-  
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by the Act of March 1, 1901. It is  
understood that these forty-four  
carriages have been begun by the  
Ordnance Department.  
The return of this paper is re-  
quested.

38669

Brig. Gen. Chief of Engineers,  
U. S. Army.

36315-6.

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1st Endorsement.

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provements over the design of  
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effort will be made to complete  
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der that the information per-  
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William Leger

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Office Chief of Engineers,

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As soon as the new plat-  
form sheet is received from  
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be sent to the Board of Engi-  
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of the emplacements for the  
carriages. The drawings  
should be completed as far

ENGINEER OFFICE, U. S. ARMY,

ROOM 2, CUSTOM HOUSE.

Southern Bell  
Telephone 1631.

Norfolk, Va., June 19, 1903.

Brig. Gen. G. L. Gillespie,  
Chief of Engineers, U. S. Army,  
Washington, D. C.

General:

1. In compliance with Department letter of February 19, 1903, 38669, addressed to my predecessor in this office, Lieut. Colonel Quinn, I have the honor to submit detailed plans and estimates for the construction of six emplacements for 6-inch rifles on disappearing carriages, model 1903, at Fort Wool, Va. Three drawings are submitted: one, showing the plans of Fort Wool, with the general location of the batteries constructed or projected; two, the detailed plans of the 4-gun battery; and, three, the detailed plans of the 2-gun battery.

2. On account of the contracted space in the old fort, of the necessity for leaving room for buildings for quarters and other purposes, and in order to destroy as little of the old work as possible, considerable modification has been found necessary in adapting the type plans to this work. On account of the contracted space, the distance between the gun-centers has been reduced, and the additional room necessary for the magazines, etc., has been obtained by utilizing the space under the loading platform, the existing work there making it easy to increase the elevation of the crest of the battery over the floor of the magazine. This modification requires a fur-

ther modification in the arrangement for ammunition service, and spaces have been reserved in the plans for chain hoists. On account of the necessity for placing the store-rooms, etc., under the gun platforms, it has been thought advisable to strengthen the roofs over these store-rooms by using some I-beams, as in former construction, instead of the Ransomebars shown in the type plans. If this modification is not approved, the Ransomebars can be substituted without making other alterations necessary in the plans.

3. There is, at present, at Fort Wool, no water supply for drinking purposes or boiler use, and there is attached to this estimate for the batteries, an estimate for storage cisterns and a plant for furnishing this water by evaporation, this being auxiliary to plant for electric light and power. When the necessary houses are constructed at this place, their roofs can be connected with the cisterns.

4. The estimate for the battery of two 6-inch rifles is as follows:

Removing old work and erecting plant,-----	\$ 1,750.00
Framing for concrete,-----	1,180.60
1,700 cubic yards of sand, @ 80¢,-----	1,360.00
Mixing, placing and ramming about 4,350 cubic yards of Portland concrete, @ \$8,-----	34,800.00
6,800 square feet of granolithic work, @ 30¢,-----	2,040.00
Steel beams, and setting same,-----	2,251.60
Tiling and hollow brick, and placing same,-----	2,208.40
Material and labor for water-proofing,-----	255.75
Taking down old sheathing, dressing finished walls, etc.,-----	225.00
Hold-down and ring bolts, and placing same,-----	341.00
Material and labor for drainage system,-----	162.00
Material and labor for platform railings,-----	187.50
8 wrought-iron doors for booths, truck recesses, hoists, etc., with necessary track, hinges, etc.,-	200.00
2 chain ammunition hoists, @ \$800,-----	1,600.00
Making and hanging doors,-----	250.00
Painting and whitewashing,-----	400.00
75 tons bituminous coal, @ \$6,-----	450.00

Amount carried forward,-----\$49,661.85

Amount brought forward,-----	\$ 6,300.00
1 engine, 35 H. P., with exhaust condenser,-----	2,000.00
1 boiler, 40 H. P., with equipments complete,-----	2,500.00
1 generator, 25 K. W.,-----	1,200.00
1 storage battery, 64 cells with elements complete,--	6,000.00
1 evaporator and equipments for making fresh water	
from sea water (capacity about 1,200 gallons	
per day),-----	1,500.00
2 steam pumps and fittings,-----	600.00
1 switchboard and instruments,-----	300.00
Labor, etc.,-----	300.00
	<u>\$21,200.00</u>
Contingencies,-----	2,800.00
Total,-----	<u>\$24,000.00</u>

Respectfully submitted,

*E. Richard Munroe*  
 Captain, Corps of Engineers,  
 U. S. Army.

2048  
1 F. W.

3 inclosures, in sep. pkge.

Through:

Lieut. Col. James B. Quinn,

Division Engineer, Southeast Division.

17 JUL 70

Norfolk, Va.,  
June 19, 1903.

In compliance with Dept. letter of Feb. 19, 1903, 386689, submits detailed plans and estimates for the constn. of six displacements for 6-inch rifles, in disappearing carriages, model 903, at Fort Wool, Va.

REPRO  
MOS. E. D. (tracing)  
22, 23 & 24 in *Math Notes*; Da. 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>.  
Forwarded by Div. Eng.

Forwarded by Div. Eng.

DECT 15 1303

BEED, ENGINEER SAVANNAH, GA. 31403

REDD, Engr Office SAVANNAH, GA. NOV 30 1900  
U.S. Army,

Received by  
Mr. G. W. S. Smith  
NORFOLK, VA.  
NOV 22 1903

REC'D. BACK OFFICE CHIEF OF BUREAU 14 1-13  
4 add & trans accy/Ins. 2.26.23 through 5. inc. 2.4.62. p.c.

REC'D, Engr' Office SAVANNAH, GA. NOV 12 1900  
U.S. Army

Received back.  
Engi. Off., U. S. Army,  
NORFOLK, VA. AUG 3 1943

1st Indorsement.  
U. S. ENGINEER OFFICE,  
Savannah, Ga., June 29th 1903.

1. Respectfully submitted to the Chief of Engineers, U. S. A.
2. Having previously submitted a project for the armament of Fort Wool, in which I urged the advisability of placing a pair of 10-inch guns in the eastern end of the fort, and still believing that such an arrangement is feasible and the most advantageous, I cannot consistently approve of the location and character of the guns in the within project.
3. Aside from this objection the plans are believed to be suitable for this particular arrangement for 6-inch guns.

It. Col., Corps of Engineers,  
Dir. Eng'r., S. F. Div.

3 in. in sep. coll.

2d.  $4.41 \times 10^{-10} \text{ m}^2$ 

SHIRAZ

July 28, 1903.

1. Respectfully returned to Captain Winslow.

2. The within drawings differ so widely from the approved type that an effort has been made in this office to see if less divergence might not be possible. The blue

Print herewith shows an arrangement of the six guns, closely following the type plans, which is believed to be not greatly more expensive than the plans originally submitted. Captain Winslow is requested to give this battery further study along the lines indicated in the blue print, on which green shading indicates the probable use of earth traverses. The necessity for a solid concrete parapet to withstand the action of surf is recognized as perhaps unavoidable.

3. The post lighting and water supply are Quartermaster work, and should not be included in the estimates, unless the condenser is the cheapest way of getting fresh water for construction purposes. An electric plant large enough for emplacement lighting will suffice.

4. The total sum that can be allotted for this work is \$165,000, and for this sum it is desired to complete as much of the work actually needed for defensive uses as possible. The gun blocks and parapets in front must be provided for the ordnance material within a reasonable time. With due consideration as to the relative urgency of the different parts of the defenses of Fort Wool, Captain Winslow will submit a plan less at variance with the adopted type, and covering the completion of the six emplacements. He will also outline the part of the entire work the estimates he

can do for \$165,000. Economy may be possible by making a sand bank to the parapet, with a concrete base to prevent sand from settling through the rocks forming artificial island in times of storm and a thick concrete superior slope.

5. These are intended only suggestions to Captain Winslow designing a very unusual battle on a most unfavorable site. The settlement should be recognized very probable, and the work should be divided up by planes of weakness, to avoid damaging and usually cracks. One of the great objections to the original plans is certainly of great and visible leakages into the many rooms under gun platforms.

6. This paper and the blue print to be returned with the new drawings. The original tracings to be retained.

under gun platforms.

6. This paper and the blue print to be returned with the new drawings. The original tracings to be retained.

58669

17

Incls. 18-20, & 1 addnl.

incls. in sep. roll.

RECD. U.S. ENGR. OFFICE, SAVYH. GA. July 31 1913

3rd indorsement.  
OFFICE OF DIVISION ENGINEER,  
SOUTHEAST DIVISION.  
Savannah, Ga., July 31st 1903.

Respectfully forwarded to  
Captain Winslow, inviting atten-  
tion to the preceding indorse-  
ments.

*James D. Quinn*  
Lt. Col., Corps of Engineers,  
Div. Engr., S. E. Div.

4 Enclos. in sep. roll.

4th indorsement.  
Engineer's Office, U.S. Army,  
Norfolk, Va., Oct. 26, 1903.

1. Respectfully returned to the Chief of Engineers, U.S. Army.
2. The location of these guns has been given careful attention, in connection with the 2nd indorsement hereon, and new plans are submitted as being, in my opinion, the best arrangement of these guns possible under the circumstances.
3. The general arrangement shown on the blue-print referred to in the second paragraph of the 2nd indorsement hereon has been followed, except that the gun-centers have been placed, for structural reasons connected with the existing work, opposite the centers of the old embrasures. This places the gun-centers about 127 feet apart, the additional width being

utilized in widening the gun platforms, and thus obtaining greater fields of fire.

4. Several modifications, however, have been made in the type plans, all of them, in my opinion, necessitated by the circumstances in the case.

5. In the first place, the traverses have been cut off in the rear by omitting the line of rooms shown on the type drawings. This is necessitated by the cramped character of the old fort, and the necessity of leaving as much room as possible for barracks and the other buildings necessary for the use of the garrison. As there are, in this plan, three extra traverses, the room lost by cutting off the existing traverses is more than made up in the extra traverses. As proposed, each magazine traverse contains a powder room, a shell room and an office or re-locating room of the same size given on the type plans. The guard room is omitted, because, in this locality, it is probable that there will be only one guard house for the entire fort, and if near the center, there will be no point of the fort more than 150 yards distant from it. The store-rooms and storage battery rooms are provided in the extra traverses.

6. Another important alteration made from the type plans is due to the situation of this battery. As located, Fort Wool would be subject to bombardment from a direction nearly enfilading this

battery, and, for this reason, the protection to the magazine on the east side of the magazine traverse has been largely increased over the type plans, and a slight reduction has been made in the thickness of the wall on the other flank of these traverses. This remark applies to the traverses between guns 3 and 4, and 5 and 6. The traverse between guns 1 and 2 will, on the other hand, be subject to flank fire coming from the north, should vessels attempt to run past it, and has been increased in thickness on that side.

7. Another important change is that the galleries leading from the shot rooms on the exposed side of all these traverses has been lead to the rear instead of coming out on the flank of the traverse, as shown on the type plans. On account of the exposure to enfilading fire, just referred to, it is thought that the shot

galleries, as shown on the type plans, might prove to be shell traps, and the danger of shells coming into the entrance of this gallery has been avoided by opening it to the rear. The openings of these galleries would certainly all be covered from fire from the rear by the other buildings which will be necessary for this post.

8. It is proposed to utilize the traverse between guns 4 and 5, which traverse is situated on the capital of the old fort, as a site for the central power room to furnish

power for all purposes at this fort; this to be supplemented by storage batteries in traverse No. 2 and in traverse No. 6.

9. It is believed that the conditions here make necessary a solid concrete parapet in front of this battery. The suggestion made in the 4th paragraph of the 2nd indorsement hereon as to a sand heart in the parapet is not believed to be economical on account of the high cost of sand delivered at Fort Wool, and it is intended to substitute for this sand hearting, a part of the old stone which now blocks up a large portion of the interior of the fort.

10. For the construction of the emplacements themselves, it is believed that \$165,000 will suffice, while \$15,000 in addition will be needed for the electrical equipment, and, in accordance with the 4th paragraph of the 2nd indorsement hereon, it is intended, if the amount named, - \$165,000, be allotted for this battery, to construct all the emplacements, omitting the electrical equipment. This plan of delaying the electrical outfit for the present is believed to have other advantages, for, owing to the small amount of space available for any use at Fort Wool, it is desirable that a single electrical equipment for all possible uses be constructed at this place, and, exactly what this electrical equipment must be cannot now be determined.

11. The detailed estimate is submitted on a separate sheet.



be supplied on suitable racks. In emplacements 4 and 6 the door from the corridor into the shot passage might perhaps be omitted and the space utilized for the chests. In emplacements 1 and 2 space might be secured by providing a recess in the wall of the powder passage.

4. Speaking-tubes and other details shown on the mimeograph and not shown on this drawing, must be provided for.

5. For the construction of this battery the sum of \$165,000 is allotted from the appropriation for "Gun and Mortar Batteries," for construction of gun and mortar batteries, Act of March 3, 1903.

6. These papers to be returned.

*Frederic V. Allen*

38669

17

Inclo. 21 accomp.

Inclos. 22-24 in sep. roll.

*Frederic V. Allen*  
Division Engineer, Southeast Division.

7th indorsement.

OFFICE OF DIVISION ENGINEER,  
SOUTHEAST DIVISION.

Savannah, Ga., Nov. 21st 1903.

Respectfully forwarded to Captain Winslow, inviting attention to the 5th and 6th indorsements hereon.

*Frederic V. Allen*  
LIEUT. COL., CORPS OF ENGINEERS,  
DIVISION ENGINEER, S. E. DIVISION.

1 Encl. accomp.  
3 Encls. in sep. roll

8th indorsement.  
Engineer Office, U.S. Army,  
Norfolk, Va., Nov. 25, 1903.

1. Respectfully returned to the Chief of Engineers, U.S. Army, the modifications to be made in the submitted plans having been noted.

2. In Par. 3 of the 6th indorsement hereon, it is stated that no space had been allotted to armament chests, etc., in emplacements 1, 2, 4 and 6. In emplacements 4 and 6, the space allotted is in the rear of the galleries under the steps leading to the observation stations. In emplacement 2, the space is near the rear of the gallery leading from the shell room under the observation station. In emplacement 1, it was intended to place the armament chest against the rear of the gallery with one end against the partition wall and between the door in this partition wall and the rear of the gallery. This would still leave ample room for the trucks to make the turn. The space allotted is shown, dotted, in the drawings, for emplacements 2, 4 and 6, but no mention was made in the drawings for emplacement 1, but the space needed for it was considered in making the plans.

*Frederic V. Allen*  
Captain, Corps of Engineers,  
U.S. Army.

2048  
9 F. W.

1 inclosure accomp.  
2 tracgs. and 1 bl. pt. in sep. pkge.



ESTIMATE FOR CONSTRUCTION OF EMPLACEMENTS FOR SIX 6-INCH RIFLES ON DISAPPEARING CARRIAGES, MODEL 1903, AT FORT WOOL, VIRGINIA.

---0---0---

Removing masonry from site and placing construction plant,-----	\$	3,500.00
Material and labor for sheathing, bracing, etc.,-----		3,128.50
Mixing, placing and ramming about 13,880 cubic yards of		
Portland concrete, @ \$8 per cubic yard,-----		111,040.00
5,200 cubic yards of sand for mixing concrete, @ 80¢,-----		4,160.00
38,300 square feet of granolithic work, @ 30¢,-----		11,490.00
Ransome bars and setting same,-----		3,400.00
Material and labor for water-proofing,-----		973.50
Taking down sheathing and dressing finished walls,-----		350.00
Handling and placing stone in slope,-----		600.00
Hold-down bolts and placing same,-----		1,098.00
Material and labor for drainage system,-----		505.00
Steel doors and steps,-----		685.00
Material and labor for doors,-----		375.00
9 squares of tin for power room, @ \$8,-----		72.00
Hardware, locks, nails, hinges, etc.,-----		400.00
Painting wood and iron work,-----		250.00
Whitewashing magazines, passage-ways, etc.,-----		150.00
Filling up under loading platforms with stone,-----		900.00
2,900 square feet of tile and setting same,-----		498.00
Painting all exposed walls of emplacements with two coats of		
paint,-----		400.00
Building slopes of traverses,-----		8,415.00
150 tons of bituminous coal, @ \$6,-----		900.00

		\$153,290.00
Contingencies,-----		11,710.00

\$165,000.00

(Electrical Equipment.)

Lamps, cable, wire, switches, etc.,-----	\$2,540.00
Generator,-----	810.00
Storage battery, complete,-----	3,400.00
Boiler,-----	1,825.00
Engine,-----	850.00
Switchboard, complete,-----	585.00
Labor, installing plant, wiring emplacements, etc.-	1,275.00

	\$11,285.00	
Contingencies,-----	3,715.00	\$ 15,000.00

Total,-----\$180,000.00

*which  
2048 3.26  
9*

OFFICE OF CHIEF OF ENGINEERS

NOV 14 1903

21

WAR DEPARTMENT.

Estimate for constructing  
emplacements for six 6-inch  
rifles on disappearing carriages,  
L. F. model 1903, at Fort Wool,  
Va., to accompany 4th indorse-  
ment, dated October 26, 1903,  
on E. D. 38669-17.