

Primary Battery File

National Archives, Washington D.C.

Record Group 77

Correspondence of the Chief of Engineers

Entry 103

File, Fort, Battery:

26999

Ft. Warren

Btly Stevenson

77-103
2699910
6/1/98
obt 12/7/98

*Office of the Chief of Engineers,
United States Army,*

Washington,

June 4, 1898.

Lieut. Col. S. M. Mansfield,
Corps of Engineers,
Boston, Mass.

Colonel:

With funds appropriated for the construction of gun and mortar batteries, Act of May 7, 1898, it is proposed to construct the following emplacements for the defense of Boston, Mass., in accordance with the approved project:

Fort Warren, two emplacements for 12-inch guns on disappearing carriages, L. F. model, 1897.

You are accordingly requested to prepare and submit plans and estimates at as early a date as practicable.

By command of Brig. Gen. Wilson:

Very respectfully,

Your obedient servant,

[Signature]
Captain, Corps of Engineers

26999

Memorandum of Inspection in taking over 2 Battery Commanders Stations, and Emplacements 1 and 2. Battery Stevenson, from District Engineer Officer.

Battery Commanders station, Bastion E. and G. These are two story brick towers, with glass bulls eye roofs, in good condition, six incandescent lights in each; piers for instruments built up from arches of work underneath; lower room could be used by plotting detail, for quarters in emergency.

No. 1 and 2. Emplacements, Battery Stevenson;

The following changes and improvements should be made.

Overhead trollies should be extended out side of shot room doors at least ~~21/2~~ 2.1/2 feet with suspension bracket to allow shot to be taken direct from trolley by crane tackle from scarp wall. As it is now this can only be done by taking hold inside, extending tackle through door, which with the heavy projectile of these guns, make the danger of accident, from pull and swing too great, and tears the frame of doors.

Hand power to lifts should be replaced by electric.

Doors should be reset, and all outside ones opening on to parade, should have copper water shed over them to prevent water that runs down scarp wall from getting in on top of doors and swelling them. Entrance to steps leading from ~~2000~~ Gun platform to Casemates below should have wooden covering with sliding door, to prevent snow from accumulating on stairway in winter and rain water from finding its way to floor of casemates where no means have been provided for draining. The cover could be removed in good weather and stored below.

The Electric Controllers for each of the Guns in these emplacements, should have partitions placed in rooms to separate them from the rest of the Casemates in which they are.

Neither of these Emplacements are provided with means for lighting up Gun and Loading platforms, nor any means of obtaining water on same, this is important and is especially needed. No Urinal or Closet is provided for this Battery. A Board of Officers recommended the location of a closet and urinal for this battery, in Dec. 1901, and paper was forwarded on January 11th 1902, and returned by District Engineer Officer, January 18th 1902 stating "Latrines will be added to the list, if the necessary funds can be obtained, it is hoped to have all these matters attended to during the ~~coming summer~~ coming summer" The papers are on file in this office.

CORRECT:- Blocks, Yale-Weston triplex.	10.
CORRECT:- Hoists, Ammunition)	3.
	92

over 12.7 (Mr. Preston, 11.)

CORRECT Padlocks, 5 old, and two good, 7. ✓

CORRECT:-Trollies 6. ✓

CORRECT:- Blue prints 6. ✓

MEM.198.	Lamps Incandescent	(142.
On hand 142.	Good condition 142.	(43.
Short 56.	Missing or burnt out 43.)		

F. #2. -4.
F. #4. -4.
F. #3. 4.
#7. -1.
#8. -3.
E. #2. -1.
E. #1. -17
#4. -7. No current.

Service Magazine -2.
Total 43.

21. *Alutides*

RECEIVED

Short 36
 on hand 148
 Missing or burnt out 48

Service Magazine 48
 Total 48

- #4-7, No current.
- #1-14
- #2-14
- #3-14
- #4-14
- #5-14
- #6-14
- #7-14
- #8-14
- #9-14
- #10-14
- #11-14
- #12-14
- #13-14
- #14-14

counted above.
 Places where lights are missing or burnt out.

In No. 4. there is no current at all. 7 lights in here

MDM. 108. Good condition 148.
 For lights, 14.
 Main feeder.
 Switches 14.

CORRECT:-- Blue prints
 CORRECT:-- Trolleys
 CORRECT:-- Blocks, 2, 8, 11, and
 Mr. Preston, 11.
 (over 18.)
 Keys on hand, 18.
 CORRECT:-- Hoists, 11.
 CORRECT:-- Blocks, 11-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000-1001-1002-1003-1004-1005-1006-1007-1008-1009-1010-1011-1012-1013-1014-1015-1016-1017-1018-1019-1020-1021-1022-1023-1024-1025-1026-1027-1028-1029-1030-1031-1032-1033-1034-1035-1036-1037-1038-1039-1040-1041-1042-1043-1044-1045-1046-1047-1048-1049-1050-1051-1052-1053-1054-1055-1056-1057-1058-1059-1060-1061-1062-1063-1064-1065-1066-1067-1068-1069-1070-1071-1072-1073-1074-1075-1076-1077-1078-1079-1080-1081-1082-1083-1084-1085-1086-1087-1088-1089-1090-1091-1092-1093-1094-1095-1096-1097-1098-1099-1100-1101-1102-1103-1104-1105-1106-1107-1108-1109-1110-1111-1112-1113-1114-1115-1116-1117-1118-1119-1120-1121-1122-1123-1124-1125-1126-1127-1128-1129-1130-1131-1132-1133-1134-1135-1136-1137-1138-1139-1140-1141-1142-1143-1144-1145-1146-1147-1148-1149-1150-1151-1152-1153-1154-1155-1156-1157-1158-1159-1160-1161-1162-1163-1164-1165-1166-1167-1168-1169-1170-1171-1172-1173-1174-1175-1176-1177-1178-1179-1180-1181-1182-1183-1184-1185-1186-1187-1188-1189-1190-1191-1192-1193-1194-1195-1196-1197-1198-1199-1200-1201-1202-1203-1204-1205-1206-1207-1208-1209-1210-1211-1212-1213-1214-1215-1216-1217-1218-1219-1220-1221-1222-1223-1224-1225-1226-1227-1228-1229-1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230-2231-2232-2233-2234-2235-2236-2237-2238-2239-2240-2241-2242-2243-2244-2245-2246-2247-2248-2249-2250-2251-2252-2253-2254-2255-2256-2257-2258-2259-2260-2261-2262-2263-2264-2265-2266-2267-2268-2269-2270-2271-2272-2273-2274-2275-2276-2277-2278-2279-2280-2281-2282-2283-2284-2285-2286-2287-2288-2289-2290-2291-2292-2293-2294-2295-2296-2297-2298-2299-2300-2301-2302-2303-2304-2305-2306-2307-2308-2309-2310-2311-2312-2313-2314-2315-2316-2317-2318-2319-2320-2321-2322-2323-2324-2325-2326-2327-2328-2329-2330-2331-2332-2333-2334-2335-2336-2337-2338-2339-2340-2341-2342-2343-2344-2345-2346-2347-2348-2349-2350-2351-2352-2353-2354-2355-2356-2357-2358-2359-2360-2361-2362-2363-2364-2365-2366-2367-2368-2369-2370-2371-2372-2373-2374-2375-2376-2377-2378-2379-2380-2381-2382-2383-2384-2385-2386-2387-2388-2389-2390-2391-2392-2393-2394-2395-2396-2397-2398-2399-2400-2401-2402-2403-2404-2405-2406-2407-2408-2409-2410-2411-2412-2413-2414-2415-2416-2417-2418-2419-2420-2421-2422-2423-2424-2425-2426-2427-2428-2429-2430-2431-2432-2433-2434-2435-2436-2437-2438-2439-2440-2441-2442-2443-2444-2445-2446-2447-2448-2449-2450-2451-2452-2453-2454-2455-2456-2457-2458-2459-2460-2461-2462-2463-2464-2465-2466-2467-2468-2469-2470-2471-2472-2473-2474-2475-2476-2477-2478-2479-2480-2481-2482-2483-2484-2485-2486-2487-2488-2489-2490-2491-2492-2493-2494-2495-2496-2497-2498-2499-2500-2501-2502-2503-2504-2505-2506-2507-2508-2509-2510-2511-2512-2513-2514-2515-2516-2517-2518-2519-2520-2521-2522-2523-2524-2525-2526-2527-2528-2529-2530-2531-2532-2533-2534-2535-2536-2537-2538-2539-2540-2541-2542-2543-2544-2545-2546-2547-2548-2549-2550-2551-2552-2553-2

Office of the Chief of Engineers
United States Army

September 2, 1898.

Col. S. M. Mansfield,
Corps of Engineers,
Boston, Mass.

Colonel:

June 4, 1898, you were requested to submit plans and estimates for emplacements for two 12-inch guns on disappearing carriages at Fort Warren, Mass. These have not been received as yet. Please forward them as early as practicable.

By command of Brig. Gen. Wilson:

Very respectfully,

Your obedient servant,

Captain, Corps of Engineers.

26999

Subject: Project for 2 - 12-inch gun emplts., Fort Warren, Mass.

UNITED STATES ENGINEER OFFICE,

P. O. BOX 5346, ROOM 124 P. O. BUILDING,

BOSTON, MASS.

October 19, 1898.

Brig. Gen. John M. Wilson,
Chief of Engineers, U. S. Army,
Washington, D. C.

General:

I have the honor to submit the following report with estimates, upon the construction of two emplacements for 12-inch guns on disappearing carriages L. F. model 1897, at Fort Warren, Mass., in obedience to requirements of Department letter 26999, dated June 4, 1898.

At the time of receipt of this letter the utmost efforts of this office were directed to the forwarding of the works of defense of this harbor under the appropriation for National Defense, notwithstanding, a study of the problem here presented was immediately begun, and its solution received all the attention which could be given it up to the present time.

It was thought at first that these emplacements might be constructed entirely within the scarp wall, utilizing the casemates for magazines and shell rooms, but this was found to be impracticable, and it was finally determined to place the gun platforms outside the scarp, as is shown on the tracing herewith submitted. With this arrangement, the intervals between the gun platforms furnish location for the powder magazines, which has been taken advantage of, and the casemates are left available for shell rooms,

store rooms and convenient communication. It is believed that this is the true solution of a somewhat difficult problem.

Abundant earth for cover in front of the guns and magazines is found inside the fort along Front 5 and Bastion "E," which can be readily transferable at small expense. The concrete plant now in operation in connection with construction in the Ravelin is exactly adapted for this work; it will only require track extension, and a little additional equipment. Any tearing down of the existing structure is reduced to a minimum, and only a small expenditure for plant will be required for construction.

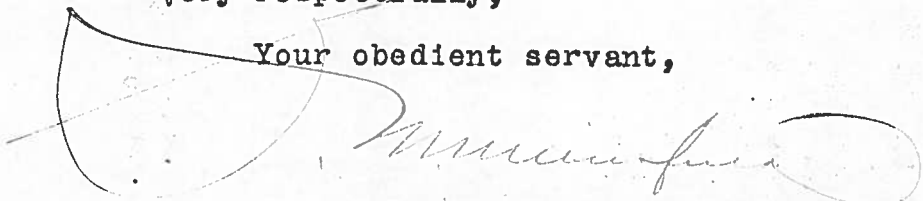
The estimated cost of this work is \$150,630.48 for two emplacements, but it is thought provision should be made in the estimate for the construction of a magazine for the third gun contemplated upon this front, because it can be conveniently and economically constructed at once with the rest of this work, and permit the finishing of the earth cover of this curtain.

The additional estimated cost is \$6,271.65.

The accompanying copy of a report giving details of construction and estimates by my Assistant, Lieut. Chas. S. Bromwell, has my approval, and is transmitted for the information of the Department.

very respectfully,

Your obedient servant,



Colonel, Corps of Engineers.

2 inclosures-tracing in sep. roll.

1st indorsement.

Office Chief of Engineers,

U. S. ARMY,

October 27, 1898.

Respectfully returned to Colonel Mansfield.

The plans submitted appear to have been judiciously designed under the existing conditions which are unfavorable to economical construction.

Two points in the plans seem to merit further consideration, as follows:

1. The sufficiency of the foundations proposed for the parapets and magazines.

While a small amount of settlement in these parts of the work would probably be immaterial it is desired that no precautions be omitted to reduce this settlement to a minimum, and to insure uniformity. As a certain amount of settlement is certain to occur on the made foundations, no matter how carefully confined, it would appear preferable not to support the outer edge of the parapet by the three-foot wall shown and either to omit this thin wall altogether or to place it entirely outside the parapet for the sole purpose of confining the fill.

2. It is noted that considerable spaces in the existing casemates are filled with concrete, apparently for the purpose of transforming them into rooms corresponding in size to those shown on the type drawings. The placing of this concrete will be tedious and expensive and in the in-

3d indorsement.

Office Chief of Engineers,

U. S. ARMY,

November 4, 1898.

Respectfully referred to Col. Charles R. Suter, Corps of Engineers, for remark.

Acting Chief of Engineers.

399

1.

Inclos. 2 accomp.

Inclos. 3 in sep. roll.

Recd. U. S. ENGR. OFFICE, BOSTON, 4th Nov. 7, 1898

4th indorsement.

U. S. Engineer Office,

Boston, Mass.,

December 20, 1898.

Respectfully returned to the Chief of Engineers, U. S. Army, with report of this date.

Chas. R. Suter

Colonel, Corps of Engineers,

2 inclos - one in sep. roll -

RECEIVED BY CHIEF OF ENGRS. DEC 20 1898

26904

1

FOR DEPARTMENT

Boston, Mass.,

Oct. 19, 1898.

28

Mansfield;

Col. S. M.

Transmits copy of report of Lieut. Leha, S. Beaumont, Boston, Oct. 15/98, on the construction of a couple for 12" gun on dir.

cover, S. S. model 1897, at that

approx. Mar. 2, at present of \$150, 630, 48, 4 and est. of \$6, 271, 65 for construction of a magazine for a third couple.

Appends this report & submits remarks thereon.

Drawing showing plan of proposed couple also app.

2 incs, C. D. (#3 tracing)

RECEIVED BY CHIEF OF ENGRS. DEC 20 1898

283

1898

Under 3 in War Office, Bu. 2, Oct. 5, 98

Estimate of Cost
for
Construction
of
Two 12-inch Gun Emplacements,
Front 1,
Fort Warren, Mass.,
in accordance with Engineer Department letter
dated June 4, 1898.

---:0:---

1.	Moving fifteen 10" guns and carriages from the terreplein of Front 1 to the parade,	\$	300.00
2.	Earth excavation, 1,110 cubic yards @ 50¢		555.00
3.	Blasting out and removing old masonry, 677 cubic yards @ \$3.00		2,031.00
3A.	Sheet Piling, 315 lineal feet,		200.00
4.	Embankment, 28,700 cubic yards @ 75¢		21,525.00
	Mixing and placing concrete (including cost of framing).		
5.	4,100 cubic yards Portland @ \$7.25		29,725.00
6.	8,100 cubic yards Rosendale @ \$6.25		50,625.00
7.	Mortar, 300 cubic yards Portland @ \$12.50		3,750.00
8.	Brick walls, 1,736 cubic feet @ 30¢		520.80
9.	Asphaltum,		
	30,000 lbs. asphalt @ 2¢	\$600.00	
	375 gallons tar @ 10¢	37.50	
	7 1/2 tons sand @ \$1.00	7.50	
	Labor of placing,	<u>200.00</u>	845.00
10.	Steel Beams, 154,000 lbs. steel beams, plates, &c., in place, @ 3¢		4,620.00
11.	Anchor bolts, 53 bolts for gun platforms @ \$15		795.00
12.	Ammunition Lifts, 2 lifts, in place, exclusive of electric motor,		2,000.00
13.	Cranes and trolleys, 8 cranes, with hoisting apparatus and 4 trolleys & blocks with chain		1,500.00
14.	Speaking tubes,		400.00
15.	Iron hand-rails, 300 feet in length, complete, in place, @ \$1.50		450.00
16.	Iron ladders, 4 ladders leading from loading platform to parapet wall @ \$15.	\$60.00	
	2 ladders leading from loading platform to observing stations @ \$10	<u>20.00</u>	<u>80.00</u>
	Amount Carried Forward,		\$119,921.80

Amount Brought Forward, . . . \$119,921.80

17.	Ring bolts, 10 - 2" and washers, 4 ft. long @ \$7.50		75.00
18.	Cutting and dressing stone,		
	60 days stone cutters on jambs @ \$3.00	\$180.00	
	34 jamb stones and caps @ \$8.00	272.00	
	8 crane stones @ \$6.00	48.00	
	100 days stone-cutters on miscellaneous work @ \$3.00	<u>300.00</u>	800.00
19.	Drainage,		
	500 ft. drain pipe, @ 10¢	\$ 50.00	
	2,000 bricks @ \$10.00	20.00	
	12 days, mason, @ \$4.00	48.00	
	Labor cutting out masonry and digging trenches, 100 days @ \$1.60	<u>160.00</u>	278.00
20.	Magazine doors, 12 hard pine doors 3" thick @ \$50 . .		600.00
21.	Electric lighting and wiring,		2,000.00
22.	Sodding, 15,000 square feet @ 5¢		750.00
23.	Tramway and equipment for conveying earth to embankment,		
	21,000 ft. B.M. spruce @ \$19.00	\$ 399.00	
	500 lbs. cut nails @ 4¢	20.00	
	2,600 ft. rails=8 3/4 tons @ \$30	262.50	
	700 lbs. R. R. Spikes @ 3¢	21.00	
	1,200 ft. wire rope @ 7¢	84.00	
	12 dump cars 1 1/3 cu. yds. capacity @ \$100	<u>1,200.00</u>	
	Carpenters labor \$10 per 1,000 ft.	210.00	
	Laying track and helping carpenters,		
	30 days labor @ \$1.60	48.00	
	5 days blacksmith & helper @ \$4.80	<u>24.00</u>	2,268.50

Amount Carried Forward, \$126,693.30

Amount Brought Forward, . . . \$126,693.30

24.	Extending concrete delivery track,		
	6500 ft. B.M. spruce @ \$19.	\$123.50	
	150 lbs. cut nails @ 4¢	6.00	
	1600 ft. rails=5 1/2 tons @ \$30	165.00	
	400 lbs. R.R. spikes, @ 3¢	12.00	
	1000 ft. 5/8" wire rope @ 7¢	70.00	
	Carpenters labor laying track, \$10 per M	65.00	
	Labor laying track and helping carpen- ters, 15 days @ \$1.60	24.00	
	5 days blacksmith and helper @ \$4.80.	24.00	
	Removing 12 ft. in width of old maga- zine - 100 cu. yds. of earth and masonry @ \$1.50	150.00	639.50
25.	Cars for receiving cement, 6 flat cars @ \$90		540.00
26.	Increased cement storage capacity, Shed 30 ft. wide and 80 ft. long @ \$15.00 per running foot,		1,200.00
27.	Water supply,		
	2,000 ft. pipe with union @ 9¢	\$180.00	
	12 valves and cocks @ \$1.50	18.00	
	125 days laying and covering old and new lines of pipe @ \$1.60	200.00	
	5 days pipe fitter and helper @ \$4.40	22.00	420.00
28.	Preparing mens quarters for cold weather,		
	3 chimneys=7000 bricks @ \$25 per M laid \$175.00 Plastering.		
	20 casks lime @ \$1.	\$ 20.00	
	20 bushels hair @ 20¢	4.00	
	12 M laths @ \$2.00	24.00	
	40 tons sand @ \$1.20	48.00	
	100 lbs. nails @ 3¢	3.00	
	25 days mason @ \$4.00	100.00	
	6 days carpenter @ \$3.00	18.00	
	25 days labor @ \$1.60	40.00	
	10 days horse @ \$1.20	12.00	269.00
			444.00
29.	Moving and erecting derricks, repairs to derricks, and plant,		2,000.00
30.	Superintendence,		5,000.00

Amount Carried Forward, . . . \$136,936.80

Amount Brought Forward, . .	\$136,936.80
Office Expenses, Contingencies, &c., 10%	13,693.68
	<hr/>
	\$150,630.48
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SUMMARY.

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1.	Removing fifteen 10-inch guns from terreplein	\$ 300.00
2.	1,110 cubic yards earth excavation at 50¢	555.00
3.	Blasting out and removing 677 cubic yards old masonry @ \$3	2,031.00
3A.	315 lineal ft. sheet piling,	200.00
4.	28700 cubic yards excess fill @ 75¢	21,525.00
5.	Mixing and placing 4,100 cubic yards Portland cement concrete @ \$7.25,	29,725.00
6.	Mixing and placing 8,100 cubic yards Rosendale cement concrete @ \$6.25,	50,625.00
7.	Mixing and placing 300 cubic yards Portland cement mortar, @ \$12.50,	3,750.00
8.	1,736 cubic feet of brick walls @ 30¢,	520.80
9.	Mixing and placing 30,000 lbs. of Asphaltum,	845.00
10.	154,000 lbs. steel beams, plates, &c., in place, @ 3¢	4,620.00
11.	53 anchor bolts for gun platforms (includes 1 bolt for testing), @ \$15	795.00
12.	2 Ammunition Lifts, in place, exclusive of electric motor, @ \$1,000	2,000.00
13.	Cranes and trolleys,	1,500.00
14.	Speaking tubes,	400.00
15.	Iron Hand-rails,	450.00
16.	Ladders,	80.00
17.	10 - 2" Ring bolts & washers, @ \$7.50,	75.00
18.	Cutting and dressing stone,	800.00
19.	Drainage,	278.00
Amount Carried Forward,		\$121,074.80

Amount Brought Forward, . . .		\$121,074.80
20.	Magazine doors and fittings,	600.00
21.	Electric lighting and wiring,	2,000.00
22.	15,000 square feet of sodding @ 5¢,	750.00
23.	Tramway and equipment for conveying earth to em- bankment,	2,268.50
24.	Extending concrete delivery track,	639.50
25.	Cars for receiving cement,	540.00
26.	Increased cement storage capacity,	1,200.00
27.	Water supply extension,	420.00
28.	Preparing mens quarters for cold weather,	444.00
29.	Moving and erecting derricks, repairs to derricks and to plant in general,	2,000.00
30.	Superintendence,	5,000.00
		<u>136,936.80</u>
Office expenses, Contingencies, &c., 10%,		13,693.68
		<u><u>\$150,630.48</u></u>

Estimate of cost for the construction of a Magazine for a
third emplacement for a 12" B. L. Rifle.

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250 cubic yards Portland cement @ \$7.25,	\$1,812.50
448 cubic yards Rosendale cement @ \$6.25,	2,800.00
Asphaltum,	265.00
17,800 lbs. steel beams @ 3¢,	534.00
Drainage,	90.00
Superintendence,	200.00
	<hr/>
	5,701.50
Office expenses, contingencies, &c., 10%,	570.15
	<hr/>
	\$6,271.65
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Subject: Two 12" guns on depressing carriages,
Fort Warren, Mass.

UNITED STATES ENGINEER OFFICE,

P. O. BOX 5346, ROOM 124 P. O. BUILDING,

BOSTON, MASS.

December 28, 1898.

Brig. Gen. John M. Wilson,
Chief of Engineers, U. S. Army,
Washington, D. C.

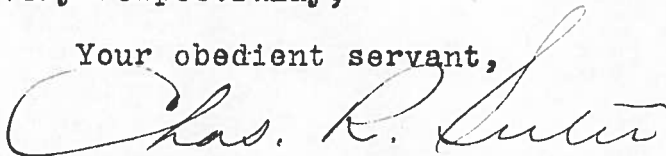
General:

In compliance with your instructions of November 4th, 1898, I have carefully looked over the plans previously submitted for the emplacements for two 12" guns on depressing carriages at Fort Warren, Mass., and beg leave to submit herewith new plans and estimates prepared under my direction by Lieut. Bromwell, which I think meet the objections raised against those previously submitted. They also show a gratifying reduction in cost, which, although still high, is probably not excessive in view of the difficulty always experienced in remodelling old fortifications. This new estimate places the cost at \$123,360.

A copy of Lieut. Bromwell's report with plans and estimate are inclosed.

Very respectfully,

Your obedient servant,



Colonel, Corps of Engineers.

2 inclosures :-
tracing in separate roll.

26999
5

Date

1732

28

98

Boston, Mass.,
December 28, 1898.

Bromwell,

1st Lieut., Chas. S.,
to Col. Chas. R. Suter.

Submits plan and estimate for
construction of two 12-inch
guns on disap. carriages at
Fort Warren, Mass.; authorized
by E. D. letter 26999, dated
June 4, 1898.

Forw'd.
1745
1
Koyrun, Mass.
1899

REC'D. BACK OFFICE CHIEF OF ENGINEERS. JAN 13 1899
with Dec. 4.

Estimate of Cost for Construction of Two 12-inch Gun Emplace-
ments, Front 1, Fort Warren, Mass., in accordance with Engineer De-
partment letter dated June 4, 1898.

1. Moving fifteen 10" guns and carriages from the terreplein to parade, and eight 10" guns and carriages from casemates to parade.	\$ 450.00
2. Earth excavation, 5250 cu. yds @ 40 ¢	2100.00
3. Blasting out and removing old masonry, 800 yds @ \$3.00	2400.00
4. Embankment, 36500 cu. yds @ 75 ¢	27375.00
5. Concrete, 7000 cu. yds @ \$6.65	46550.00
6. Large stone, 4300 tons @ \$1.75	7525.00
7. Mortar, 250 cu. yds @ \$12.50	3125.00
8. Filling room in Bastion "B" with sand, 300 cu. yds @ \$1.00	300.00
9. Steel beams, 5000 lbs @ 5 ¢	250.00
10. Anchor bolts, 53 @ \$15.00	795.00
11. Ammunition Lifts, Two lifts in place, exclusive of electric motor,	2000.00
12. Cranes and trolleys, 4 cranes with blocks @ \$125.00 4 trolleys with blocks @ \$80.00	500.00 320.00
13. Supports for trolley beams and erecting,	1000.00
14. Speaking tubes,	100.00
15. Iron handrails, 300 ft @ \$1.50	450.00
16. Iron ladders, 4 @ \$15.00	60.00
17. Ring bolts, 10 @ \$7.50	75.00
18. Cutting and dressing stone and brickwork	1450.00
19. Drainage,	100.00
20. Magazine doors, 11 hard pine doors @ \$60.00 complete,	660.00
21. Electric light and wiring,	1000.00
22. Sodding, 20000 sq.ft @ 5 ¢	1000.00
23. Tramway and equipment for conveying earth to embankment	2500.00
24. Extending concrete delivery track	650.00
25. Cars for receiving material 6 @ \$90.00	540.00
26. Cement shed, for increased storage	1200.00

27. Water supply,	420.00
28. Addition and repairs to quarters	450.00
29. Hoisting and erecting derricks, and repairs	2000.00
30. Superintendence	5000.00

TOTAL	<u>112145.00</u>
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Contingencies, office expenses, and expenses of Steamer Tourist, 10%	<u>11215.00</u>
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Total estimated cost.	<u><u>123360.00</u></u>
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(COPY)
UNITED STATES ENGINEER OFFICE,
P. O. Box 5346, Room 124 P.O. Building,
Boston, Mass.

December 26, 1898.

Colonel Chas. R. Suter,
Corps of Engineers, U. S. Army,
Boston, Mass.

Colonel:

I have the honor to submit the following plan and estimate for the construction of two 12 inch guns on disappearing carriages at Fort Warren, Mass., authorized by Engineer Department letter 26999, dated June 4, 1898.

By direction of Colonel Mansfield a plan and estimate were prepared, which were forwarded to the Chief of Engineers for approval October 19, 1898, and this plan and estimate were eventually referred back to you for remark.

In accordance with your suggestion, the plan was modified in the following essential features. The whole of Front 1 was given up to the two guns under consideration, thereby allowing the traverses to be made wider, and enabling them to furnish cover to sufficient of the rooms under them for use as magazines and shell rooms. This did away with the construction of the magazines in front of the scarp wall, and did away with the filling in of the arches in the casemates to obtain the requisite cover.

These changes materially simplified the details of construction and materially reduced the cost thereof.

The parapet wall was reduced to ten feet in thickness, and carried down to good foundation, thereby avoiding the danger of unequal

settling on foundations of made earth. The necessary cover was secured by increasing the thickness of the earth fill in front.

The other changes, and the details of the construction are shown in the tracing accompanying.

The appended estimate is based as closely as can be on the actual cost of the same materials and class of work in the construction of the two 10 inch emplacements which are now nearly completed.

Very Respectfully,

Your Obedient Servant,

CHAS. S. BROMWELL.

1st Lieut. Corps of Engineers.

UNITED STATES ENGINEER OFFICE,

P. O. BOX 5346, ROOM 917 WINTHROP BUILDING,

BOSTON, MASS.

February 13, 1900.

Brig. Gen. John M. Wilson,
Chief of Engineers, U. S. Army,
Washington, D. C.

General:

I have the honor to submit the following estimate for completing ^{emplacements} two 12" guns at Fort Warren, Boston Harbor, Mass.

These emplacements are practically completed except the gun platforms and aprons and stairways to loading platforms which were left until this season so that the settlement which was inevitable should reach its limit. The earth fill has been completed but the finished slopes will not be completed until after settlement in the mass of earth has ceased.

I. Grading, building slopes, sowing grass		
seed, 5000 yds. @ 50¢	\$2500.	
Grass and clover seed, and sowing,	62.	\$2562.
II. Aprons, etc.		
Riprap foundation 480 tons @ 50¢	240.	
Concrete 176 yds. @ \$10.	1760.	2000.
III. Gun Platform, steps to loading platform and observation stations, and platforms for lifts,		
333 yds. Concrete @ \$10.	3330.	
45-1/2 yds. Granolithic, @ \$12.	546.	3876.
IV. Replacing old floor, in lift room		
8 yds. Concrete @ 10.		80.
V. Platforms for trucks and rails under cranes,		
Concrete 6 yds. @ \$10.	60.	
Rails and labor	25.	85.

VI. Completing openings in parapets 53 yds at \$10.		\$ 530.
VII. Doorway to Magazine and trolley beams 7 yds Concrete @ \$10.	\$ 70.	
Labor	<u>24.</u>	94.
VIII. Constructing and hanging outside doors complete, including labor for necessary cutting in stone work for support to trolley beams.	580.	580.
IX. Removing old floors and partition walls in shell room,		18.
X. Completing hanging trolley beams,		125.
XI. Cranes,	250.	
Labor for putting in place,	<u>54.</u>	304.
XII. Completing wiring for electric lights.		900.
XIII. Whitewashing inside rooms,		71.
XIV. Putting in speaking tubes and fixtures,		65.
XV. Removing all railroad tracks, derricks, engines and rubbish,		745.
XVI. Repairs to plant used,		400.
XVII. Waterproofing and stopping leaks in old casemates,		50.
XVIII. Repairs to walk in rear of battery,		100.
XIX. Painting all iron work		60.
XX. Moving and setting base rings,		520.
XXI. Water supply, - 2 Hydrants and necessary connections,		265.
XXII. Superintendence,		350.
XXIII. Office expenses and contingencies,		<u>1500.</u>
Total		\$15260.

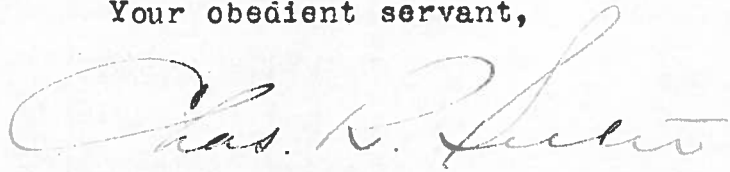
and for which an allotment is respectfully requested.

The handling of the earth for the parapet has been a much longer and more tedious operation than first estimated.

Numerous small changes and additions to the original plans became necessary as the work progressed which it was impossible to foresee and to provide for in the original estimate, and these as well as the increased cost of materials during the past year have been responsible for the increased cost of the work.

Very respectfully,

Your obedient servant,

A handwritten signature in cursive script, reading "Chas. R. Smith". The signature is written in dark ink and is positioned above the typed name.

Colonel, Corps of Engineers.

1st indorsement.

3rd indorsement.

26999

10

WAR DEPARTMENT

Division, Major

Feb. 18, 1900.

Auton,
Col. Chas. R.

Indemnity act of \$15,260
for constructing improvements
for the 12-inch mortar at
Fort Warren, South Bay, Mass.,
with reasons for the increased
cost of the work.
Requests an allotment
of above amount.

With 900

2834 20

\$1488 allotted, & Col. Butler advised
May 4, 1900.

RECD, BAC, OFFICE CHIEF OF ENGRS, MAR 7 1900

RECD, BAC, OFFICE CHIEF OF ENGRS, MAR 1 1900

Office Chief of Engineers,

U. S. ARMY,

February 19, 1900.

Respectfully returned to Colonel Suter, with the information that the available balance of the appropriation for the construction of gun and mortar batteries is practically exhausted. Colonel Suter's December report of operations shows an available balance of \$15,952.26 from the allotment for the construction of the mortar battery at Peddocks Island. If this balance, or a part thereof, is not required for further work upon the mortar battery, a transfer of funds will be authorized. Colonel Suter will please report how much of the available balance of the allotment for the mortar battery at Peddocks Island is available for transfer to other works.

By command of Brig. Gen. Wilson

Joseph B. Keane
Captain, Corps of Engineers

26999
10

2nd indorsement.

U. S. Engineer Office,
Boston, Mass.

Feb. 28, 1900.

Respectfully returned to the Chief of Engineers, U. S. Army. The estimate embraces all the items necessary for the completion of the battery but it is not necessary or desirable to complete all these at once. For these reasons, items I, II, III, VI, XX, aggregating \$9488., can be deferred, leaving a balance of \$5772. which can be profitably expended in the near future.

This amount can be spared from the balance applicable to Peddocks Island and a transfer of this amount is respectfully recommended.

Chas. R. Butler
Colonel, Corps of Engineers.

Forts 2834.

RECD, OFFICE CHIEF OF ENGRS, MAR 1 1900

Office Chief of Engineers,

U. S. ARMY,

March 3, 1900.

Respectfully returned. The transfer of \$5,772 (\$5, in Treasury and \$147 in Colonel Suter's hands) from the allotment for the mortar battery at Peddocks Island to that for the 12-inch emplacements at Fort Warren is proved.

This paper to be returned.
By command of Brig. Gen. Wilson

Joseph B. Keane
Captain, Corps of Engineers

26999
10

4th indorsement,
U. S. Engineer Office,
Boston, Mass.

March 6, 1900.
Respectfully returned to the Chief of Engineers, U. S. Army.

Chas. R. Butler
Colonel, Corps of Engineers
Forts 2834.

May 6 put on

SUBJECT: Transfer of emplacements.

Office of the Chief of Engineers,
United States Army,

Washington, September 26, 1902.

Hon. Elihu Root,

Secretary of War.

(Through the Adjutant General, U. S. Army.)

Sir:

I have the honor to report the completion of emplacements for three 6-inch rapid-fire guns on disappearing carriages at Fort Stan-dish, and of emplacements for two 12-inch rifles on disappearing carriages at Fort Warren, Boston Harbor, Mass., and to recommend that the necessary instructions be now issued for their transfer to the troops for use and care, under the provisions of A. R. 1692.

There are submitted, herewith, outline tracings of the emplace-ments, showing the lighting and drainage systems, with notes for the care and maintenance of the emplacements. It is further recommended that these tracings be approved, and, if approved, that the signa-ture of the Secretary of War be affixed to the tracings and that the latter be then returned to this office to enable blue prints to be prepared for the information and guidance of all concerned.

Very respectfully,

Your obedient servant,

G. L. Guernsey

Brig. Gen., Chief of Engineers,

U. S. Army.

26999

14

WAR DEPTIVE

FORTEL- U.S. DEPT. OF JUSTICE
- CITIES, BUREAU OF
- BOSTON, OCT 11 1962

September 26, 1902.

OF ENGINEERS.

Reports the completion of em-
placements for three 6-inch R.F.
on disappearing carriages
at Standish, and of emplace-
ment for two 12-inch rifles on
disappearing carriages at Fort War-
ren, Boston Harbor, Mass., and recom-
mends that the necessary instruc-
tions be now issued for their
transfer to the troops.
Submits with certain recommen-
dations, outline tracings of the
placements.

50% Sept. Last Oct. 40%
4" Child of Aug.
Eves. V. Co.

15, 16 & 18 }
 Incls. }
 accomp. }
 Sent. }
 J. C.

RECEIVED
 DIVISION
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REPRODUCED AT THE NATIONAL ARCHIVES

W: MY

3d Endorsement.

War Department,
Adjutant General's Office,
Washington, Oct. 4, 1902.

Respectfully returned
to the Chief of Engineers, U.S.
Army, with copy of instructions
of this date to the Department
Commander, and with the signa-
ture of the Secretary of War
affixed to accompanying trac-
ings.

by order of the
Secretary of War.

William Emmet
Lieut. Col., Artillery Corps
Assistant Adjutant General

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1. 10. 1902.

Respectfully referred to Capt. Harry Taylor, Corps of Engineers, for his information and guidance, Captain Taylor is requested to have one or more blue prints of the tracings posted in the emplacements to which they pertain and to furnish such additional copies as may be desired by the Post Commanders. Attention is invited to G.O.No.65, H.Q.A., A.G.O., 1901. An inspection of the emplacements should be made by the Engineer officer, in person, in company with the Artillery offi-

When the necessary record has been made, these papers will be returned to this office with report of date of transfer, and receipt of the Artillery Officers, on which the condition of the emplacements should be stated.

by command of Brig. Gen. (Jules),

Thomas V. Chubb
Major, Corps of Engineers

$$\frac{26999}{17}$$

Inclo.18 accomp.
Inclos.15 & 16 in sep.roll.

5th inl orsement.

U. S. Engineer Office,
Boston, Mass

March 2, 1903.

1. Respectfully returned to the Chief of Engineers, with one copy each of invoice and receipt covering the transfer to the Artillery of the three 6-inch emplacements at Fort Standish and the two 12-inch emplacements at Fort Warren, which were turned over on November 21, 1902, and January 20, 1903, respectively.

2. It was expected to turn over the 12-inch emplacements at the same time the 6-inch emplacements were transferred but arrangements could not be made with the Artillery to receive them until January 20. It will be noted that the receipt is dated Janu-

25

(COPY).

UNITED STATES ENGINEER OFFICE,
P. O. Box 5646, Room 124 P. O. Building,
Boston, Mass.

October 15, 1898.

Colonel S. M. Mansfield,
Corps of Engineers, U. S. Army,
Boston, Mass.

Colonel:

I have the honor to submit the following report in connection with appended estimates of cost of construction of "two emplacements for 12-inch guns on disappearing carriages L. F. model 1897," at Fort Warren, Mass., called for by Engineer Department letter 26999, dated June 4, 1898.

When this letter was received, the construction of emplacements for two 10-inch guns in the Ravelin, and of two emplacements for Rapid Fire guns in Bastion "B" was in progress. The concrete plant, and other plant necessary to carry on the work to advantage was secured and erected.

All this was carried on simultaneously with the preparation of working plan" and of specifications for material and supplies, and without the aid of a draughtsman until the latter part of June. It was therefore found impracticable to devote much time to the consideration of plans for 12-inch guns until some time in August.

The site selected for the battery was the curtain between Bastion "A" and Bastion "B," but the question of locating the gun platforms was complicated by the desire to merely modify the exist-

ing works, and to do as little tearing down of the old casemates as possible. The final location of these guns was not made until the beginning of October.

Before deciding definitely as to the location of these guns, as shown on the blue print herewith, the platforms were given three and the magazines two positions, and the requirements of each position considered.

Gun Platforms.

1. Entirely within the limits of present works, i.e. - included between the scarp wall and rear curtain wall.
2. Pintle line six feet in rear of the scarp wall - a portion of the platform resting on the old work and a portion ^{to the front} of the scarp wall.
3. Entirely to the front of the scarp wall and tangent to it. This position is shown on the accompanying blue print.

Magazines.

1. Entirely within the present work i.e., conversion of existing rooms into necessary magazines.
2. Entirely without the present work, and as shown on accompanying blue print.

In the first position of the gun platform, the loading platform would extend six feet beyond the limits of the present work, necessitating the removal of a portion of this wall, and the building up of a wall from the height of the parade to support the loading platform. All the casemate arches of the upper tier and one

or two of the lower tier would have to be removed. It would be desirable to remove about one half of the scarp wall. The field of fire being limited by the shoulders of Bastions "A" and "B," would not be so great as that obtained from a more advanced position. Finally, the cost of the construction under this design is believed to be greater than that under the plans adopted.

In the second position it would be necessary to remove all of the masonry mentioned above except the rear curtain wall. The same arches would have to be removed, and the material replaced by new work. The magazines cannot be so conveniently arranged with respect to the lifts; the field of fire is more limited than in the adopted position, and the cost of construction is believed to be but little less than that for the adopted position.

The third position was selected because of the greater protection afforded the magazines and lifts: the more convenient arrangement of rooms and lifts, the increased field of fire: the large decrease in the quantity of steel beams needed to replace the arches torn out in the other construction. The bulk of the concrete work and framing will be out in the open, where the concrete can be handled more conveniently and more economically.

In the first position of the magazines, it would be necessary to remove a number of brick arches with the concrete and masonry covering them, in order to begin the new work at such a depth as would secure the required cover of fourteen feet. In this position, the rooms and lifts would not be conveniently arranged with reference to each other, and few, if any, of the old rooms would

be left available for any good uses. The cost of the steel beams for this construction would be greater than in the next position.

In the second position there seems to be little inconvenience - the requisite cover is secured - and the magazines are convenient to the lifts - the earth fill in front is reduced by the volume of the magazines at a considerable saving, and it renders possible the use of the entire outer tier of rooms in the old work.

The general features of the construction are shown on the blue print accompanying. There are no special features of construction except to exercise great care in building up the foundations for the magazine and parapet as they will have to be placed on made earth, and the experience at Long Island Head in the Rapid Fire Battery shows the liability of the concrete to crack, owing to unequal settlement.

It is proposed to build a concrete wall three feet wide under the outer portion of the parapet where the fill is the greatest. This wall is to act as a retaining wall to hold the earth under the parapet in place, and to prevent the admission of water to that earth. The earth will be carefully rammed on each side of the wall so that there will be no unequal lateral pressure on it, and it will itself serve as a support to the extreme outer line of the parapet.

The magazines also rest on made earth and the parapet rests on them, so that it is equally essential that there be no settlement under them. To obviate this at a less expense than building a wall under them, it is proposed to place a line of sheet piling composed of two-inch rough planks placed in juxtaposition and em-

bedded in the earth about three feet with the top six inches projecting in the bottom course of the concrete foundation of the magazines. These planks will perform the duty of holding the earth in place and keeping the bulk of water from the filled earth, and will be subjected to no unequal lateral pressure, as the earth will be tightly rammed on each side. Loose stone will be placed about the foot of the line of plank as well as about the foot of the concrete wall mentioned above, and will connect with blind drains to promptly remove all water.

It will be noticed that a third magazine is shown on the plans, and is included in a separate estimate.

It is understood that a third emplacement is to be constructed on the right of the two in question. If so, the magazine can be very conveniently placed as shown, and if constructed at once with the rest of this work, it will cost very little, and when completed, the earth fill in front of the curtain can be completed. If its construction is not authorized, it will be impossible to complete the fill, if it is proposed to place a magazine there; and if not, it will be necessary to secure a place for the magazine in Bastion "A" - where no place seems to be so convenient as the one proposed.

It is proposed to use the sand together with the old concrete and other masonry in the parapet and terreplein as fill under the new magazines. It will therefore be necessary to push the work of excavation to completion as rapidly as possible so that the concrete construction will not be delayed for so long a time as to interfere with the work of earth embankment in front of the guns.

Before beginning this excavation, fifteen 10-inch guns and carriages now mounted on the terreplein must be removed. It is suggested that a large derrick and fittings now at Fort Warren are available for this purpose, and if use is made of it, all of the guns and carriages can be moved from the terreplein to the parade within five days after the derrick is in place, at an estimated cost of \$300.00.

The cost of earth fill per cubic yard is estimated at 75 cents, as follows:

Breaking from original bank,	20¢
Shoveling into cars,	10¢
Moving in cars,	6¢
Shoveling at dump,	10¢
Wheeling ramming in bank,	20¢
Tools, repairs to plant, delays,	9¢
	<hr/>
	75¢

This estimate is based on the assumption that the earth bank in Bastion "E" and Front V will be utilized for embankment in Front 1.

To do this economically and expeditiously, it will be necessary to construct and equip a gravity railroad of about 400 cubic yards capacity per day of 8 hours, at a cost of about \$2,300.00. An ordinary cableway of about 200 yards capacity will cost about \$3,000 in place, and a cable tramway of about 500 yards capacity will cost about \$5,000 in place.

A comparison of the estimated cost of moving 30,000 cubic yards of earth by each of four methods is as follows:

	First Cost.	Cost of Plant.	Total Cost.	Est. value of plant at end of season.	Actual cost of work.
30,000 cu. yds. by team, 20¢	\$6,000	--	\$6,000	--	\$6,000
30,000 do. do. cableway, 80¢ gravity	\$2,400	\$3,000	\$5,400	\$2,000	\$3,400
30,000 do. do. R. R., 6¢ cable	\$1,800	\$2,300	\$4,100	\$1,500	\$2,600
30,000 do. do. tramway, 4¢	\$1,200	\$5,000	\$6,200	\$3,300	\$2,900

In constructing the concrete mixing plant now in operation at Fort Warren, it was so located that with the exception of extending the present concrete delivery track to the new emplacements, no new construction would be necessary. The estimated cost of this extension is placed at about \$640.00. This includes the cost of rails, wire rope, timber, labor of laying track, and cost of removing about 12 feet in width of one of the magazines in the curtain of Bastion "A."

In addition to the 4 ft. gauge cars used in delivering concrete to the 10-inch gun emplacements now under construction, those in use receiving cement will be needed in doing this work for the proposed 12-inch gun emplacements, owing to the greater distance of the latter from the concrete mixer. It will therefore be neces-

sary to purchase six flat cars, preferably of three foot gauge, at a cost of about \$540.00, for receiving cement.

The present cement storage capacity (3,000 barrels, or about two weeks supply) has proved insufficient. With this limited quantity of cement on hand, the regularity with which the work can be carried on is entirely dependent upon the regularity with which the deliveries of cement are made. Once this season work had to be discontinued because the supply was exhausted. In order to avoid its recurrence, about 3,000 barrels of cement are now stored under canvas. A shed, the ground floor of which can be used for storing property, and the upper floor of which will be on a level with the concrete mixer platform, and having a storage capacity of about 5,000 barrels, will cost about \$1,200.00.

The extension of the water supply to the new position to be occupied by engines, including the cost of sinking the present pipe below the frost line, will cost about \$420.00.

The force of mechanics and laborers needed to carry on the work of construction expeditiously, requires that the winter quarters be enlarged. At present only about 80 men can be accommodated in cold weather, but by plastering the walls of the summer quarters and putting in chimneys at a cost of \$450.00 at least 200 men can be quartered.

If the troops are moved from the old casemates in the section of the proposed work, doubtless two or three rooms may be made available for quarters by the addition of bunks for the sleeping rooms.

The one on the left side abuts against a ratchet bar, while the one on the right should abut against the bottom flange of the carriage making its length about 3 inches greater than the other .

The blue print furnished by the Ordnance Department calls for

14 bolts .75" x 3.8" under the head, and

8 bolts .75" x 4.8" " " "

There were sent

8 bolts .75" x 3.8" under the head, and

14 bolts .75" x 4.8" " " "

I have had necessary alterations made in the above.

For the cradle, there were sent 14 bolts 1.5" x 5.6".

These are according to the blue print but there should have been

10 bolts 1.5" x 5.6" under the head, and

4 bolts 1.5" x 6.6" " " "

X

2 .

I can have everything in connection with the bolts made right, and also put in a brace in place of the one found too short if desired. The 8" Rifle has not come yet. I would respectfully request instructions as to what I shall do in relation to the short brace and the 4 new bolts 1.5" by 6.6" that are required. If directed by telegraph what to do, there will be no delay.

Very respectfully,

Your obedient servant,

J. W. Lockwood

Major, Corps of Engineers, U.S.A.

1st indorsement.

Office Chief of Engineers,

U. S. ARMY.

January 5, 1899.

Respectfully returned approved.

The sum of \$125,000 is hereby allotted from the appropriation for "Gun and Mortar Batteries", Act of May 7, 1898, to be applied to the construction of two emplacements for 12-inch guns on disappearing carriages, L. F., model 1897, at Fort Warren, Mass.

These papers to be returned.

By command of Brig. Gen. Wilson:

26999

4

Joseph E. Smith
Captain, Corps of Engineers.

Inclo. 5 accomp.

Inclo. 6 in sep. roll.

2nd indorsement.

U. S. Engineer Office,

Boston, Mass.,

January 6, 1899.

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

Chas. E. Smith

Colonel, Corps of Engineers.

Forts 1745.

Inclo. 1 accomp.

Inclo. 2 in sep. roll.

REC'D. OFFICE CHIEF OF ENGRS. JAN 13 1899

26999

4

Broton

Broton

1745

5

Broton, Col. Chas. E.

Indorse copy of

Report of Lieut. Chas.

J. Brumwell, Boston

Dec. 25, 1898, with plans

for the construction of two

emplacements for 12"

guns on disappearing

carriages at Fort Warren,

Mass., which he thinks

meet the objections

raised by him of these

plans and submitted

the same estimate

of the cost at

ports 1745.

5/12,3360 2 inco, E. D.

1000 1000 (6.0000)

REC'D. BACK OFFICE CHIEF OF ENGRS. JAN 13 1899

Supers 10 & 6 accomp.

Inclo. 6 in Chap. Files, Sh. 22, Sh. 55.

Office of the 96th, Co. Coast Art'y.
Fort Warren, Mass, Feb 19, 1904.

The Adjutant-

Fort Warren, Mass.

Sir:-

I have the honor to report that it is impossible to keep the loading platform of Battery Stevenson free from snow and ice.

The parade wall and the parapet form a pocket into which the snow drifts in cold weather and in milder weather a sleet storm will quickly block up the drains and any sudden drop of temperature such as we have had this season causes the backed up water to freeze, and it is impossible to remove the ice without damaging the concrete.

There is now from two (2) to six (6) inches of ice on the platform rendering it dangerous if not impossible to use the ammunition truck.

It is suggested that the portion of the parade wall above the level of the platform be removed and iron railings substituted, or if this is impracticable that the drains be very much enlarged.

Very respectfully,

1st Lieut. Art'y Corps.
Com'dg 96th, Co. Coast Artillery.

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ment
ned.

During the past winter the cold was greater in intensity and duration and the snowfall was heavier and continued longer on the ground than for many years past. Unless the snow and ice be promptly removed after every snow fall in such a winter any drains that could be provided would probably become obstructed by freezing.

4. Instead of cutting down the wall or providing larger drains I respectfully recommend that in future (upon requisition) a suitable number of long handled chisels, such as are used by the street department in Boston, for cutting ice from the granolithic sidewalks, be supplied to the Artillery at Fort Warren for the purpose of removing the ice from the concrete surfaces of the emplacements.

Lieut. Col., Corps of Engineers.

81
57
Forts B.

1 inclo. (tracing) accomp.

2nd Endorsement.

Headquarters,
Art'y District of Boston,
Fort Banks, Mass.,

February 23, 1904.

Respectfully forwarded to Lt. Col. W. S. Stanton, Corps of Engineers, U. S. A., District Officer of Engineers, for such action as he may deem necessary.

Wm. C. H. Allen

Colonel Artillery Corps,
Commanding.

3rd Indorsement,
U. S. Engineer Office,
Boston, Mass.

May 18, 1904.

1. Respectfully submitted to the Chief of Engineers, U. S. Army.
2. In rear of the two emplacements for 12-in. guns, battery Stevenson, to cut the parade wall A, B, C, D (tracing herewith) down two feet to the level of the loading platforms would much disfigure it and cost about \$825 (55 cu. yds. @ \$15) to save the labor of throwing the snow and ice over it; or, to provide five 6-in. drains, X-Y, will cost about \$600.
3. Each emplacement is now drained by three 4-in. drains, at the back of the parade wall, descending vertically through a large mass of masonry to the old drainage system.

1st. Endorsement,

Fort Warren, Mass.,

February 21st. 1904.

Respectfully forwarded to the Adjutant, Artillery District of Boston, Mass. I have inspected these emplacements, and better provision should be made to allow the escape of melted snow and water - the present one being inadequate. Of the methods suggested the removal of part of the wall and the substitution of the iron railing is considered the better, because even with enlarged drains the condition as reported is liable to obtain in inclement weather. This battery is practically out of commission from this cause.

It is recommended that this subject be brought to the attention of the Engineer Officer, for the District of Boston, Boston, Mass.

Samuel D. Stevens
Captain, Artillery Corps,
Commanding Post.

*Fort Warren Mass
Feb. 19/1904.*

Banks,

81	FOR FILE - U. S. ENGINEER OFFICE,
57	CATALOGUE, BOSTON, MASS.
	FEB 24 1904

*Comdg Officer
96 Co. Cavalry
28*

WAR DEPARTMENT.

States - that it is impossible to keep the loading platform of Battery Stevenson free from snow & ice, etc

1 Inc. E. D. (Tracing)

REC'D. BACK OFFICE CHIEF OF ENGRS. MAY 27 1904

Inc. 29 in Map Files, Dr. 22, Sh. 55.

REC'D. BACK U. S. ENGR. OFFICE, BOSTON MAY 24 1904