

UNSKILLED LABOR

- Class 1—\$9.50 per hour.
- Shovelers
- Concrete placers
- Shovelers—roadway
- Material handlers
- Water boy.
- Class 2 \$9.65 per hour.
- Carpenter's helper
- Rigger's helper
- Pipefitter's helper
- Tractor operator's helper
- Electrician's helper

SKILLED LABOR

- Class 3 \$11.00 per hour.
- Carpenters
- Tractor Operators
- Cement Finisher
- Electricians
- Pipefitters
- Class 4—\$1.50 per hour.
- General Foreman.

SEMI SKILLED LABOR

- Class 3—\$6.75 per hour.
- Truck Drivers
- Steel Tiers

ARMY PEARL HARBOR BOARD EXHIBIT NO. 4L

Summary
CBR/dw

WAR DEPARTMENT,
UNITED STATES ENGINEER OFFICE,
Honolulu, T. H., April 30, 1941.

Contract No. W414-eng-602

Ft. Shafter, Oahu, T. H.
Job Order #17.0.
Construct—bombproof addition to radio transmitter station and appurtenant work.
Est. Cost: \$44,907.44 to Gov.
Commencement Date: May 1, 1941.
Est. date for completion: Aug. 1, 1941.
Supervision by J. J. Kestly, Area Engr., 3rd Field Area.

WAR DEPARTMENT,
UNITED STATES ENGINEER OFFICE,
Honolulu, T. H., April 30, 1941.

JOB ORDER NO. 17.0.
Contract No. W-414-eng-602.

To: Hawaiian Constructors, Honolulu, T. H.

You are hereby directed to proceed with the following work:

1. PROJECT TITLE: The Construction of Bombproof Addition to Radio Transmitter Station at Fort Shafter.
2. LOCATION: Fort Shafter, Island of Oahu, T. H.
3. OFFICE FILE REFERENCE: 2017.
4. WORK TO BE DONE: Construct and complete bombproof addition to radio transmitter station, including connecting passageway between the existing structures and the new station.
5. WORK REQUESTED BY: Commanding General, Hawaiian Department.
6. DRAWINGS AND REFERENCES: As enumerated in paragraph 1-04 of Specifications.
7. APPROPRIATION CHARGEABLE: 21X1204 Seacoast Defense General Eng. 305 P 13-32 A1204-N.
8. ESTIMATED COST: \$35,640.82.
9. COMMENCEMENT DATE: May 1, 1941.
10. ESTIMATED DATE FOR COMPLETION: August 1, 1941.
11. ESTIMATED LABOR AT SITE: See Detailed Estimate Attached.

12. PLANT REQUIRED: See Detailed Estimate Attached.
 13. MATERIALS: See Detailed Estimate Attached.
 14. SUPERVISION BY: J. J. Kestly, Area Engineer, Third Field Area.

(Signed) Theodore Wyman, Jr.,
 THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers,
District Engineer.

Approved:

WARREN T. HANNUM,
Colonel, Corps of Engineers,
Division Engineer.

ESTIMATE OF COST

To Accompany Job Order No. 17.0

Contract No. W-414-eng-602

ESTIMATE OF COST: Construction of Bombproof Addition to Radio Transmitter Station at Fort Shafter, T. H.

DISTRICT: Honolulu District, Honolulu, T. H.

The work to be done, as provided for herein, is located on the Government Military Reservation at Fort Shafter, Island of Oahu, T. H., and is limited to the following specific item:

(1) Furnish all necessary labor and equipment, and perform all work necessary to construct and complete a bombproof addition to radio transmitter station, including connecting passageway between the existing structures and the new station, all in accordance with Specifications, "The Construction of Bombproof Addition to Radio Transmitter Station at Fort Shafter, T. H., to Accompany Job Order No. 17.0," and the details shown on drawings Numbers F-1/8 to F-1/10, inclusive, listed in paragraph 1-04 of the Specifications.

Unit costs are as follows:

COST TO CONTRACTOR

1. Material to be Furnished:

Item	Designation	Quantity	Unit	Unit price	Amount
1	Dynamite—40%	2,000	Lb.	0.125	\$250.00
2	Elec. Caps #6—6' Lead	700	Only	0.083	58.10
3	Cement	645	Bbl	3.19	2,037.55
4	Sand	30	Cu. Yds	2.70	81.00
5	Fine Aggregate	270	" "	3.00	810.00
6	Coarse Aggregate	260	" "	3.00	780.00
7	1" x 4" T. & G. Flooring	3,800	B. M	55.00	209.00
8	1" x 6" T. & G. Sheeting	11,000	B. M	55.00	605.00
9	2" x 4" and 2" x 12" No. 1 Com.—S2E	8,100	B. M	46.63	377.70
10	4" x 4" and 4" x 6" No. 1 Com	5,100	B. M	46.63	237.81
11	Roofing Felt (90#)	22,350	Sq. Ft	0.0165	368.78
12	Asphalt	8,400	Lb	0.0180	151.20
13	Form Oil	30	Gal	0.21	6.30
14	5/8" \emptyset Reinforcing Steel	14,250	Lb	0.0275	391.88
15	#14 Ga. Wire	300	"	0.052	15.60
16	Nails—20d, 16d, 10d, 6d, 4d	30	Kegs	6.60	198.00
17	1/2 x 5" Wide Mastic Joint Felt	345	Lin. Ft	0.175	60.38
18	#10 Ga. Galv. Wire Mesh 6" x 6"	1,800	Sq. Ft	0.021	37.80
19	2—3' x 7' 1/4" Plate Doors & Frame	1,050	Lb	0.10	105.00
20	1/4" x 12" Checkered Plate—Cover Angles, etc.	3,735	Lb	0.070	261.45
21	#26 Ga. Galv. Metal Air Duct	425	Lb	0.15	63.75
22	1/2" \emptyset x 8" Anchor Bolts and "U" Stirrups	15	Only	0.45	6.75
23	#16 Ga. 1/2" Galv. Wire Mesh	4	Sq. Ft	0.48	1.92
24	1—Robertson Vent. Fan and Hood		Lump Sum		285.00
25	4" \emptyset Concrete Drain-Pipe	240	Lin. Ft	0.225	54.00
26	Masonry Stone	29	Cu. Yd	3.00	87.00
27	2" \emptyset Galv. W. L. Pipe (18" Cplng. & Plug)	60	Lin. Ft	0.41	24.60
28	Electric Conduit, Wiring and Lighting		Lump Sum		475.00
29	Paint	1	Gal	2.75	2.75
30	2" \emptyset W. L. Pipe and Fittings	1,000	Lin. Ft	0.4125	412.50
31	Miscellaneous Equipment				300.00
	Total cost of Materials				8,775.82

2. Day Labor:

(a) Access Road:			
16 Man Hours-----	@	\$1. 50	\$24. 00
16 Man Hours-----		1. 00	16. 00
80 Man Hours-----		0. 50	40. 00
(b) Temporary Water Line Installed:			
8 Man Hours-----	@	1. 50	12. 00
48 Man Hours-----		0. 50	24. 00
(c) Handling and Hauling:			
16 Man Hours-----	@	1. 50	24. 00
16 Man Hours-----		1. 00	16. 00
16 Man Hours-----		0. 75	12. 00
160 Man Hours-----		0. 50	80. 00
(d) Excavation—Outside:			
48 Man Hours-----	@	1. 50	72. 00
192 Man Hours-----		1. 00	192. 00
576 Man Hours-----		0. 75	432. 00
600 Man Hours-----		0. 50	300. 00
(e) Excavation—Vestibule:			
16 Man Hours-----	@	1. 50	24. 00
32 Man Hours-----		1. 00	32. 00
96 Man Hours-----		0. 75	72. 00
120 Man Hours-----		0. 50	60. 00
(f) Excavation—Main Tunnel:			
240 Man Hours-----	@	1. 50	360. 00
640 Man Hours-----		1. 00	640. 00
2,000 Man Hours-----		0. 75	1,500. 00
3,200 Man Hours-----		0. 50	1,600. 00
(g) Excavation—Connecting Tunnel:			
16 Man Hours-----	@	1. 50	24. 00
48 Man Hours-----		1. 00	48. 00
144 Man Hours-----		0. 75	108. 00
232 Man Hours-----		0. 50	116. 00
(h) Placing Grout:			
60 Man Hours-----	@	1. 50	90. 00
180 Man Hours-----		1. 00	180. 00
96 Man Hours-----		0. 75	72. 00
236 Man Hours-----		0. 50	118. 00
(i) Waterproofing:			
96 Man Hours-----	@	1. 50	144. 00
320 Man Hours-----		1. 00	320. 00
320 Man Hours-----		0. 50	160. 00
(j) Placing Drain Tile:			
8 Man Hours-----	@	1. 50	12. 00
40 Man Hours-----		0. 50	20. 00
(k) Placing Reinforcing Steel:			
48 Man Hours-----	@	1. 50	72. 00
192 Man Hours-----		1. 00	192. 00
116 Man Hours-----		0. 50	58. 00
(l) Concrete Forming and Stripping:			
64 Man Hours-----	@	1. 50	96. 00
672 Man Hours-----		1. 00	672. 00
420 Man Hours-----		0. 75	315. 00
720 Man Hours-----		0. 50	360. 00
(m) Placing Concrete:			
160 Man Hours-----	@	1. 50	240. 00
640 Man Hours-----		1. 00	640. 00
640 Man Hours-----		0. 75	480. 00
4,800 Man Hours-----		0. 50	2,400. 00
(n) Electric Light and Power Installed:			
32 Man Hours-----	@	1. 50	48. 00
64 Man Hours-----		1. 00	64. 00
64 Man Hours-----		0. 75	48. 00
64 Man Hours-----		0. 50	32. 00

(o) <i>Air Conditioning Plant Installed:</i>			
24 Man Hours	-----	@ \$1.50	\$36.00
48 Man Hours	-----	1.00	48.00
48 Man Hours	-----	0.75	36.00
48 Man Hours	-----	0.50	24.00
(p) <i>Structural Steel Installed:</i>			
8 Man Hours	-----	@ 1.50	12.00
32 Man Hours	-----	1.25	40.00
40 Man Hours	-----	0.50	20.00
(q) <i>Placing Rubble Masonry.</i>			
240 Man Hours	-----	@ 1.50	360.00
240 Man Hours	-----	0.75	180.00
(r) <i>Maintenance—Watchman, etc.</i>			
480 Man Hours	-----	@ 1.50	720.00
480 Man Hours	-----	1.00	480.00
480 Man Hours	-----	0.75	360.00
1,440 Man Hours	-----	0.50	720.00
Total Cost of Day Labor	-----		<u>15,697.00</u>

3. *Plant Operation:*

(a) <i>Rental of Equipment.</i>			
1—Truck—Flat Rack	-----	30 da. @ \$18.50	555.00
2—Trucks—Dump	-----	30 " @ 18.50	1,110.00
1—Caterpillar Dozer	-----	30 " @ 39.50	1,185.00
1— $\frac{3}{4}$ Ton Pick-up	-----	90 " @ 6.30	567.00
2—Air Compressor	-----	3 Mo. @ 1390.00	4,170.00
6—Jackhammers	-----	30 da. @ 9.00	270.00
2—Water Liners	-----	60 " @ 8.00	480.00
1— $\frac{1}{2}$ Cu. Yd. Mixer	-----	30 " @ 2.00	60.00
1—Concrete Placing Equipment	-----	30 " $\frac{1}{2}$ 7.00	210.00
1—Bar Bender Shears	-----	5 " $\frac{1}{2}$ 6.00	30.00
1— $\frac{1}{2}$ " Radial Saw	-----	1 Mo. $\frac{1}{2}$ 33.00	33.00
1—Jointer	-----	1 " @ 33.00	33.00
1— $\frac{3}{4}$ Cu. Yd. Shovel	-----	$\frac{1}{2}$ " @ 1174.00	587.00
1—Ford Sedan	-----	3 mo. @ 76.00	228.00
Miscellaneous Small Tools	-----		350.00
(b) Fuel, Oil, Gas, and Miscellaneous Equipment	-----		700.00
Total Plant Operation Cost	-----		<u>10,568.00</u>

4. *Total Plant Operation Cost of Job:*

Mobilization and Demobilization	-----	\$600.00
Total Cost of Material	-----	8,775.82
Total Cost of Labor	-----	15,697.00
Total Cost of Plant Operation	-----	10,568.00

Total Cost to Contractor----- 35,640.82

(Signed) THEODORE WYMAN, Jr.,
Lt. Col., Corps of Engineers,
District Engineer.

Recapitulation of Estimate of Cost

1. *Total Cost of Job:*

(a) <i>Direct Cost:</i>			
Total Cost to Contractor	-----	\$35,640.82	
Contingencies—10%	-----	3,564.08	
Total Direct Cost	-----	\$39,204.90	
(b) <i>Indirect Cost:</i>			
Survey, Inspection and Engineering—8% of Contractor's Cost	-----	\$2,851.27	
Total Indirect Cost	-----	2,851.27	
Total Field Cost	-----	42,056.17	
General Office Overhead—8% (of Contractor's Cost)	-----	2,851.27	
Estimated Grand Total Cost to Government	-----	<u>44,907.44</u>	

This estimate is prepared for use in the District only, and is not for distribution to the Contractor.

(Signed) Theodore Wyman, Jr.,
THEODORE WYMAN, JR.,
Lt. Col., Corps of Engineers,
District Engineer.

JO2 3-42
MARCH 19, 1942.

ADDENDUM NO. 1

To Accompany Job Order No. 17.0

Contract W-414-Eng-602

Office, Department Engineer, Honolulu, T. H.

Addendum No. 1 to accompany Job Order No. 17.0 (Bombproof Addition to Radio Station, Fort Shafter) authorizes the installation of additional ventilation equipment in the transmitter section and power room at the transmitter station at Fort Shafter and modification of ventilator shaft. This work shall be done in accordance with plans, (File No. F-41/33 and File No. F-41/10) and specifications furnished the Area Engineer.

Office File Reference: Serial No. 2525.

Work requested by: The Commanding General, Hawaiian Department by 2nd Indorsement of the Department Engineer, dated March 4, 1942.

For the Department Engineer:

/s/ H. B. NURSE,
Lt. Col., Corps of Engineers,
Executive Assistant.

22 JANUARY 1943.

ADDENDUM NO. 2

To Accompany Job Order No. 17.0

Contract W-414-Eng-602

Office of the District Engineer, Honolulu, T. H.

Addendum No. 2 to accompany Job Order No. 17.0 (Bombproof Addition to Radio Station, Ft. Shafter) cancels Addendum No. 1 to Job Order No. 17.0, effective January 18, 1943.

Cancellation Requested by: Operations Officer.

For the District Engineer:

/s/ JOSEPH MATSON, Jr.,
Major, Corps of Engineers, Assistant.

ARMY PEARL HARBOR BOARD ESTIMATE NO. 431

Summary
CMM/dw

WAR DEPARTMENT,
UNITED STATES ENGINEER OFFICE,
Honolulu, T. H., May 14, 1941.

Contract No. W411-eng-602

Hickam Field, Oahu, T. H.

Job Order No. 290.

Contract:—Armament, Fire Control, supply and repair building (bombblast) reinf. concrete, (Approx. 67 ft. x 90 ft. in dimensions).

Est. Cost: \$150,000.00 (to Gov.).

Commencement Date: May 15, 1941.

Est. Date for Completion: Sept. 15, 1941.

Supervision by Area Engr., 2nd Field Area.