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S E C R E T

Fort Stevens, Oregon

Date:..... <u>January 17, 1942.</u> By Authority of : C.O., HD. of the Columbia. <div style="text-align: right;"><i>EMJ</i></div> Initial

Proceedings of a Local Board of Officers convened pursuant to

paragraph 1d, AR 100-20, by letter, Headquarters, Ninth Corps Area, Presidio of San Francisco, California, Secret /64, HD Projects, February 24, 1941, for the purpose of recommending the details of installation of defensive elements within the Harbor Defenses of the Columbia.

Inclosure No. 1 to letter, subject "Local Board Proceedings, Harbor Defenses of the Columbia" dated Headquarters, Harbor Defenses of the Columbia, January 17, 1942.

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Harbor Defenses of the Columbia

SECTION "GENERAL"

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Harbor Defenses of the Columbia

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Harbor Defenses of the Columbia

MEMBERS OF THE BOARD

Colonel Robert P. Glassburn, Coast Artillery Corps.

Lieutenant Colonel C. R. Moore, Corps of Engineers, (District Engineer, Portland, Oregon.)

Lieutenant Colonel Morris E. Conable, Coast Artillery Corps.

Major Porter T. Gregory, Coast Artillery Corps.

Captain P. Francis Passarella, Coast Artillery Corps.

Colonel Robert P. Glassburn, Coast Artillery Corps, was relieved by Colonel Kelley B. Lemmon, Coast Artillery Corps, by letter, Office Commanding General, Ninth Corps Area, Secret /64, HD. Projects, May 1, 1941.

Colonel Kelley B. Lemmon, Coast Artillery Corps, was relieved by Colonel Clifton M. Irwin, 249th Coast Artillery and Captain P. Francis Passarella, 18th Coast Artillery, was relieved by Major Charles J. Olvis, 249th Coast Artillery, by letter, Office Commanding General, Ninth Corps Area, Secret /64 HD. Projects, October 20, 1941.

Lieutenant Colonel Morris E. Conable, Coast Artillery Corps, was relieved by Lieutenant Colonel K. Rowntree, 18th Coast Artillery, by letter, Office Commanding General, Ninth Corps Area, Secret /64, HD. Projects, November 18, 1941.

1. The board met March 5, 1941, and on succeeding days thereafter until January 17, 1942. All of the members of the board were present.

2. The board studied the existing approved Basic Project, the Annexes to the Harbor Defense Projects, Harbor Defenses of the Columbia, current official manuals pertaining to harbor defense installations and the following listed correspondence:

a. Letter: Adjutant General's Office, August 29, 1939.
Subject: Tactics and Technique of Antiaircraft Artillery, Automatic Weapons, AG 472.91 (8-9-39) (Misc) C-M, To all Corps Area and Department Commanders.

b. Pamphlet: Notes on Characteristics and Employment of Depression Position Finders, Office Chief of Coast Artillery, published September 6, 1940.

c. Letter: Adjutant General's Office, September 26, 1940.
Subject: Modernization of Harbor Defense Projects, Continental United States, AG 660.2 (9-16-40) M-WPD-M, To Commanding General, Ninth Corps Area, with ten (10) inclosures.

d. Letter: Adjutant General's Office, October 2, 1939.
Subject: Project Requirements for Antiaircraft 37mm Guns and Machine Guns, AG 472.91 (8-2-39) M-WPD, To Commanding General, Ninth Corps Area.

e. Letter: Adjutant General's Office, October 24, 1940.
Subject: Modernization of Harbor Defense Projects, Continental United States, AG 660.2 (10-13-40) M-OCCA-M, To Commanding General, Ninth Corps Area.

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- f. Pamphlet: Instructions and outline for preparation of Annexes to Harbor Defense Projects in the Continental United States, Office Chief of Coast Artillery, dated November 12, 1940.
- g. Letter: Headquarters, Harbor Defenses of the Columbia, November 13, 1940. Subject: Program for Expenditure, Seacoast Defense Funds, 7x 660, Secret, To Commanding General, Ninth Coast Artillery District with eleven (11) indorsements, file AG 660 (11-13-40) M.
- h. Letter: Adjutant General's Office, January 18, 1941. Subject: Revision of Annexes to Harbor Defense Projects, AG 660.2 (1-15-41) M, To Commanding General, Ninth Corps Area.
- i. Letter: Office Chief of Coast Artillery, January 29, 1941. Subject: Plans for Storage of Seacoast Artillery Ammunition (Continental United States) with two (2) inclosures, approved by 3rd indorsement, AG 471.88 (1-29-41) M-WPD.
- j. Letter: Office of the Signal Officer, Headquarters Fourth Army, February 15, 1941. Subject: Assignment of Tactical Radio Frequencies, 676.3 Freq. (Sig.), To Commanding Officer, Harbor Defenses of the Columbia, with three (3) inclosures.
- k. Letter: Office Chief of Coast Artillery, February 20, 1941. Subject: Local Board Action, Harbor Defense Modernization Program (Continental United States) 662.1/AK, To Commanding Officer, Harbor Defenses of the Columbia.
- l. Pamphlet: A Guide for Preparation of Local Board Proceedings, Par. 1d, AR 100-20. Office Chief of Coast Artillery, dated February 20, 1941.
- m. Pamphlet: Notes on Type Harbor Defense Installations, Office Chief of Coast Artillery.
- n. Letter: Office Commanding General Ninth Corps Area, Secret /64 HD. Projects, February 24, 1941. Subject: Board of Officers (Local Board) To Commanding Officer, Harbor Defenses of the Columbia.
- o. Letter: Office Commanding General, Ninth Coast Artillery District, March 3, 1941. Subject: Revision of Annexes to Harbor Defense Projects, Secret, 660.2 (Revisions, HD. Annexes), To Commanding Officer, Harbor Defenses of the Columbia.
- p. Letter: Office Chief of Coast Artillery, Secret, March 7, 1941. Subject: Battery Russell, Fort Stevens, Oregon, To The Adjutant General, with twenty-one (21) indorsements.
- q. Letter: Office Chief of Coast Artillery, Secret, April 17, 1941. Subject: Expenditure Program, Seacoast Defense Funds, 1941, To Commanding General, Western Defense Command.
- r. Letter: Office Commanding General, Ninth Corps Area, May 1, 1941. Subject: Board of Officers (Local Board), Secret /64 HD. Projects, To Commanding Officer, Harbor Defenses of the Columbia.
- s. Modernization of Harbor Defense Projects, Site Board Proceedings for the Harbor Defenses of the Columbia, with twenty-one (21) indorsements. Approved by the Secretary of War by 6th indorsement, dated February 4, 1941, file AG 660.2 (11-4-40) M-WPD and 18th indorsement, dated June 10, 1941, file AG 660.2 (11-4-40) MC-E.

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t. Letter: Office Quartermaster General, W. D., Washington, D. C., September 3, 1941. Subject: Acquisition of land, Q.M. 601-1 C-RE, To Zone Constructing Q. M., Zone IX, San Francisco, California.

u. Letter: Office Commanding General, Ninth Corps Area, Secret /64 HD. Projects, October 20, 1941. Subject: Board of Officers (Local Board) To Commanding Officer, Harbor Defenses of the Columbia.

v. Letter, Office Commanding General Ninth Corps Area, Secret /64 HD. Projects, November 18, 1941. Subject: Board of Officers (Local Board) To Commanding Officer, Harbor Defenses of the Columbia.

3. The board made a complete and detailed inspection of the existing defensive installations and of the approved sites for the projected installations and, after consideration of all the factors involved, unanimously agree in recommending that the defensive elements as stated herein be authorized for inclusion in the next revision of the Annexes to the Harbor Defense Project, Harbor Defenses of the Columbia.

a. Camouflage.

In order that the three (3) new six-inch project batteries may be properly camouflaged, the cost estimates appearing in Exhibit A-7 include the sum of \$1,500 per battery.

b. Local Ground Defenses.

In order to carry out the Harbor Defense plan for Local Ground Defense, the board recommends the following arms be supplied. These are in addition to those authorized or provided for antiaircraft defense.

Location	30 caliber Machine Guns	Automatic Rifles
Fort Stevens	25	61
Fort Canby	14	35
Fort Columbia	<u>8</u>	<u>10</u>
TOTALS	47	106

c. For general orientation see Exhibit B-1.

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Harbor Defenses of the Columbia

SECTION "A"

SEACOAST ARTILLERY

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EXHIBITS-SECTION "A"

SEACOAST ARTILLERY

<u>Exhibit No.</u>	<u>Title</u>
A-1	General Location Map, Battery No's 245, 246, 247.
A-2	Site Plat-Battery Const. No. 245, Fort Stevens.
A-3	Site Plat-Battery Const. No. 246, Fort Columbia.
A-4	Site Plat-Battery Const. No. 247, Fort Canby.
A-5	Tactical Organization-Harbor Defenses of the Columbia.
A-6	Harbor Defense Ammunition Storage Magazine Plan.
A-7	Cost Estimate and Priority Guide, Par. 1 to 11 inclusive.

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S E C T I O N " A "

SEACOAST ARTILLERY

4. The following tabulation lists the existing and authorized seacoast batteries which will remain in the project upon completion of the modernization program:

PROJECT BATTERIES (Permanent)

Tactical Number	Battery Name (Const. No.)	Caliber Inches	Number of Guns	Location		Status (c)
				Fort (a)	Exhibit (b)	
3	245	6	2	Stevens	A-1	TC
2	246	6	2	Columbia	A-1	TC
1	247	6	2	Canby	A-1	TC

a. Or other designation of location.

b. General location map.

c. TC - to be constructed.

5. Sites for the following batteries (to be constructed) have been approved by the Secretary of War.

BATTERIES "UNDER CONSTRUCTION" and "TO BE CONSTRUCTED"

Priority	(Battery)		Casemate or Shield	Exhibit	Acreage	Estimated Cost of Land
	Tactical Number	Name or Construction Number				
2	3	245	Shield	A-2	None	None
3	2	246	Shield	A-3	None	None
1	1	247	Shield	A-4	None	None

a. Batteries "Under Construction" - None.

b. Batteries "To be Constructed" - The site locations for batteries, Construction Numbers, 245, 246, and 247, have been approved by the Secretary of War. See reference letter paragraph 2s above.

c. The board recommends that living facilities for four officers and ninety enlisted men be included in the battery structure of each of the three (3) six-inch batteries. These facilities, if provided within the battery structures themselves, will greatly add to the comfort, morale, and efficiency of the manning organization and it will decrease the camouflage and concealment problems, and it will also afford protection for gun crews during an air attack. ~~It is recommended that~~ The recent experiences of the present war indicate that these facilities should be provided for these batteries.

d. The board recommends that the six-inch guns be provided with a turret type caliber armor protection.

6. The following tabulation lists the existing seacoast batteries which have been classed as outmoded under the modernization program. Current plans contemplate their exclusion from the project upon completion of all new batteries.

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PROJECT BATTERIES (Outmoded)

Tactical Name Number	Battery Name	Caliber Inches	Number of Guns	Type		Location
				Gun	Carriage	
10	Russell	10" DC	2	M1900	1900 DC	Fort Stevens, Oregon
8	Clark	12" M	4	12" M 1890 M1	Fixed 1896M1	Fort Stevens, Oregon
9	Pratt	6" DC	2	6" 1897 M1	DC 1898	Fort Stevens, Oregon
5	Guenther	12" M	4	12" M 1890 M1	Fixed 1896 M1	Fort Canby, Washington
6	Allen	6" DC	2	6" 1905	DC 1903	Fort Canby, Washington
7	Murphy	6" DC	2	6" 1897 M1	DC 1898	Fort Columbia, Washington

Note 1. Battery tactical numbers in this category follow consecutively after those listed under paragraph 4. The Mine Battery is Battery No. 4.

Note 2. Battery Russell was activated as a Class "B" battery and its employment in the present project and the elimination of the R. R. Mortar Battery, was authorized by letter OCCA, March 7, 1941, subject Battery Russell, approved by War Department 2nd indorsement, March 28, 1941.

7. The following tabulation lists those batteries designated in the current Basic Project for the PUGET SOUND COLUMBIA RIVER AREA (Short Title JCA-P-PSCR) as batteries "No Longer Required".

BATTERIES "NO LONGER REQUIRED"

Tactical Name Number	Battery Name	Caliber Inches	Number of Guns	Type		Location
				Guns	Carriage	
None	Mishler	10"	2	10" M1888mII	DC 1896	Fort Stevens, Oregon
None	*Mobile	12" RyM	4	12" RyM 1890	Railway 1918	Fort Stevens, Oregon

* See Note 2, par. 6.

a. Battery Mishler. The emplacement of this battery is in good condition and the guns and carriages are in very poor mechanical condition. The emplacement and magazines of this battery are to be used as the temporary HDCEP and HECPE.

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Harbor Defenses of the Columbia

Reference paragraph 2d (3), Appendix II, Part IV, Harbor Defense Projects. PUGET SOUND-COLUMBIA RIVER AREA. Short title CCA-P-PSCR.

b. Battery Mobile 12" Ry. Mortars.

The guns and materiel of this battery are in very good condition. This battery has been eliminated from project per reference letter Note 2, par. 6 above.

8. The tactical organization of the Harbor Defenses pending completion of the modernization program is shown on Exhibit A-5. The tactical organization of the Harbor Defenses recommended for adoption upon completion of the modernization program is shown on Exhibit A-5.

9. The following tabulation shows the War Reserve Allowance of Ammunition for all authorized seacoast batteries, including those to be abandoned on completion of the modernization program, together with the Battle Allowances of Ammunition approved for existing batteries and those recommended for new batteries.

Name or Const. No.	Tactical Number	Number of Guns	Caliber and Type	Type Projectile	Rounds per Battery		Place of Storage
					War Reserve	Battle Allowance	
245	3	2	6" BC	108 lb. AP	1200	1200	1000 AP 200 HE at each battery.
				90 lb. HE	400	400	
246	2	2	6" BC	108 lb. AP	1200	1200	Remainder in magazines of existing batteries
				90 lb. HE	400	400	
247	1	2	6" BC	108 lb. AP	1200	1200	"
				90 lb. HE	400	400	
Wenther	5	4	12" M	700 lb. DP	500	500	Battery
				1046 lb. DP	200	200	
Clark	8	4	12" M	700 lb. DP	500	500	"
				1046 lb. DP	200	200	
Pussell	10	2	10" DC	617 lb. AP	324	324	"
Allen	6	2	6" DC	108 lb. AP	1200	1200	Battle Allowance at Battery
				M1905 90 lb. HE	400	200	
Murphy	7	2	6" DC	108 lb. AP	1200	1200	Remainder in Central Storage
				M1897M1 90 lb. HE	400	200	
Pratt	9	2	6" DC	108 lb. AP	1200	1200	"
				M1897M1 90 lb. HE	400	200	

10. In order to accommodate the battle allowances of ammunition recommended in paragraph 9, above, and those mentioned in paragraph 30, below, (for anti-aircraft weapons), additional bomb-proof magazine storage capacity is required as follows:

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Harbor Defenses of the Columbia

a. New Project Batteries "To be Constructed"

One thousand (1000) rounds of AP and two hundred (200) rounds of HE for each of the new project batteries will be stored in the bomb-proof magazines of each battery.

The remaining four hundred rounds (200 rounds AP and 200 rounds HE) of the Battle Allowance for each new project battery will be stored in magazines of existing seacoast batteries, "No Longer Required". The present magazines of Batteries Lewis and Walker, located at Fort Stevens, Oregon, will be bomb-proofed and used for the storage of this ammunition. These magazines will be known as, and hereinafter will be referred to, the Harbor Defense Ammunition Storage Magazine. For Magazine Plan see Exhibit A-6. For location site see Exhibit B-1.

b. Existing Project Batteries.

Two (2) 12" Mortar Batteries, three (3) 6" DC and one (1) 10" DC gun batteries. No additional storage facilities are required for the storage of the Battle Allowance of ammunition for these batteries.

c. Antiaircraft Weapons.

The Harbor Defense Ammunition Storage Magazine, referred to in 10a above, will care for all the ammunition requirements for the antiaircraft automatic weapons.

d. Magazine requirements for TNT storage for the mine project are covered in a later paragraph.

11. The ammunition storage plan proposed in the two preceding paragraphs has been checked against the requirements of TR 1370-A as changed by Changes 1 to 7 and complies therewith in all respects except as follows:

The site location of Battery 246, Fort Columbia, is less than 600 feet from a public highway. The utilization of this site necessitates waiving the safety provisions of the quantity-distance tables appearing in TR 1370-A, C 1-7, relative to the storage of ammunition. However, the highway is amply barricaded as it goes through a tunnel and there is a high hill mass behind the magazine opening.

12. Attached hereto as Exhibit A-7 is the Cost Estimate and Priority Guide for the construction or procurement of items covered in the fortification construction items, major items of equipment for all services, as listed in Encl. No. 7 to letter, subject "Modernization of Harbor Defense Projects, Continental United States," dated the office of The Adjutant General, September 26, 1940, (AG 660.2, (9-16-40) M-WPD-M), and land procurement items. Estimated costs of land include cost of survey and transfer. Separate Cost Estimate and Priority Guide forms have been prepared for those items pertaining to the Fire Control, Searchlight, Antiaircraft, Underwater Defense and Gas Defense Annexes as indicated in succeeding paragraphs of these proceedings.

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Harbor Defenses of the Columbia

SECTION "B"

FIRE CONTROL

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Harbor Defenses of the Columbia

EXHIBITS-SECTION "B"

<u>Exhibit No.</u>	<u>Title</u>
B-1	Eventual Location of Armament and Other Installations.
B-2	HDGP Layout Plan.
B-3	Cost Estimate and Priority Guide (FC arranged by location.)
B-4	HD Command Stations - Fields of View.
B-5	Military Reservation, Fort Stevens, Oregon.
B-5A	Location 15, 16, 17 and 18.
B-6	Military Reservation, Fort Canby, Washington.
B-7	Military Reservation, Fort Columbia, Washington.
B-8	Plan-SWB Room, Fort Canby, Washington.
B-9	Plan-SWB Room, Fort Columbia, Washington.
B-10	Plan-SWB Room, Fort Stevens, Oregon.
B-11	Datum Points.
B-12	Field of Fire and Area Covered by Fire Control System, Battery 245.
B-13	Field of Fire and Area Covered by Fire Control System, Battery 246.
B-14	Field of Fire and Area Covered by Fire Control System, Battery 247.
B-15	Mine Field, Baselines and FC Stations, Mine Command.
B-16	Harbor Defense Radio Net.
B-17	Fire Control Diagram.
B-18	Cable Route Map, three pages.
B-19	Proposed Communications Diagram 6" BC 2 Gun Battery.
B-20	Cost Estimate and Priority Guide (FC by Battery) (Battery Construction No. 245).
B-21	Cost Estimate and Priority Guide (FC by Battery) (Battery Construction No. 246).
B-22	Cost Estimate and Priority Guide (FC by Battery) (Battery Construction No. 247).
B-23	Cost Estimate and Priority Guide (FC by Battery) (Mine Battery).

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Exhibit No.

Title

B-24

Cost Estimate and Priority Guide (FC-HD Requirements other than Battery Requirements).

B-25

Cost Estimate and Priority Guide (Cable Requirements).

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Harbor Defenses of the Columbia

SECTION "B"

FIRE CONTROL

13. Following are brief paragraphs describing, and in justification of, command and fire control requirements for seacoast artillery, antiaircraft, and underwater defense elements pertaining to the Harbor Defenses of the Columbia, requirements originating in local defense plans and for which the Coast Artillery is responsible have been included. Maps and detailed location sketches showing these installations are referred to by Exhibit Number in each subparagraph. Land to be acquired is indicated in the subparagraph pertaining to each element. A general map showing all site locations and the eventual locations of all armament existing and projected after completion of the Modernization Program is shown on Exhibit B-1.

14. HARBOR DEFENSE. FORT GROUPMENT AND GROUP FIRE CONTROL REQUIREMENTS:

a. Harbor Defense Command Post. (Proposed) (Location No. 5. Exhibit B-1).

The present temporary HDOP is housed in the magazines, galleries etc., of old Battery Mishler (Battery "no longer required") located at Fort Stevens, Oregon. It is splinter, fire and gas proofed and affords protection against light bombs only. It has no observation post as part of the command post. It also houses the HECP. This command post is only temporary, therefore, the board recommends the construction of a new Harbor Defense Command and Harbor Entrance Control Post at Fort Canby, Washington.

The proposed command post will be a one (1) level bomb and gas-proof reinforced concrete structure. The HDOP, which will be directly connected with the command post, will have an elevation of about 290 feet and will afford an excellent field of view over the entire field of fire of the existing and proposed batteries as well as upstream beyond Astoria.

For details of construction, layout plan and facilities afforded by structure, see Exhibit B-2.

For field of vision for HDOP see Exhibit B-4.

For cost estimate and priority guide see Exhibit B-3.

b. Fort Command Posts.

None recommended by the board as there are none contemplated in the tactical organization of the Harbor Defense.

c. Groupment Command Posts.

The artillery armament of the Harbor Defense after completion of the Modernization Program will consist of three (3) 6-inch batteries located one each at three (3) rather widely separated forts. Overlapping fields of fire necessitate fire direction by a group commander (Harbor Defense Commander) exercising such fire direction from the HDOP located at Fort Canby. A groupment Command Post is therefore unnecessary.

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d. Group Command Posts.

None, same remarks as 14c above apply.

e. Harbor Defense Radio Station.

The tactical radio sets required for use in the HDCP will be housed in the new structure proposed for that command post. The administrative sets will be housed in the old mine casemate located at Fort Stevens, Oregon.

f. Fort Radio Station.

None recommended.

g. Harbor Defense Signal Station: To be a function of the Harbor Entrance Control Post.

h. Post and Fire Control Switchboard Rooms.

There are three (3) switchboard rooms in the Harbor Defenses, one at each of the forts.

(1) Fort Canby. (Existing) (Not adequate) (Location No. 4)

The Fort Canby switchboard room is a concrete structure located behind a hill about 400 yards northeast of Canby Light and about 14 feet above MLW. This structure is to be gas and bomb-proofed. See Exhibit B-8.

(a) Dimensions of rooms:

Operating room	18' x 15'
Storage Battery room	4' x 15'
Dormitory	4' 6" x 15'

(b) Equipment requirements: See Exhibit B-24.

(c) Cable requirements: See Exhibits B-18; B-25.

No. 8) (2) Fort Columbia. (Existing) (Not adequate) (Location

The Fort Columbia switchboard room is an underground concrete structure located about 30 yards west of No. 1 emplacement of Battery Murphy and about 65 feet above MLW. This structure is to gas and bomb-proofed. See Exhibit B-9.

(a) Dimensions of rooms:

Operating room	11' 6" x 15'
Storage Battery room	4' x 7'
Dormitory	11' 6" x 9'

(b) Equipment requirements: See Exhibit B-24.

(c) Cable requirements: See Exhibits B-18; B-25.

No. 13) (3) Fort Stevens. (Existing) (Not adequate) (Location

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The Fort Stevens switchboard room is a reinforced concrete structure located about 230 yards east of Battery Clark and about 16 feet above MLW. This structure is to be gas and bomb-proofed. See Exhibit B-10.

(a) Dimensions of rooms:

Operating room	18' x 15'
Storage Battery room	4' x 15'
Dormitory	4' 6" x 15'

(b) Equipment requirements: See Exhibit B-24.

(c) Cable requirements: See Exhibits B-18; B-25.

i. Signal Station: See paragraph 14g.

j. Tide Station: (Existing) (Adequate). This station is located near the Mine Wharf at Fort Stevens, Oregon. Location No. 11. Exhibit B-1.

k. Datum Points:

(1) Existing Datum Points:

<u>Datum Point</u>	<u>Coordinates*</u>
Knuckle	S-5170.83 E- 718.17
Bent	S-1302.42 W-2754.83
Sand Island DK. LT. 111.8	S-1845.95 E-3722.06
Sand Island DK. LT. 110.6	S-2398.46 E-5903.38
Chinook DK LT. 108.8	S-3174.67 E-8334.71
Desdemona Sands Light	S-6162.39 E-8176.30
Canby Light	0.00 0.00
Beacon Tower	S-6157.13 E-3626.40
Outer Datum South Jetty	S-5086.42 W-1889.92
Jetty A Fort Canby	S-1525.65 E-1146.19

NOTE: *Local Plane co-ordinates 0-0 Canby Light.

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(2) Proposed Datum Points.

<u>Datum Point</u>	<u>Approx. Coordinates (Yards)</u>
Grays Point L. H.	S- 250 E-24,100
Tongue Point L. H.	S- 8,250 E-23,900
Astoria Light House	S-10,200 E-17,400
Lower Sands Light	S-10,120 E-13,460
Klipsan Beach (No mark at present)	N-22,760 W- 360
Peter Iredale	S-11,880 E- 5,840
West Point (Near Tillamook Head)	S-37,430 E- 6,710
Astor Column	S-11,940 E-19,300

See Exhibit B-11.

15. BATTERY FIRE CONTROL REQUIREMENTS, NEW BATTERIES (BY BATTERY).

Following are brief subparagraphs describing, and in justification of, detailed command and fire control construction, equipment and land requirements for each new battery to be constructed.

a. Battery, Construction No. 245, Tactical No. 3 (Element of the Harbor Defense, Fort Stevens, Oregon). Location No. 9.

(1) This is a two (2) gun 6" BC Shield Battery located at Fort Stevens, Oregon, as indicated in Exhibits A-1; A-2; B-1; B-5.

(2) The fire control layout recommended is shown in the following tabulation and in the exhibits indicated.

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Fire Control Station	** Exhi- bits	Loca- tion No.	Approx. Coordi- nates	Type of Station	Approx. H _i I _i & Type	Combined with Station	Ground Elev.	Acreage Required	Remarks
BC-3 (N)	A-2 B-5 B-12	9	S-8420 E-6940	Concrete Cottage	60' Az. I	B $\frac{1}{3}$ S $\frac{1}{3}$	50'	Mil. Res.	
EBC (C)	A-2 B-5 B-12	9	S-8420 E-6990	Existing	80' Az. I	None	50'	Mil. Res. Note 1	
B $\frac{1}{3}$ S $\frac{1}{3}$ (N)	A-2 B-5 B-12	9	S-8420 E-6940	Concrete Cottage	60' Az. I	BC-3	50'	Mil. Res.	
B $\frac{2}{3}$ S $\frac{2}{3}$ (N)	B-5A B-12	15	S-15,750 E- 7,700	Concrete Manhole	80' DPF-M1 Class 1	None	82'	See Ex. H-3	
B $\frac{2}{3}$ S $\frac{2}{3}$ (N)	B-5 B-12	14	S-10,400 E- 6,570	Concrete Manhole	98' DPF M1 Class 1	None	96'	Mil. Res.	
B $\frac{4}{3}$ S $\frac{4}{3}$ (N)	B-5A B-12	17	S-19,100 E-11,820	Steel Tower	327' DPF M1 Class 4	B $\frac{5}{1}$ S $\frac{5}{1}$ B $\frac{5}{2}$ S $\frac{5}{2}$	255'	See Ex. H-2	
B $\frac{5}{3}$ S $\frac{5}{3}$ (C)	B-7 B-12	7	S- 2,650.62 E-11,328.33	Exist- ing	327.96' DPF M1 Class 4	None	326'	Mil. Res. Note 2	
B $\frac{6}{3}$ S $\frac{6}{3}$ (E)	B-6 B-12	5	N- 51.81 E-232.65	Existing	265.05' DPF M1 Class 3	None	265'	Mil. Res. Note 3	
B $\frac{7}{3}$ S $\frac{7}{3}$ (N)	B-6 B-12	2	N-2810 W-2190	Concrete Manhole	250' Az. I	B $\frac{4}{2}$ S $\frac{4}{2}$	250'	See Ex. H-4	
Plotting Room (N)	A-2 B-5	9		Concrete		Battery Structure		Mil. Res.	

* N - New Station
 C - Existing Station to be Modified
 E - Existing and Adequate Station
 ** In addition to exhibits listed, see also Exhibit B-1.

Note 1: Present Coast Guard Lookout Tower. To be modified by adding plat- form just below present lookout level.

Note 2: Present B $\frac{2}{3}$ S $\frac{2}{3}$ Battery Murphy. To be splinter proofed. See Exhi- bit B-3 for cost.

Note 3: Present BC B $\frac{1}{3}$ S $\frac{1}{3}$ Battery Guenther.

(3) Assuming approval of the foregoing stations and sites therefor, baseline data for this battery will be approximately as follows (subject to future survey):

Baseline		Azimuth (Degrees)	Length (Yards)	Remarks
From Station	To Station			
B ₃ ¹	B ₃ ²	354	7,370	Approximate
B ₃ ¹	B ₃ ⁵	217	7,250	Approximate
B ₃ ³	B ₃ ⁵	212	9,100	Approximate
B ₃ ³	B ₃ ⁴	329	10,160	Approximate
B ₃ ³	B ₃ ⁶	149	12,150	Approximate
	B ₃ ⁷	DPF	---	To be used as DPF no baseline

The data as to azimuth and length tabulated in paragraph (3) above, was determined by local survey for existing stations and map approximations for new stations. Data not accurate.

b. Battery, Construction No. 246; Tactical No. 2 (Element of the Harbor Defense, Fort Columbia, Washington) Location No. 8.

(1) This is a two (2) gun 6" BC Shield Battery located at Fort Columbia, Washington, as indicated in Exhibits A-1; A-3; B-1; B-7.

(2) The fire control layout recommended is shown in the following tabulation and in the exhibits indicated.

Fire Control Station	** Exhi- bit	Loca- tion No.	Approx. Coordi- nates	Type of Station	Approx. H. I. Type	Combined with Stations	Ground Eleva- tion	Acreage Required	Remarks
BC-2 (N)	A-3 B-7 B-13	7	S- 2,440 E-11,280	Concrete Manhole	491' Az. I	B ₂ ¹ S ₂ ¹	488'	Mil. Res.	
EBC (N)	A-3 B-7 B-13	8	S- 3,300 E-11,100	Concrete Manhole	110' Az. I	None	105'	Mil. Res.	
B ₂ ¹ S ₂ ¹ (N)	A-3 B-7 B-13	7	S- 2,440 E-11,280	Concrete Manhole	491' DPF M1 Class 4	BC-2	488'	Mil. Res.	

* N - New Station
 C - Existing Station to be Modified
 E - Existing and Adequate Station
 ** In addition to exhibits listed, see also Exhibit B-1.

Fire Control Station	** Exhi-bit	Loca-tion No.	Approx. Coordi-nates	Type of Station	Approx. H. I. Type	Combined with Stations	Ground Eleva-tion	Acreage Required	Remarks
B ₂ ² S ₂ ² (N)	B-5 B-13	14	S-10,400 E- 6,570	Concrete Cottage	98' DPF M1 Class 1	None	95'	Mil. Res.	
B ₂ ³ S ₂ ³ (E)	B-6 B-13	5	N- 59.17 E-246.84	Existing Manhole	275.92' DPF M1 Class 4	None	280'	Mil. Res. Note 1	
B ₂ ⁴ S ₂ ⁴ (N)	B-6 B-13	2	N-2,810 W-2,190	Concrete Manhole	250' Az. I	B ₃ ⁷ S ₃ ⁷	250'	See Ex. H-4	
B ₂ ⁵ S ₂ ⁵ (N)	B-5A B-13	17	S-19,100 E-11,820	Steel Tower	335' Az. I	B ₃ ⁴ S ₃ ⁴ B ₁ ⁵ S ₁ ⁵	255'	See Ex. H-2	
B ₂ ⁶ S ₂ ⁶ (C)	B-5 B-13	9	S-8,382.32 E-7,310.14	Existing Steel Tower	73' DPF on hand	None	15'	Mil. Res. Note 2	
B ₂ ⁷ S ₂ ⁷ (N)	B-5A B-13	15	S-15,750 E- 7,700.	Concrete Manhole	75' DPF M1 Class 1	B ₁ ⁶ S ₁ ⁶	80'	See Ex. H-3	
Plotting Room (N)	A-3 B-7	8	--	Concrete	--	Battery Structure	--	Mil. Res.	

- * N - New Station
- C - Existing Station to be Modified
- E - Existing and Adequate Station
- ** In addition to exhibits listed, see also Exhibit B-1.

Note 1: Present B₇⁴ S₇⁴ Battery Mobile.

Note 2: Present BC B₆¹ S₆¹ Battery Pratt. To be splinter proofed. See Exhibit B-3 for cost.

(3) Assuming approval of the foregoing stations and sites therefor, baseline data for this battery will be approximately as follows (subject to future survey):

Baseline		Azimuth (Degrees)	Range (Yards)	Remarks
From Station	To Station			
B ₂ ¹	B ₂ ²	31	9,250	Approximate
B ₂ ¹	B ₂ ³	103	11,310	Approximate

Baseline		Azimuth (Degrees)	Range (Yards)	Remarks
From Station	To Station			
B ₂ ¹	B ₂ ⁶	34	7,150	Approximate
B ₂ ²	B ₂ ³	149	12,220	Approximate
B ₂ ⁷	B ₂ ⁵	309	5,310	Approximate
	B ₂ ⁴	DPF	--	To be used as DPF no baselines.

The data as to azimuth and length tabulated in paragraph (3) above, was determined by local survey for existing stations and map approximations for new stations. Data not accurate.

c. Battery, Construction No. 247; Tactical No. 1 (Element of the Harbor Defense, Fort Canby, Washington) Location No. 3.

(1) This is a two (2) gun 6" BC Shield Battery located at Fort Canby, Washington, as indicated in Exhibits A-1; A-4; B-1; B-6.

(2) The fire control layout recommended is shown in the following tabulation and in the exhibits indicated.

* Fire Control Station	** Exhi- bits	Loca- tion No.	Approx. Coordi- nates	Type of Station	Approx. H. I. & Type	Combined with Stations	Ground Eleva- tion	Acreage Required Remarks
BC-1 (N)	A-4 B-6 B-14	3A	N-350 W-230	Concrete Manhole	240' Az. I	B ₁ ¹ S ₁ ¹	240'	Mil. Res.
EBC (N)	A-4 B-6 B-14	3	N-1,010 W-1,100	Concrete Cottage	180' Az. I	None	180'	Mil. Res.
B ₁ ¹ S ₁ ¹ (N)	A-4 B-6 B-14	3A	N-350 W-230	Concrete Manhole	240' DPF M1 Class 3	BC-1	240'	Mil. Res.
B ₁ ² S ₁ ² (N)	B-5 B-14	14	S-10,420 E- 6,570	Concrete Manhole	98' DPF M1 Class 1	None	96'	Mil. Res.
B ₁ ³ S ₁ ³ (E)	B-6 B-14	5	N- 74.53 E-270.91	Existing Manhole	287,96 DPF M1 Class 4	None	288'	Mil. Res. Note 1

* N - New Station

E - Existing and Adequate Station

** In addition to exhibits listed, see also Exhibit B-1.

Note 1: Present B₅⁴ S₅⁴ Battery Clark

* Fire Control Station	** Exhi-bits	Loca-tion No.	Approx. Coordi-nates	Type of Station	Approx. H. I. & Type	Combined with Stations	Ground Eleva-tion	Acreage Required	Remarks
B ₁ ⁴ S ₁ ⁴ (N)	B-6 B-14	2	N-2,830 W-2,190	Concrete Manhole	250' DPF M1 Class 3	None	250'	See Ex. H-4	
B ₁ ⁵ S ₁ ⁵ (N)	B-5A B-14	17	S-19,100 E-11,820	Steel Tower	335' Az. I	B ₃ ⁴ S ₃ ⁴ B ₂ ⁵ S ₂ ⁵	255'	See Ex. H-2	
B ₁ ⁶ S ₁ ⁶ (N)	B-5A B-14	15	S-15,750 E- 7,700	Concrete Manhole	75' Az. I	B ₂ ⁷ S ₂ ⁷	80'	See Ex. H-3	
Plotting Room (N)	A-4 B-6	3	--	Concrete	--	Battery Structure	--	Mil. Res.	

* N - New Station

E - Existing and Adequate Station

** In addition to exhibits listed, see also Exhibit B-1.

(3) Assuming approval of the foregoing stations and sites therefor, baseline data for this battery will be approximately as follows (subject to future survey):

Baseline		Azimuth (Degrees)	Range (Yards)	Remarks
From Station	To Station			
B ₁ ¹	B ₁ ²	328	12,740	Approximate
B ₁ ²	B ₁ ⁶	348	5,450	Approximate
B ₁ ⁶	B ₁ ⁵	309	5,310	Approximate
	B ₁ ⁴	DPF	--	To be used as DPF no baselines

The data as to azimuth and length tabulated in paragraph (3) above, was determined by local survey for existing stations and map approximations for new stations. Data not accurate.

16. BATTERY FIRE CONTROL REQUIREMENTS, EXISTING PERMANENT BATTERIES:

Following are brief subparagraphs describing, and in justification of, detailed command and fire control construction, equipment and land requirements to complete each existing battery designated to remain in the project after completion of the modernization program.

a. No existing SEACOAST ARTILLERY battery will remain in the project after completion of the modernization program.

b. Mine Battery, Tactical No. 4, (Element of the Harbor Defenses, Fort Columbia, Washington). Location No. 8.

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(1) The Mine Battery has installations located at Fort Stevens, Oregon, and Fort Columbia, Washington, as indicated on Exhibits B-1 and D-2.

(2) The fire control layout recommended is shown in the following tabulation and in the exhibits indicated.

* Fire Control Station	** Exhi- bit	Loca- tion No.	Approx. Coordi- nates	Type of Station	Approx. H. I. & Type	Combined with Stations	Ground Elev.	Acreage Required Exhibits
M ₄ ¹ (C)	B-7	7	S-2,644.03 E-11,316.61	Exist- ing	DPF Lewis D . 328.97	Mine Command	325'	None (Mil. Res.)
M ₄ ² (E)	B-7	6	S- 254.87 E-10,697.44	Exist- ing	DPF M1 Class 6 660'	None	660'	None (Mil. Res.)
M ₄ ³ (E)	B-5	10	S-8,497.19 E-7,685.80	Exist- ing	DPF Lewis A 50'	None	15'	None (Mil. Res.) Note 1
Plotting Room (E)	B-7	7	Part of M ₄ ¹ Structure.					

* C - Existing station to be modified.

E - Existing and adequate structure.

** In addition to exhibits listed see following Exhibits also: B-1; B-15.

Note 1: Present M₄¹ Station Fort Stevens.

(3) Assuming approval of the foregoing stations and sites therefor, baseline data for this battery will be as follows:

Baseline From Station	To Station	Azimuth (Degrees)	Length (Yards)
M ₄ ¹	M ₄ ²	165.47	2468.09
M ₄ ¹	M ₄ ³	31.81	6887.83

The data as to azimuth and length tabulated in paragraph (3) above, was determined by Local U. S. E. D. survey. Data accurate.

c. Existing Fire Control Stations in the Harbor Defenses of the Columbia showing stations that will be used after completion of modernization program.

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Old Designation	Location	Coordinates	New Designation	Remarks
➤ H Station	Fort Stevens	S-10,400.67 E- 6,584.77	Not used	
➤ G-1	Fort Stevens	S- 8,989.73 E- 7,127.82	Not used	
➤ Old G-1	Fort Stevens	S-10,382.22 E- 6,579.99	Not used	
➤ G-2	Fort Canby	N- 94.48 E- 301.04	Not used	
➤ M ₄ ¹	Fort Columbia	S- 2,644.03 E-11,316.61	M ₄ ¹	
➤ Old M ¹	Fort Stevens	S- 8,497.19 E- 7,685.80	M ₄ ³	
➤ Old M ²	Fort Stevens	S- 8,419.91 E- 6,985.75	Not used	
➤ BC-B ₁ ¹ S ₁ ¹	Fort Canby	N- 51.81 E- 232.85	B ₃ ⁶ S ₃ ⁶	
➤ B ₁ ² S ₁ ²	L. H. North Head	N- 2,810.69 W- 2,194.42	Not used	
➤ B ₁ ³	North of North Head L. H.	N- 4,438.60 W- 1,134.48	Not used	No Station here, 6" pipe marks spot.
➤ B ₁ ⁴ S ₁ ⁴	Fort Stevens	S- 8,914.92 E- 7,140.95	Not used	
➤ BC-B ₂ ¹ S ₂ ¹	Fort Canby	N- 348.11 W- 231.93	Not used	
➤ BC-B ₃ ¹ S ₃ ¹	Fort Columbia	S- 2,798.87 E-11,090.10	Not used	
➤ B ₃ ² S ₃ ²	Fort Columbia	S- 2,650.62 E-11,328.33	B ₃ ⁵ S ₃ ⁵	
➤ BC B ₅ ¹ S ₅ ¹	Fort Stevens	S- 8,586.21 E- 7,421.04	Not used	
➤ B ₅ ² S ₅ ²	Fort Stevens	S-10,403.81 E- 6,569.87	Not used	
➤ B ₅ ³ S ₅ ³	Mil. Res. Hammond, Ore.	S- 9,396.10 E- 9,232.69	Not used	
➤ B ₅ ⁴ S ₅ ⁴	Fort Canby	N- 74.53 E- 270.91	B ₁ ³ S ₁ ³	

Old Designation	Location	Coordinates	New Designation	Remarks
B ₇ ² S ₇ ⁵	Mil. Res. E. of Camp Clatsop	S-19,105.59 E-11,818.11	Not used	Same as B ₇ ⁵ S ₇ ⁵
BC B ₈ ¹ S ₈ ¹	Fort Stevens	S- 8,382.32 E- 7,310.14	B ₂ ⁶ S ₂ ⁶	
BC B ₇ ¹ S ₇ ¹	Fort Stevens	S- 8,417.92 E- 6,948.22	Not used	
B ₇ ² S ₇ ²	Fort Stevens	S-10,390.50 E- 6,573.34	Not used	
B ₇ ³ S ₇ ³	Mil. Res. Hammond, Ore.	S- 9,396.10 E- 9,236.19	Not used	
R ₇ ⁴ S ₇ ⁴	Fort Canby	N- 59.17 E- 246.84	B ₂ ³ S ₂ ³	
B ₇ ⁵ S ₇ ⁵	Mil. Res. E. of Camp Clatsop	S-19,105.59 E-11,818.11	Not used	Same as B ₅ ⁵ S ₅ ⁵
BC Russell	Fort Stevens	S-10,132.82 E- 6,469.24	Not used	
R ₇ ¹ Russell	Fort Stevens	S-10,416.68 E- 6,571.45	Not used	
B ₇ ² Russell	Fort Stevens	S- 8,577.46 E- 6,911.67	Not used	

d. NEW Fire Control Stations to be constructed in the Harbor
Defenses of the Columbia.

New Station Designation	Location No.	Approximate Coordinates	Remarks
BC - 3	9	S- 8,420 E- 6,940	
B ₃ ¹ S ₃ ¹	9	S- 8,420 E- 6,940	
B ₃ ² S ₃ ²	15	S-15,750 E- 7,700	
B ₃ ³ S ₃ ³	14	S-10,400 E- 6,570	
B ₃ ⁴ S ₃ ⁴	17	S-19,100 E-11,820	
B ₃ ⁷ S ₃ ⁷	2	N- 2,810 W- 2,190	

New Station Designation	Location No.	Approximate Coordinates	Remarks
BC-2	7	S- 2,440 E-11,280	
EBC	8	S- 3,300 E-11,100	
B ₂ ¹ S ₂ ¹	7	S- 2,440 E-11,280	
B ₂ ² S ₂ ²	14	S-10,400 E- 6,570	
B ₂ ⁴ S ₂ ⁴	2	N- 2,810 W- 2,190	
B ₂ ⁵ S ₂ ⁵	17	S-19,100 E-11,820	
B ₂ ⁷ S ₂ ⁷	15	S-15,750 E- 7,700	
BC-1	3A	N- 350 W- 230	
EBC	3	N- .950 W- 1,180	
B ₁ ¹ S ₁ ¹	3A	N- 350 W- 230	
B ₁ ² S ₁ ²	14	S-10,420 E- 6,570	
B ₁ ⁴ S ₁ ⁴	2	N- 2,830 W- 2,190	
B ₁ ⁵ S ₁ ⁵	17	S-19,100 E-11,820	
B ₁ ⁶ S ₁ ⁶	15	S-15,750 E- 7,700	

17. BATTERY FIRE CONTROL REQUIREMENTS, EXISTING OUTMODED BATTERIES.

There are NO command and fire control requirements to complete minimum essential elements of the existing batteries designated for abandonment upon completion of the modernization program.

18. RADIO REQUIREMENTS:

The following subparagraphs and accompanying exhibits describe the radio communication system pertaining to all elements of the Harbor Defense.

S E C R E T

Harbor Defenses of the Columbia

a. Higher Authority Net. The radio communications between the Harbor Defense Command Post and installations of higher authority can be adequately provided for with one SCR 32 RA now on hand.

b. Harbor Defense Command Net. A command net utilizing SCR 281 A sets, one at the HDCP and one at each battery BC and one for the mine planter will be used for radio communication between all command elements of the Harbor Defense. Six SCR 281 A sets are required and six are now on hand.

c. Mine Command Net. A separate net will be required for the Mine Command during planting and maintaining the mine fields. Five (5) SCR 281 A sets will operate in this net. One (1) for the Mine Planter, one (1) at the Mine Command Station at Fort Columbia, one (1) at the alternate Mine Command Station at Fort Stevens, and one (1) each for DB Boats L-64 and L-75. Two (2) of these sets are provided for under paragraph 18b above. Three (3) additional sets are required.

d. Exhibits.

(1) For radio nets see Exhibit B-16.

(2) For cost estimate see Exhibit B-24.

19. COMMUNICATION REQUIREMENTS:

a. Basis for pairs needed for installations within the Harbor Defense:

1 pair - post telephone to each installation.
3 pairs - battery to each base and station.
1 pair - T. I. Bell Circuit.
3 pairs - BC and EBC to HDCP.
1 pair to each SCSL.
1 pair - AAOP to HDCP.
1 pair - land defense OP to HDCP.
2 pairs - HDCP to Sub-sector.

b. In addition to the cable needs of the Harbor Defenses the following pairs will be required.

(1) Through lines telephone requirements:

AWS	2 pairs
Reinforcing artillery	5 pairs
Reinforcing AA artillery	5 pairs
Fourth Army	4 pairs
Sector	2 pairs
Sub-sector	2 pairs
Land defense forces	4 pairs
Interceptor Command	3 pairs
	<u>27</u> pairs

(2) A total of twenty-seven (27) pairs will be included in trunk cable requirements. Provision will be made for the above pairs to be terminated at each fire control switchboard so that they may be set as local lines or through lines as required by the situation.

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Harbor Defenses of the Columbia

- c. Fire control diagram - see Exhibit B-17.
- d. Cable route map - see Exhibit B-18, 3 sheets.
- e. Proposed communication diagram, six inch (6") BC two (2) gun battery, exhibit B-19.
- f. Harbor Defense Fire Control Requirements:
(Exclusive of battery requirements)

* Purpose of Station	** Exhibit	Loca- tion No.	Approx. Coordi- nates	Type of Station	Approx. H. I. & Type	Combined with Stations	Ground Eleva- tion	Acreage Required Exhibit
HDCP (N)	B-4 B-6	5	N- 90 E- 310	Concrete	296' DPF M1 Class 4	HDOP HECP Army & Navy Opera- tion Room HD Radio Station	296'	None (Mil. Res.)
Met (E) Station	B-5	10	S-8,500 E-7,690	Existing	---	None	16'	None (Mil. Res.)
Tide (E) Station	B-5	11	S-8,500 E-7,600	Existing	---	None	9'	None (Mil. Res.)
SWB Canby (C)	B-6 B-8	4	--	Existing	---	---	14'	None (Mil. Res.)
SWB (C) Columbia	B-7 B-9	8	--	Existing	---	---	65'	None (Mil. Res.)
SWB (C) Stevens	B-5 B-10	13	--	Existing	---	---	16'	None (Mil. Res.)

** In addition to exhibits listed see following exhibit also: B-1.
* N-New installation; E-Existing and adequate installation; C-Existing installation to be bomb and gas proofed.

Purpose of Station	Exhibit	Approx. Coordi- nates	Type of Station	Approx. Elev.	Combined with Stations	Ground Eleva- tion	Acreage Required Remarks
AAIS OP-1	E-4	N-8,600 E-2,800	None	272'	None	188'	Note 1
AAIS OP-2	E-4	N-6,750 W- 300	None	15'	None	15'	Note 1

Note 1: OP-1 and OP-2. At Seaview, Washington. No land to be purchased, Site to be occupied by permission.

Purpose of Station	Exhibit	Approx. Coordinates	Type of Station	Approx. Elevation	Combined with Stations	Ground Elevation	Acreage Required	Remarks
AAIS OP-3	E-4	N-4,750 E-3,900	None	15'	None	15'	Note 2	
AAIS OP-4	E-4	N-2,810 W-2,190	Roof of Manhole	250'	B ₁ ¹ S ₁ ¹ ; B ₂ ¹ S ₂ ¹	250'	See Ex. H-4	
AAIS OP-5	E-4	N- 950 W-1,180	Roof of Manhole	200'	BC-1	200'	None (Mil. Res.)	
AAIS OP-6	E-4	N- 75 E- 270	Roof of Manhole	288'	HDOP	288'	None (Mil. Res.)	
AAIS OP-7	E-4	S- 700 E-9,300	None	15'	None	15'	Note 3	
AAIS OP-8	E-4	S- 2,650 E-11,330	None	326'	None	326'	None (Mil. Res.)	
AAIS OP-9	E-4	N- 500 E-13,300	None	1300'	None	1300'	Note 4	
AAIS OP-10	E-4	S- 1,200 E-19,000	None	15'	None	15'	Note 5	
AAIS OP-11	E-4	S-6,200 E-3,200	C. G. Tower	25'	None	10'	None (Mil. Res.)	
AAIS OP-12	E-4	S-8,700 E-6,800	C. G. Tower	95'	None	15'	None (Mil. Res.)	
AAIS OP-13	E-4	S-10,420 E- 6,570	Water Tank	105'	None	96'	None (Mil. Res.)	
AAIS OP-14	E-4	S-11,940 E-19,300	Astor Column	720'	None	595'	Note 6	
AAIS OP-15	E-4	S-14,500 E-14,000	None	15'	None	15'	Note 7	
AAIS OP-16	E-4	S-15,750 E- 7,700	Roof of Manhole	80'	B ₃ ² S ₃ ²	80'	See Ex. H-3	
AAIS OP-17	E-4	S-18,600 E- 8,400	None	60'	None	60'	Note 8	
AAIS OP-18	E-4	S-19,100 E-11,820	Roof of Steel Tower	327'	B ₃ ⁴ S ₃ ⁴	255'	See Ex. H-2	

- Note 2: At Ilwaco, Washington. Same remark as Note 1. (See Section "B", Page 16)
- Note 3: At Chinook, Washington. Same remark as Note 1.
- Note 4: North of Scarborough Hill. Same remark as Note 1.
- Note 5: U. S. Quarantine Service. United States Government Property.
- Note 6: Astor Column, Astoria. Same remark as Note 1.
- Note 7: Astoria Airport. Same remark as Note 1.
- Note 8: Camp Clatsop. State Military Reservation.
- Note 9: U. S. Military Reservation.

S E C R E T

Harbor Defenses of the Columbia

20. COST ESTIMATE AND PRIORITY GUIDE:

a. Arranged by location - See Exhibit B-3.

b. FC Battery requirements - arranged by battery.

- (1) For Battery Const. No. 245. See Exhibit B-20.
- (2) For Battery Const. No. 246. See Exhibit B-21.
- (3) For Battery Const. No. 247. See Exhibit B-22.
- (4) For Mine Battery. See Exhibit B-23.

c. FC. Other than battery requirements. See Exhibit B-24.

d. Cable requirements. See Exhibit B-25.

S E C R E T

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Harbor Defenses of the Columbia

SECTION "C"

SEACOAST SEARCHLIGHTS

~~SECRET~~

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Harbor Defenses of the Columbia

Exhibit

Title

C-1	Fields of Illumination - Seacoast Searchlights (Pending completion of modernization program)
C-2	Fields of Illumination - Seacoast Searchlights (After completion of modernization program)
C-3	COST ESTIMATE and PRIORITY GUIDE - Seacoast Searchlights

~~SECRET~~

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SECTION "C"

SEACOAST SEARCHLIGHTS

21. The seacoast artillery searchlight defense recommended for employment pending completion of the modernization program is as shown in the following subparagraphs and accompanying exhibits:

LIST OF SEACOAST SEARCHLIGHTS (HD)

(Pending completion of modernization program)

Tactical No.	Light Type	Tactical Location		Exhibit	Tactical Assignment	On Hand	Required
		Place	Loc. No.				
1	EC N-10 60" Fixed	McKenzie Head Ft. Canby	3	C-1	Gp. 2	1	None
2	EC N-2 60" Fixed	McKenzie Head Ft. Canby	3	C-1	Gp. 2	1	None
3	AA-1937 60" P	Cape Disap- pointment Ft. Canby	5	C-1	Gp. 2	1	None
4	EC N-10 60" F	Cape Disap- pointment Ft. Canby	5	C-1	Gp. 2	1	None
5	EC N-5 60" F	Scarborough Hill (High) Ft. Columbia	7	C-1	Gp. 3	1	None
6	EC N-10 60" F	Scarborough Hill (Low) Ft. Columbia	8	C-1	Gp. 3	1	None
7	EC N-10 60" F	Wharf Area Ft. Stevens	11	C-1	Gp. 3	1	None
8	EC N-2 60" F	Wharf Area Ft. Stevens	11	C-1	Gp. 3	1	None
9	EC N-2 60" F	Fire Control Hill Ft. Stevens	14	C-1	Gp. 1	1	None
10	EC N-2 60" F	Fire Control Hill Ft. Stevens	14	C-1	Gp. 1	1	None
11	AA 1937 60" P	Camp Clatsop Oregon	16	C-1	Gp. 1	1	None
12	AA 1937 60" P	Camp Clatsop Oregon	16	C-1	Gp. 1	1	None

SEARCHLIGHT CONTROLLER STATIONS

(Pending completion of modernization program)

<u>Tactical No.</u>	<u>Location of Controller</u>	
	<u>Old Designation</u>	<u>New Designation</u>
1	At SL #1	At SL #1
2	At SL #2	At SL #2
3	At SL #3	At SL #3
4	G-2	None
5	B ₃ ² S ₃ ²	B ₃ ⁵ S ₃ ⁵ Battery 245
6	M ₄ ¹ Fort Columbia	M ₄ ¹ Fort Columbia
7	M ₄ ¹ Fort Stevens	M ₄ ³ Fort Stevens
8	BC B ¹ Pratt	B ₃ ⁶ S ₃ ⁶ Battery 245
9	H Station Fort Stevens	None
10	At SL #10	At SL #10
11	At SL #11	At SL #11
12	At SL #12	At SL #12

22. The seacoast artillery searchlight defense recommended for employment after completion of the modernization program is as shown in the following subparagraphs and accompanying exhibits:

LIST OF SEACOAST SEARCHLIGHTS (HD)

(After completion of modernization program)

<u>Tactical No.</u>	<u>Light Type</u>	<u>Tactical Location</u>		<u>Exhibit</u>	<u>Tactical Assignment</u>	<u>On Hand</u>	<u>Required</u>
		<u>Place</u>	<u>Loc. No.</u>				
1	EC N-10 60" F	N. of North Head Fort Canby	2	C-2	H. D.	1	Note 1
2	EC N-2 60" F	N. of North Head Fort Canby	2	C-2	H. D.	1	Note 1
3	AA 1937 60" P	Cape Disappoint- ment, Fort Canby	5	C-2	H. D.	1	Note 2

Note 1: SL's 1 and 2 are now installed at McKenzie Head, and are to be moved to a position North of North Head. See Exhibits H-1 and C-3 page 2.

Note 2: SL 3 is a portable SL. A shelter for light and a road to position has recently been constructed.

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Harbor Defenses of the Columbia

Tactical No.	Light Type	Tactical Location		Exhibit	Tactical Assignment	On Hand	Required
		Place	Loc. No.				
4	EC N-10 60" F	Cape Disappointment, Fort Canby	5	C-2	H. D.	1	Nothing
5	EC N-5 60" F	Fort Columbia	8	C-2	H. D.	1	Nothing Note 3
6	EC N-10 60" F	Fort Columbia	8	C-2	H. D.	1	Nothing
7	EC N-10 60" F	Wharf Area Fort Stevens	11	C-2	H. D.	1	Note 4
8	EC N-2 60" F	Wharf Area Fort Stevens	11	C-2	H. D.	1	Note 4
9	EC N-2 60" F	Fire Control Hill Fort Stevens	14	C-2	H. D.	1	Note 5
10	EC N-2 60" F	Fire Control Hill Fort Stevens	14	C-2	H. D.	1	Note 5
11	AA 1937 60" P	Camp Clatsop Oregon	16	C-2	H. D.	1	Note 6
12	AA 1937 60" P	Camp Clatsop Oregon	16	C-2	H. D.	1	Note 6
13	AA 1941 60" P	Tioga Washington	1	C-2	H. D.	1	Note 7
14	AA 1941 60" P	Tioga Washington	1	C-2	H. D.	1	Note 7
15	AA 1941 60" P	Jetty Sands Fort Stevens	9-A	C-2	H. D.	1	Nothing
16	AA 1941 60" P	Jetty Sands Fort Stevens	9-A	C-2	H. D.	1	Nothing
17	AA 1937 60" P	North of Gearhart, Oregon	18	C-2	H. D.	1	Note 7
18	60" P	North of Gearhart, Oregon	18	C-2	H. D.	0	Note 7 Ex. C-3
19	60" P	In reserve	None	None	None	0	Ex. C-3
20	60" P	In reserve	None	None	None	0	Ex. C-3

Note 3: Board recommends that SL 5 be moved from its present location to a point about 900 feet Northwest of Battery Murphy.

Note 4: Towers for SL's 7 and 8 have recently been constructed giving lights a height of site of approximately 60 feet.

Note 5: Board recommends that SL's 9 and 10 be raised approximately 30 feet in elevation by construction of wooden towers with SL shelters on top

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of each tower. This is necessary as lights are partially blacked out by new construction on South jetty and sand dunes on Clatsop Spit.

Note 6: SL's 11 and 12 (Portable SL's AA type) located on the Camp Clatsop Military Reservation.

Note 7: SL's 13 and 14, and SL's 17 and 18 (Portable SL's AA Type). No land to be purchased. Land to be occupied by permission of owner.

SEARCHLIGHT CONTROLLER STATIONS

(After completion of modernization program)

<u>Tactical No.</u>	<u>Location of Controller (New Designation of Station)</u>
1	B ₁ ⁴ S ₁ ⁴
2	B ₁ ⁴ S ₁ ⁴
3	At SL #3, Fort Canby
4	At old G-2 Station, Fort Canby
5	B ₃ ⁵ S ₃ ⁵ , Fort Columbia
6	M ₄ ¹ , Fort Columbia
7	M ₄ ² , Fort Stevens
8	B ₃ ⁶ S ₃ ⁶ , Fort Stevens
9	B ₃ ³ S ₃ ³ , Fort Stevens
10	At SL #10, Fort Stevens
11	At SL #11, Camp Clatsop
12	At SL #12, Camp Clatsop
13	At SL #13,)
14	At SL #14,) Beach, Tioga, Washington
15	At SL #15,)
16	At SL #16,) Jetty Sands, Fort Stevens
17	At SL #17,)
18	At SL #18,) Beach, North of Gearhart, Oregon
19 and 20	None, in reserve.

23. SHELTER (other than that at tactical positions) requirements for the above lights are as indicated in the following subparagraphs and the indicated Exhibits:

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Harbor Defenses of the Columbia

a. No shelter is required for SL's 1 to 10 inclusive as suitable shelters are provided at the tactical positions.

b. An existing searchlight shelter, located at Fort Stevens, Oregon, is an adequate shelter for portable SLs not provided with shelters at the tactical positions. This is a wooden frame, corrugated iron siding structure 24' x 120', located about 200 yards southeast of Battery Pratt. It has sufficient storage space for eight (8) portable lights and equipment.

c. For general location - See Exhibit B-1.

d. The board recommends that a wooden shed be built at each portable searchlight position to house light and power plant. These sheds to be used by searchlight crews when working on lights and for storage of lights and power plant during hours of daylight. Shelters for following portable lights are recommended: SL's 11, 12, 13, 14, 15, 16, 17 and 18.

24. COST ESTIMATE AND PRIORITY GUIDE: See Exhibit C-3.

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Harbor Defenses of the Columbia

SECTION "D"
UNDERWATER DEFENSES

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Harbor Defenses of the Columbia

EXHIBITS - SECTION "D"

Underwater Defenses

Exhibit No.

Title

D-1

Cost Estimate and Priority Guide, Underwater Defenses.

D-2

Mine Installations, Harbor Defenses of the Columbia.

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Section "D", Page 1.

SECTION "D"

UNDERWATER DEFENSE

25. The underwater defense project for these Harbor Defenses is prescribed in the 19th indorsement, AG 660.2 (2-21-35) (Misc) E, dated June 30, 1937, and may be briefly described as follows: This project as approved by the Joint Board provides for seven groups of controlled mines and two listening posts. The location of the mine fields and the listening posts as chosen by the Joint Board are shown on Exhibit B-15.

26. The requirements for submarine mine shore installations (other than those pertaining to gun batteries assigned to mine defense) now authorized, those existing, and those remaining to be installed or procured, are as noted in the lettered subparagraphs below. Funds in the amount of \$100,000.00 have been allotted for the following submarine mine projects. These projects are now in the process of construction. Reference, letter OCCA 3, April 17, 1941, subject "Expenditure Program, Seacoast Defense Funds, 1941," to CG Western Defense Command. The following projects have been approved.

<u>PROJECT</u>	<u>EST. COST</u>
Installation of crane on mine wharf	\$ 8,000
Purchase two (2) 4-ton locomotives and 4 flat cars	3,800
Install passing track, switches and additional track on mine wharf	800
Gas-proof and bomb-proof mine casemate, Fort Columbia includes \$2,000 CWS Equipment	17,000
Enlarge mine storeroom	10,000
Construct new mine loading room	12,000
Construct new magazine, TNT	20,000
Enlarge cable tank	10,000
Dredge basin for small mine boats	<u>18,400</u>
Total	\$100,000

For general location of mine shore installations see Exhibit B-1

a. Mine Casemate.

Authorized

Existing

Not adequate. To be gas and bomb-proofed.

Funds have been allotted to gas and bomb-proof the casemate. (See reference paragraph 26 above). Structure now under construction.

For general location see Exhibit B-1.

b. Mine Loading Room.

Authorized

Existing

Not adequate. New structure to be built.

Funds have been allotted to construct a new mine loading room. (See reference paragraph 26 above). New structure almost completed.

For general location see Exhibit B-1.

c. Cable Tanks.

Authorized

Existing

Not adequate. Existing tank to be enlarged.

Funds have been allotted to enlarge the existing cable tank. (See reference paragraph 26 above). Structure almost completed.

For general location see Exhibit B-1.

d. Wharf.

Authorized

Existing

Not adequate. Crane to be installed on mine wharf.

Funds have been allotted to install a crane on mine wharf. (See reference paragraph 26 above). Now under construction.

For general location see Exhibit B-1.

e. Magazines for TNT and fuse storage. Authorized, existing, adequate.

(1) Present storage plan.

(a) The project requirements of 54,400 pounds of TNT are now on hand and are stored in two recently constructed TNT magazines.

(b) The 1076 fuses are stored in a magazine of old Battery Smur.

(c) The storage plan complies with the safety provisions of TR 1370-A.

f. Mine Plainter.

One required and none on hand.

g. DB Boats.

The L-64, on hand, is assigned to the Mine Command. (For moorage facilities see paragraph 28j).

h. Yawl Boats.

Three mine yawls, M-332, M-333, and M-296, are on hand

and one additional mine yawl is required. Four yawls only are now authorized. One yawl will have to be procured. The board recommends that this yawl be built by a local boat builder. A boat 26 feet long and of a type similar to the small fishing boats now used in this vicinity is just what is needed for the Columbia River. The board further recommends that a sum of money not to exceed \$2,500 be allotted the Harbor Defense for this purpose.

i. Land Requirements.

There are no land requirements for the underwater defense Project.

j. Mooring Basin.

Authorized

Under construction immediately behind the loose stone seawall at the mine wharf.

Funds have been allotted to dredge a basin for small mine boats (see reference paragraph 26 above).

For general location see Exhibit B-1.

k. Boat House.

Authorized

Existing

Adequate

The boat house is a corrugated iron siding structure, located at the land end of the mine wharf. Shelter for four mine yawls is provided. The yawls are moved to and from their place of launching by means of boat cars. This is a very slow process at its best and is unsatisfactory. The proposed mooring basin with its design, location and layout will provide proper launching facilities for the mine yawls.

l. Mine Storeroom.

Authorized

Existing

Not adequate. An additional new structure now under construction.

Funds have been allotted to construct a new mine storeroom. (See reference paragraph 26 above).

For general location see Exhibit B-1.

m. Locomotives and Flat Cars.

Authorized

To be procured. Two (2) locomotives purchased and on hand.

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Harbor Defenses of the Columbia

Funds have been allotted to purchase two (2) 4-ton locomotives and four (4) flat cars (see reference paragraph 26 above).

n. Listening Posts.

Authorized

To be constructed.

o. Life Rafts for DB Boat.

The board recommends a rubber or tank type life raft be supplied for each DB boat.

27. COST ESTIMATE AND PRIORITY GUIDE.

See Exhibit D-1.

For Mine Installations sketch see Exhibit D-2.

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Harbor Defenses of the Columbia

SECTION "E"

ANTIAIRCRAFT ARTILLERY

~~S E C R E T~~

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Harbor Defenses of the Columbia

EXHIBITS - SECTION "E"

ANTI-AIRCRAFT ARTILLERY

Exhibit No.

Title

E-1	AA Gun Defense, Batteries by Priorities, Harbor Defenses of the Columbia.
E-2	Proposed AASL Defense, Harbor Defenses of the Columbia.
E-3	AA OP'S, Harbor Defenses of the Columbia.
E-4	Cost Estimate and Priority Guide, Automatic Weapons.

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Harbor Defenses of the Columbia

SECTION "E"

ANTIAIRCRAFT ARTILLERY

28. ANTIAIRCRAFT GUN DEFENSE.

a. There are no existing 3-inch fixed AA batteries in the current project of this Harbor Defense and none are authorized.

b. The board believes that six (6) units of mobile AA gun batteries are necessary to furnish a reasonable AA gun defense for the Harbor Defense installations. In arriving at this solution the board assumed that the antiaircraft protection of important adjacent establishments, such as the Tongue Point Naval Base, Astoria Docks, etc., outside of the limits of the Harbor Defense military reservation, will be a function of the mobile force.

c. For disposition of AA gun defense recommended by the board, see Exhibit E-1.

d. No antiaircraft gun ammunition storage facilities were considered as the board believes the ammunition supply of these AA mobile units to be a function of the Fourth Army.

29. ANTIAIRCRAFT SEARCHLIGHT DEFENSE.

a. Since six (6) AA gun batteries (number in two (2) AA regiments) are considered essential to provide a reasonable defense and since it is advisable not to break up tactical units, the board believes that the thirty (30) AA searchlights of two (2) AA regiments will afford the necessary AA searchlight defense.

b. For disposition of AA searchlight defense recommended by the board, see Exhibit E-2.

30. AA AUTOMATIC WEAPONS DEFENSE.

a. The local board assumes that the present authorized allowance of twelve (12) 50 caliber machine guns and twelve (12) 37mm AA guns will not be reduced under the modernization program. The use of the above authorized weapons will not afford a reasonable defense for the Harbor Defense installations under the modernization program. The additional automatic weapons (six (6) 37mm gun batteries and two (2) .50 caliber MG batteries) in two (2) AA regiments are believed necessary to afford a reasonable and adequate area defense for the Harbor Defense installations.

b. The board recommends that these automatic weapons be distributed as follows:

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Harbor Defenses of the Columbia

AA AUTOMATIC WEAPONS

Recommended Initial Locations

Location	Installations to be Protected	Number of	
		37mm Guns	Cal. .50 MGs
<u>Fort Canby Area</u>			
Vicinity Loc. No. 1	Searchlights	-	2
Vicinity Loc. No. 2	Base end stations; searchlights	4	4
Fort Canby Area including Loc. Nos. 3, 4, and 5	Batteries; S. L.; HDCP; SWB Room	18	12
<u>Fort Columbia Area</u>			
Vicinity Loc. No. 7	Command and base end stations	4	6
Vicinity Loc. No. 6	Base end station	-	2
Vicinity Loc. No. 8 Fort Columbia	Casemate; SWB Room; Battery S. L.s; Base end stations	10	8
<u>Fort Stevens Area</u>			
Fire Control Hill	Base end stations; searchlights	4	4
Vicinity Loc. Nos. 15, 16, and 17	Base end stations; searchlights	-	4
Fort Stevens proper	Wharf; FC SWB room; battery; searchlights; loading room; base end stations.	20	16
	Mine Planter	-	2
TOTALS		60*	60*

Note: These totals include forty-eight (48) 37mm guns and forty-eight (48) .50 caliber MG in two (2) AA regiments, and twelve (12) 37mm guns and twelve (12) .50 caliber MG authorized in present project.

c. Ammunition allowance for the authorized automatic weapons:

Weapons	Battle Allowance	Place of		Required
		Storage	On Hand	
12 - .50 cal. MG	12 (7200) = 86,400	See Note	None	See Note No. 2
12 - 37mm guns	12 (1980) = 23,760	No. 1	None	See Note No. 2

Note 1: The magazines of existing seacoast batteries "No longer required" are adequate for storage of this ammunition.

Note 2: There is none of this equipment or ammunition on hand.

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Harbor Defenses of the Columbia

31. The requirements for the Harbor Defense Antiaircraft Intelligence Service are as described below and as shown on Exhibit E-3.

a. The AAIS for the Harbor Defense will provide for the simultaneous alerting of all elements of the defense concerned. Each fort will be furnished a siren or sirens to alert all AA elements located on that fort. All three sirens are now so connected that all three can be sounded at the same time from any one of the three forts.

b. The AAIS center will be located at the HDCP, Fort Canby, Washington. This station will be connected directly by telephone with the AWS center at Portland, Oregon. This service is now in operation with two direct lines connected with the AWS at Portland to the HDCP at Fort Stevens, Oregon.

c. The AAIS OP'S are as shown on Exhibit E-3. These OP'S will be connected directly by telephone with the AAIS center at HDCP.

d. Extra telephone pairs will be provided at project battery base end stations, BC's, HDCP, et cetera, in order that Army Mobile Units for this area may tie in with the local AAIS center.

32. COST ESTIMATE AND PRIORITY GUIDE.

See Exhibit E-4.

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Harbor Defenses of the Columbia

SECTION "F"
SUPPORTING AIRCRAFT

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Harbor Defenses of the Columbia

EXHIBITS - SECTION "F"

SUPPORTING - AIRCRAFT

Exhibit No.

Title

F-1

Local Landing Fields, Vicinity Harbor Defenses of the
Columbia.

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Harbor Defenses of the Columbia

SECTION "F"

SUPPORTING AIRCRAFT

33. MISSION AND REQUIREMENTS.

a. As there will be three long range gun batteries (6" BC) with a maximum range of 27,000 yards, in the Harbor Defense after the modernization program is completed, supporting aircraft will be required to supplement terrestrial observation and furnish surveillance of defensive coastal areas. One observation flight (six airplanes) is sufficient to meet these requirements.

b. Landing fields (exhibit F-1).

(1) Ilwaco Airport. This airport is located at Ilwaco, Washington, on the North side of the mouth of the Columbia River. It has a runway 2,000 feet in length, rock surfaced, and with clear approaches. There is a one plane hangar. Meteorological conditions: periodical fog, heavy rains in rainy season (October to April), occasional snow.

(2) Astoria Airport. This airport is located West of Astoria, Oregon, approximately seven miles from Fort Stevens. The field is now under repair and rehabilitation with date of completion set for February 19, 1942. When completed, the field will have three runways: The first a NW-SE runway 4,000 feet long, 500 feet wide with a center paved strip 150 feet wide, the second a NE-SW runway, 4,400 feet long, 500 feet wide with a center paved strip 150 feet wide, and the third an EW runway 5,800 feet long, 500 feet wide with no paved center strip. Hangar facilities will consist of a small building capable of housing four small planes. Meteorological conditions: same as Ilwaco Airport.

(3) Camp Clatsop Landing Field. It is located about eight miles South of Fort Stevens, it has one runway 4,500 x 400 feet, with a N-S direction. Meteorological conditions: same as Ilwaco Airport. Landing field is not useable at the present time as barbed wire entanglements crisscross the field.

(4) Naval Air Base at Tongue Point. This is a Navy air base located at Tongue Point near Astoria, Oregon. It has facilities for landing of seaplanes only.

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Harbor Defenses of the Columbia

SECTION "G"

GAS DEFENSE

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Harbor Defenses of the Columbia

EXHIBITS - SECTION "G"

GAS DEFENSE

Exhibit No.

Title

G-1

Cost Estimate and Priority Guide - Gas Defense.

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Harbor Defenses of the Columbia

SECTION "G"

GAS DEFENSE

34. a. For the three new project batteries in the modernization program, provision is made in this project for the complete gas-proofing of the plotting rooms, latrines and a large rest room. Aid Stations are to be established in the rest rooms.

b. For personnel outside of gas-proofed rooms, reliance is placed on gas masks, protective clothing and decontamination of personnel, structures, and areas.

c. The HDCP, Fort Switchboard Rooms, Mine Casemate and the Mine Plotting Room will also be provided with standard gas-proofing installations. It is not contemplated that collective protectors will be provided for batteries to be eliminated under the modernization program.

d. The estimate of cost includes the use of decontaminating apparatus and materials, for each battery as follows:

2 sets of 3-gallon hand demustardizing apparatus
of the pressure type.

One ton of demustardizing agent (chloride of lime)
3750 pounds of acetylene tetrachloride.

35. COST ESTIMATE AND PRIORITY GUIDE.

See Exhibit G-1.

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Harbor Defenses of the Columbia

SECTION "H"

LAND REQUIREMENTS

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Harbor Defenses of the Columbia

EXHIBIT - SECTION "H"

LAND REQUIREMENTS

Exhibit No.

Title

H-1	Summary of Land Requirements Recommended and Cost.
H-2	Proposed Land Requirement East of Camp Clatsop.
H-3	Columbia Beach Land Map.
H-4	North of North Head Land Map. Belview State Park, Washington.

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Harbor Defenses of the Columbia

Location No. 17

PRELIMINARY DATA FOR PROPOSED LAND REQUIREMENTS

1. For installation of Base end station.
B₃¹ S₄¹; B₂⁵ S₂⁵; B₁⁵ S₁⁵; AAISOP No. 18
2. Place (local name) East of Camp Clatsop.
Town, Near Warrenton, County - Clatsop, State - Oregon.
3. Owner: Name - John C. Smith Estate.
Address - Warrenton, Oregon.
4. Area to be acquired - 40 acres.
5. Site is part of: Farm? No. Summer Estate? No.
6. Site is: Developed? No. Undeveloped? Yes.
7. Active shore lot development? No. Inactive? Yes.
8. Does site include buildings? No.
9. Is site contiguous to public road? Yes.
10. Is easement required for right of way? No.
11. Is easement required for cable? No.
12. Assessed value of land. \$29.00 per acre. Buildings? None.
13. Estimated purchase cost of land. \$2,000.
14. Estimated cost of right of way. None.
15. Estimated cost of cable easement. None.
16. Estimated cost of removal of utilities. None.
17. Estimated cost of taking survey. \$300.
18. Estimated cost of legal transfer. \$100.
19. Total estimated cost of site. \$2,400.
20. Do you believe condemnation proceedings necessary? No.

A D D E N D A

The Board urgently recommends the adoption of items under paragraphs 5 c and d of these proceedings. The board is in unanimous agreement that the armament would not be capable of withstanding aerial attack, without these items of protection, and the cost of the installations contained in these proceedings would thereby become a gross waste of public funds.

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S E C R E T

Harbor Defenses of the Columbia

The board adjourned January 17, 1942, to meet at the call of the President.

Clifton M. Irwin
CLIFTON M. IRWIN,
Colonel, Coast Artillery Corps,
President.

C. R. Moore
C. R. MOORE,
Colonel, Corps of Engineers,
Member.

K. Rowntree
K. ROWNTREE,
Lieutenant Colonel, 18th Coast Artillery,
Member.

Porter T. Gregory
PORTER T. GREGORY,
Major, 18th Coast Artillery,
Member.

Charles J. Olvis
CHARLES J. OLVIS,
Major, 249th Coast Artillery,
Recorder.

S E C R E T

S E C R E T

Harbor Defenses of the Columbia

Exhibits - Coast Estimates and Priority Guides

- A-7 - Cost Estimate and Priority Guide - Par 1-11 Incl.
- B-3 - Cost Estimate and Priority Guide (FC arranged by Location)
- B-20- Cost Estimate and Priority Guide (FC by Battery)(Btry Const. No.245)
- B-21- Cost Estimate and Priority Guide (FC by Battery)(Btry Const. No.246)
- B-22- Cost Estimate and Priority Guide (FC by Battery)(Btry Const. No.247)
- B-23- Cost Estimate and Priority Guide (FC by Battery)(Mine Battery) .
- B-24- Cost Estimate and Priority Guide (FC-HD Requirements other than
Battery Requirements)
- B-25- Cost Estimate and Priority Guide (Cable Requirements)
- C-3 - Cost Estimate and Priority Guide - Seacost Searchlights
- D-1 - Cost Estimate and Priority Guide - Underwater Defenses
- E-4 - Cost Estimate and Priority Guide - Automatic Weapons
- G-1 - Cost Estimate and Priority Guide - Gas Defense
- H-1 - Summary of Land Procurement and Cost

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Harbor Defenses of the Columbia

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RECAPITULATION - TOTAL COST - MODERNIZATION PROGRAM

Exhibit	Engineer	Ordnance	Signal	Q.M.	C.A.	C.M.S.	Total
A-7	\$456,100	\$450,000					\$906,100
B-3	305,625						305,625
B-20		61,154	\$5,031				66,185
B-21		58,904	5,031				63,935
B-22		64,529	4,829				69,358
B-23		13,985	400				14,385
B-24		6,437	6,907				13,344
B-25			93,185				93,185
G-3	75,000		1,806				76,806
D-1	-----*			\$2,650*	-----*		2,650*
E-4		291,468	888				292,356
G-1	9,000					\$38,845	47,845
H-1	2,400						2,400
	\$848,125*	\$946,477	\$118,077	\$2,650*	-----*	\$38,845	\$1,954,174*

*Note - * Indicates estimate incomplete. Additional costs must be supplied by Chief of Branch concerned.

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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

For all items covered in Par 1-12 incl.

Pri- or- ity	Item No.	Description of Project	Ordnance	ENGINEER		TOTAL
				Material	Labor	
		<u>Btry. No. 1- Const. No.</u> <u>247-Ft. Canby</u>	\$150,000	\$ 61,500	\$90,000	\$301,500
1	1	Engineer: Two emplacements Labor - \$90,000 Material - 60,000 *Total - \$150,000 Camouflage Materials - \$1,500.				
1	2	Ordnance: Two Guns No cost Two Carriages \$150,000.				
		<u>Btry. No. 2- Const. No.</u> <u>246-Ft. Columbia</u>	150,000	61,500	90,000	301,500
3	1	Engineer: Same as Btry. No. 1				
3	2	Ordnance: Same as Btry. No. 1				
		<u>Btry. No. 3- Const. No.</u> <u>245-Ft. Stevens</u>	150,000	61,500	90,000	301,500
2	1	Engineer: Same as Btry. No. 1				
2	2	Ordnance: Same as Btry. No. 1				
		<u>H D Ammunition Storage</u> <u>Mag. - Ft. Stevens</u>		600	1,000	1,600
5	1	Engineer: Bombproof emplace- ments Btry. Lewis & Walker Labor \$1,000 Material 600 Total \$1,600				
TOTALS			\$450,000	\$185,100	\$271,000	\$906,100

* Note: Amounts above are based on the latest estimates by Local District Engineer of Portland, Oregon. This does not include cost of housing facilities for 4-officers and 90-enlisted men as recommended by the board.

Section A
Exhibit A - 7

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Harbor Defenses of the Columbia

SUMMARY - COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged by Location

Prio- rity	Item No.	Loca- tion No.	Description of Project	Material	Labor	Land	Total
1	3	2	Base end station See Ex. B-3 Pg. 2	\$ 3,120	\$ 2,880	----	\$ 6,000
1	4	3	EBC - Btry Const. No. 247 See Ex. B-3 Pg. 3	2,160	2,040	----	4,200
1	5	3-A	BC and Base end station See Ex. B-3 Pg. 4	3,120	2,880	----	6,000
5	5	4	Ft. Canby SWB Room See Ex. B-3 Pg. 5	14,000	12,000	----	26,000
5	2	5	H Station See Ex. B-3 Pg. 6	70,000	60,000	----	130,000
3 4	3-4 1	7	BC and Base end stations See Ex. B-3 Pg. 7	5,400	5,640	----	11,040
3 5	5 4	8	EBC - Btry 246 Ft. Col. SWB Room See Ex. B-3 Pg. 8	14,075	12,815	----	26,890
2 3	3-4 6	9	BC and Base end stations See Ex. B-3 Pg. 9	4,800	4,800	----	9,600
5	3	13	Ft. Stevens SWB Room See Ex. B-3 Pg. 10	25,545	23,900	----	49,445
2 3 1	5 7 6	14	Base end stations See Ex. B-3 Pg. 11	6,480	6,120	None	12,600
2 1	6 7	15	Base end stations See Ex. B-3 Pg. 12	5,280	4,920	None	10,200
1	8	17	Base end stations See Ex. B-3 Pg. 13	5,400	4,800	\$2,400	12,600
5	6 7 8	See Ex B-11	Datum Points See Ex. B-3 Pg. 14	600	450	None	1,050
Total Ex. B-3				\$159,980	\$143,245	\$2,400	\$305,625

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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

Arranged by Location

Location No. 2

Prior- ity	Item No.	Description of Project	Material	Labor	Land	Total
		B ₃ ⁷ S ₃ ⁷ Btry Const. No. 245				
		B ₂ ⁴ S ₂ ⁴ " " " 246				
		B ₁ ⁴ S ₁ ⁴ " " " 247				
<u>1</u>	<u>3</u>	Double Type manhole concrete structure	\$2600	\$2400	None	
		Contingency	520	480	----	\$6,000
		Remarks				
		AAIS OP #4 (on roof of manhole)	----	----	----	-----
Totals			\$3120	\$2880	None	\$6,000

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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged by Location

Location No. 3

Prior-ity	Item No.	Description of Project	Material	Labor	Land	Total
<u>1</u>	<u>4</u>	EBC Btry 247 Concrete manhole Contingency	\$1,800 360	\$1,700 340	None ----	\$4,200
		Remarks AAIS OP # 5 (on roof of manhole)	-----	-----	-----	-----

Totals	\$2,160	\$2,040	None	\$4,200
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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged by Location			Location No. 3A			
Prior- ity	Item No.	Description of Project	Material	Labor	Land	Total
1	5	BC-1 Btry 247				
		B ₁ ¹ S ₁ ¹ Btry 247				
		Concrete manhole	\$2,600	\$2,400	None	
		Contingency	520	480	----	\$6,000
Totals			\$3,120	\$2,880	None	\$6,000

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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged By Location		Location No. <u>4</u>				
Prior- ity	Item No.	Description of Project	Material	Labor	Land	Total
5	5	Fort Canby SWB Room-(Existing) Bomb and gasproof Includes contingency	\$14,000	\$12,000	None	\$26,000
Totals			\$14,000	\$12,000	None	\$26,000

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COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged By Location

Location No. 5

Prior-ity	Item No.	Description of Project	Material	Labor	Land	Total
5	2	H Station Concrete bomb and gas proof structure Includes contingency	\$70,000	\$60,000	None	\$130,000
		<u>Remarks</u> AAIS OP #6 (on roof-HDOP) Due to the topography of the ground at the approv- ed location for the HDCP the cost estimate exceeds the W.D. estimate for a similar structure.	-----	-----	----	-----

Totals	\$70,000	\$60,000	None	\$130,000
--------	----------	----------	------	-----------

S E C R E T

Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged By Location		Location No: 1				
Priority	Item No.	Description of Project	Material	Labor	Land	Total
3	3	BC-2 Btry 246 B ₂ ¹ S ₂ ¹ Btry 246 Concrete manhole Contingency	\$2,600 520	\$2,400 480	None ----	\$6,000
3	4	B ₃ ⁵ S ₃ ⁵ Splinter Proof existing station (Present B ₃ ² S ₃ ² Murphy) Contingency	700 140	800 160	None ----	1,800
4	1	M ₁ ¹ Splinter proof existing station Contingency	1,200 240	1,500 300	None ----	3,240
Totals			\$5,400	\$5,640	None	\$11,040

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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged By Location			Location No. 5			
Priority	Item No.	Description of Project	Material	Labor	Land	Total
3	5	EBC Btry 246 Emergency BC Station Concrete manhole Contingency	\$1,800 360	\$1,700 340	None ----	\$4,200
5	4	Fort Columbia SWB Room Bomb and gas proof Existing structure Contingency	10,850 1,065	9,775 1,000	None ----	22,690

Totals	\$14,075	\$12,815	None	\$26,890
--------	----------	----------	------	----------

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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged By Location		Location No. 9				
Prior-ity	Item No.	Description of Project	Material	Labor	Land	Total
2	3	BC-3 Btry 245 B $\frac{1}{2}$ S $\frac{1}{2}$ Btry 245 Station Concrete Cottage Contingency	\$2,600 520	\$2,400 480	None ----	\$6,000
2	4	EBC Btry 245 Build Platform on CG Tower and Splinterproof Contingency	700 140	800 160	None	1,800
3	6	B $\frac{6}{2}$ S $\frac{6}{2}$ Btry 246 Splinter proof present BC B $\frac{1}{6}$ S $\frac{1}{6}$ Pratt Contingency	700 140	800 160	None	1,800
Totals			\$4,800	\$4,800	None	\$9,600

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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged By Location		Location No. <u>13</u>				
Prior- ity	Item No.	Description of Project	Material	Labor	Land	Total
5	3	Fort Stevens S ^W B Room Bomb and gas proof existing structure Contingency	\$23,050 2,495	\$21,900 2,000	None ----	\$49,445
Totals			\$25,545	\$23,900	None	\$49,445

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COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged By Location Location No. 14

Prior-ity	Item No.	Description of Project	Material	Labor	Land	Total
2	5	B ₃ ² S ₃ ² Btry 245 Base end station Concrete manhole Contingency	\$1,800 360	\$1,700 340	None ----	\$4,200
3	7	B ₂ ² S ₂ ² Btry 246 Base end station Concrete manhole Contingency	1,800 360	1,700 340	None ----	4,200
1	6	B ₁ ² S ₁ ² Btry 247 Base end station Concrete manhole Contingency	1,800 360	1,700 340	None ----	4,200

Totals \$6,480 \$6,120 None \$12,600

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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged By Location		Location No. <u>15</u>				
Prior-ity	Item No.	Description of Project	Material	Labor	Land	Total
2	6	B ₃ ² S ₃ ² Btry 245 Base end station Concrete manhole Contingency	\$1,800 360	\$1,700 340	None ----	\$4,200
1	7	B ₂ ⁷ S ₂ ⁷ Btry 246 B ₁ ⁶ S ₁ ⁶ Btry 247 Base end station Double type Concrete manhole Contingency Remarks AAIS OP #16 (on roof of manhole)	2,600 520	2,400 480	None ----	6,000
Totals			\$5,280	\$4,920	None	\$10,200

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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged By Location

Location No. 17

Prior-ity	Item No.	Description of Project	Material	Labor	Land	Total
		B ₂ ⁴ S ₂ ⁴ Btry 245				
		B ₂ ⁵ S ₂ ⁵ Btry 246				
1	8	B ₁ ⁵ S ₁ ⁵ Btry 247				
		Steel Observation tower 2 deck for base end sta- tions	\$4,500	\$4,000	\$2,400	
		Contingency	900	800	-----	\$12,600
		Remarks				
		AAIS OP #18 (on roof of manhole)	-----	-----	-----	-----

Totals \$5,400 \$4,800 \$2,400 \$12,600

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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - ENGINEER

Arranged By Location		Location No. <u>None</u>				
Prior- ity	Item No.	Description of Project	Material	Labor	Land	Total
5		Datum Points				
	6	at Klipsan Beach, Wash.	\$200	\$150	None	\$350
	7	West Point, Wash.	200	150	None	350
	8	Peter Iredale	200	150	None	350
Totals			\$600	\$450	None	\$1,050

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Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - SIGNAL AND ORDNANCE

Arranged by Battery

Btry Const. No. 215

Priority	Item No.	Loca- tion No.	Description of Project	Ordnance	SIGNAL		Total
					Equip.	Labor	
2	7	9	BC-3 Ex. B-20 Pg. 2	\$ 110	\$1,145	\$ 172	\$ 1,427
2	8	9	EBC-3 Ex. B-20 Pg. 2	1,125	231	35	1,391
2	9	9	B ₃ ¹ S ₃ ¹ Ex. B-20 Pg. 2	1,125	176	26	1,327
2	10	9	Plotting Room Ex. B-20 Pg. 3	36,294	1,153	173	37,620
2	11	9	Gun Emplacement Ex. B-20 Pg. 3	See Ex A-7	616	92	708
2	12	15	B ₃ ² S ₃ ² Ex. B-20 Pg. 4	4,500	176	26	4,702
2	13	14	B ₃ ³ S ₃ ³ Ex. B-20 Pg. 4	4,500	176	26	4,702
2	14	17	B ₃ ⁴ S ₃ ⁴ Ex. B-20 Pg. 4	4,500	176	26	4,702
2	15	7	B ₃ ⁵ S ₃ ⁵ Ex. B-20 Pg. 5	4,500	176	26	4,702
2	16	5	B ₃ ⁶ S ₃ ⁶ Ex. B-20 Pg. 5	4,500	176	26	4,702
2	17	2	B ₃ ⁷ S ₃ ⁷ Ex. B-20 Pg. 5	-----	176	26	202
Totals				\$61,154	\$4,377	\$654	\$66,185

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Harbor Defenses of the Columbia

Location No. 9

Installations BC-3; EBC-3; B¹/₃ S¹/₃

SIGNAL and ORDNANCE EQUIPMENT

BC-3 Btry Const. No. 245

Signal Equipment:

8 - Telephone Box, EE 41	@ 30	\$240
6 - Head and Chest Set, HS17A ..	@ 25	150
2 - Hand Set, TS12A	@ 12	24
1 - Bell, T.I., MC153		11
1 - Telephone, Desk, Post System		20
1 - Radio Marine Telephone (SCR 281-A)		500
1 - Power Unit - PE-82-A for Radio SCR 281-A ...		200
		<u>\$1145</u>

Ordnance Equipment:

4 - Recorders, T.I.	@ 27.50	\$110
1 - Azimuth Instrument (on hand)		---
		<u>\$ 110</u>

EBC-3 Btry Const. No. 245

Signal Equipment:

4 - Telephones Box, EE91	@ 30	\$120
4 - Head and Chest Set, HS17A ..	@ 25	100
1 - Bell T.I., MC153		11
		<u>\$ 231</u>

Ordnance Equipment:

1 - Azimuth Instrument		\$1125
		<u>\$1125</u>

B¹/₃ S¹/₃ - Btry Const. No. 245

Signal Equipment:

3 - Telephones Box, EE91	@ 30	\$ 90
3 - Head and Chest Set HS17A ...	@ 25	75
1 - Bell T.I., MC153		11
		<u>\$176</u>

Ordnance Equipment:

1 - Azimuth Instrument		\$1125
		<u>\$1125</u>

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S E C R E T

Harbor Defenses of the Columbia

Location No. 9

Installations Plotting Room - Btry 245
Gun Emplacement - Btry 245

SIGNAL and ORDNANCE EQUIPMENT

Plotting Room - Btry Const. No. 245

Signal Equipment:

11 - Telephone Box EE91	@ 30	\$ 330
10 - Head and Chest Set HS17A ..	@ 25	250
1 - Hand Set TS12A		12
1 - Bell T.I., MC153		11
1 - Telephone, Wall, Post System		20
1 - SWB, BD95, (Cordless) 20 lines		300
1 - SWB, BD105, (Cordless) 12 lines		230
		<u>\$1153</u>

Ordnance Equipment:

1 - Director, Seacoast, Medium (6")	\$25,000
1 - Board, Adjustment Fire M-1	250
1 - Board, Range Correction M-1	900
1 - Board, Deflection M-1	1,800
1 - Board, Plotting M-3	6,000
1 - Board, Spotting M-2	1,950
1 - Corrector, Percentage, M-1	125
4 - Recorders, T.I.@ 27.50	110
1 - Rule, Set Forward	15
1 - Scale, Prediction	19
1 - Indicator, Wind Component	125
	<u>\$36,294</u>

Two Gun Emplacement - Btry Const. No. 245

Signal Equipment:

8 - Telephones Box, EE91	@ 30	\$240
6 - Head and Chest Sets, HS17A ..	@ 25	150
2 - Hand Sets, TS12A	@ 12	24
2 - Bells T.I., MC153	@ 11	22
8 - Boxes, Weatherproof, BE-63 (or equivalent).....	@ 20	160
1 - Telephone, Wall, Post System		20
		<u>\$616</u>

S E C R E T

Harbor Defenses of the Columbia

Location No. See Below

Installations B²₃ S²₃; B³₃ S³₃; B⁴₃ S⁴₃

SIGNAL and ORDNANCE EQUIPMENT

B²₃ S²₃ - Btry Const. No. 245. Loc. No. 15

Signal Equipment:

3 - Telephones Box, EE91	@ 30	\$ 90
3 - Head and Chest Sets; HS17A .	@ 25	75
1 - Bell, T.I., MC153		11
		<u>176</u>

Ordnance Equipment:

1 - DPF M1 Class 1		\$4500
1 - Azimuth Instrument (on hand)		----
		<u>4500</u>

B³₃ S³₃ - Btry Const. No. 245. Loc. No. 14

Signal Equipment:

3 - Telephones Box EE91	@ 30	\$ 90
3 - Head and Chest Sets, HS17A .	@ 25	75
1 - Bell T.I., MC153		11
		<u>176</u>

Ordnance Equipment:

1 - DPF M1 Class 1		\$4500
1 - Azimuth Instrument (on hand)		----
		<u>4500</u>

B⁴₃ S⁴₃ - Btry Const. No. 245. Loc. No. 17

Signal Equipment:

3 - Telephones Box EE91	@ 30	\$ 90
3 - Head and Chest Sets, HS17A .	@ 25	75
1 - Bell T.I., MC153		11
		<u>176</u>

Ordnance Equipment:

1 - DPF M1 Class 4		\$4500
1 - Azimuth Instrument (on hand)		----
		<u>4500</u>

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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

Location No. See Below

Installations B₃ S₅; B₆ S₆; B₇ S₇

SIGNAL and ORDNANCE EQUIPMENT

B₃ S₅ - Btry Const. No. 245. Loc. No. 7

Signal Equipment:

3 - Telephones Box, EE91	@ 30	\$ 90
3 - Head and Chest Sets HS17A ..	@ 25	75
1 - Bell T.I., MC153		11
		<u>11</u>
		\$176

Ordnance Equipment:

1 - DPF M1 Class 4		\$4500
1 - Azimuth Instrument (on hand)		----
		<u>4500</u>
		\$4500

B₆ S₆ - Btry Const. No. 245. Loc. No. 5

Signal Equipment:

3 - Telephones Box, EE91	@ 30	\$ 90
3 - Head and Chest Sets HS17A ..	@ 25	75
1 - Bell T.I., MC153		11
		<u>11</u>
		\$176

Ordnance Equipment:

1 - DPF M1 Class 3		\$4500
1 - Azimuth Instrument (on hand)		----
		<u>4500</u>
		\$4500

B₇ S₇ - Btry Const. No. 245. Loc. No. 2

Signal Equipment:

3 - Telephones Box, EE91	@ 30	\$ 90
3 - Head and Chest Sets HS17A ..	@ 25	75
1 - Bell T.I., MC153		11
		<u>11</u>
		\$176

Ordnance Equipment:

2 - Azimuth Instrument (on hand)		\$---
		<u>---</u>
		\$---

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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - SIGNAL AND ORDNANCE

Arranged by Battery

Btry Const. No. 246

Priority	Item No.	Loca- tion No.	Description of Project	Ordnance	Signal		Total
					Equip	Labor	
3	8	7	BC-2 Ex. B-21 Pg. 2	\$ 110	\$1145	\$172	\$ 1,427
3	9	8	EBC-2 Ex. B-21 Pg. 2	-----	231	35	266
3	10	7	B ₂ ¹ S ₂ ¹ Ex. B-21 Pg. 2	-----	176	26	202
3	11	8	Plotting Room Ex. B-21 Pg. 3	36,294	1153	173	37,620
3	12	8	Gun Emplacement Ex. B-21 Pg. 3	See Ex. A-7	616	92	708
3	13	14	B ₂ ² S ₂ ² Ex. B-21 Pg. 4	5,625	176	26	5,827
3	14	5	B ₂ ³ S ₂ ³ Ex. B-21 Pg. 4	5,625	176	26	5,827
3	15	2	B ₂ ⁴ S ₂ ⁴ Ex. B-21 Pg. 4	2,250	176	26	2,452
3	16	17	B ₂ ⁵ S ₂ ⁵ Ex. B-21 Pg. 5	2,250	176	26	2,452
3	17	9	B ₂ ⁶ S ₂ ⁶ Ex. B-21 Pg. 5	1,125	176	26	1,327
3	18	15	B ₂ ⁷ S ₂ ⁷ Ex. B-21 Pg. 5	5,625	176	26	5,827
Totals				\$58,904	\$4377	\$654	\$63,935

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S E C R E T

Location No. See Below

Installations BC-2; EBC-2; B¹ S¹

SIGNAL and ORDNANCE EQUIPMENT

BC-2 - Btry Const. No. 246. Loc. No. 7

Signal Equipment:

8 - Telephones Box, EE91	@ 30	\$ 240
6 - Head and Chest Set, HS17A ..	@ 25	150
2 - Hand Set, TS12A	@ 12	24
1 - Bell T.I., MC153		11
1 - Telephone, Desk, Post System		20
1 - Radio Marine Telephone (SCR 281-A)		500
1 - Power Unit, PE-82-A, for Radio SCR-281-A ..		200
		<u> </u>
		\$1145

Ordnance Equipment:

4 - Recorders, T.I.	@ 27.50	\$ 110
1 - Azimuth Instrument (on hand)		---
		<u> </u>
		\$110

EBC-2 - Btry Const. No. 246. Loc. No. 8

Signal Equipment:

4 - Telephones Box, EE91	@ 30	\$120
4 - Head and Chest Set, HS17A ..	@ 25	100
1 - Bell T.I., MC153		11
		<u> </u>
		\$231

Ordnance Equipment:

1 - Azimuth Instrument (on hand)		\$ ---
		<u> </u>
		\$----

B¹ S¹ - Btry Const. No. 246. Loc. No. 7

Signal Equipment:

3 - Telephones Box, EE91	@ 30	\$ 90
3 - Head and Chest Set, HS17A ..	@ 25	75
1 - Bell T.I., MC153		11
		<u> </u>
		\$176

Ordnance Equipment:

1 - Azimuth Instrument (on hand)		\$---
		<u> </u>
		\$---

S E C R E T

Harbor Defenses of the Columbia

Location No. 8

Installations Plotting Room Btry 246
Gun Emplacement Btry 246

SIGNAL and ORDNANCE EQUIPMENT

Plotting Room - Btry Const. No. 246

Signal Equipment:

11 - Telephones Box, EE91	@ 30.....	\$ 330
10 - Head and Chest Set, HS17A ..	@ 25	250
1 - Hand Set TS12A		12
1 - Bell T.I., MC153		11
1 - Telephone, Wall, Post System		20
1 - SWB, BD95, (cordless) 20 lines		300
1 - SWB, BD105, (cordless) 12 lines		230
		<u>\$1153</u>

Ordnance Equipment:

1 - Director, Seacoast, Medium (6")		\$25,000
1 - Board, Adjustment Fire, M-1		250
1 - Board, Range Correction, M-1		900
1 - Board, Deflection, M-1		1,800
1 - Board, Plotting, M-3		6,000
1 - Board, Spotting, M-2		1,950
1 - Corrector, Percentage, M-1		125
4 - Recorders, T.I.	@ 27.50	110
1 - Rule, Set Forward		15
1 - Scale, Prediction		19
1 - Indicator, Wind Component		125
		<u>\$36,294</u>

Two Gun Emplacement - Btry Const. No. 246

Signal Equipment:

8 - Telephones Box, EE91	@ 30	\$240
6 - Head and Chest Sets HS17A ..	@ 25	150
2 - Hand Sets, TS12A	@ 12	24
2 - Bells T.I., MC153	@ 11	22
8 - Boxes, Weatherproof, BE63 (or equivalent	@ 20	160
1 - Telephone, Wall, Post System		20
		<u>\$616</u>

Section B
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S E C R E T

Location No. See Below

Installations B₂² S₂²; B₂³ S₂³; B₂¹ S₂¹

SIGNAL and ORDNANCE EQUIPMENT

B₂² S₂² - Btry Const. No. 246. Loc. No. 14

Signal Equipment:

3 - Telephones Box, EE91	@ 30	\$ 90
3 - Head and Chest Sets, HS17A ..	@ 25	75
1 - Bell T.I., MC153		11
		<u>176</u>

Ordnance Equipment:

1 - DPF M1 Class 1	\$4500
1 - Azimuth Instrument	1125
	<u>\$5625</u>

B₂³ S₂³ - Btry Const. No. 246. Loc. No. 5

Signal Equipment: - Same as B₂² S₂² above \$176

Ordnance Equipment:

1 - DPF M1 Class 4	\$4500
1 - Azimuth Instrument	1125
	<u>\$5625</u>

B₂¹ S₂¹ - Btry Const. No. 246. Loc. No. 2

Signal Equipment: - Same as B₂² S₂² above \$176

Ordnance Equipment:

2 - Azimuth Instruments	@1125	\$2250
		<u>\$2250</u>

Location No. See Below

Installations B₂⁵ S₂⁵; B₂⁶ S₂⁶; B₂⁷ S₂⁷

SIGNAL and ORDNANCE EQUIPMENT

B₂⁵ S₂⁵ - Btry Const. No. 246. Loc. No. 17

Signal Equipment:

3 - Telephones Box, BE91	@ 30	\$ 90
3 - Head and Chest Set, HS17A ...	@ 25	75
1 - Bell T.I., MC153		11
		<u>\$176</u>

Ordnance Equipment:

2 - Azimuth Instruments	@1125	\$2250
		<u>\$2250</u>

B₂⁶ S₂⁶ - Btry Const. No. 246. Loc. No. 9

Signal Equipment: - Same as B₂⁵ S₂⁵ above

\$176

Ordnance Equipment:

1 - DPF (on hand)		\$----
1 - Azimuth Instrument		1125
		<u>\$1125</u>

B₂⁷ S₂⁷ - Btry Const. No. 246. Loc. No. 15

Signal Equipment: - Same as for B₂⁵ S₂⁵ above

\$176

Ordnance Equipment:

1 - DPF M1 Class 1		\$4500
1 - Azimuth Instrument		1125
		<u>\$5625</u>

S E C R E T

Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - SIGNAL and ORDNANCE

Arranged by Battery

Btry Const. No. 247

Priority	Item No.	Loca- tion No.	Description of Project	Ordnance	Signal		Total
					Equip.	Labor	
1	9	3A	BC-1 Ex. B-22 Pg. 2	\$ 1,235	\$1,145	\$172	\$ 2,322
1	10	3	EBC-1 Ex. B-22 Pg. 2	1,125	231	35	1,391
1	11	3A	B ₁ ¹ S ₁ ¹ Ex. B-22 Pg. 2	4,500	176	26	4,702
1	12	3	Plotting Room Ex. B-22 Pg. 3	36,294	1,153	173	37,620
1	13	3	Gun Emplacement Ex. B-22 Pg. 3	See Ex. A-7	616	92	708
1	14	14	B ₁ ² S ₁ ² Ex. B-22 Pg. 4	5,625	176	26	5,827
1	15	5	B ₁ ³ S ₁ ³ Ex. B-22 Pg. 4	5,625	176	26	5,827
1	16	2	B ₁ ⁴ S ₁ ⁴ Ex. B-22 Pg. 4	5,625	176	26	5,827
1	17	17	B ₁ ⁵ S ₁ ⁵ Ex. B-22 Pg. 5	2,250	176	26	2,452
1	18	15	B ₁ ⁶ S ₁ ⁶ Ex. B-22 Pg. 5	2,250	176	26	2,452
Totals				\$64,529	\$4,201	\$628	\$69,358

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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

Location No. See Below

Installations BC-1; EBC-1; B₁¹ S₁¹

SIGNAL and ORDNANCE EQUIPMENT

BC+1 Btry Const. No. 247. Loc. No. 3A

Signal Equipment:

8 - Telephones Box, EE91	@ 30	\$ 240
6 - Head and Chest Set, HS17A ..	@ 25	150
2 - Hand Set, TS12A	@ 12	24
1 - Bell T.I., MC153		11
1 - Telephone, Desk, Post System		20
1 - Radio Marine Telephone (SCR-281-A)		500
1 - Power Unit PE-82-A for Radio SCR 281-A		200
		<u>\$1145</u>

Ordnance Equipment:

4 - Recorders, T.I.	@27.50	\$ 110
1 - Azimuth Instrument		1125
		<u>\$1235</u>

EBC-1 - Btry Const. No. 247. Loc. No. 3

Signal Equipment:

4 - Telephones Box, EE91	@ 30	\$120
4 - Head and Chest Set, HS17A ..	@ 25	100
1 - Bell T.I., MC153		11
		<u>\$231</u>

Ordnance Equipment:

1 - Azimuth Instrument		\$1125
		<u>\$1125</u>

B₁¹ S₁¹ - Btry Const. No. 247. Loc. No. 3A

Signal Equipment:

3 - Telephones Box, EE91	@ 30	\$ 90
3 - Head and Chest Set HS17A ...	@ 25	75
1 - Bell T.I., MC153		11
		<u>\$176</u>

Ordnance Equipment:

1 - DPF M1 Class 3		\$4500
		<u>\$4500</u>

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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

Location No. 3

Installations Plotting Room Btry 247
Gun Emplacement Btry 247

SIGNAL and ORDNANCE EQUIPMENT

Plotting Room - Btry Const. No. 247

Signal Equipment:

11 - Telephones Box, EE91	@ 30	\$ 330
10 - Head and Chest Set, HS17A ..	@ 25	250
1 - Hand Set, TS12A		12
1 - Bell T.I., MC153		11
1 - Telephone, Wall, Post System		20
1 - SWB, BD95, (cordless) 20 lines		300
1 - SWB, BD105, (cordless) 12 lines		230
		<u>\$1153</u>

Ordnance Equipment:

1 - Director, Seacoast, Medium (6")		\$25,000
1 - Board, Adjustment Fire, M-1		250
1 - Board, Range Correction, M-1		900
1 - Board, Deflection, M-1		1,800
1 - Board, Plotting, M-3		6,000
1 - Board, Spotting, M-2		1,950
1 - Corrector, Percentage, M-1		125
4 - Recorders, T.I.	@27.50	110
1 - Rule, Set Forward		15
1 - Scale, Prediction		19
1 - Indicator, Wind Component		125
		<u>\$36,294</u>

Two Gun Emplacement - Btry Const. No. 247

Signal Equipment:

8 - Telephones Box, EE91	@ 30	\$240
6 - Head and Chest Sets, HS17A ..	@ 25	150
2 - Hand Sets, TS12A	@ 12	24
2 - Bells, T.I., MC153	@ 11	22
8 - Boxes, Weatherproof, BE63		
	(or Equivalent)..... @ 20	160
1 - Telephone, Wall, Post System		20
		<u>\$616</u>

Location No. See Below

Installations B₁² S₁²; B₁³ S₁³; B₁⁴ S₁⁴

SIGNAL and ORDNANCE EQUIPMENT

B₁² S₁² - Btry Const. No. 247. Loc. No. 14

Signal Equipment:

3 - Telephones Box, EE91	@ 30	\$ 90
3 - Head and Chest Sets, HS17 ..	@ 25	75
1 - Bell, T.I., MC153		11
		<u>\$176</u>

Ordnance Equipment:

1 - DPF M1 Class 1	\$4500
1 - Azimuth Instrument	1125
	<u>\$5625</u>

B₁³ S₁³ - Btry Const. No. 247. Loc. No. 5

<u>Signal Equipment:</u> - Same as B ₁ ² S ₁ ² above	\$----
	<u>\$176</u>

Ordnance Equipment:

1 - DPF M1 Class 4	\$4500
1 - Azimuth Instrument	1125
	<u>\$5625</u>

B₁⁴ S₁⁴ - Btry Const. No. 247. Loc. No. 2

<u>Signal Equipment:</u> - Same as for B ₁ ² S ₁ ² above	\$----
	<u>\$176</u>

Ordnance Equipment:

1 - DPF M1 Class 3	\$4500
1 - Azimuth Instrument	1125
	<u>\$5625</u>

Location No. See Below

Installations B₁⁵ S₁⁵; B₁⁶ S₁⁶

SIGNAL and ORDNANCE EQUIPMENT

B₁⁵ S₁⁵ - Btry Const. No. 247. Loc. No. 17

Signal Equipment:

3 - Telephones, Box, EE91	@ 30	\$ 90
3 - Head and Chest Sets, HS17A .	@ 25	75
1 - Bell T.I., MC153		11
		<u>\$176</u>

Ordnance Equipment:

2 - Azimuth Instruments	@1125	\$2250
		<u>\$2250</u>

B₁⁶ S₁⁶ - Btry Const. No. 247. Loc. No. 15

Signal Equipment: - Same as for B₁⁵ S₁⁵ above

		\$----
		<u>\$176</u>

Ordnance Equipment:

2 - Azimuth Instruments	@1125	\$2250
		<u>\$2250</u>

S E C R E T

Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

SIGNAL AND ORDNANCE EQUIPMENT

Priority	Item No.	Location No.	Description of Project	Ordnance	<u>Mine Battery</u>		Total
					SIGNAL Equip.	Labor	
4	2	7	M ₄ Ex. B-23 Pg. 2	\$1,235	\$200	---	\$1,435
4	3	6	M ₄ Ex. B-23 Pg. 2	5,625	---	---	5,625
4	4	10	M ₄ Ex. B-23 Pg. 3 Plotting Room	1,125	200	---	1,325
4	5	7	Ex. B-23 Pg. 3	6,000	---	---	6,000
Totals				\$13,985	\$400	None	\$14,385

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S E C R E T

S E C R E T

Location No: See Below

Harbor Defenses of the Columbia

Installations M₁; M₂ (Mines)

SIGNAL AND ORDNANCE EQUIPMENT

M₁¹ - Mines Loc. No. 7 - Mine Command

Signal Equipment:

5 - Telephones Box, EE 91 - on hand
3 - Head and Chest Set, HS17A - on hand
2 - Hand Set, TS12A - on hand
1 - Bell T.I., MC153 - on hand
1 - Telephone, Wall, Post System - on hand
1 - Radio Marine Telephone (SCR-281-A) on hand
1 - Power Unit PE-82-A for Radio SCR-281-A-----\$200

\$200

Ordnance Equipment:

4 - Recorders T.I.-----@27.50-----\$ 110
1 - Azimuth Instrument----- 1,125
1 - D.P.F. (on hand)-----

\$1,235

M₁² - Mines Loc. No. 6

Signal Equipment:

3 - Telephones Box, EE 91 -----on hand
3 - Head and Chest Set HS17A-----on hand
1 - Bell T.I., MC153-----on hand

None

Ordnance Equipment:

1 - D.P.F. M1 Class 6-----\$4,500
1 - Azimuth Instrument----- 1,125

\$5,625

S E C R E T

Location No. See Below

Harbor Defenses of the Columbia

Installations M₄³; Plotting Room
Mines

SIGNAL AND ORDNANCE EQUIPMENT

M₄³ - Mines Loc. No. 10 - Alternate Mine Command

Signal Equipment:

5 - Telephones Box, EE 91 - on hand
3 - Head and Chest Set, HS17A - on hand
1 - Bell T.I., MC153--on hand
2 - Hand Set, TS12A---on hand
1 - Telephone, Wall, Post System- on hand
1 - Radio Marine Telephone (SCR-281-A)-on hand
1 - Power Unit, PE-82-A for Radio SCR 281-A-----\$200

\$200

Ordnance Equipment:

1 - D.P.F. -----on hand
1 - Azimuth Instrument-----\$1,125

\$1,125

Plotting Room - Mines Loc. No. 7

Signal Equipment:

6 - Telephones Box, EE 91 -----on hand
5 - Head and Chest Sets, HS17A--on hand
1 - Hand Set, TS12A-----on hand
1 - Bell T.I., MC153-----on hand
1 - Telephone, Wall, Post System----on hand

None

Ordnance Equipment:

1 - Board Plotting, Mine-----\$6,000
4 - Recorders, T.I. (on hand)-----
1 - Rule Prediction, Mine (on hand)-----

\$6,000

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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

FIRE CONTROL - SIGNAL AND ORDNANCE

(H. D. Requirements Exclusive of Battery Requirements)

Priority	Item No.	Location No.	Description of Project	Ordnance	Signal Equip.	Labor	Total
5	9	5	HDCP Ex. B-24 Pg. 2	\$5,735	\$3,135	\$470	\$ 9,340
Radios for Mine Boats							
5	10	None	Ex. B-24 Pg. 3	---	600	---	600
See Ex. 18-AAIS-OP's							
5	11	E-4	Ex. B-24 Pg. 3	702	2,385	---	3,087
SWB-Room-Canby							
5	12	4	Ex. B-24 Pg. 4	---	275	42	317
SWB-Room-Columbia							
5	13	8	Ex. B-24 Pg. 5	---	---	---	---
SWB-Room-Stevens							
5	14	13	Ex. B-24 Pg. 6	---	---	---	---
Totals				\$6,437	\$6,395	\$512	\$13,344

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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

Location No. 5

Installations HDCP

SIGNAL AND ORDNANCE EQUIPMENT

H D C P

Signal Equipment:

26 - Telephones Box, EE 91-----@30-----	\$780
24 - Head and Chest Set, HS17A--@25-----	600
2 - Hand Set, TS12A-----@12-----	24
16 - Telephone, Desk, Post System--@20-----	320
1 - Radio Marine Telephone (SCR281A) onhand--	
1 - Bell T.I., MC153-----	11
4 - SWB, BD95 (Cordless) 20 lines @300--1,200	
1 - Radio Set, SCR, 32RA (on hand)-----	---
1 - Power Unit, PE-82-A for Radio	
SCR-281-A---	200

\$3,135

Ordnance Equipment:

1 - D.P.F., M-1 Class 4-----	\$4,500
1 - Azimuth Instrument-----	1,125
4 - Recorders T.I.-----@27.50-----	110

\$5,735

Section B
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S E C R E T

S E C R E T

Location No. See Below

Harbor Defenses of the Columbia

Installations See Below

SIGNAL AND ORDNANCE EQUIPMENT

Meteorological Station Loc. No. 10

Now in operation.
No equipment required.

L-64, L-75, Mine Planter

Signal Equipment:

3 - Radio Sets, SCR-281-A-----on hand ----\$---	
3 - Power Units, PE-82-A for Radio SCR-281-A	
@200-----\$600	
	<hr/>
	\$600

18-AAIS-OP's (See Ex. E-4)

Signal Equipment:

18 - Telephone, Portable EE-8---@29.70---\$533.00	
50 - Miles, Field Wire, W-110 on	
Reel DR-4 ($\frac{1}{2}$ mile lengths)-	
@37 per mile----- 1,850.00	
	<hr/>
	\$2,385.00

Ordnance Equipment:

18 - Field Glasses, EE 6-Power---@39---\$702	
	<hr/>
	\$702

Section B
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S E C R E T

S E C R E T

Location No. 4

Harbor Defenses of the Columbia

Installations SWB Room

Fort Canby, Wash.

SIGNAL AND ORDNANCE EQUIPMENT

Fort Canby SWB Room

Signal Equipment:

SWB, PBX, Post Telephone (on hand)	\$---
150 lines, 100 equipped. Trunks common battery 10 wired, 10 equipped.	
Storage Battery 24 V., 60 ampere hours (on shipping ticket)	---
Rectifier, Electron, for charging battery--	\$ 75
Frame, distributing, WE Co. 1423-C (on hand)	--
Power unit PE-78A-----	\$ 200
SWB-BD-74, combination B--(on hand)-----	--
SWB-BD-74, combination C--(on hand)-----	--
Panel (Dist. Frame) BD-75--(on hand)-----	--
Apparatus, T.I., EE-56--(on hand)-----	--
Storage Battery 30 V., 60 ampere hours (on hand)-----	--
Charger, Rectifier, electron tube 19-52 V, D.C. 3 amp. 115 V, 60 cycle (on hand)-----	--
Auxiliary source of charge	
Motor Generator DC-DC--(on hand)-----	--

\$275

Section B
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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

Location No. 8

Installations SWB Room
Fort Columbia, Wash.

SIGNAL AND ORDNANCE EQUIPMENT

Fort Columbia SWB Room

Signal Equipment:

SWB-BD-74, combination B----	(on hand)-----	\$ --
SWB-BD-74, combination C----	(on hand)-----	--
Panel-BD-75-----	(on hand)-----	--
Storage Battery, 30 V., 60 ampere hours	(on hand)-----	--
Apparatus, T.I., EE-56-----	(on hand)-----	--
Charger, Tungar 12 ampere, 6-65 V. DC	(on hand)-----	--
Auxiliary source of charge 1 motor	(on hand)-----	--
Generator DC-DC-----	(on hand)-----	--

¢ None

Section B
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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

Location No. 13

Installations S^wB Room

Fort Stevens, Oregon

SIGNAL AND ORDNANCE EQUIPMENT

Fort Stevens S^wB Room

Signal Equipment:

SWB, Kellogg - Capacity, 350 lines wired
200 equipped. Trunks, common battery,
10 wired, 5 equipped. Trunks, local
battery, 10 wired, 5 equipped, cords 32 pair
(on hand)-----\$ --
Storage battery, 24 V., 60 ampere hours Philco
(on hand)----- --
Charger for storage battery, Tungar, 3 amperes
(on hand)----- --
SWB-BD-74, combination A----- (on hand)----- --
SWB-BD-74, combination B----- (on hand)----- --
SWB-BD-74, combination C----- (on hand)----- --
Panel BD-75----- (on hand)----- --
Apparatus, T.I., EE-56----- (on hand)----- --
Storage battery, 30 V., 60 ampere hours, Exide
(on hand)----- --
Charger, WE & M Co. Rectogen (Tungar type)
12 amperes----- (on hand)----- --
Auxiliary sources of charge 1 motor Generator
AC-DC and 1 motor Generator DC-DC-- (on hand)-- --

⊘ None

Section B
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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

CABLE REQUIREMENTS
Fort Canby

Item	Priority	Description	Signal		
			Material	Labor	Total
	5	<u>Loc. No. 2 to MH "X" Canby</u>	\$2,302	\$1,152	\$3,454
		8300' LCA 25 pr. MH"11" to BC-1			
		800' LCA 25 pr.			
15		Total 9100' @ .22	\$2,002		
		Contingency 15%	300		
			\$2,302		
		Trenching etc. @ 11¢ ft.	\$1,001		
		Contingency 15%	150		
			\$1,152		
	5	<u>Btry. 247 MH "X" Canby</u>	\$154	\$72	\$226
		420' LCA 50 pr. @ .32	\$134		
		Contingency 15%	20		
			\$154		
16		Trenching etc. @ 15¢ ft.	\$63		
		Contingency	9		
			\$72		
	5	<u>MH "X" Canby to SWB Canby</u>	\$1,914	\$621	\$2,535
		5200' LCA 50 pr. @ .32	\$1,664		
		Contingency 15%	250		
			\$1,914		
17		Trenching etc. From MH "X" to MH 44 Duct to SWB	\$540		
		Contingency 15%	81		
			\$621		
	5	<u>MH "11" to MH "5" Canby</u>	\$405	---	\$405
		1100' LCA 50 pr. @ .32	\$352		
18		Contingency 15%	53		
			\$405		
		Trenching, none	---		
Totals			\$4,775	\$1,845	\$6,620

See Ex. B-18-Pg. 1

Section B
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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

CABLE REQUIREMENTS
Fort Columbia

Item	Priority	Description	Signal		Total
			Material	Labor	
19	5	BC Btry 246 to MH "3" Columbia	\$117	\$---	\$117
		680' LCA 10 pr. @ .15	\$102		
		Contingency 15%	15		
			\$117		
		Trenching etc. (Thru ducts)---no cost	---		
20	5	MH 19 to Btry 246 Columbia	\$110	\$52	\$162
		300' LCA 50 pr. @ .32	\$96		
		Contingency 15%	14		
			\$110		
		Trenching etc. @ 15¢ ft.	\$45		
		Contingency	7		
			\$52		
21	5	MH 19 to MH 25	\$129	---	\$129
		350' LCA 50 pr. @ .32	\$112		
		Contingency 15%	17		
			\$129		
		Trenching etc. (Thru ducts) - no cost	---		
22	5	SL #5 to MH28 Columbia	\$155	\$155	\$310
		900' LCA 10 pr. @ .15	\$135		
		Contingency 15%	20		
			\$155		
		Trenching etc. @ 15¢ ft.	\$135		
		Contingency 15%	20		
			\$155		
Totals			\$511	\$207	\$718

See Lx. B-18 Pg. 2

Section B
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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

CABLE REQUIREMENTS
Fort Stevens

Item	Priority	Description	Signal		Total
			Material	Labor	
23	5	Loc. No. 17 to 16 to 15	\$5,439	\$3,709	\$9,148
		21,500' LCA 25 prs. @ \$.22	\$4,730		
		Contingency 15%	709		
			\$5,439		
24	5	Loc. No. 15 to MH63 Stevens	\$7,544	\$2,593	\$10,137
		20,500' LCA 50 pr. @ .32	\$6,560		
		Contingency 15%	984		
			\$7,544		
25	5	Btry 245 to MH5 Stevens	\$773	\$207	\$980
		1,200' LCA 100 pr. @ .56	\$672		
		Contingency 15%	101		
			\$773		
26	5	MH4 to SWB Stevens	\$1,159	---	\$1,159
		1,800' LCA 100 pr. @ .56	\$1,008		
		Contingency 15%	151		
			\$1,159		
27	5	MH4 Stevens to SWB Canby	\$57,523	\$6,900	\$64,423
		61,000' Submarine, 100 pr. @ .82	\$50,020		
		Contingency 15%	7,503		
			\$57,523		
		Trenching, transportation, commercial vessel, etc.	\$6,000		
		Contingency 15%	900		
		\$6,900			

Note: This cable will be used as an alternate route in case other cables across river are out. Otherwise it's not needed.

Total (This Sheet)	\$72,438	\$13,409	\$85,847
Total Page 2	511	207	718
Total Page 1	4,775	1,845	6,620
Total Ex. B-25	\$77,724	\$15,461	\$93,185

See Ex, B-18 Pg. 3

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S E C R E T

S E C R E T

Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE
for
SEARCHLIGHTS

Priority	Item No.	Description of Project	ENGINEER		Signal	Total
			Material	Labor		
6	1	SL #1 and #2 See Ex. C-3 Pg. 2	---	---	220	220
-	-	SL #3, #4, #6, #7, #8 See Ex. C-3 Pg. 3	---	---	---	---
6	2	SL #5 See Ex. C-3 Pg. 4	2,000	1,500	---	3,500
6	3	SL #9, #10 See Ex. C-3 Pg. 5	4,000	3,500	---	7,500
6	4	SL #11, #12, #13, #14, #15, #16, #17 See Ex. C-3 Pg. 6	2,450	1,050	1,199	4,699
6	5	SL #18, #19, #20	60,350	150	387	60,887
Totals			68,800	6,200	1,806	76,806

S E C R E T

Harbor Defenses of the Columbia

S.L. No's 1 and 2

ENGINEER AND SIGNAL COSTS

Seacoast Searchlights

Engineer Equipment:

On hand - None required.

Engineer Construction:

Move Searchlights No.'s 1 and 2, Power Plant Equipment, and Controller Booths, from their present location on McKenzie Head to a position north of North Head.

This project has been approved and funds of \$11,000 have been provided. Now under construction.

Note: These lights will be located on land now property of the U.S. See letter reference par. 2t, these proceedings.

Signal Equipment:

4 - Telephones, Box, EE 91 @ \$30-----\$120
4 - Head and Chest Sets, HS17A @ \$25-----\$100

\$220

Section C
Exhibit C-3
Page 2 of 7 pages

S E C R E T

S E C R E T

Harbor Defenses of the Columbia

S.L. No's 3, 4, 6, 7, 8

ENGINEER AND SIGNAL COSTS

Seacoast Searchlights

Engineer Equipment:

On hand - None required.

Engineer Construction:

None required.

Signal Equipment:

On hand - None required.

Section C
Exhibit C-3
Page 3 of 7 pages

S E C R E T

S E C R E T

Harbor Defenses of the Columbia

S.L. No. 5

ENGINEER AND SIGNAL COSTS

Seacoast Searchlights

Engineer Equipment:

On hand - None required.

Engineer Construction:

Move Searchlight No. 5
and its allied equipment from
its present location to a po-
sition about 400 yards north-
west of Battery Murphy.

<u>Material</u>	<u>Labor</u>	<u>Total</u>
\$2,000	\$1,500	\$3,500

Signal Equipment:

On hand - None required.

Section C
Exhibit C-3
Page 4 of 7 pages

S E C R E T

S E C R E T

Harbor Defenses of the Columbia

S.L.'s No's 9 and 10

ENGINEER AND SIGNAL COSTS

Seacoast Searchlights

Engineer Equipment:

On hand - None required.

Engineer Construction:

Raise Searchlights 9 and 10,
30 feet in elevation by construction
of two wooden towers and placing of
searchlight shelters on top of each
tower.

<u>Material</u>	<u>Labor</u>	<u>Total</u>
\$4,000	\$3,500	\$7,500

Signal Equipment:

On hand - None required.

S E C R E T

S E C R E T

Harbor Defenses of the Columbia

S.L. No's 11, 12, 13, 14, 15, 16, 17

ENGINEER AND SIGNAL COSTS

Seacoast Searchlights

Engineer Equipment:

On hand .. None required.

Engineer Construction:

7 - Wooden Shed type Searchlight Shelters at S.L. position @\$500 each-----	\$3,500
(150 labor, 350 Materials)	<hr/>
	\$3,500

Signal Equipment:

7 - Telephone, Portable EE 8 @\$30-----	\$210
7 - Head and Chest Set, HS17A @\$25-----	175
22 - Miles, Field wire, W-110 on Reel DR 4 ($\frac{1}{2}$ mile lengths)-----@ \$37 per mile-----	814
	<hr/>
	\$1,199

Section C
Exhibit C-3
Page 6 of 7 pages

S E C R E T

S E C R E T

Harbor Defenses of the Columbia

S.L. No's 18, 19, 20

ENGINEER AND SIGNAL COSTS

Seacoast Searchlights

Engineer Equipment:

3 - Portable Searchlights (AA Type) with
power plants, control stations, and
shelter-----@ \$20,000-----\$60,000
\$60,000

Engineer Construction:

1 - Wooden shed type searchlight shelter
at S.L. position (\$150 labor, \$360
materials)-----\$500
\$500

Signal Equipment:

3 - Telephones, Portable, EE 8---@ \$30-----\$90
3 - Head and Chest Sets, HS17A---@ 25----- 75
6 - Miles, Field Wire, W-110 on Reel DR 4
($\frac{1}{2}$ mile length)---@ \$37 per mile----- 222
\$387

Section C
Exhibit C-3
Page 7 of 7 pages

S E C R E T

S E C R E T

Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

UNDERWATER DEFENSES

Item	Priority	Description	Quarter- master	Engi- neer	Coast Artillery	Total
6	4	1 - Mine Yawl	\$2,500	\$---	\$---	\$2,500
7	4	1 - Mine Planter (Cost not available)	----			
8	4	Listening Post No. 1 (Cost not available)		----		
9	4	Listening Post No. 2 (Cost not available)		----		
10	4	10 - Ground mines, complete for two channels 600 feet each (Cost not available)			----	
11	4	1 - Life rafts for DB Boat	150			150
TOTALS			\$2,650*	----	----	\$2,650*

* Indicates incomplete - additional costs must be supplied by Chief of Branch concerned.

Section D
Exhibit D-1

S E C R E T

S E C R E T

Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

Automatic Weapons * Ordnance and Signal

Item	Priority	Description	Ordnance	Signal	Total
1	7	<u>Ordnance</u>			
		12 - Guns, 37 mm complete with mounts @ \$20,000	\$240,000		\$240,000
		6 - Sets, control equipment @ \$2,500	15,000		15,000
2		12 - Guns, Machine, cal .50 complete with mounts @ \$3,000	36,000		36,000
3		12 - Field glasses @ \$39	468		468
4		<u>Signal</u>			
		24 - Miles, Field Wire W-110 on Reel DR-4 ($\frac{1}{2}$ mile lengths) @ \$37 per mile		\$888	888
TOTALS			\$291,468	\$888	\$292,356

Section E
Exhibit E-4

S E C R E T

S E C R E T

Harbor Defenses of the Columbia

COST ESTIMATE AND PRIORITY GUIDE

GAS DEFENSE

Priority	Item No.	Description of Project	No. of Col. Protec.	No. of Reserve Canisters	CWS	Engineer		Total
						Mater.	Labor	
<u>Fort Canby</u>								
1	19	Plotting Room, Btry 247	2 X	4	\$ 1,880	----	----	\$ 1,880
1	20	Latrine, Btry 247	1 X	4	1,880	----	----	1,880
1	21	Rest Room, Btry 247	2 X	8	3,760	----	----	3,760
5	28	HDCP	3	12	5,640	800	1000	7,440
5	29	FC SWB Room	1	4	1,880	800	1000	3,680
<u>Fort Columbia</u>								
3	19	Plotting Room, Btry 246	2 X	4	1,880	----	----	1,880
3	20	Latrine, Btry 246	1 X	4	1,880	----	----	1,880
3	21	Rest Room, Btry 246	2 X	8	3,760	----	----	3,760
5	30	FC SWB Room	1	4	1,880	800	1000	3,680
	*	Mine Casemate*	1	4	----	----	----	----
4	13	Mine Plotting Room	1	4	1,880	800	1000	3,680
<u>Fort Stevens</u>								
2	18	Plotting Room, Btry 245	2 X	4	1,880	----	----	1,880
2	19	Latrine, Btry 245	1 X	4	1,880	----	----	1,880
2	20	Rest Room, Btry 245	2 X	8	3,760	----	----	3,760
5	31	FC SWB Room	2	8	3,760	800	1000	5,560
1	22	Decontaminating apparatus and materials for 3 Btries						
		Apparatus \$15 per Btry				45	----	45
		Materials-\$400 per Btry			1,200	----	----	1,200
Totals			21	84 X	\$38,845	\$4000	\$5000	\$47,845

* - Funds for gas proofing Mine Casemate included in funds allotted for bomb proofing. See: Reference letter par. 26 these proceedings.

Check - all numbers at about to record in records.

Section G
Exhibit G-1

S E C R E T

Harbor Defenses of the Columbia

SUMMARY OF LAND PROCUREMENT AND COST

Location No.	Purpose	Acre- age	Estimated Cost	Exhibits	Remarks
17	<u>East of Camp Clatsop</u> ✓ B ₂ ⁴ S ₂ ⁴ Btry Const. No. 245 ✓ B ₂ ² S ₂ ² Btry Const. No. 246 ✓ B ₁ ⁵ S ₁ ⁵ Btry Const. No. 247 AAIS OP #18	40	\$2400	H-2	----
2	<u>N. of North Head</u> ✓ B ₂ ⁴ S ₂ ⁴ Btry Const. No. 245 ✓ B ₂ ⁴ S ₂ ⁴ Btry Const. No. 246 ✓ B ₁ ⁴ S ₁ ⁴ Btry Const. No. 247 SL's #1 and #2 AAIS OP #4	22.5	None	H-4	This property owned by U.S. See letter reference par. 2t these proceedings.
15	<u>Columbia Beach</u> ✓ B ₂ ³ S ₂ ³ Btry Const. No. 245 ✓ B ₂ ⁷ S ₂ ⁷ Btry Const. No. 246 ✓ B ₁ ⁶ S ₁ ⁶ Btry Const. No. 247 AAIS OP #16	40	None	H-3	This property owned by Clatsop County, Oregon. U.S. has permission to use same when required
Total Cost		---	\$2400	---	

Section H
Exhibit H-1

S E C R E T

4/4090

.....
:SECRET :
:AUTH: CO HD OF COL. :
:DATE: Sept. 17, 1942:
:INITIALS AM LJM:
:.....

Fort Stevens, Oregon
September 17, 1942

PROCEEDINGS OF A LOCAL BOARD OF OFFICERS CONVENED AT THE HARBOR
DEFENSES OF THE COLUMBIA PURSUANT TO:

Paragraph 1 d., AR 100-20
Paragraph 5, Letter, Headquarters Western Defense
Command and Fourth Army, Subject: Salvage of ob-
solete armament, file 400.93 (HD) dated August 9, 1942.

TO SURVEY ARMAMENT OF THE HARBOR DEFENSES OF THE COLUMBIA FOR
SALVAGE.

*Files
AM*

DECLASSIFIED
DOD Dir. 5200.9, Sept. 27, 1958
INCWN by date 5-28-70

The Local Harbor Defense Board was appointed by letter:

HEADQUARTERS WESTERN DEFENSE COMMAND AND FOURTH ARMY
OFFICE OF THE COMMANDING GENERAL
Presidio of San Francisco, California

June 20, 1942

660.2 (6-3)

SUBJECT: Local Harbor Defense Boards.

TO : Commanding Officer, Harbor Defenses of the Columbia, Fort Stevens,
Oregon. THRU: Commanding General, Northwestern Sector, Fort
Lewis, Washington.

1. In accordance with the authority contained in War Department
radio dated June 13, 1942, to this Headquarters, all existing Local Harbor
Defense Boards in Harbor Defenses of this Command are dissolved and the
following Local Harbor Defense Boards are appointed in lieu thereof:

- a. * * * * *
- b. Harbor Defenses of the Columbia River.
Colonel Carl S. Doney, CAC, 04456
Lt. Col. Donald J. Leehey, C.E., 012673
Major P. Francis Passarella, CAC, 018485
Major Lawrence J. Morgan, CAC, 0347478
- c. * * * * *
- d. * * * * *
- e. * * * * *

By command of Lieutenant General DeWITT:

(Signed)
R. P. BRONSON,
1st Lieut., A. G. D.,
Assistant Adjutant General.

660.2 (AG)

1st Ind.

Hq. Northwestern Sector, Western Defense Command, Fort Lewis, Washington,
June 24, 1942.

To: The Commanding Officer, Harbor Defenses of the Columbia, Fort Stevens,
Oregon.

Inviting attention to basic letter.

By command of Major General MUIR:

(Signed)
J. WILLARD WAGNER,
Major, A. G. D.,
Assistant Adjutant General.



[REDACTED]

1. References.

a. Letter, Headquarters Western Defense Command and Fourth Army, Subject: Salvage of Obsolete Armament, file 400.93 (HD) dated August 9, 1942.

b. Confidential letter, Headquarters Western Defense Command and Fourth Army, Subject: Salvage of Obsolete Armament, file 400.93 (HD) dated August 26, 1942.

c. Secret Letter, Headquarters Western Defense Command and Fourth Army, Subject: Personnel Requirements for Harbor Defenses in the U.S., file 320.2 (S-3), dated July 2, 1942 and inclosure number 1 thereto, (secret letter TAG to WDC, same subject, file AG 320.2 (6-1-42)MO-E, dated June 2, 1942 with six (6) inclosures thereto.)

d. Teletype from Ordnance Officer, Fort Lewis, Washington to Commanding General, Ninth Corps Area, Fort Douglas, Utah, dated May 14, 1942 with fifteen indorsements thereto, all pertaining to Railway Mortar Batteries, Point Brown, Washington and Fort Lewis, Washington.

e. Proceedings of Joint Army and Navy Planning Committee, Northwestern Sector, November 18, 1941. Project for Temporary Harbor Entrance Control Post, War Department Buildings and Facilities, Harbor Defenses of the Columbia, and inclosure number 1 thereto.

2. The Board met pursuant to paragraph 5 of reference 1a above with all members present except Lt. Colonel Donald J. Leehoy, C.E. After due consideration of the status of the Modernization Project Batteries and the present status of the "interim project" armament of these Harbor Defenses, the following report and recommendations are submitted:

a. In accordance with instructions contained in reference 1c above, Battery Clark, Fort Stevens, and Battery Guenther, Fort Canby, 12 inch Mortar Batteries, were placed in class "B" status. The personnel formerly assigned to this armament have been assigned to other missions. No other personnel is available, or is anticipated to be made available, to man this armament. The following number of rounds have been fired from these batteries:

Battery Clark, tactical Gun	#A-1	157 rounds.
	A-2	147 rounds.
	B-1	124 rounds.
	B-2	191 rounds.
Battery Guenther, tactical Gun	#A-1	92 rounds.
	A-2	100 rounds.
	B-1	70 rounds.
	B-2	61 rounds.

(1) The Board recommends that Battery Clark and Battery Guenther be classed as no longer needed and made available for salvage.

b. Construction of Modernization Project Battery number 246, Fort Columbia, Washington will be started in the near future and completion is

[REDACTED]

expected approximately in July 1943. With the completion of Battery number 246, Battery Murphy 6 inch DC Fort Columbia will be classed as no longer needed and can be made available for salvage. 114 rounds have been fired from tactical gun number 1 and 190 rounds from tactical gun number 2.

(1) The Board recommends that Battery Murphy, 6 inch DC be retained in the "interim project" armament until Battery number 246 is completed. Upon completion of Battery number 246, it is recommended that Battery Murphy be made available for salvage.

c. Battery Allen, 6 inch DC, at Fort Canby is to be replaced by Modernization Project Battery number 247. Construction on Battery number 247 will be started in the immediate future and completion is expected approximately July, 1943. Battery Allen is the best strategically located battery of the "interim project" armament, having a height of site of approximately 200 feet and range of 15,000 yards. The field of fire covers all approaches to the Columbia River. 326 rounds have been fired from tactical gun number 1 and 298 rounds have been fired from tactical gun number 2. In view of the fact no fire control stations or equipment of Battery Allen are contemplated for use with Modernization Project Batteries, it is believed no action should be taken at this time with reference to this battery.

(1) The Board recommends that Battery Allen be retained in the "interim project" armament and that any recommendations for salvage be deferred until completion of Battery number 247.

d. Battery Russell, 10 inch DC, Fort Stevens, has been recommended to be abandoned upon completion of the Modernization Program. The placing of the 12 inch Mortar Batteries in class "B" status leaves Battery Russell as the only remaining medium caliber battery in these Harbor Defenses. The battery is well located facing the ocean and covers all approaches to the entrance of the Columbia River. Should this battery be abandoned prior to the completion of batteries number 245 and number 247, a large area of the field of fire to the south of Fort Stevens would not be covered by any existing armament. 325 rounds have been fired from tactical gun number 1 and 317 rounds from tactical gun number 2.

(1) The Board recommends that Battery Russell be retained in the "interim project" armament and that any recommendations for salvage be deferred until completion of Project Batteries number 245 and number 247.

e. Battery Pratt, 6 inch DC, Fort Stevens has been recommended to be abandoned at the completion of the Modernization Program. This battery is sited facing the Columbia River and provides excellent coverage of the planted project Mine Field. Should this battery be abandoned prior to completion of Battery number 245 at Fort Stevens and number 246 at Fort Columbia, adequate coverage of the Mine Field could not be obtained. This is for the reason that during many months of the year fog conditions and visibility are such that the entrance to the Columbia River and the water area containing the planted Mine Field is not always visible from Battery Murphy at Fort Columbia. Without Battery number 245 or Battery Pratt it is quite possible that hostile ships could enter the Columbia River and not be seen by or taken under fire from Fort Columbia. 38 rounds have been fired

from tactical gun number 1 and 42 rounds from tactical gun number 2.

(1) The Board recommends that Battery Pratt be retained in the "interim project" armament and that any recommendations for salvage be deferred until completion of the Modernization Program.

f. Battery Mishler, 10 inch DC, Fort Stevens has been in class "C" status for several years. Within the emplacement has been constructed the Harbor Entrance Control Post and Harbor Defense Command Post. See reference le above. The top emplacement has been completely camouflaged by covering over the gun wells with timbers and the entire emplacement covered with earth and sod. Trees and brush have been transplanted onto the emplacement to cause it to blend with the adjacent terrain. The upper galleries and gun wells were sealed completely with asphaltic cement to prevent the seepage of water into practically all parts of the lower galleries where the Harbor Entrance Control Post and Harbor Defense Command Post are located. The walls and ceiling of the lower galleries have been covered with "Nu-Wood" (fibre board), which if it is subjected to dampness, will have to be replaced. Any water seepage will be damaging to interior communications, radio equipment of the Army and Navy and the operations room equipment. To remove those guns will necessitate complete removal of camouflage which took several months to plant and place. The U. S. Area Engineer advises that the stress and strain on the concrete of the emplacement during the removal of this armament will cause numerous fissures to be opened through which water can seep into the lower galleries. It is improbable that such seepage could be located before the "Nu-Wood" walls and ceilings were damaged beyond repair, further, interior wire communications are placed behind the "Nu-Wood" walls and ceilings and would undoubtedly cause communication failures. 69 rounds have been fired from tactical gun number 1 and 67 rounds from tactical gun number 2.

(1) The Board recommends that Battery Mishler be made available for salvage but only the lead counterweights and such other parts that can be removed through the lower galleries be salvaged at this time.

g. The Railway Mortar Battery at Point Brown, Washington was not considered in this proceedings due to the fact that the 11th, 12th and 13th indorsements to reference ld above authorizes and directs the disposal of this armament as salvage.

h. Battery Lewis and Walker. This is an abandoned emplacement which is scheduled for use as ammunition storage under the Modernization Program. With the exception of the I-beam trolley rails and steel doors, this emplacement has been salvaged.

(1) The Board recommends that the steel doors be retained for security of the storage of ammunition.

i. The remaining abandoned emplacements are shown in inclosure number 1.

(1) The Board recommends that the steel doors of all emplacements be retained for security of future storage of material.

3. A report of the amount of salvage metal available in these Harbor Defenses from abandoned emplacements and armament recommended as no longer needed, is added hereto as inclosure number 1.

C. S. Doney

C. S. Doney,
Colonel, C.A.C.,
President.

(absent)

Donald J. Leehey
Lt. Colonel, Corps of Engineers
Member.

P. Francis Passarella

P. Francis Passarella
Major, C.A.C.
Member.

Lawrence J. Morgan

Lawrence J. Morgan
Major, C.A.C.
Recorder.

[REDACTED]

SALVAGE OF OBSOLETE ARMAMENT
HARBOR DEFENSES OF THE COLUMBIA

Inclosure #1 to Proceedings of Local Harbor Defense Board, Harbor Defenses of the Columbia, September 17, 1942.

1. a. Battery Clark, 12 inch Mortar, Fort Stevens, Oregon. Refer to paragraph 2a of Local Board Proceedings.

		LBS.
(1) Tubes, 12", M1890M1	4 @ 29,000 lbs	116,000
(2) Carriage, M1896M1	4 @ 92,500	370,000
(3) Ammunition Trucks	8 @ 500	4,000
(4) I-Beams		1,000
(5) Steel emplacement doors		4,000
(6) Target Practice Projectiles, C.I. S/L 12"	74 @ 1,046	77,404
(7) Service Projectiles, DP M1890M1 12"	500 @ 700	350,000
DP M1890M1 12"	200 @ 1,046	209,200
	Total	1,131,604
Less item la(5) recommended for re- tentation by the Local Board		4,000
	Total	1,127,600

b. Battery Guenther, 12 inch Mortars, Fort Canby, Washington. Refer to paragraph 2a of Local Board Proceedings.

		LBS.
(1) Tubes, 12", M1890M1	4 @ 29,000	116,000
(2) Carriage M1890M1	4 @ 92,500	370,000
(3) Ammunition trucks	8 @ 500	4,000
(4) I-Beams		1,000
(5) Steel Emplacement doors		4,000
(6) Service projectiles, DP M1890M1 12"	500 @ 700	350,000
DP M1890M1 12"	200 @ 1,046	209,200
	Total	1,054,200
Less item lb(5) recommended for re- tentation by the Local Board		4,000
	Total	1,050,200

██████████

Inclosure #1 cont'd.

2. Battery Murphy, 6 inch DC, Fort Columbia, Washington. Refer paragraph 2b of Local Board Proceedings.

		LBS.	
a.	Tubes, 6" M1897M1	2 @ 15,000 lbs	30,000
b.	Carriage M1898DC	2 @ 25,000	50,000
c.	Lead counterweight	2 @ 20,000	40,000
d.	Steel emplacement doors		4,000
e.	Service Projectiles,		
	6" MK II HE	200 @ 90	18,000
	6" Shot AP	676 @ 108	73,008
	6" Shell AP	523 @ 108	56,424
		Total	<u>271,432</u>
	Battery recommended for retention by Local Board	Total	<u>271,432</u>

3. Battery Mishler, 10 inch DC, Fort Stevens, Oregon. Refer paragraph 2f of Local Board Proceedings.

HPCP

a.	Tubes, 10" M1888MII	2 @ 65,000	130,000
b.	Carriage, DC M1896	2 @ 330,000	660,000
c.	Lead counterweight	2 @ 70,000	140,000
d.	Ammunition trucks	18 @ 500	90,000
e.	Steel emplacement doors		2,000
f.	Miscellaneous iron		3,000
		Total	<u>1,025,000</u>
	Less items 3a, b & e recommended for retention by the Local Board.	Total	<u>792,000</u>
			<u>233,000</u>

4. Battery Lewis & Walker, Abandoned Emplacement, Fort Stevens, Oregon. Refer paragraph 2h of Local Board Proceedings.

a.	I-Beams	1,000
b.	Steel emplacement doors	4,000
	Total	<u>5,000</u>
	Less item 4b recommended for retention by Local Board	<u>4,000</u>
	Total	<u>1,000</u>

5. Battery Smur, Abandoned Emplacement, Fort Stevens, Oregon.

a.	Steel emplacement doors	300
b.	Miscellaneous scrap	500
		<u>800</u>
		<u>800</u>

Inclosure #1 cont'd.

6. Battery O'Flyng, Abandoned Emplacement, Fort Canby, Washington. Refer paragraph 2i of Local Board Proceedings.

	LBS.	
a. Iron Railing	100	
b. I-Beams	1,000	
c. Steel emplacement doors	5,000	
	Total	
	6,100	
Less item 6c recommended for retention by Local Board.	5,000	
	Total	1,100

7. Battery Ord, Abandoned Emplacement, Fort Columbia, Washington. Refer paragraph 2i of Local Board Proceedings.

a. I-Beams	1,000	
b. Steel emplacement doors	5,000	
c. Miscellaneous scrap	1,000	
	Total	
	7,000	
Less item 7b recommended for retention by Local Board. Battery Murphy plotting room located in this emplacement as no plotting room available in Murphy emplacement.		
	5,000	
	Total	2,000

8. Battery Crenshaw, Abandoned Emplacement, Fort Columbia, Washington.

a. Pedestals, 3" gun	1,500	
b. Base rings 3" gun	1,000	
c. Shields for 3" gun	1,500	
	Total	
	4,000	4,000

9. Salute Guns.

a. 3" gun PIC (1862)	2 @ 800 lbs	1,600	
b. 3" FA gun M1905	2 @ 750	1,500	
c. 3" FA gun carriage M1902	2 @ 1,500	3,000	
		6,100	6,100

10. Recapitulation of paragraph 1 to 5 inclusive broken down as to principal metals.

BATTERY	CAST IRON	CAST STEEL	STEEL	FORGED STEEL	LEAD	WROUGHT IRON	MISC COPPER BRONZE BRASS	TOTAL
Clark	158,000	200,000	10,000	116,000	-	1,000	10,000	495,000
Guenther	158,000	200,000	10,000	116,000	-	1,000	10,000	495,000
Murphy	30,000	16,000	1,500	35,000	40,000	1,200	300	124,000
Mishler	678,400	45,000	13,600	130,000	140,000	6,000	12,000	1,025,000
Lewis-Walker	-	-	5,000	-	-	-	-	5,000
O'Flynn	-	-	6,100	-	-	-	-	6,100
Smur	500	-	300	-	-	-	-	800
Ord	-	-	7,000	-	-	-	-	7,000
Crenshaw	2,500	-	-	1,500	-	-	-	4,000
Salute Guns	3,000	-	-	3,100	-	-	-	6,100
Projectiles	-	-	-	1,343,236	-	-	-	1,343,236
Total	1,030,400	461,000	53,500	1,744,836	180,000	9,200	32,300	3,511,236
Less total recommended for retention by Local Board								
Total available and recommended for salvage by Local Board								
								2,425,804