

## BLUEPRINTS, EXHIBITS, AND SITE PLANS

### PERIOD MAPS OF US ARMY COAST/HARBOR DEFENSE INSTALLATIONS, 1900-45

Mark Berhow

Reference material used in this section:

- Hines, Franklin and Frank Ward, *The Service of Coast Artillery*, Goodenough and Woglom Company, NY (1910), reprinted by the Coast Defense Study Group Press, Bel Air, MD (1997), p. 65.
- War Department, United States Army, Office of the Chief of Staff, *Coast Artillery Drill Regulations*, Document No. 474, USGPO, Washington, DC, 1914, pp. 182-183.
- War Department, Office of the Chief of Engineers, *Confidential blueprints for fortifications plats issued by the Office of the C. of E.*, National Archives, Cartographic Branch, College Park, MD (4 sheets, symbols and abbreviations, 195 plats covering 28 coast defenses), maps dated 1921-22. A copy of the complete set of these maps is available through the Coast Defense Study Group. The set is approximately 300 pages, in the negative format (white lines-on-black background), sharp and clear enough to easily read all numbers, symbols and writing. (Unfortunately, there is not such a set of maps available for the WW II-era fortifications, though copies of some are in the collections of CDSG members.)
- War Department, *General Orders No. 114*, Wash. D.C., May 23, 1907, "Abbreviations and conventional signs . . ." [reprinted in the *CDSG News* Vol. 3, Issue 3 (May 1989) pp. 18-19.]
- War Department., Office of the Chief of Staff, Coast Artillery Division, *Artillery Bulletin No. 51 (Serial No. 102)* Subject: "Symbols and abbreviations for harbor charts and fortification index maps.", Wash. D.C., Feb. 4, 1913. [reprinted in the *CDSG News* Vol. 3, Issue 3 (May 1989) p. 17.]
- War Department, Office of C. of E., Letter: 061.2b-F248, To: Recorder, Coast Artillery Board, Fort Monroe, VA, Subject: Confidential Blue Prints, August 9, 1922. 2 indorsements and list of blueprints (11 pages).
- War Department, Office of C. of E., File 323.5, "Symbols and Abbreviations for Use on Fire Control and other Drawings," June 18, 1927 (9 sheets) National Archives, Pacific Southwest Region, Laguna Niguel, CA, RG 77, Box 46, Folder H-5.
- War Department, *Technical Regulations, No. 1050-5, Symbols for Seacoast Defense Fire-Control Maps, Diagrams, and Structures.*, US GPO, Washington, DC, May 10, 1939 (8 pages).
- War Department, *FM 4-155 Coast Artillery Corps Field Manual, Reference Data (Seacoast Artillery and Antiaircraft Artillery)*, US GPO, Washington DC, 1940.
- War Department, Annexes to Harbor Defense Projects, various locations and dates (National Archives RG 407, Records of the Adjutant Generals Office, Entry 366).

Site maps, site plans, annex exhibits, confidential blueprints, D-series maps—these are all terms that have been used to describe various maps which depict sites used by the U.S. Army, at one time or another, in connection with harbor defense fortifications and fire control. CDSG members have circulated copies of many such maps among themselves for many years; lately they have been handed out at the CDSG conferences, and they now often accompany articles in the *CDSG Journal*. These maps have been keys to ferreting out the identification of the various remaining structures during site visits, yet there is some confusion over where these maps come from, what their cryptic symbols mean, and even what they are called.

As new harbor defense construction was proposed, planned and carried out by the U.S. Army Corps of Engineers, the engineers prepared a large number of maps and plans to go with those projects as needed. Once the works were completed, the Corps of Engineers maintained and updated maps of the various military reservations and sites. These maps were kept as part of the records of the various Corps of Engineer district offices around the country. Copies were turned over to qualified parties in the army, such as the Coast Artillery Corps, the Quartermaster Corps, etc. In due course, the records of the Corps of Engineers and the other branches of the army have been turned over to National Archives. Copies of a number of interesting maps, dated from the 19th and the first half of the 20th centuries, have been duplicated from the holdings in the National Archives by historians and researchers.

Most maps of harbor defense installations are located in the Cartographic Branch of the National Archives. This section was just recently relocated to new facility in College Park, MD. This branch also has maps from the modern or “concrete” era of American harbor defenses, but for a number of reasons, many of the more frequently seen maps have come from other National Archives holdings. This article will discuss three concrete-era (1890-1950) map formats most frequently seen by the members of the CDSG—the Confidential Blueprint map series (1900-1935), the confidential or secret blueprint map series (1940-1948) and the exhibits from the annexes to harbor defense projects (1940s). An integral part of this article is the reproduction of a symbol key dated 1909 and two symbol and abbreviation keys dated 1921 and 1940.

After 1902 an optical system for fire control based on trigonometric principles was developed for more precisely aiming coast artillery guns. The structures that were built to house the optical and communication elements of this system were often numerous and small in relation to the other major buildings on a military reservation, and many required a detailed description making it complicated to label them on a map, so a set of map symbols was developed to indicate the fire control structures. As these fire control structures were built in the years following 1905, they were incorporated into the maps on which the Corps of Engineers recorded the location of all the structural elements of the fortifications in the seacoast defenses.

As new construction was finished, maps were revised and updated by the Corps of Engineers. One such series of maps was reproduced as negatives from a master positive in blueprint style, which meant maps were composed of white lines on a blue or dark background. As they were classified “confidential” by the War Department, they became known as “confidential blueprints.” A number of these confidential blueprints have been found in various cartographic and textual Corps of Engineers records in the National Archives. As they were updated frequently, maps of different dates provide a snapshot of what structures were on a given military reservation on a given date.

The confidential blueprint series of maps has general maps of each defended harbor, and general maps of each of the forts and military reservations in the harbor defense. If it was warranted, larger scale maps of parts of some forts were also included. These were labeled “D” for “detail” and followed in series, D-1, D-2, D-3, etc., as required. These maps show the location of batteries, various components of the fire control and communication system, mine facilities, and all the post buildings. Identification of each structure was shown by name, symbol, abbreviation, or number.

These maps were also used by the Artillery Corps, later the Coast Artillery Corps, as a convenient way of keeping track of the structures under their control. Keys to these fire control map symbols began appearing in coast artillery manuals, such as drill regulations, training regulations, and later field manuals. Most importantly for modern day historians, a complete update of these maps was performed during the years 1920-1922, just after the major construction projects of the Endicott and Taft programs were completed, before some of the smaller harbor defense areas were eliminated. On July 12, 1922, the Coast Artillery Board at Fort Monroe requested a complete list and set of these maps for their records. In August, 1922, the corps complied with a set of maps. Several maps were missing from the Board’s collection, and by November, the engineers had sent the missing maps for San Francisco. The other missing maps were explained as having been deleted for being obsolete. The 1922 collection contains about 290 maps of 29 harbor areas.

It is from this collection that many of the maps used by the CDSG have come from. A complete set of the maps collected in 1922 has been found in the National Archives. The set includes the correspondence, the list, and a key to the map symbols and abbreviations for these maps.

An important thing to note is the tactical fire control organization, which varied during the course of the history of the Coast Artillery.


























In 1909, each battery was under the immediate command of the officer stationed at the battery commander's station (BC). Mine commanders manned their posts at the mine primary (M') station. In the defended harbor areas, called the Coast Defense Command, batteries were grouped into Fire Commands, each under the overall command of the fire commander stationed at the fire command primary station (F'). The Fire Commands were then grouped together by geographical areas under the command of the officer in command of that entire sector of the coast defense. This command was initially called the Battle Command, but later was changed to the Fort Command. This officer was stationed at the primary fort command station (C').

In 1925, this chain of command was changed slightly. Individual gun batteries were assigned to a gun group (G). Forts (F) were also used as tactical commands. All forts and/or groups were under the Harbor Defense (H), which was under the overall command of the harbor defense commander. This was outlined in an article in the *Coast Artillery Journal*, which is partially reprinted in this article. Later an additional tactical organization, the groupment (C), was added below the Harbor Defense. It was composed of two or more groups.

Many of the maps in this series, some initially drawn in the first decade of the 1900s, were updated over the years up to the late 1930s. The dates are noted in the series in the upper left hand corner of the maps. Many of the later versions of the maps have been converted to positives, that is black lines on white background.










A 1909 and a 1921 map symbol key are reproduced on the following pages, along with a partial article reprint from the 1925 article in the *Coast Artillery Journal*, and example confidential blueprint maps of the entrance to Puget Sound and two maps of Fort Flagler, all dated 1921. The rest of these maps are available from the CDSG.org website and on the CDSG ePress CD ROM.

## 1909 SYMBOL CHART

<i>Primary Station of a Battery</i> .....	
<i>Secondary Station of a Battery</i> .....	
<i>Supplementary Station of a Battery</i> .....	
<i>Battery Commander's Station</i> .....	
<i>Battle Commander's Station</i> .....	
<i>Emergency Station of a Battery</i> .....	
<i>Primary Station of a Fire Command</i> .....	
<i>Secondary Station of a Fire Command</i> .....	
<i>Supplementary Station of a Fire Command</i> .....	
<i>Illuminating Light</i> .....	
<i>Primary Station of a Mine Command</i> .....	
<i>Secondary Station of a Mine Command</i> .....	
<i>Supplementary Station of a Mine Command</i> .....	
<i>Double Primary Station of a Mine Command</i> .....	
<i>Double Secondary Station of a Mine Command</i> .....	
<i>Meteorological Station</i> .....	
<i>Separate Observing Room</i> .....	
<i>Separate Plotting Room</i> .....	
<i>Post Telephone Switchboard</i> .....	
<i>Searchlight</i> .....	
<i>Searchlight 36 inch</i> .....	
<i>Searchlight 60 inch</i> .....	
<i>Tide Station</i> .....	
<i>Signal Station</i> .....	
<i>Wireless Station</i> .....	

**SYMBOLS AND ABBREVIATIONS—1921 CONFIDENTIAL BLUEPRINTS**

Name	Abbr.	symbol	Sta. w/o roof
Fort Commander's Station	C		
Primary Station, Fire Command	F'		
Secondary Station, Fire Command	F''		
Supplementary Station, Fire Command	F'''		
Primary Station of a Battery	B'		
Secondary Station of Battery	B''		
Supplementary Station of a Battery	B'''		
Battery Commander's Station	BC		
Primary Station, Mine Command	M'		
Secondary Station, Mine Command	M''		
Supplementary Station, Mine Command	M'''		
Double Primary Station, Mine Command	M'-M'		
Double Secondary Station Station, Mine Command	M''-M''		
Separate Plotting Room	P		
Separate Observing Room	O.		
Self-contained Horizontal Base	C.R.F.		
Emergency Station	E.		
Spotting Station	Sp.		
Meteorological Station	Met.		
Tide Station	T.		
Searchlight (30, 60, etc., relates to the size of the lights)	S.		
Controller Booth	C.B.		
Watchers Booth	W.		
Signal Station	S.S.		
Radio Station	R.		
Cable Terminal	C.Ter.		
Post Telephone Switchboard	P.S.B.		
Mining Casemate	M.C.		

Name	Abbr.	symbol	Sta. w/o roof
Loading Room	L.R.		
Switchboard Room	S.W.B.		
Central Powerhouse	C.P.H.		
Powerhouse (and Searchlight Powerhouse)	P.H.		
Combined Stations, in same room			
Combined Stations, in communicating rooms			
Combined C and F' Station in same room			
Differentiation of auxiliary plants			

### Abbreviations

Cable Gallery	C.Gal.
Cable Tank	C.T.
Cable Hut (commercial cable)	C.H.
Coast Guard Station	C.G.S.
Engineer Wharf	Engr. Whf.
Gasoline Tank	G.Tk.
Guard House	G.H.
Latrine	L.
Lighthouse	L.H.
Lighthouse Wharf	L.H.Whf.
Magazine	Mg.
Mining Boathouse	M.B.H.
Mining Derrick	M.D.
Mining Tramway	M.T.
Ordnance Machine Shop	O.M.S.
Mine Wharf	M.Whf.
Private Wharf	Pvt.Whf.
Radio (commercial station)	Rad.
Railway Wharf	Ry.Whf.
Saluting Battery	Sl.B.
Searchlight Shelter	S.Sh.
Service Dynamite Room	S.D.R.
Steamship Wharf	S.S.Whf.
Sunset Gun	S.G.
Tide Gauge (not a Tide Station)	T.G.
Torpedo Storehouse	T.S.
Tower	Tw.
Water Tank	W.Tk.
Weather Bureau	W.B.

Additional Symbols and Abbreviations	Abbr.	Symbol
Pumping Plant	P.P.	
Radio Powerhouse	R.P.H.	
Searchlight Powerhouse	S.P.H.	
60 inch Searchlight No. 7	S. <sup>60</sup> <sub>7</sub>	
Coincidence Rangefinder	C.R.F.	
Quartermaster Wharf	Q.M. Whf.	
Subscripts for use in both Legend and on Face of Plat are—		
Imp. Improvised. (for temporary fire control structures only.)	B" imp.	imp.
p. Portable. (Principally used for portable searchlights etc.)	S <sup>36</sup> <sub>p2</sub>	p
s. Superseded. (for abandoned buildings, etc.)	24s.	
t. Temporary. (For all uses except fire control structures.)	19t.	
Datum Point—location indicated by intersection of lines or by dot at end of arrow.		or
Triangulation Station.		TIMM
Intersection Point.		• BLACK BEACON
Benchmark.		B.M. X 1232
Lighthouse.		L.H.

Such other topographic signs as may be necessary will be taken from the Engineer Field Manual (Professional Papers, Corps of Engineers, No. 29) pages 74 to 97.

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System of Numbering (for buildings)

1. Administration Building
2. Commanding Officer's Quarters
3. Officer's Quarters
4. Hospital
5. Hospital Steward's Quarters
6. Non-commissioned Officer's Quarters
7. Barracks
8. Guard House
9. Post Exchange

10 to 19 and 100 to 199	Post Buildings
20 to 29 and 200 to 299	Quartermaster Buildings
30 to 39 and 300 to 399	Ordnance Buildings
40 to 49 and 400 to 499	Engineer Department Buildings
50 to 59 and 500 to 599	Signal Corps Buildings
60 to 69 and 600 to 699	Reserved for future requirements
70 to 79 and 700 to 799	Religious and Social Buildings
80 to 89 and 800 to 899	Government Buildings not under War Dept. Control
90 to 99 and 900 to 999	All Private Buildings (Private dwellings, stores, contractor's buildings and buildings purchased with the land but not assigned to public use.)

Notes: Maneuver buildings were classed as post buildings.



**CHANGES IN DESIGNATIONS RELATED TO COAST DEFENSES**

*Coast Artillery Journal* Vol. 63 (1925) pp. 172-73.

Paragraph V of General Orders 13, War Department, June 9, 1925, was of such vital interest to Coast Artilleryman that it was published in order to be available for ready reference:

1. To the end that the designations of units comprising the fortifications of the United States may be more truly descriptive, and that they may more nearly conform to the terms used in other branches of the service, the following changes therein are made:
  - a. The principal harbor defense tactical and administrative unit, heretofore designated the "Coast Defense Command," will hereafter be known as the "Harbor Defense," the commanding officer of such a unit will be called the "Harbor Defense Commander," and his staff the "Harbor Defense Staff."
  - b. The unit heretofore designated the "Fort Command" will hereafter be known as the "Fort."
  - c. Units heretofore designated the "Fire Command" and the "Mine Command" will be known as the "Group."
2. It is not practicable to revise and republish all orders, Training Regulations, Army Regulations, and other War Department publications in which the designations of these units appear; nor is it considered practicable to issue detailed changes in such publications to effect these corrections, as the instances where the designations are used are so numerous as to render such action uneconomical.
3. In the first column of the tabulation in paragraph 5 are enumerated old designations and in the second column the corresponding new designations of units referred to in paragraph 1; and whenever the terms in the first column now appear in any publication issued by the authority of the War Department, the corresponding items shown in the second column will be substituted therefor.
4. Hereafter in all official correspondence between officers and individuals in and under the War Department, in all orders, bulletins, circulars, regulations, and other official publications issued by the authority of the War Department, where mention is made of any of the units referred to in the tabulation in paragraph 5, the designations shown in the second column will be used.

## 5. Old and New Designations

*Old Designation*

Coast Defenses of  
 These coast defenses  
 This coast defense  
 This coast defense command  
 Fixed defenses

Fort command  
 Fire command  
 Mine command

Fort commander's station or command post.

Battery commander's station or command post.  
 Primary station, fire command

Primary station, mine command

Double primary station, mine command

Secondary station, fire command

Secondary station, mine command

Double secondary station, mine command

Supplementary station, fire command

Supplementary station, mine command

Separate observing room

*New Designation*

Harbor Defenses of  
 This harbor defense  
 This harbor defense  
 This harbor defense  
 Harbor defense (includes both  
   fixed and mobile armament)

Fort  
 Group  
 Group  
 Harbor defense command post  
 Fort command post  
 Group command post (first group,  
   second group, etc.)

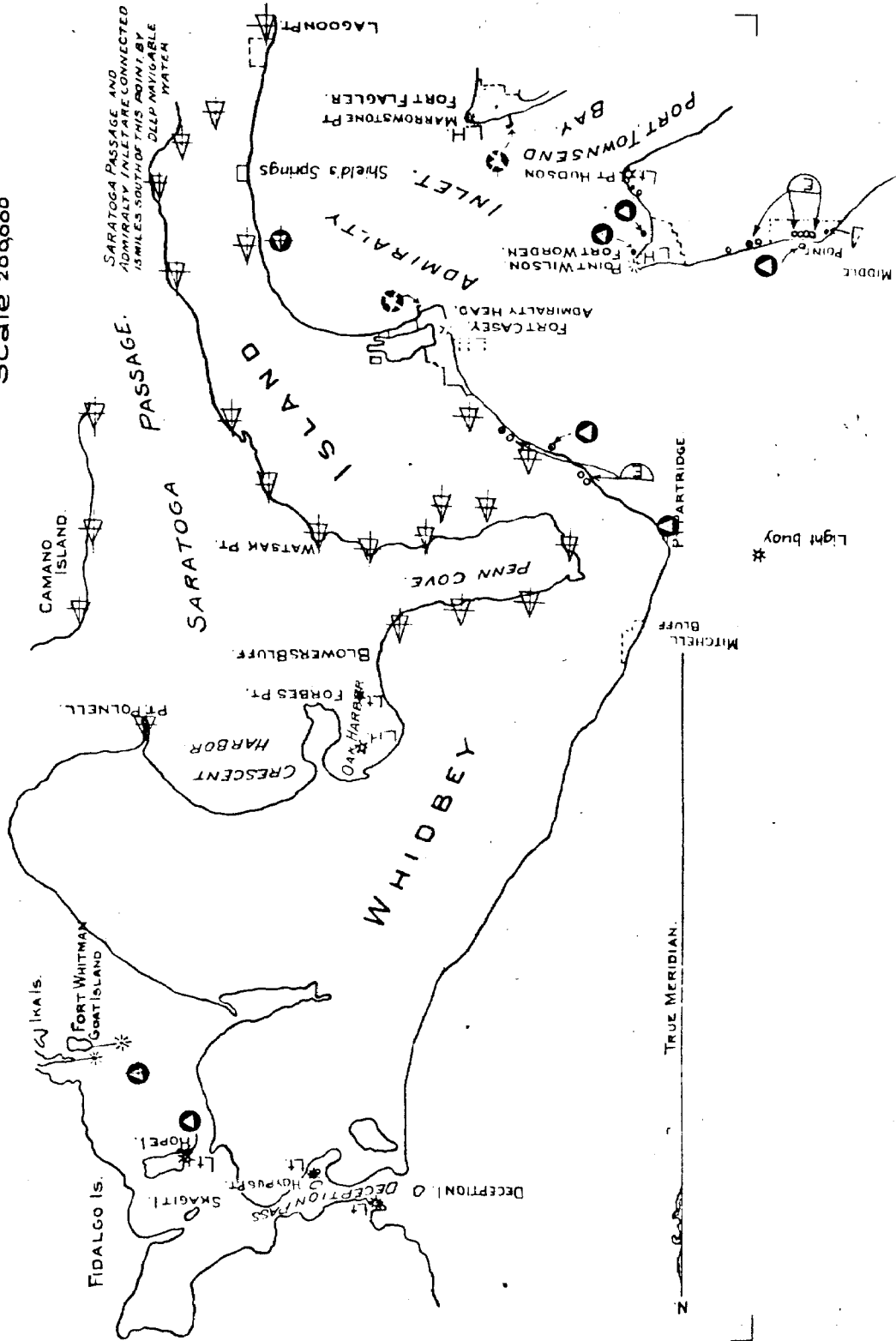
Battery command post  
 Primary station (first group,  
   second group, etc.)  
 Primary station (first group,  
   second group, etc.)  
 Double primary station (first  
   group, second group, etc.)  
 Secondary station (first group,  
   second group, etc.)  
 Secondary station (first group,  
   second group, etc.)  
 Double secondary station (first  
   group, second group, etc.)  
 Supplementary station (first group,  
   second group, etc.)  
 Supplementary station (first group,  
   second group, etc.)  
 Observation post

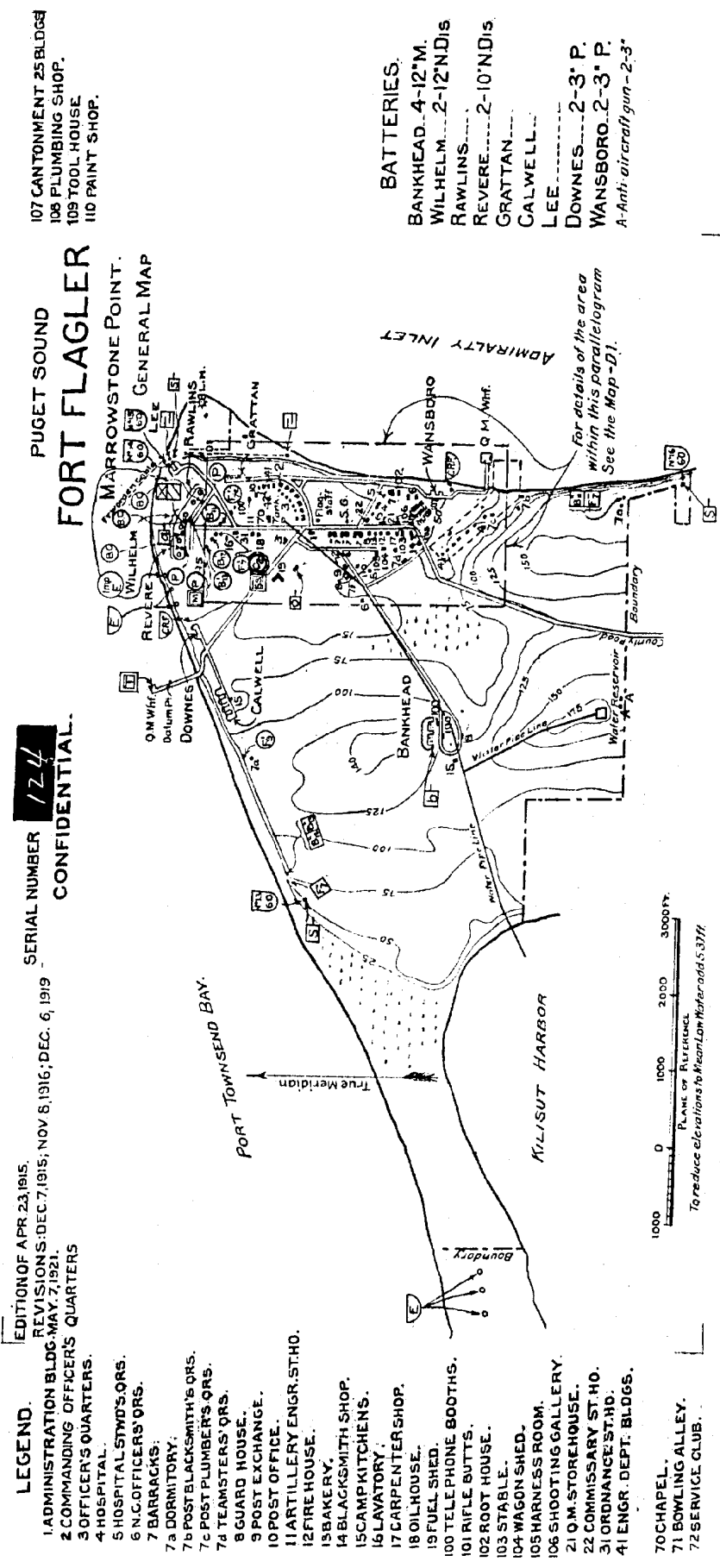
# ENTRANCES TO PUGET SOUND

SERIAL NUMBER [REDACTED] CONFIDENTIAL

EDITION OF APR 23, 1915.  
REVISIONS, DEC 7, 1915;  
NOV 8, 1916; DEC. 6, 1919; MAY 7, 1921.

Scale 200000





107 CANTONMENT 25 BLDGS  
 108 PLUMBING SHOP.  
 109 TOOL HOUSE.  
 110 PAINT SHOP.

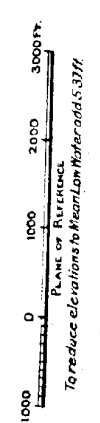
PUGET SOUND  
**FORT FLAGLER**  
 MARROWSTONE POINT.  
 GENERAL MAP

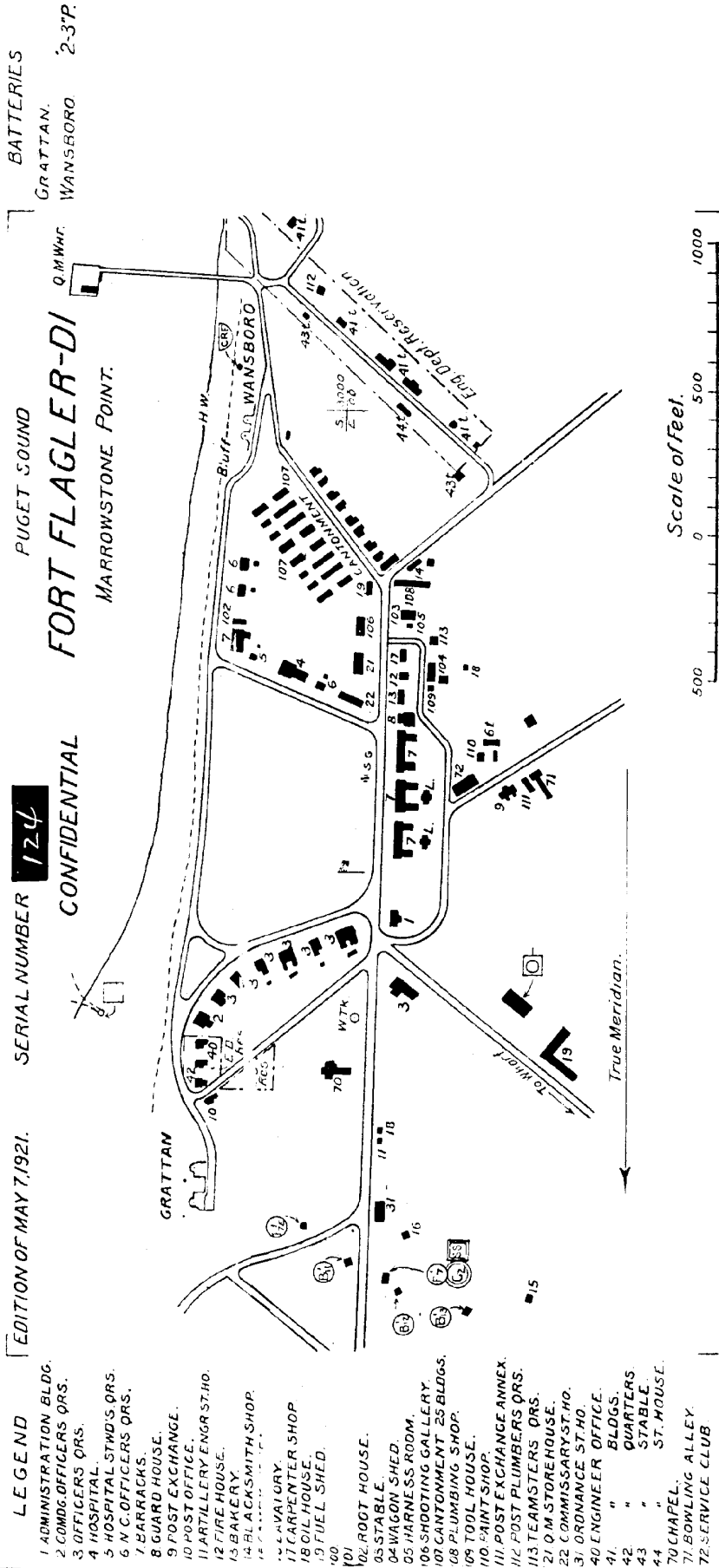
EDITION OF APR 23, 1915.  
 REVISIONS: DEC 7, 1915; NOV 8, 1916; DEC. 6, 1919  
 SERIAL NUMBER **174**  
**CONFIDENTIAL.**

**LEGEND.**  
 1 ADMINISTRATION BLDG.  
 2 COMMANDING OFFICER'S QUARTERS  
 3 OFFICER'S QUARTERS.  
 4 HOSPITAL.  
 5 HOSPITAL STWD'S QRS.  
 6 N.C. OFFICERS' QRS.  
 7 BARRACKS:  
 7a DORMITORY.  
 7b POST BLACKSMITH'S QRS.  
 7c POST PLUMBER'S QRS.  
 7d TEAMSTERS' QRS.  
 8 GUARD HOUSE.  
 9 POST EXCHANGE.  
 10 POST OFFICE.  
 11 ARTILLERY ENGR. ST HO.  
 12 FIRE HOUSE.  
 13 BAKERY.  
 14 BLACKSMITH SHOP.  
 15 CAMP KITCHENS.  
 16 LAVATORY.  
 17 CARPENTER SHOP.  
 18 OIL HOUSE.  
 19 FUEL SHED.  
 100 TELEPHONE BOOTHS.  
 101 RIFLE BUTTS.  
 102 ROOT HOUSE.  
 103 STABLE.  
 104 WAGON SHED.  
 105 HARNESS ROOM.  
 106 SHOOTING GALLERY.  
 21 O.M. STOREHOUSE.  
 22 COMMISSARY ST. HO.  
 31 ORDNANCE ST. HO.  
 41 ENGR. DEPT. BLDGS.  
 70 CHAPEL.  
 71 BOWLING ALLEY.  
 72 SERVICE CLUB.

**BATTERIES.**  
 BANKHEAD...4-12".M.  
 WILHELM...2-12"NDIS  
 RAWLINS...  
 REVERE...2-10"NDIS  
 GRATTAN...  
 CALWELL...  
 LEE...  
 DOWNES...2-3" P.  
 WANSBORO...2-3" P.  
 A-Anti aircraft gun-2-3"

For details of the area  
 within this parallelogram  
 See the Map-D1.





By the beginning of World War II, several key events had occurred which brought out an entirely new series of maps. The new Harbor Defense Modernization Program was begun in 1940 to completely replace the older defenses. The existing fire control structures were re-assigned or incorporated into the new construction program. The new construction brought with it a new series of confidential or secret blueprints. These maps are not as often seen by CDSG members, as not as many of them have been located and reproduced from the archives.

















More often, we see maps that were used as exhibits for the various annexes to the harbor defense projects from the mid 1930s and the 1940s. A harbor defense project was a written document which described all existing and projected harbor defense elements, including structures. Annexes updated the projects. The annexes produced between 1944-1948 cover much of the new harbor defense construction then underway with a detailed description and a set of maps that showed where these new structures were located, the field of fire of the guns, radar coverage, etc. The maps are particularly useful for the precise location of the 1940s-era fire control elements, both planned and built. Many of these annexes have been located and reproduced from the archives. Many of these maps have their own symbol key located on one or more of the general maps.

A more general key for these map symbols from FM 4-155, published in 1940, is reproduced in the following pages, along with copies of the confidential blueprint maps of the Columbia River and Fort Columbia dated 1944. Also reproduced is Exhibit 1A (the location of elements) from the Annex to the harbor defense project for Los Angeles, July 1944.

**SYMBOLS**  
**FM 4-155, REFERENCE DATA 1940**  
**(SEACOAST ARTILLERY AND ANTI-AIRCRAFT ARTILLERY)**
















TABLE C.—*Symbols for seacoast artillery fire-control maps, diagrams, and structures*

Part 1.—Basic symbols

Name	Abbreviation	Symbol
Harbor defense command post	H D C P	
Groupment command post	Gpmt C P	
Fort command post	Ft C P	
Gun group command post	G C P	
Mine group command post	M C P	
Seacoast battery command post	B C P	
Harbor defense observation station	H D O P	
Groupment observation station	Gpmt O P	
Fort observation station	Ft O P	
Gun group observation station	G O P	
Mine group observation station	M O P	
Battery observation station	B O P	
Emergency observation station	E O P	
Antiaircraft observation post	A A O P	
Battery spotting station	S O P	
Separate observation station	O P	




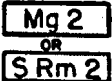
Name	Abbreviation	Symbol
Operations and plotting room	O P R	
Plotting room	P	
Self-contained base range-finder station	R F	
Magazine	Mg	
Shellroom	S Rm	
Temporary or improvised fire-control structures	Imp	
Mine casemate	M C	
Mine loading room	L R	
Searchlight, 60-inch seacoast	S L	
Searchlight, seacoast, other than 60-inch	S L	
Antiaircraft searchlight	A A S L	
Searchlight shelter	S Sh	
Searchlight powerhouse	S P H	
Searchlight controller booth	C B	
Data booth	Data B	
Watchers booth	W Bth	
Meteorological station	M E T	










Name	Abbreviation	Symbol
Tide station	Td	
Signal station	S S	
Fire Control switchboard room	F S B	
Post telephone switchboard room	P S B	
Combined fire-control & post telephone S B room	F S B P S B	
Cable terminal	C Ter	
Powerhouse	P H	
Radio powerhouse	R P H	
Central powerhouse	C P H	
Pumping plant	P P	
Datum point		
Triangulation station		
Intersection point		 <b>Black Beacon</b>
Benchmark	B M	 1232
Lighthouse	L H	

*Part 2.-Numbers for harbor defense installations.—a.* In harbor defense, seacoast artillery installations of each type are numbered consecutively from right to left, facing the center of the field of fire of the harbor defense. Antiaircraft installations pertaining to the harbor defense may be numbered in any convenient sequence.


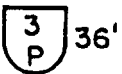
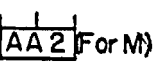
*b.* Groupments, gun groups, mine groups, batteries, and all installations functioning directly under the harbor defense commander, such as harbor defense observation stations, searchlights, and underwater listening posts, are numbered consecutively, each type in a separate series, beginning with number 1. These numbers normally are shown as subscripts to the letter included in the appropriate symbol. Exceptions are included among the examples that follow.

Name	Abbreviation	Symbol
Harbor defense observation station	H D O P <sub>3</sub>	
Fort observation station	Ft O P <sub>3</sub>	
Antiaircraft observation post	A A O P 2	
Magazine or shell room	Mg 2 or S Rm 2	





*c.* Groupment, group, and battery observation and spotting stations assigned to a unit are numbered consecutively within the unit, each type in a separate series, beginning with number 1. These numbers are shown as superscripts to the letter included in the appropriate symbol, the unit number remaining as the subscript.

Name	Abbreviation	Symbol
Groupment observation station	Gpmt <sub>2</sub> O P <sub>2</sub>	
Gun group observation station	G <sub>2</sub> O P <sub>1</sub>	
Mine group observation station	M <sub>2</sub> O P <sub>1</sub>	
Battery observation station	B <sub>1</sub> <sup>1</sup> O P	
Spotting station	S <sub>3</sub> <sup>1</sup> O P	
Emergency observation station	E <sub>2</sub> <sup>1</sup> O P	
Temporary or improvised fire control structures	B <sub>3</sub> <sup>2</sup> Imp.	

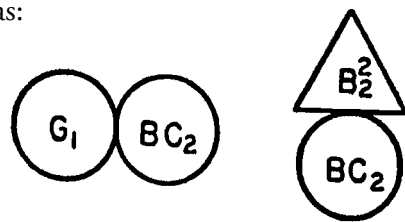
d. In certain cases it is desirable to show additional information regarding an installation, such as its size and whether fixed, portable, or mobile. Such information is placed either in the symbol or to the right thereof.

Name	Abbreviation	Symbol
60-inch seacoast searchlight; fixed, portable or mobile.	SL 2F (P or M)	
Seacoast searchlight other than 60-inch	SL <sup>36</sup> <sub>3P</sub>	
Antiaircraft gun battery or composite battery, fixed or mobile.	A A No. 2 (F or M)	

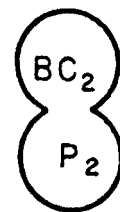
e. Where two stations are combined in one room, the symbols are superimposed one upon the other, and the letters representing each station are included in the combined symbol.

Name	Abbreviation	Symbol
Combined groupment command post and fort command post.	Gpmt Ft Cp	
Combined battery observation and spotting station.	B <sup>2</sup> <sub>1</sub> S <sup>2</sup> <sub>1</sub> O P	
Combined group command post and battery command post.	G <sub>1</sub> B <sub>2</sub> C P	
Combined battery command post and battery observation station.	B <sub>2</sub> C P B <sub>2</sub> <sup>2</sup> O P	


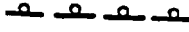
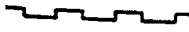
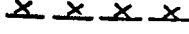



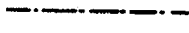

f. Where stations are adjacent in the same structure, the symbols are tangent to each other and are arranged to show the relative location, as:



g. Where communication may be had by voice through a passage, door, window, or voice tube, the symbols are left open at the point of contact, as:

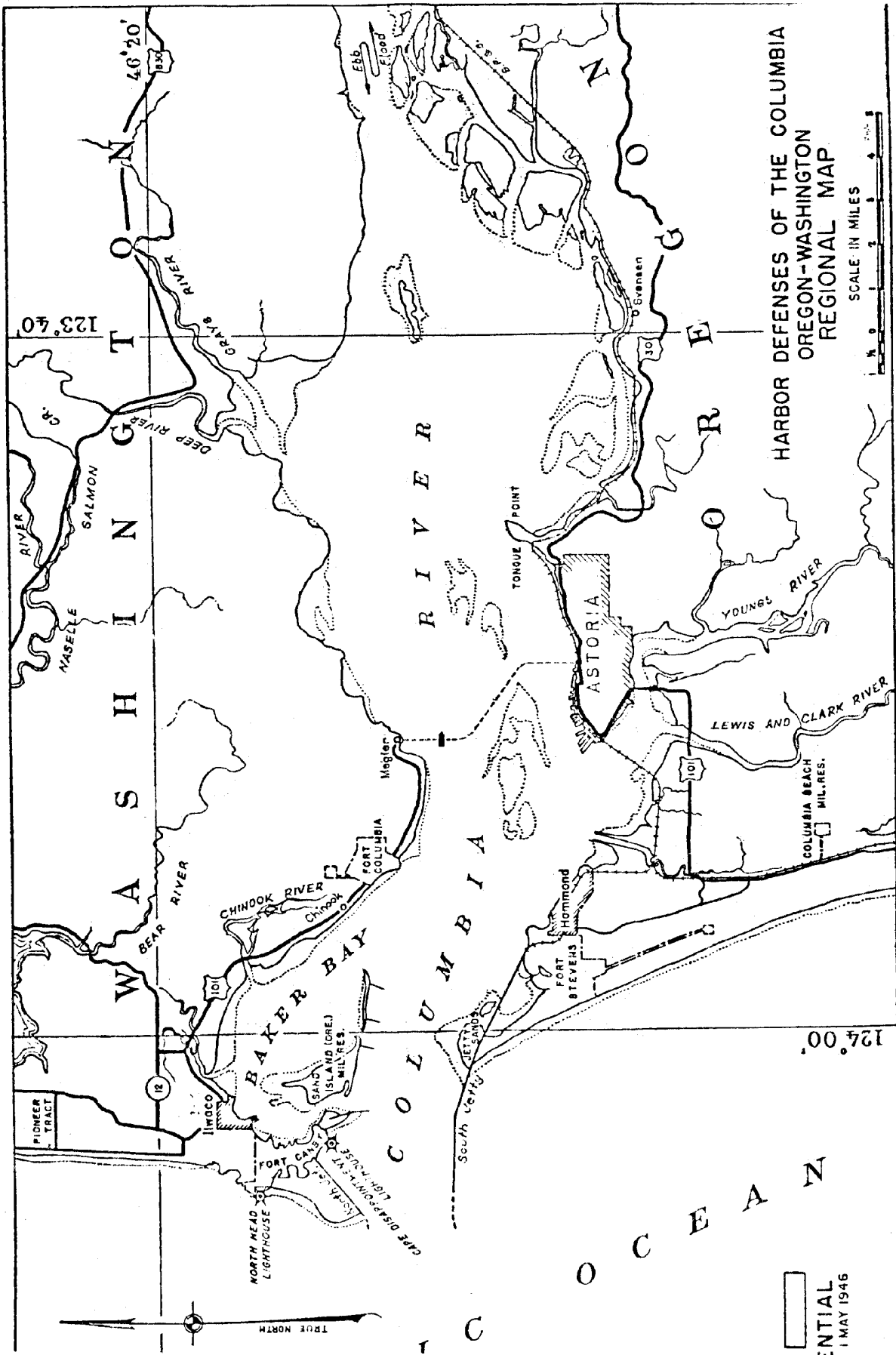


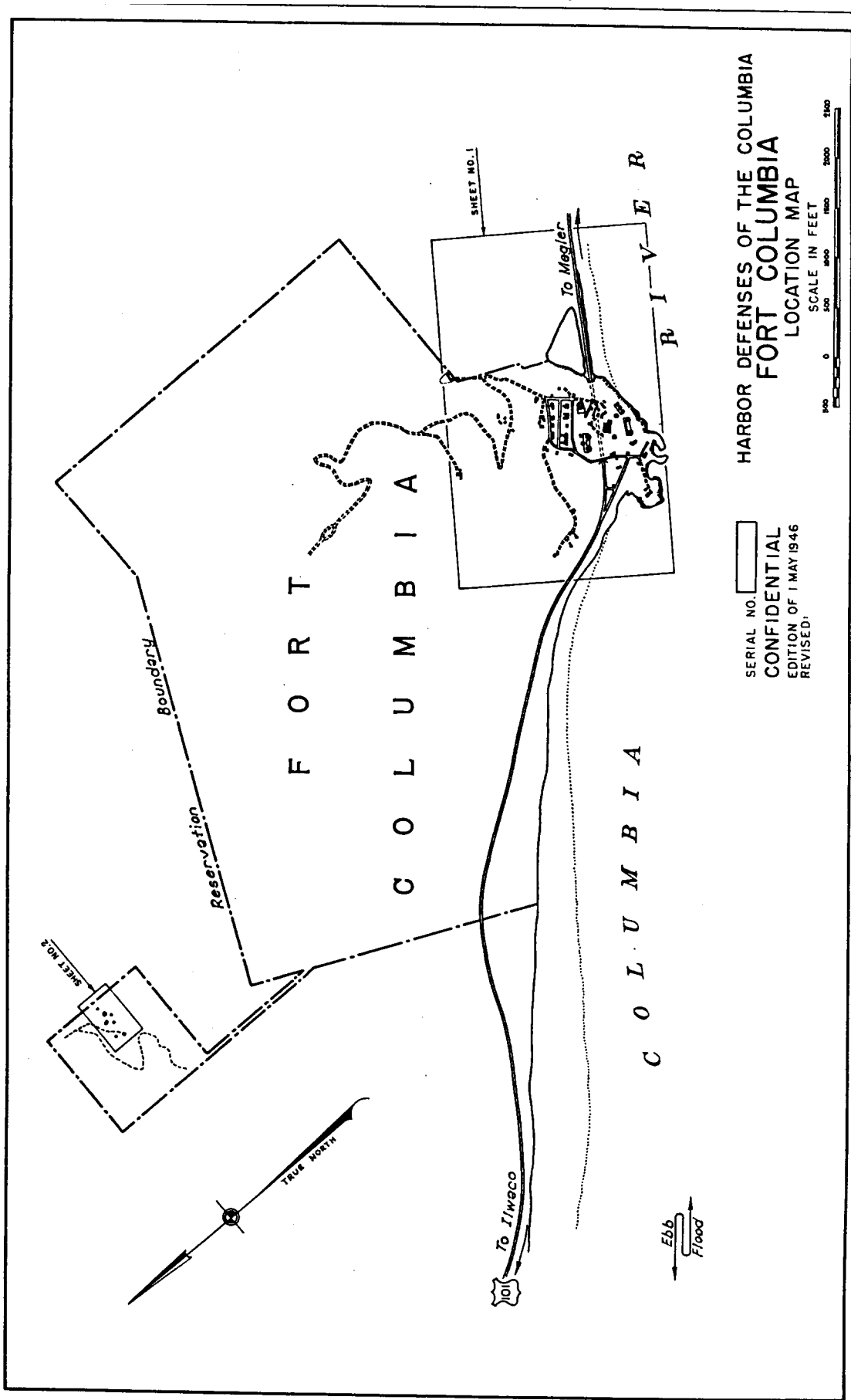
## Part 3.—Communications symbols for use on harbor defense fire-control charts and diagrams.

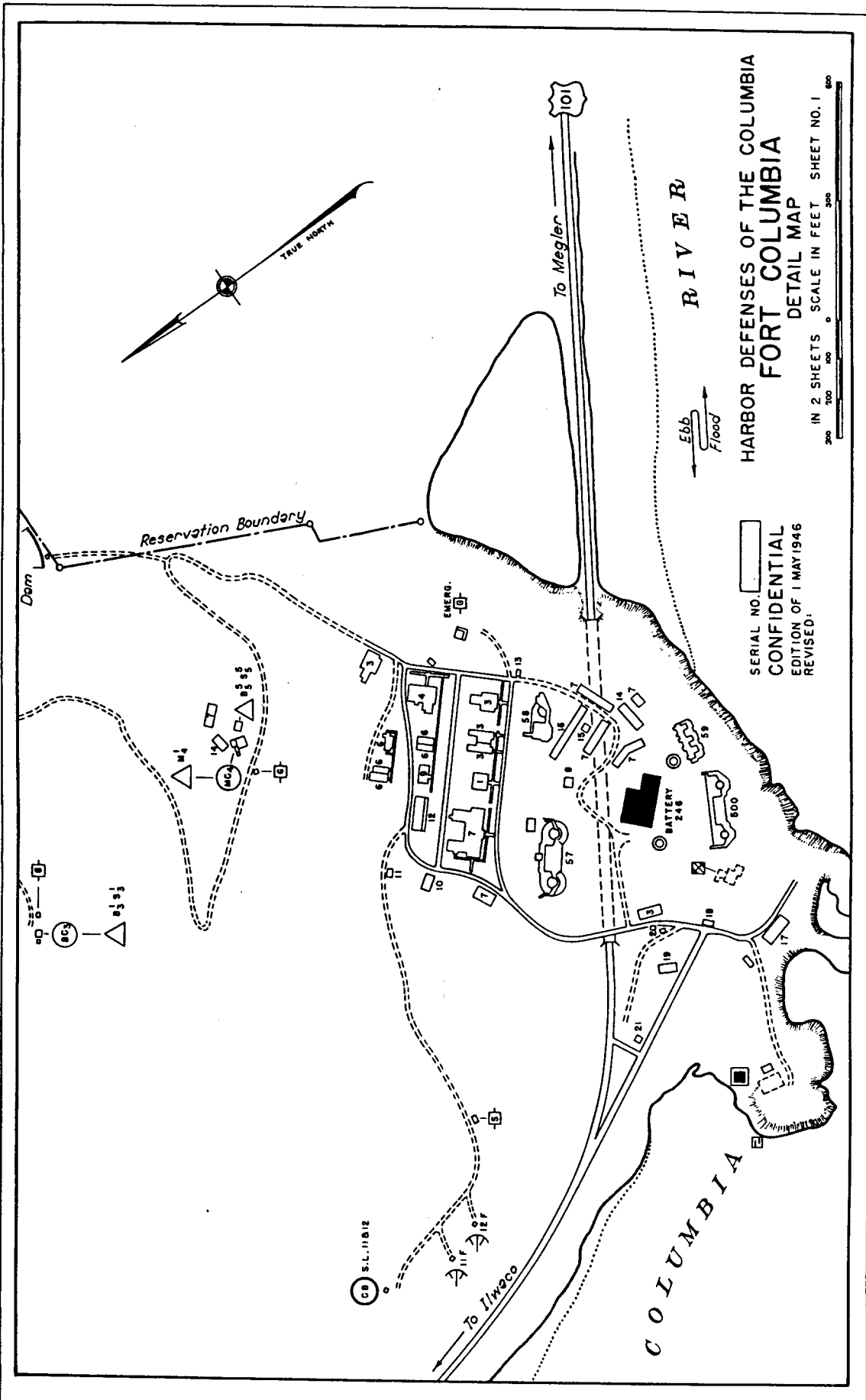
Telephone cable (numerals indicate number of pairs and gage)	
Speaking tube	
Mechanical data transmission line	
Electrical data transmission line	
Searchlight controller line	
Zone signal and magazine telephone line	
Firing signal line	
Time interval bell line	
Submarine cable (numerals indicate number of pairs and gage)	

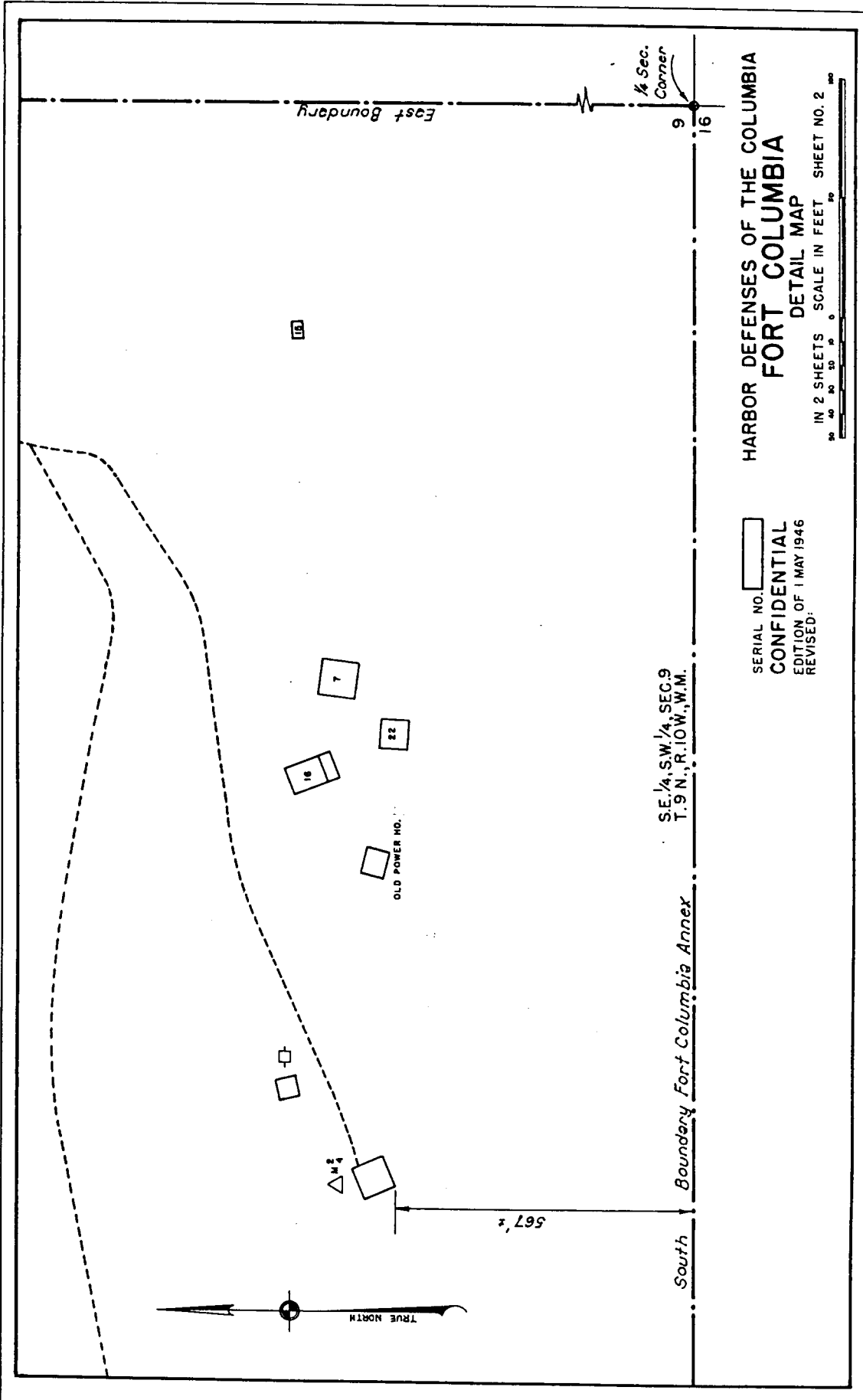
## Part 4.—Abbreviations

Cable gallery	C Gal
Cable tank	C T
Cable hut (commercial cable)	C H
Coast Guard station	C G S
Engineer wharf	Engr Whf
Gasoline tank	G Tk
Guardhouse	G H
Latrine	L
Lighthouse wharf	L H Whf
Mine boathouse	M B H
Mine derrick	M Drk
Mine tramway	M Tmy
Mine wharf	M Whf
Ordnance machine shop	O M S
Private wharf	Pvt Whf
Radio (commercial station)	Rad
Railway wharf	Ry Whf
Saluting battery	Sl B
Service dynamite room	S D R
Steamship wharf	S S Whf
Quartermaster wharf	Q M Whf
Superseded (for abandoned buildings, etc.)	24 s
Temporary (for all uses except fire-control structures)	19 t
Sunset gun	S G
Tide gage	T G
Torpedo storehouse	T S
Tower	Tw
Water tank	W Tk
Weather bureau	W B









SE. 1/4, SW. 1/4, SEC. 9  
 T. 9 N., R. 10 W., W.M.

Boundary Fort Columbia Annex

South

East Boundary

1/4 Sec.  
 Corner

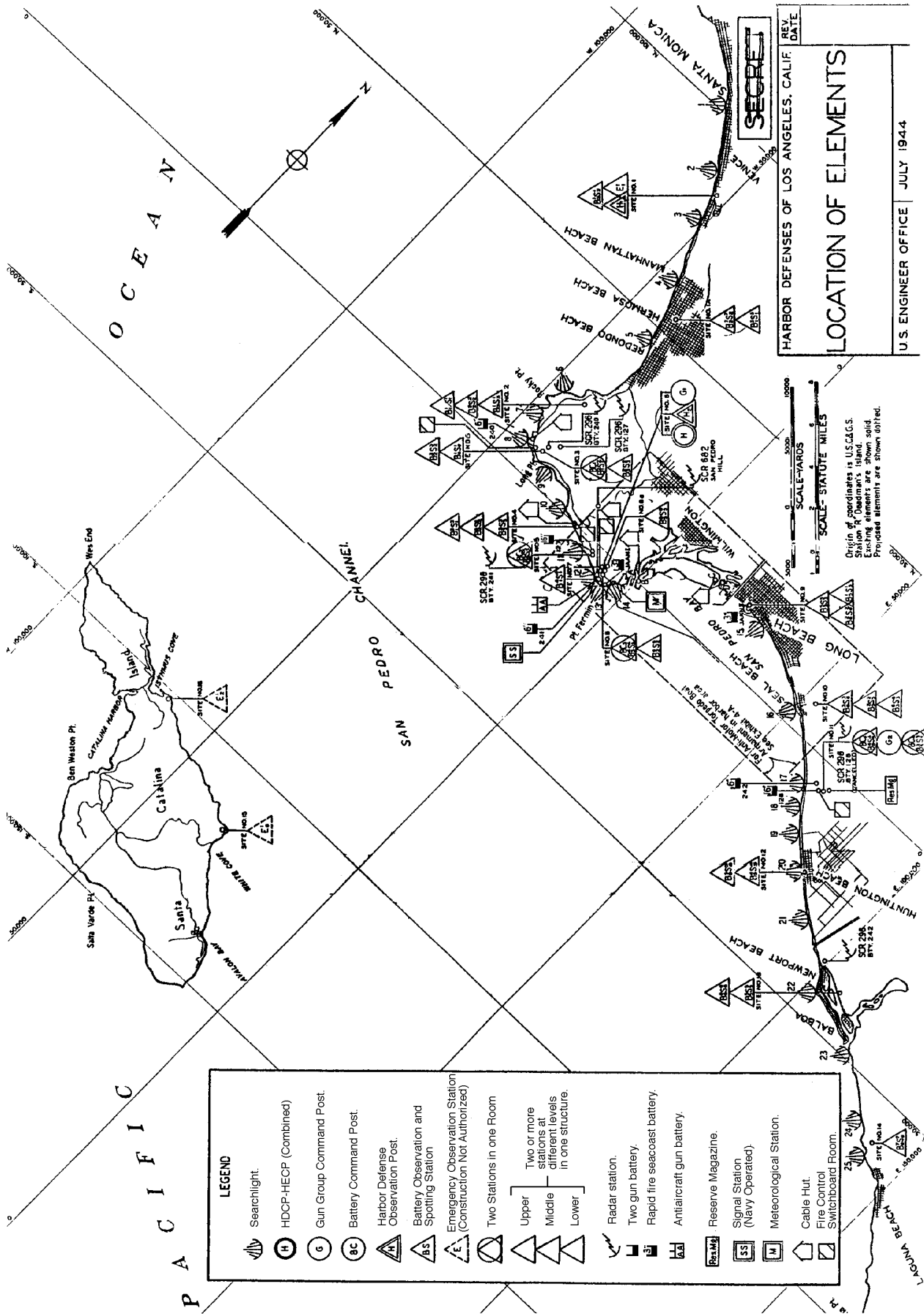
HARBOR DEFENSES OF THE COLUMBIA  
**FORT COLUMBIA**  
 DETAIL MAP

SERIAL NO. [ ]  
**CONFIDENTIAL**  
 EDITION OF 1 MAY 1946  
 REVISED:

IN 2 SHEETS SCALE IN FEET SHEET NO. 2







**SECRET**

HARBOR DEFENSES OF LOS ANGELES, CALIF. REV. DATE

**LOCATION OF ELEMENTS**

U.S. ENGINEER OFFICE | JULY 1944

**LEGEND**

- Searchlight.
- HDCP-HECP (Combined)
- Gun Group Command Post.
- Battery Command Post.
- Harbor Defense Observation Post.
- Battery Observation and Spotting Station.
- Emergency Observation Station (Construction Not Authorized)
- Two Stations in one Room
- Two or more stations at different levels in one structure.
- Radar station.
- Two gun battery.
- Rapid fire seacoast battery.
- Antiaircraft gun battery.
- Reserve Magazine.
- Signal Station (Navy Operated)
- Meteorological Station.
- Cable Hut.
- Fire Control Switchboard Room.

Origin of coordinates is U.S.C.G.S. Station "O" Deodman's Island. Existing elements are shown solid. Proposed elements are shown dotted.

SCALE - STATUTE MILES

SCALE - YARDS