

## Government Leased Military Reservation Sutro Heights

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### Site Established

Two days after the attack on Pearl Harbor, the Office of the Chief of the Coast Artillery approved acquisition of land from the Board of Park Commissioners, City and County of San Francisco, for two fire control stations, a portable seacoast searchlight position, and a cable right-of-way at Sutro Heights Park.(1) Located in the Outer Richmond District of western San Francisco, this park is on the heights overlooking the famed Cliff House, and was once owned by Adolph Sutro who in 1885 turned the grounds into an elaborate public garden. On November 4, 1941, a permit had been obtained from the City and County of San Francisco, clearing the way for construction to commence in 1942.(2)

### Base End Stations

Since high ground provided the necessary elevation for the new observation/spotting stations, towers were not employed in the Harbor Defenses of San Francisco. Dug-in stations were preferable - practically invisible from the sea and air while protecting personnel and material. Two reinforced-concrete dug-in base end stations housed in a single combined fire control structure would be built at Sutro Heights beginning in late 1942. This structure contained two base end stations, one on top of another. The top station housed B<sup>2</sup>S<sup>2</sup> Battery Howe (3) and the lower station housed M<sup>3</sup> Mines II. Both measured 10' 8" by 12' 4".(4) (Fig. 1)

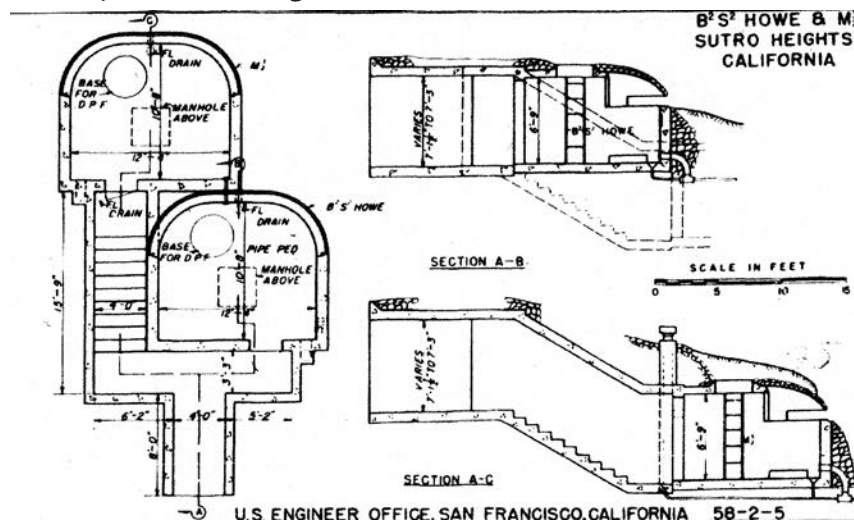


Figure 1. B<sup>2</sup>S<sup>2</sup> Battery Howe (Top) and M<sup>3</sup> Mines II (Bottom). NARA

These two stations had 1-inch-thick steel domes for front and overhead protection. Both were concealed with earth, vegetation, and a local rock façade. Entrance was from the rear of the stations through steel doors, or through manhole covers in the roof and slanted steel staircases with flat treads. Access to the lower station housing M<sup>3</sup> Mines II were via a four-foot-wide corridor down nine steps on the left side of the entrance corridor.(5) Each station required two men at all times and were provided with two prison-type folding bunk racks mounted on the rear walls. Interior ventilation was provided through a flue located on the rear wall of each stations' entrance. Of note, by October 1942 B<sup>2</sup>S<sup>2</sup> Battery Howe was reassigned as B<sup>2</sup>S<sup>2</sup> Battery Construction No. (BCN) 129.(6)

The stations were permanent, but not provided with heat or connections to water or sewer lines, nor were latrines provided. Data transmission was by Signal Corps telephone. Both stations contained concrete bases for depression position finders (DPFs); B<sup>2</sup>S<sup>2</sup> BCN 129 had class-3 M2 DPF, Serial No. 346, with a concrete pedestal at 195.51 feet M.L.L.W., along with a M1910A1 azimuth instrument. M<sup>3</sup> Mines II also had a class-3 M1 DPF, Serial No. 347, with a pedestal at 189.52 feet M.L.L.W. The observation slots for both stations were protected by movable, one-piece counterbalanced steel visors. Both stations were transferred to the coast artillery on June 1, 1943, at a cost of \$12,850.00.(7)

### Power House

Authorization for electric power for equipment and lighting in base end stations at all fire control sites, except where both commercial and fortification power were available, was authorized February 25, 1943.(8) Beginning in 1943, a reinforced-concrete dug-in power house was constructed at Sutro Heights. (Fig. 2) This contained one M5 3 kVA 125v electrical generator, serial number 6685, to provide power in the event commercial power from Pacific Gas and Electric (PG&E) was lost. No underground fuel tank was needed, as the generating unit had its own fuel tank serviced by personnel from five-gallon gas cans. Power output was 0.1 kW for the power house and 0.2 kW for the combined base end station. Power was distributed to the fire control stations via existing commercial power feed. The power load could be transferred from commercial power to standby power by throwing a single 30-amp 2-pole double-throw wall switch, Trumbull Co. catalogue No. 70221C. The floor elevation at the site is 194.74 feet M.L.L.W. This station was concealed by the existing fire control structure and hand placed rock. Both base end stations at this time were outfitted with electrical lines, conduit, associated outlets, and type CSF-1 lighting fixtures where required. Built at a cost of \$2,031.70, including the existing cables, the power house was transferred to the coast artillery on June 27, 1944.(9)

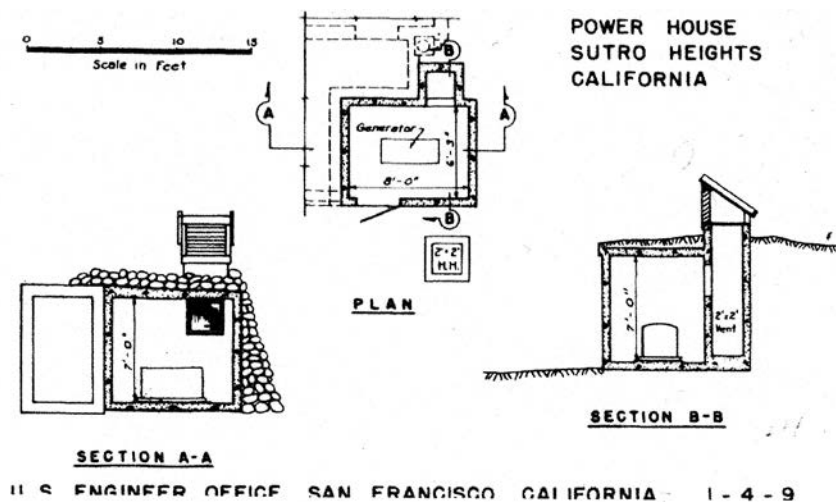


Figure 2. Sutro Heights power house. *NARA*

### Portable 60-inch Seacoast Searchlight

Nine fixed 60-inch searchlights and 26 portable 60-inch searchlights were approved as the project allowance for the Harbor Defenses of San Francisco by the 3<sup>rd</sup> Indorsement, The Adjutant General's Office, file AG 660.2 (28 Jun 43) OB-S-E, 6 August 1943. The above allowance of thirty-five 60-inch searchlights includes the four searchlights normally authorized for the 90 mm AMTB batteries.(10)

In general, construction of the tactical positions occupied by portable searchlights was by the post engineer and the troops manning the searchlights when the lights were in field positions. As all portable searchlights were placed in shelters at permanent reservations during peace time, tactical position facilities provided were temporary (either dug-in or surface wood shelters) and intended to last only while the lights were in the field. Access roads, where required, were gravel-surfaced dirt-roads and varied in length from 1/8 of a mile to 1½ miles.(11)

Searchlight No. 25 was to be near the southwest corner of Sutro Heights, at an elevation of approximately 100 feet, on land owned by the City and County of San Francisco. (Fig. 3) A semi-permanent corrugated metal shed was to protect the portable searchlight unit when not in its operating position. A concrete apron was to be provided as a continuation of the floor of this shed, providing a platform for the light when in its operating position. The 16 KW portable power plant for this light was also to be housed in the same shed with the light. The portable controller unit for this light was to be housed in a semi-permanent corrugated metal shed approximately 15 yards northwest of the light at an elevation of approximately 100 feet. Searchlight No. 25, along with its facilities, was subsequently deferred. (12)

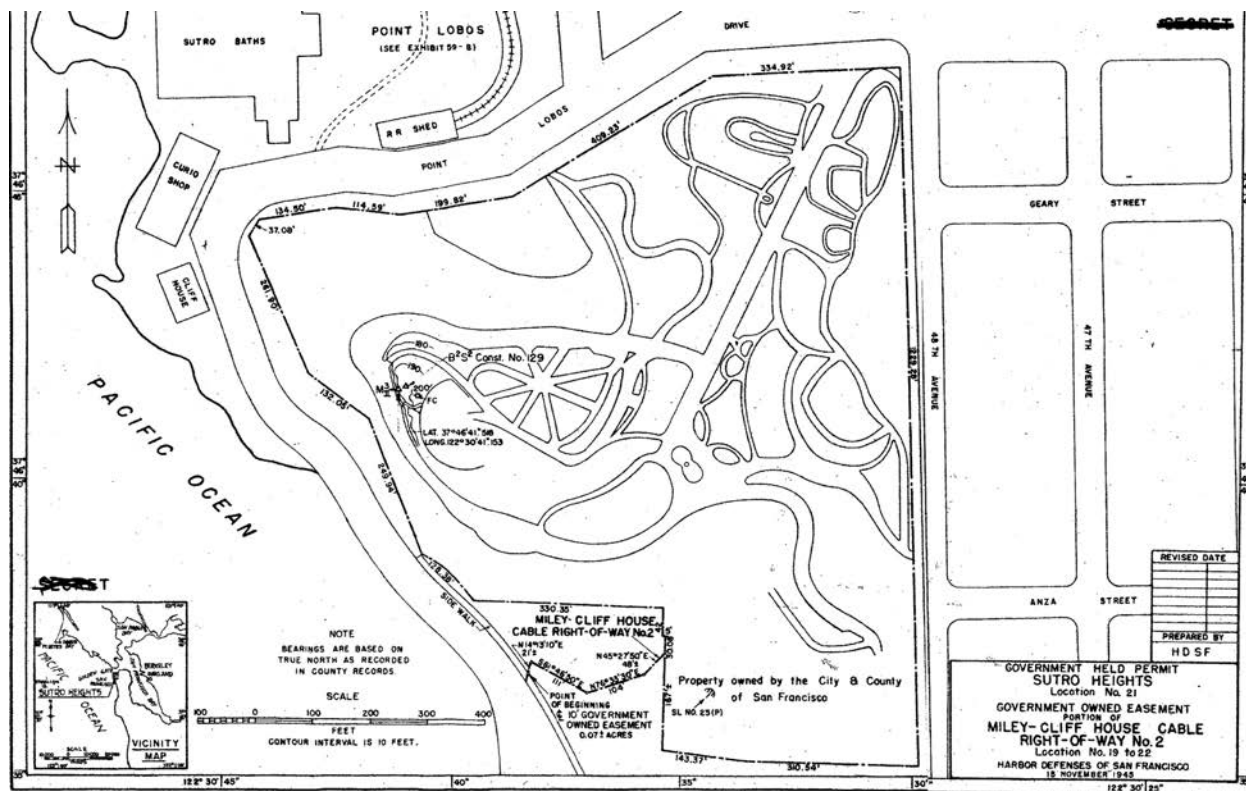


Figure 3. Government held permit Sutro Heights, with proposed location of Searchlight No. 25, November 1945. NARA

### Tactical Organization and Assignment of Searchlights

General searchlight direction was continuously maintained by the harbor defense command post. Specific searchlight direction and control was centralized in the highest command echelon that could observe the area covered, through the searchlight officer. The tactical organization for Searchlight No. 25 was to be designated Sutro Heights under the general direction of the HDCP and the specific control of GB-3, covering the beach area along the Great Highway.(13) (Fig. 4)

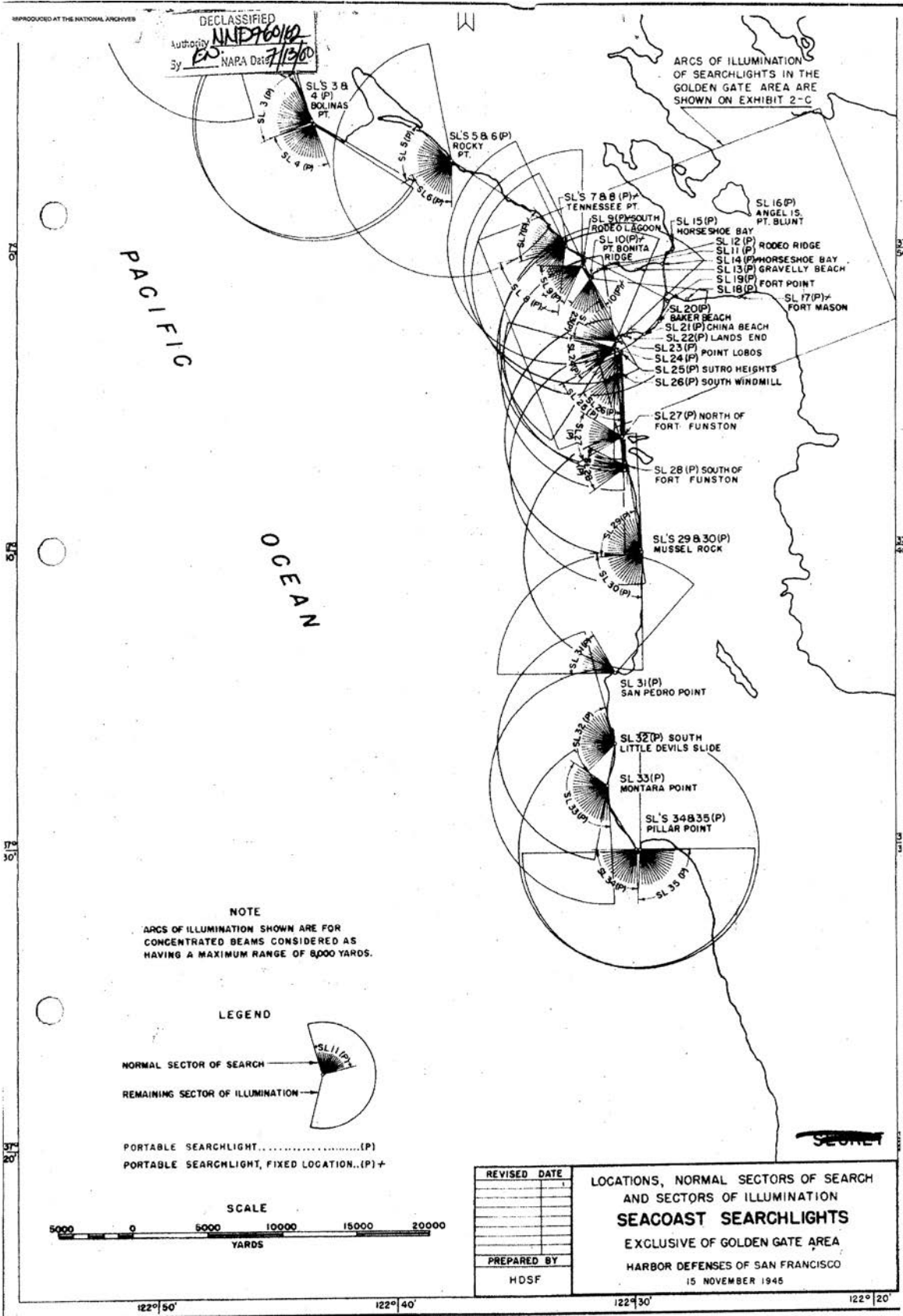


Figure 4. Locations, normal sectors of search and sectors of illumination, seacoast searchlights, November 1945. NARA



### Post War Use

With the deactivation of the Harbor Defenses of San Francisco, Sutro Heights, with its double base end station, power house, and seacoast searchlight site, was no longer needed. The permit obtained from the City and County of San Francisco was terminated and the land reverted back to the city for use as a public park. In 1976, Sutro Heights Park was transferred from the City and County of San Francisco to the National Park Service, to be incorporated into the newly formed Golden Gate National Recreation Area (GGNRA). As of 2017, Sutro Heights was still administered by the GGNRA and is now part of the Sutro Historic District.(14)

### Sutro Heights in 2017

The site was inspected by the author on March 14, 2017. The former government permit area can be easily accessed by parking or walking from 48<sup>th</sup> Avenue & Geary Boulevard into Sutro Heights Park. The double base end station and power house are located to the right and in the rear of the original 1800's stone parapet wall built by Adolph Sutro. The double base end station containing both B<sup>2</sup>S<sup>2</sup> BCN 129 (**Fig. 5**) and M<sup>3</sup> Mines II (**Fig. 6**) is still intact, the only surviving double base end station within the City and County of San Francisco. The rear entrance to the stations as of March 2017 was open, as recent vandalism had knocked off the plywood sheet normally sealing the rear entranceway. The base end stations themselves are currently sealed, as the interior steel entry doors are welded shut, along with the steel manhole hatchways on the roofs. The Sutro Heights power house is directly on the right-hand side of the rear entranceway to the double base end station. This power house is unique to the Harbor Defenses of San Francisco, as it is the only power house built into an existing base end station structure. (**Fig. 7**) The entrance to the power house has a steel access door which is currently locked with a padlock. (**Fig. 8**)



Figure 5. B<sup>2</sup>S<sup>2</sup> BCN 129. *Photograph by author. March 2017.*





Figure 6. M<sup>3</sup> Mines II with local rock façade. The base end station for B<sup>2</sup>S<sup>2</sup> BCN 129 is directly above.

*Photograph by author, March 2017.*



Figure 7. Left to right - entrance way to the double base end station and steel door to the power house.

*Photograph by author, March 2017.*





Figure 8. Current steel door to the Sutro Heights powerhouse. Note the sealed vent for the powerhouse.  
*Photograph by author. March 2017.*



Figure 9. Concrete vent for B<sup>2</sup>S<sup>2</sup> BCN 129. *Photograph by author. March 2017.*





Figure 10. Concrete vent for M<sup>3</sup> Mines II base end station. *Photograph by author, March 2017.*



Figure 11. New steel cover for B<sup>2</sup>S<sup>2</sup> BCN 129 manhole. *Photograph by author, March 2017.*





Figure 12. Sealed manhole for the M<sup>3</sup> Mines II base end station. *Photograph by author, March 2017.*

While the RCWs for B<sup>2</sup>S<sup>2</sup> BCN 129 and M<sup>3</sup> Mines II show hand-placed rocks cemented to the steel domes, none are currently attached. B<sup>2</sup>S<sup>2</sup> BCN 129 does not exhibit a rock façade below the observation slot visor, while the M<sup>3</sup> Mines II station has a fully surviving rock façade face, making this base end station a unique example of hand placed rocks being used for camouflage. The steel observation visor covers for both stations are currently in the closed position.

Both stations have concrete vents atop the flues allowing ventilation of the stations. (**Figs. 9-10**) These vents are unique; they appear to have been built out of concrete rather than employing standard non-metallic stormproof ventilators which were used on the majority of base end structures within the local harbor defenses. The concrete vents for the base end stations have steel rebar inside the circular vent openings, providing a measure of protection from foreign debris entering inside. It is unknown if this was a post-war safety modification to the stations since official 1942 Army Corps of Engineers plans indicate the use of non-metallic stormproof ventilators to be mounted on top of the flues. The vent for the power house has been completely cemented over, leaving the original vent opening sealed. The steel lifting eye on the dome of B<sup>2</sup>S<sup>2</sup> BCN 129 has completely disintegrated, while M<sup>3</sup> Mines II, although heavily rusted, still has the steel lifting eye attached to the dome. Both of the original manhole hatch covers on the stations have been removed. The hatch for B<sup>2</sup>S<sup>2</sup> BCN 129 (**Fig. 11**) been replaced with a steel safety tread plate, while M<sup>3</sup> Mines II's hatch appears to have been replaced by a simple steel plate with four steel lifting Ts. (**Fig. 12**)

While similar examples of such constructions exist within the Harbor Defenses of San Francisco, the double base end station and integrated rear power house located at Sutro Heights stand as unique surviving examples of World War II-era coast defense structures within the City and County of San Francisco.

### Endnotes

1. Approved for acquisition by the 10<sup>th</sup> Indorsement, Office of the Chief of Coast Artillery, File 111/JY, dated 9 December 1941, to secret letter, Office of the Chief of Coast Artillery, no file, to the Commanding General, Ninth Corps Area, dated 4 September 1941, Subject: "Expenditure Program, SCD Funds, FY 1942, H.D. of San Francisco," with 2 inclosures, cited in "Supplement to Harbor Defense Project, Harbor Defenses of San Francisco, 15 November 1945," Section III, Miscellaneous, pp. 41-42, 44, NARA, RG 407, Entry 366.
2. War Department, "Supplement to Harbor Defense Project, Harbor Defenses of San Francisco, 15 November 1945," Section III, Miscellaneous, p. 41, NARA, RG 407, Entry 366.
3. War Department, Report of Completed Works (RCW) - Seacoast Fortifications Fire Control Station, Form 2, B<sup>2</sup>S<sup>2</sup> Battery Howe, corrected to October 1942, NARA, RG 77, Entry 1007.
4. War Department, RCW - Seacoast Fortifications Fire Control Station, Form 2, M<sup>3</sup>2, corrected to October 1942, NARA, RG 77, Entry 1007.
5. Ibid.
6. War Department, RCW - Form 2, B<sup>2</sup>S<sup>2</sup> Battery Howe.
7. War Department, RCW - Form 2, M<sup>3</sup>2.
8. Secret letter, The Adjutant General's Office, file AG 413.68 (1-25-43) OB-S-SPRMP, to the Commanding General, Western Defense Command, Subject: "Power for Harbor Defense Base End Stations," Cited in "Supplement to Harbor Defense Project, Harbor Defenses of San Francisco, 15 November 1945," Annex B, Fire Control, Paragraph 11, "Power for Base End Stations," pp. 55-57, NARA, RG 407, Entry 366.
9. War Department, RCW - Seacoast Fortifications - Power Station for Fire Control Stations, Part II, Modified, Power House (1-Unit), corrected to June 1944, NARA, RG 77, Entry 1007.
10. War Department, "Supplement to Harbor Defense Project, Harbor Defenses of San Francisco, 15 November 1945," Section C, Seacoast Searchlights, p. 6, NARA, RG 407, Entry 366.
11. Ibid., p. 9.
12. Ibid.
13. Ibid., pp. 2-3.
14. James P. Delgado, et al. *The History and Significance of the Adolph Sutro Historic District: Excerpts from the National Register of Historic Places Nomination Form Prepared in 2000*, NPS, 2000.